JNU Publications for the month of December, 2025

Record 1 of 47

Title: Caste Tests and Love Feasts: Protestant Experiments of Social Integration in South India (1826-79)

Author(s): Gunasekaran, S (Gunasekaran, S.)

Source: SOUTH ASIA-JOURNAL OF SOUTH ASIAN STUDIES **DOI:** 10.1080/00856401.2025.2586944 **Early Access Date:** DEC 2025 **Published Date:** 2025 DEC 2

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Aloysius G., 2019, Iyothee Thass Sinthanigal-II, P33
[Anonymous], 1852, South Australian Gazette and Mining JournalJanuary 3, P3
[Anonymous], 1880, MISS C S IND CEYL, V1, P421
[Anonymous], 1852, The Hobart Town AdvertiserNovember 16, P4
[Anonymous], 1868, Together with the Replies of the Missionaries and Native Clergy Sent Thereto, pv
[Anonymous], 1848, The Missionary Herald, VXLIV, P61
[Anonymous], 1848, The Missionary Herald, VXLIV, P61
[Anonymous], 1852, The Hobart Town AdvertiserNovember 16, P4
[Anonymous], 1848, The Missionary Herald, VXLIV, P61
[Anonymous], 1854, The Missionary Herald, VL, P42
[Anonymous], 1872, The Church Missionary Intelligencer, V8, P320
[Anonymous], 1839, The Calcutta Christian Observer, VVIII, P643
[Anonymous], 1882, The Church Missionary Intelligencer and Record, A Monthly Journal of Missionary Information, P599
[Anonymous], 1850, MIN MADR MISS C OTH
APPADURAI A, 1981, AM ETHNOL, V8, P494, DOI 10.1525/ae.1981.8.3.02a00050
Bateman Josiah, 1860, The Life of the Right Rev. Daniel Wilson, Late Lord Bishop of Calcutta and Metropolitan of India, Journals and Correspondence, V1, P336
Beteille Andre, 1991, Social Stratification
Burchett P, 2009, INT J HINDU STUD, V13, P115, DOI 10.1007/s11407-009-9072-5
Dumont Louis, 1998, Homo Hierarchicus, P133
Dumont Louis, 1960, Contribution to Indian Sociology, V4, P62
Forrester Duncan B., 2017, Caste and Christianity: Attitudes and Policies on Caste of Anglo-Saxon Protestant Missions in India, P11
Frykenberg Robert Eric, 2003, Christians and Missionaries in India: Cross-Cultural Communication Since 1500, P14
Frykenberg Robert Eric, 2008, Oxford History of the Christian Church: Christianity in India from Beginning to the Present, P142
Frykenberg RobertEric., 2005, OXFORD HIST BRIT EMP, P107
FULLER CJ, 1979, MAN, V14, P459, DOI 10.2307/2801869
Gunasekaran S, 2025, Crit Perspect S Asia, P67
Hudson D. Dennis, 2000, Protestant Origins in India: Tamil Evangelical Christians, 1706-1835, P96
Hunter Robert, 1873, History of the Missions of the Free Church of Scotland in India and Africa, P151
Jaiswal Suvira, 1979, The Indian Historical Review, V6
Jayaraj Daniel, 2006, Bartholomaus Ziegenbalg: The Father of Modern Protestant Mission, An Indian

Assessment
Jenkins Ebenezer, 1852, The Wesleyan Missionary Notices, Relating Principally to the Foreign Missions, New Series, VX, P134
Jeyaraj Daniel., 2009, India and the Indianness of Christianity: Essays on Understanding-Historical, Theological, and Bibliographical-in Honor of Robert Eric Frykenberg, P26
Kanjammala Augustine, 2014, The Future of Christian Mission in India, Towards a New Paradigm for the Tamil Millennium, P63
Liebau Heike., 2003, Christians and Missionaries in India: Cross-cultural Communication since 1500, with Special Reference to Caste, Conversion, and Colonialism, P70
Moffatt Michael, 1979, An Untouchable Community in South India: Structure and Consensus
Mohan P. Sanal, 2015, Modernity of Slavery: Struggle Against Caste Inequality in Colonial Kerala
Narayanan M.G.S., 1978, Indian Movements: Some Aspects of Dissent, Protest and Reform
Oddie Geoffrey A., 2017, Imagined Hinduism: British Protestant Missionary Constructions of Hinduism, 1793-1900
Oddie Geoffrey A., 1982, Images of Man: Religion and Historical Process in South Asia
Peterson IndiraViswanathan., 2003, Christians and Missionaries in India: Cross-Cultural Communication since 1500, P93
Pettitt George, 1851, The Tinnevelly Mission of the Church Missionary Society, P409
Richer Julius, 1908, A History of Missions in India, P102
Roberts Joseph, 1847, Caste in Its Religious and Civil Character Opposed to Christianity, P22
Robinson Thomas, 1830, The Last Days of Bishop Heber, P321
Sweetman Will., 2004, New Zealand Journal of Asian Studies, V6, P12
Taylor W., 1847, Memoir of the First Century of the Earliest Protestant Mission at Madras, pi
Viswanath Rupa, 2014, The Pariah Problem: Caste, Religion and the Social in Modern India

Cited Reference Count: 47

Abstract: By the nineteenth century, numerous religious egalitarian movements had emerged in South India envisioning a casteless society. However, their history largely reflects what Louis Dumont's observed: 'A sect cannot survive on Indian soil if it denies caste'.1 Could a section of Protestant missionaries, known as 'new missionaries' for their liberal theology and radical ideology, break this pattern? The article presents intriguing stories and observations from their efforts to socially integrate caste-keeping converts through strategies like the caste test and love feast. It captures mid nineteenth century South India's social attitudes-how society reacted when students from 'Pariah'2 lower castes entered classrooms, when missionaries encouraged converts to dine together without caste distinctions, and when boarding students had to eat food prepared by lower-caste cooks. Furthermore, how did Protestant caste policies evolve, what challenges did missionaries face in implementing them, and what do these experiments reveal about caste in early modern South India?

Accession Number: WOS:001629733900001

Language: English

Document Type: Article; Early Access

Author Keywords: Caste; converts; food transactions; mission schools; Protestant Christianity; Pariah; Vellala

Addresses: [Gunasekaran, S.] Jawaharlal Nehru Univ, Ctr Hist Studies, New Delhi, India.

Corresponding Address: Gunasekaran, S (corresponding author), Jawaharlal Nehru Univ, Ctr Hist Studies, New Delhi, India.

E-mail Addresses: jsguna@gmail.com

Affiliations: Jawaharlal Nehru University, New Delhi

Publisher: ROUTLEDGE JOURNALS, TAYLOR & FRANCIS LTD

Publisher Address: 2-4 PARK SQUARE, MILTON PARK, ABINGDON OX14 4RN, OXON, ENGLAND

Web of Science Index: Social Science Citation Index (SSCI); Arts & Humanities Citation Index (A&HCI)

Web of Science Categories: Area Studies; History; Asian Studies

Research Areas: Area Studies; History; Asian Studies

IDS Number: L6084

ISSN: 0085-6401
eISSN: 1479-0270
29-char Source Abbrev.: S ASIA
ISO Source Abbrev.: S. Asia
Source Item Page Count: 23
Output Date: 2025-12-31

Record 2 of 47
Title: Ethnicity studies in an era of polarization
Author(s): Mahajan, G (Mahajan, Gurpreet)
Source: ETHNICITIES **DOI:** 10.1177/14687968251409433 **Early Access Date:** DEC 2025 **Published Date:** 2025 DEC 22
Times Cited in Web of Science Core Collection: 0
Total Times Cited: 0
Usage Count (Last 180 days): 0
Usage Count (Since 2013): 0
Cited References: Barth F., 1998, Ethnic Groups and Boundaries: The Social Organization of Cultural Difference
Carens J., 2000, Culture Citizenship and Community: A Contextual Exploration of Justice as Evenhandedness
Friedman IB, 2025, Jurist
Harff B., 1994, Ethnic Conflict in World Politics
Horowitz DL., 1975, Ethnic Groups in Conflict
Mills K, 2020, J HUM RIGHTS, V19, P399, DOI 10.1080/14754835.2020.1809362
Modood T., 2007, Multiculturalism
Modood T, 2025, NATIONS NATL, DOI [10.1111/nana.13124, 10.1111/nana.13124]
Ozturk I., 2021, Populism Politics
Parekh B., 2000, Rethinking Multiculturalism: Cultural Diversity and Political Theory. Massachusetts
Cited Reference Count: 10
Accession Number: WOS:001644388200001
Language: English
Document Type: Editorial Material; Early Access
Addresses: [Mahajan, Gurpreet] Jawaharlal Nehru Univ, Ctr Polit Studies, New Delhi, India.
Corresponding Address: Mahajan, G (corresponding author), Jawaharlal Nehru Univ, Ctr Polit Studies, New Delhi, India.
E-mail Addresses: gurmahajan@hotmail.com
Affiliations: Jawaharlal Nehru University, New Delhi
Publisher: SAGE PUBLICATIONS LTD
Publisher Address: 1 OLIVERS YARD, 55 CITY ROAD, LONDON EC1Y 1SP, ENGLAND
Web of Science Index: Social Science Citation Index (SSCI)
Web of Science Categories: Ethnic Studies
Research Areas: Ethnic Studies
IDS Number: AB7YC
ISSN: 1468-7968
eISSN: 1741-2706
29-char Source Abbrev.: ETHNICITIES
ISO Source Abbrev.: Ethnicities

Source Item Page Count: 5
Output Date: 2025-12-31

Record 3 of 47

Title: From Cash to Care: Impact of Conditional Cash Transfers on Continuum of Care for Maternal and Child Health in India

Author(s): Taneja, B (Taneja, Bhawna); Chowdhury, IR (Roy Chowdhury, Indrani)

Source: JOURNAL OF DEVELOPMENT STUDIES **DOI:** 10.1080/00220388.2025.2590453 **Early Access Date:** DEC 2025 **Published Date:** 2025 DEC 10

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Aizawa T., 2019, Working Paper No. 19/24
[Anonymous], 2019, Trends in maternal mortality: 2000 to 2017
Blundell R, 2004, J EUR ECON ASSOC, V2, P569, DOI 10.1162/1542476041423368
Blundell R, 2009, J HUM RESOUR, V44, P565, DOI 10.1353/jhr.2009.0009
Carvalho N, 2019, J DEV STUD, V55, P989, DOI 10.1080/00220388.2018.1506578
de Brauw A, 2020, HEALTH ECON, V29, P700, DOI 10.1002/hec.4012
DE GRAFT-JOHNSON J., 2006, Opportunities for Africa's newborns, P23
Dhillon P, 2021, PHARMANUTRITION, V15, DOI 10.1016/j.phanu.2021.100251
Dreze J., 2021, SOCARXIV PAPERS, DOI [10.31235/osf.io/v5mc6, DOI 10.31235/OSF.IO/V5MC6]
Falcao V. L., 2015, Report on the study of the Indira Gandhi Matritva Sahyog Yojana
Gaarder MM, 2010, J DEV EFFECT, V2, P6, DOI 10.1080/19439341003646188
Gandhi S, 2022, INT J EQUITY HEALTH, V21, DOI 10.1186/s12939-021-01602-3
Ghosh P, 2018, J DEV ECON, V134, P191, DOI 10.1016/j.jdeveco.2018.05.008
Glassman A, 2013, J HEALTH POPUL NUTR, V31, P48
Gupta I., 2010, Demand Side Financing in Health: How far can it address the issue of low utilization in developing countries?
Hardee K, 2012, GLOB PUBLIC HEALTH, V7, P603, DOI 10.1080/17441692.2012.668919
IIPS and ICF, 2017, National Family Health Survey (NFHS-4)
IIPS and ICF, 2021, National Family Health Survey (NFHS-5), 2019-21.
Jain R., 2018, The effects of cash transfers on child health: A global review
James KS, 2022, J BIOSOC SCI, V54, P450, DOI 10.1017/S002193202100016X
Joshi S, 2014, WORLD DEV, V64, P434, DOI 10.1016/j.worlddev.2014.06.004
Kahn-Lang A, 2020, J BUS ECON STAT, V38, P613, DOI 10.1080/07350015.2018.1546591
Kalra A., 2019, Birth pangs: Universal maternity entitlements in India, DOI [10.2139/ssrn.3486671, DOI 10.2139/SSRN.3486671]
Kerber KJ, 2007, LANCET, V370, P1358, DOI 10.1016/S0140-6736(07)61578-5
Khandker S. R., 2009, Handbook on impact evaluation: Quantitative methods and practices
Kothavale A, 2021, BMC PREGNANCY CHILDB, V21, DOI 10.1186/s12884-021-04198-2
Lim SS, 2010, LANCET, V375, P2009, DOI 10.1016/S0140-6736(10)60744-1
Owili PO, 2017, PLOS ONE, V12, DOI 10.1371/journal.pone.0177756
Panda BK, 2020, BMC PUBLIC HEALTH, V20, DOI 10.1186/s12889-020-8151-9
Pokhriyal D., 2021, Essays on maternal and child healthcare
Powell-Jackson T, 2015, J HEALTH ECON, V43, P154, DOI 10.1016/j.jhealeco.2015.07.001
Press Information Bureau (PIB), 2023, A salutation to motherhood: Pradhan Mantri Matru Vandana Yojana
Press Information Bureau (PIB), 2017, Maternity benefits under Pradhan Mantri Matru Vandana Yojana
Press Information Bureau (PIB), 2023, Ministry of Women and Child Development
Puri R., 2020, Three essays on demand-side health policies in India
Raghunathan K, 2017, PLOS ONE, V12, DOI 10.1371/journal.pone.0188952
Rahman MM, 2018, ECON HUM BIOL, V31, P164, DOI 10.1016/j.ehb.2018.08.007

Ranganathan M, 2012, PREV MED, V55, pS95, DOI 10.1016/j.ypmed.2011.11.015
Roth J, 2023, J ECONOMETRICS, V235, P2218, DOI 10.1016/j.jeconom.2023.03.008
Sengupta N, 2018, GLOB SOC WELFARE, V5, P49, DOI 10.1007/s40609-017-0103-7
Sinha D., 2016, Economic Political Weekly, VLI, P49
Vanhuyse F, 2022, BMJ OPEN, V12, DOI 10.1136/bmjopen-2021-055921
von Haaren P, 2021, HEALTH ECON, V30, P2468, DOI 10.1002/hec.4390
Wang WJ, 2015, BMC PREGNANCY CHILDB, V15, DOI 10.1186/s12884-015-0497-0
World Health Organization (WHO), 2019, Maternal mortality fact sheets

Cited Reference Count: 45

Abstract: The study examines the impact of India's largest nationwide conditional cash transfer program, Pradhan Mantri Matru Vandana Yojana (PMMVY), which provides sequential cash transfers to pregnant and lactating mothers to improve maternal and child healthcare utilisation and child health outcomes. The study is based on two rounds of National Family Health Survey. Our identification strategy utilises Matched Difference-in-Difference method based on the implementation of the scheme as a quasi-experimental design, where the eligibility criteria is used to assign the treatment and control groups. The findings reveal a statistically significant positive effect on the utilisation of recommended Continuum of Care services for maternal and child health. The magnitude of the effect is almost 30 percent of the mean value of the control group, excluding immunisation, and 19 percent including complete child immunisation. In addition, we find positive effects of cash transfers on the utilisation of postnatal care for newborns. There is also a reduction in the probability of the child being wasted, which is 11 percent of the mean value of the control group. The baseline estimation is supported by a series of sub-sample analyses and placebo checks.

Accession Number: WOS:001635565300001

Language: English

Document Type: Article; Early Access

Author Keywords: Conditional cash transfer (CCT); maternal and child health (MCH); continuum of care (CoC); child health outcomes; impact evaluation

KeyWords Plus: JANANI SURAKSHA YOJANA; SAFE MOTHERHOOD; INCREASE; PROGRAM; NEWBORN

Addresses: [Taneja, Bhawna; Roy Chowdhury, Indrani] Jawaharlal Nehru Univ, Ctr Study Reg Dev, New Delhi, India.

Corresponding Address: Chowdhury, IR (corresponding author), Jawaharlal Nehru Univ, Ctr Study Reg Dev, New Delhi, India.

E-mail Addresses: indranircjnu@gmail.com

Affiliations: Jawaharlal Nehru University, New Delhi

Publisher: ROUTLEDGE JOURNALS, TAYLOR & FRANCIS LTD

Publisher Address: 2-4 PARK SQUARE, MILTON PARK, ABINGDON OX14 4RN, OXON, ENGLAND

Web of Science Index: Social Science Citation Index (SSCI)

Web of Science Categories: Development Studies; Economics

Research Areas: Development Studies; Business & Economics

IDS Number: R4113

ISSN: 0022-0388

eISSN: 1743-9140

29-char Source Abbrev.: J DEV STUD

ISO Source Abbrev.: J. Dev. Stud.

Source Item Page Count: 26

Funding:

Funding Agency	Grant Number
Presidency University	2024

	2023

We are grateful to Professor Lisa Gold (Deakin University, School of Health and Social Development) for her valuable feedback and suggestions at the Australia Health Economics Society Conference (AHES 2024) and 13th Australian Health Economics Doctoral (AHED) workshop 2024 (UTS, Australia). We are also thankful to the seminar participants at the Asia Meeting of the Econometric Society (AMES-CSW, 2024), Delhi School of Economics (Winter School 2023), Presidency University (2023), and the Annual Conference on Economics and Public Policy, 2024 (at Jindal School of Government and Public Policy). 5th Annual Economics Conference, 2024 (Ahmedabad University). Their critical comments and suggestions have helped us fine-tune the paper. We are responsible for any remaining errors alone.

Output Date: 2025-12-31

Record 4 of 47

Title: Automated Abnormality Diagnosis in Musculoskeletal Radiographs Using a Two-Stage CNN Method

Author(s): Kumar, S (Kumar, Sumit); Kumar, TVV (Vijay Kumar, T. V.)

Source: CONCURRENCY AND COMPUTATION-PRACTICE & EXPERIENCE **Volume:** 37 **Issue:** 27-28 **Article Number:** e70387 **DOI:** 10.1002/cpe.70387 **Published Date:** 2025 DEC 25

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 2

Usage Count (Since 2013): 2

Cited References: Adiga VS, 2022, IEEE J BIOMED HEALTH, V26, P4599, DOI 10.1109/JBHI.2022.3186882
Al-Ajlouni YA, 2024, J CLIN MED, V13, DOI 10.3390/jcm13226732
Bajwa Junaid, 2021, Future Healthc J, V8, pe188, DOI [10.7861/fhj.2021-0095, 10.7861/fhj.2021-0095]
Banga D, 2019, Arxiv, DOI arXiv:1908.02170
Becker AS, 2017, INVEST RADIOL, V52, P434, DOI 10.1097/RLI.0000000000000358
Bhargavan M, 2009, RADIOLOGY, V252, P458, DOI 10.1148/radiol.2522081895
Bluemke DA, 2020, RADIOLOGY, V294, P487, DOI 10.1148/radiol.2019192515
Castiglioni I, 2021, PHYS MEDICA, V83, P9, DOI 10.1016/j.ejmp.2021.02.006
Chakraborty C, 2024, CURR RES BIOTECHNOL, V7, DOI 10.1016/j.crbiot.2023.100164
Chan DC, 2022, Q J ECON, V137, P729, DOI 10.1093/qje/qjab048
Chartrand G, 2017, RADIOGRAPHICS, V37, P2113, DOI 10.1148/rg.2017170077
El-Saadawy Hadeer, 2020, Proceedings of the International Conference on Artificial Intelligence and Computer Vision (AICV2020). Advances in Intelligent Systems and Computing (AISC 1153), P372, DOI 10.1007/978-3-030-44289-7_35
Geron A., 2022, Hands-On Machine Learning With Scikit-Learn, Keras, and Tensorflow: Concepts, Tools, and Techniques to Build Intelligent Systems, V3rd ed.
Ghaderzadeh M, 2024, Iranian Journal of Medical Microbiology, V18, P135, DOI [10.30699/ijmm.18.3.135, 10.30699/ijmm.18.3.135, DOI 10.30699/IJMM.18.3.135]
Girod MM, 2025, HSS J, V21, P257, DOI 10.1177/15563316251339660
Glorot X., 2010, P 13 INT C ARTIFICIA, V9, P249
Goecks J, 2020, CELL, V181, P92, DOI 10.1016/j.cell.2020.03.022
Gomes DM, 2021, THE 14TH ACM INTERNATIONAL CONFERENCE ON PERVASIVE TECHNOLOGIES RELATED TO ASSISTIVE ENVIRONMENTS, PETRA 2021, P550, DOI 10.1145/3453892.3461632
Gómez-Galán M, 2017, IND HEALTH, V55, P314, DOI 10.2486/indhealth.2016-0191
Griffith B, 2019, J AM COLL RADIOL, V16, P1482, DOI 10.1016/j.jacr.2019.04.003
Hardalaç F, 2022, SENSORS-BASEL, V22, DOI 10.3390/s22031285
Haug CJ, 2023, NEW ENGL J MED, V388, P1201, DOI [10.1056/nejmc2305287, 10.1056/NEJMra2302038]
Havaei M, 2017, MED IMAGE ANAL, V35, P18, DOI 10.1016/j.media.2016.05.004
He KM, 2016, LECT NOTES COMPUT SC, V9908, P630, DOI 10.1007/978-3-319-46493-0_38
He KM, 2016, PROC CVPR IEEE, P770, DOI 10.1109/CVPR.2016.90

He ML, 2021, SCI REP-UK, V11, DOI 10.1038/s41598-021-88578-w
Huang G, 2017, PROC CVPR IEEE, P2261, DOI 10.1109/CVPR.2017.243
Huang Y, 2022, LECT NOTES COMPUT SC, V13583, P43, DOI 10.1007/978-3-031-21014-3_5
Ioffe Sergey, 2015, INT C MACHINE LEARNI, V37, P448, DOI DOI 10.48550/ARXIV.1502.03167
Kitamura G, 2019, J DIGIT IMAGING, V32, P672, DOI 10.1007/s10278-018-0167-7
Konz N, 2022, LECT NOTES COMPUT SC, V13438, P684, DOI 10.1007/978-3-031-16452-1_65
Krizhevsky A, 2017, COMMUN ACM, V60, P84, DOI 10.1145/3065386
Krupinski EA, 2010, ATTEN PERCEPT PSYCHO, V72, P1205, DOI 10.3758/APP.72.5.1205
Krutsch R., 2011, "Histogram Equalization,"
KUROKOWA M, 1987, BIOCHEM BIOPH RES CO, V142, P775, DOI 10.1016/0006-291X(87)91481-1
LeCun Y, 1998, LECT NOTES COMPUT SC, V1524, P9, DOI 10.1007/3-540-49430-8_2
LeCun Y, 1989, NEURAL COMPUT, V1, P541, DOI 10.1162/neco.1989.1.4.541
Lecun Y, 1998, P IEEE, V86, P2278, DOI 10.1109/5.726791
Lee CS, 2013, AM J ROENTGENOL, V201, P611, DOI 10.2214/AJR.12.10375
Liang S, 2020, SENSORS-BASEL, V20, DOI 10.3390/s20113153
Liao Y, 2024, IEEE ACCESS, V12, P26710, DOI 10.1109/ACCESS.2023.3345896
Liu SW, 2022, BMJ OPEN, V12, DOI 10.1136/bmjopen-2022-062183
Luo W, 2016, J MED INTERNET RES, V18, DOI 10.2196/jmir.5870
Mall PK, 2022, INT J SYST ASSUR ENG, V13, P658, DOI 10.1007/s13198-021-01580-3
May M, 2021, NAT MED, V27, P2, DOI 10.1038/s41591-020-01197-2
Ogundare O, 2025, SCI REP-UK, V15, DOI 10.1038/s41598-025-07581-7
Rajkomar A, 2018, NPJ DIGIT MED, V1, DOI 10.1038/s41746-018-0029-1
Rajpurkar P, 2018, Arxiv, DOI [arXiv:1712.06957, DOI 10.48550/ARXIV.1712.06957]
Saif AFM, 2019, IEEE ACCESS, V7, P81494, DOI 10.1109/ACCESS.2019.2923008
Shao Yunxue, 2020, Pattern Recognition and Artificial Intelligence. International Conference, ICPRAI 2020. Proceedings. Lecture Notes in Computer Science (LNCS 12068), P610, DOI 10.1007/978-3-030-59830-3_53
Simonyan K, 2015, Arxiv, DOI [arXiv:1409.1556, DOI 10.48550/ARXIV.1409.1556, 10.48550/arXiv.1409.1556]
Singh G, 2022, BIOLOGY-BASEL, V11, DOI 10.3390/biology11050665
Srivastava RK, 2015, Arxiv, DOI arXiv:1505.00387
Stec N, 2018, AM J ROENTGENOL, V210, P799, DOI 10.2214/AJR.17.18613
Tabik S, 2017, INT J COMPUT INT SYS, V10, P555, DOI 10.2991/ijcis.2017.10.1.38
Teeyapan K., 2020, Proceedings of the 2020 24th International Computer Science and Engineering Conference (ICSEC), P1, DOI DOI 10.1109/ICSEC51790.2020.9375275
Uysal F, 2021, Arxiv, DOI [arXiv:2102.00515, DOI 10.48550/ARXIV.2102.00515]
Vos T, 2020, LANCET, V396, P1562
World Health Organization, 2020, Global Strategy on Human Resources for Health: Workforce 2030
Yahalomi Erez, 2019, Intelligent Computing. Proceedings of the 2019 Computing Conference. Advances in Intelligent Systems and Computing (AISC 997), P971, DOI 10.1007/978-3-030-22871-2_69
Yu KH, 2018, NAT BIOMED ENG, V2, P719, DOI 10.1038/s41551-018-0305-z
Zuiderveld K., 1994, CONTRAST LTD ADAPTIV, DOI [10.1016/B978-0-12-336156-1.50061-6, DOI 10.1016/B978-0-12-336156-1.50061-6]

Cited Reference Count: 62

Abstract: Musculoskeletal disorders (MDs) consume a larger component of health expenditure and these are on the verge of becoming the leading contributor to worldwide disability. Accurately classifying musculoskeletal radiographs is often time-consuming, error-prone, and requires experienced radiologists. Radiologists across subspecialties could greatly benefit from deep learning based automated tools in accurately diagnosing musculoskeletal abnormalities. This paper proposes a novel two-stage body part identification and abnormality diagnosis system for the upper extremity bone X-ray images. The first stage of the proposed method uses the customized DenseNet201 classifier for bone type identification, whereas the second stage uses two customized DenseNet201 classifiers to help diagnose corresponding bone abnormalities. The first stage classifier achieved the highest precision and recall scores of 1.0 for both the finger and shoulder images, whereas the classifier achieved the highest F1-score of 0.99 for the shoulder images. The first DenseNet201 classifier of the second stage achieved the highest AUC-ROC and F1-scores of 0.87 and 0.87, respectively, for both humerus and elbow images, whereas the classifier achieved the highest Cohen's kappa score of 0.75 for the elbow images. The other classifier of the second stage achieved the highest AUC-ROC and Cohen's kappa scores of 0.82 and 0.64, respectively, for the forearm images, whereas the highest F1-score of 0.79 was achieved for both shoulder and forearm images. The proposed method benefited from the divide-and-conquer strategy, improving F1-scores by 2.33%, 3.90%, 3.7%, and 7.95%, for the normal images of the elbow, finger, hand, and wrist. Likewise, for abnormal images of the elbow, finger, humerus, and shoulder, the method improved F1-scores by 4.82%, 8.11%, 1.16%, and 1.28%, while utilizing only two classifiers in the second stage, compared to seven in the existing benchmark method. These results demonstrate that the proposed system achieves competitive performance and holds strong potential for real-world clinical applications in musculoskeletal imaging.

Accession Number: WOS:001624343100003

Language: English

Document Type: Article

Author Keywords: artificial intelligence; convolutional neural network; deep learning; musculoskeletal disorders

KeyWords Plus: ARTIFICIAL-INTELLIGENCE; IMAGES

Addresses: [Kumar, Sumit; Vijay Kumar, T. V.] Jawaharlal Nehru Univ, Sch Comp & Syst Sci, New Delhi, India.

Corresponding Address: Kumar, TVV (corresponding author), Jawaharlal Nehru Univ, Sch Comp & Syst Sci, New Delhi, India.

E-mail Addresses: tvvk@jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi

Publisher: WILEY

Publisher Address: 111 RIVER ST, HOBOKEN 07030-5774, NJ USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Computer Science, Software Engineering; Computer Science, Theory & Methods

Research Areas: Computer Science

IDS Number: G2396

ISSN: 1532-0626

eISSN: 1532-0634

29-char Source Abbrev.: CONCURR COMP-PRACT E

ISO Source Abbrev.: Concurr. Comput.-Pract. Exp.

Source Item Page Count: 18

Output Date: 2025-12-31

Record 5 of 47

Title: Dictionary based approaches for studying intrinsic DNA shape in transcription factor recognition

Author(s): Kalsan, M (Kalsan, Manisha); Mirza, S (Mirza, Sadiya); Bathla, D (Bathla, Divyangana); Ahmad, S (Ahmad, Shandar)

Source: CURRENT OPINION IN STRUCTURAL BIOLOGY **Volume:** 95 **Article Number:** 103166 **DOI:** 10.1016/j.sbi.2025.103166 **Early Access Date:** DEC 2025 **Published Date:** 2025 DEC

Times Cited in Web of Science Core Collection: 1

Total Times Cited: 1

Usage Count (Last 180 days): 1

Usage Count (Since 2013): 1

Cited References: Ahmad S, 2006, NUCLEIC ACIDS RES, V34, pW124, DOI 10.1093/nar/gkl104
Ahmad S, 2009, GENE, V428, P25, DOI 10.1016/j.gene.2008.09.031
Andrabi M, 2017, SCI REP-UK, V7, DOI 10.1038/s41598-017-03199-6

Araúzo-Bravo MJ, 2005, J AM CHEM SOC, V127, P16074, DOI 10.1021/ja0532411
Bailey TL, 2009, NUCLEIC ACIDS RES, V37, pW202, DOI 10.1093/nar/gkp335
Benvenuti JL, 2024, PROG BIOPHYS MOL BIO, V193, P46, DOI 10.1016/j.pbiomolbio.2024.09.002
BERMAN HM, 1992, BIOPHYS J, V63, P751, DOI 10.1016/S0006-3495(92)81649-1
Beveridge DL, 2004, BIOPHYS J, V87, P3799, DOI 10.1529/biophysj.104.045252
BOLSHOY A, 1991, P NATL ACAD SCI USA, V88, P2312, DOI 10.1073/pnas.88.6.2312
BRESLAUER KJ, 1986, P NATL ACAD SCI USA, V83, P3746, DOI 10.1073/pnas.83.11.3746
BRUKNER I, 1995, J BIOMOL STRUCT DYN, V13, P309, DOI 10.1080/07391102.1995.10508842
Chen NJ, 2024, NUCLEIC ACIDS RES, V52, P4137, DOI 10.1093/nar/gkae210
Chiu TP, 2020, NUCLEIC ACIDS RES, V48, pD246, DOI 10.1093/nar/gkz970
DIEKMANN S, 1989, J MOL BIOL, V205, P787, DOI 10.1016/0022-2836(89)90324-0
Ding PJ, 2023, BRIEF BIOINFORM, V24, DOI 10.1093/bib/bbad231
Dixit SB, 2005, BIOPHYS J, V89, P3721, DOI 10.1529/biophysj.105.067397
Dixit SB, 2012, J BIOSCIENCES, V37, P399, DOI 10.1007/s12038-012-9223-5
ElHassan MA, 1997, PHILOS T R SOC A, V355, P43, DOI 10.1098/rsta.1997.0002
ELHASSAN MA, 1995, J MOL BIOL, V251, P648, DOI 10.1006/jmbi.1995.0462
Friedel M, 2009, NUCLEIC ACIDS RES, V37, pD37, DOI 10.1093/nar/gkn597
Gardiner EJ, 2003, J MOL BIOL, V332, P1025, DOI 10.1016/j.jmb.2003.08.006
Gonzalez O, 2001, THEOR CHEM ACC, V106, P76, DOI 10.1007/s002140100256
GOODSELL DS, 1994, NUCLEIC ACIDS RES, V22, P5497, DOI 10.1093/nar/22.24.5497
Greenbaum JA, 2007, GENOME RES, V17, P940, DOI 10.1101/gr.5602807
Heinz S, 2010, MOL CELL, V38, P576, DOI 10.1016/j.molcel.2010.05.004
Hunter CA, 1997, J BIOMOL STRUCT DYN, V14, P747, DOI 10.1080/07391102.1997.10508177
Hutchins AP, 2013, NUCLEIC ACIDS RES, V41, P2155, DOI 10.1093/nar/gks1300
Ivani I, 2016, NAT METHODS, V13, P55, DOI [10.1038/NMETH.3658, 10.1038/nmeth.3658]
Kalsan Manisha, 2024, Methods Mol Biol, V2812, P317, DOI 10.1007/978-1-0716-3886-6_18
Li JS, 2024, NAT COMMUN, V15, DOI 10.1038/s41467-024-45191-5
Li JS, 2017, NUCLEIC ACIDS RES, V45, DOI 10.1093/nar/gkx1145
Li Y, 2023, IEEE ACM T COMPUT BI, V20, P637, DOI 10.1109/TCBB.2022.3142019
Mathelier A, 2013, PLOS COMPUT BIOL, V9, DOI 10.1371/journal.pcbi.1003214
Okonogi TM, 2002, BIOPHYS J, V83, P3446, DOI 10.1016/S0006-3495(02)75344-7
Olson WK, 1998, P NATL ACAD SCI USA, V95, P11163, DOI 10.1073/pnas.95.19.11163
Packer MJ, 2000, J MOL BIOL, V295, P71, DOI 10.1006/jmbi.1999.3236
Packer MJ, 2000, J MOL BIOL, V295, P85, DOI 10.1006/jmbi.1999.3237
Packer MJ, 2001, J AM CHEM SOC, V123, P7399, DOI 10.1021/ja003385u
Pasi M, 2014, NUCLEIC ACIDS RES, V42, P12272, DOI 10.1093/nar/gku855
Paul S, 2024, J CHEM INF MODEL, V64, P2705, DOI 10.1021/acs.jcim.3c02017
Rohs R, 2009, NATURE, V461, P1248, DOI 10.1038/nature08473
Samee AH, 2023, MOL BIOL CELL, V34, DOI 10.1091/mbc.E22-08-0325
Samee MAH, 2019, CELL SYST, V8, P27, DOI 10.1016/j.cels.2018.12.001
SARAI A, 1989, BIOCHEMISTRY-US, V28, P7842, DOI 10.1021/bi00445a046
Schroeder JW, 2025, bioRxiv, DOI [10.1101/2025.01.28.635290.2025.01.28.635290, DOI 10.1101/2025.01.28.635290.2025.01.28.635290]
Sielemann J, 2021, NAT COMMUN, V12, DOI 10.1038/s41467-021-26819-2
Slattery M, 2014, TRENDS BIOCHEM SCI, V39, P381, DOI 10.1016/j.tibs.2014.07.002
Stormo GD, 2000, BIOINFORMATICS, V16, P16, DOI 10.1093/bioinformatics/16.1.16
SUCK D, 1986, NATURE, V321, P620, DOI 10.1038/321620a0
Suzuki M, 1997, J MOL BIOL, V274, P421, DOI 10.1006/jmbi.1997.1406
Thomas-Chollier M, 2011, NAT PROTOC, V6, P1860, DOI 10.1038/nprot.2011.409
TRIFONOV EN, 1980, P NATL ACAD SCI-BIOL, V77, P3816, DOI 10.1073/pnas.77.7.3816
Vanaja A, 2022, ACS OMEGA, V7, DOI 10.1021/acsomega.1c04603
Wetzel JL, 2022, GENOME RES, V32, P1776, DOI [10.1101/gr.276606.122, 10.1007/978-3-031-04749-7_29]
Yang L, 2014, NUCLEIC ACIDS RES, V42, pD148, DOI 10.1093/nar/gkt1087
Yella VR, 2018, NUCLEIC ACIDS RES, V46, P11883, DOI 10.1093/nar/gky1057

Zentner GE, 2015, NAT COMMUN, V6, DOI 10.1038/ncomms9733
Zhou JY, 2019, BIOINFORMATICS, V35, P5067, DOI 10.1093/bioinformatics/btz451
Zhou TY, 2013, NUCLEIC ACIDS RES, V41, pW56, DOI 10.1093/nar/gkt437

Cited Reference Count: 59

Abstract: Sequence-dependent intrinsic conformational dynamics confer specificity to transcriptional factor recognition of genomic DNA. Their genome-scale investigation using all-atom simulations is challenging, and alternative approaches by coarse-graining DNA into beads-and-sticks or polymer models have their own limitations. One parallel approach is what we describe here as a dictionary-based approach. This has been shown to explain several transcriptional events in biological systems but has been inadequately reviewed. These approaches represent studies based on a finite number of DNA fragments and their corresponding conformational properties, scaled up to genomes by pooling nearby fragments and machine learning models. This article aims to organize efforts made in generating these models and their recent successful applications to stimulate further development of this approach.

Accession Number: WOS:001590236900002

PubMed ID: 41046738

Language: English

Document Type: Article

KeyWords Plus: UNIQUE TETRANUCLEOTIDE SEQUENCES; MOLECULAR-DYNAMICS SIMULATIONS; OLIGONUCLEOTIDES; PREDICTION; DEPENDENCE; FEATURES; DATABASE

Addresses: [Kalsan, Manisha; Mirza, Sadiya; Bathla, Divyangana; Ahmad, Shandar] Jawaharlal Nehru Univ, Sch Computat & Integrat Sci, SciWhyLab, New Mehrauli Rd, New Delhi 110067, India.

Corresponding Address: Ahmad, S (corresponding author), Jawaharlal Nehru Univ, Sch Computat & Integrat Sci, SciWhyLab, New Mehrauli Rd, New Delhi 110067, India.

E-mail Addresses: shandar@jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
bathla, Divyangana		0009-0006-1290-8405

Publisher: CURRENT BIOLOGY LTD

Publisher Address: 84 THEOBALDS RD, LONDON WC1X 8RR, ENGLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Biochemistry & Molecular Biology; Cell Biology

Research Areas: Biochemistry & Molecular Biology; Cell Biology

IDS Number: 8JP8J

ISSN: 0959-440X

eISSN: 1879-033X

29-char Source Abbrev.: CURR OPIN STRUC BIOL

ISO Source Abbrev.: Curr. Opin. Struct. Biol.

Source Item Page Count: 9

Funding:

Funding Agency	Grant Number
DBT-Bioinformatics Center JNU	
ICMR grant	
CSIR-JRF	
DBT-NNP project of IIITD	

DBT-NNP-CSIR-NEIST	

This study was supported in part by fundings from DBT-Bioinformatics Center JNU (to SA) , DBT-NNP project of IIITD (to SA) , DBT-NNP-CSIR-NEIST (to SA) and ICMR grant AI-Adhoc/12/2022-AI Cell (SA & MK) , and CSIR-JRF (SM) .

Output Date: 2025-12-31

Record 6 of 47

Title: Novel algal modular LOV domain proteins expand opto-biotechnological avenues for controlling of eukaryotic riboswitching, translational and proteolytic processes

Author(s): Manisha (Manisha); Singh, R (Singh, Rajani); Kateriya, S (Kateriya, Suneel)

Source: ALGAL RESEARCH-BIOMASS BIOFUELS AND BIOPRODUCTS **Volume:** 92 **Article Number:** 104429 **DOI:** 10.1016/j.algal.2025.104429 **Published Date:** 2025 DEC

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Andres J, 2019, PLANT PHYSIOL, V179, P862, DOI 10.1104/pp.18.01362
Arinkin V, 2021, FEBS J, V288, P4955, DOI 10.1111/febs.15785
Arinkin V, 2017, SCI REP-UK, V7, DOI 10.1038/srep42971
Avila-Pérez M, 2006, J BACTERIOL, V188, P6411, DOI 10.1128/JB.00716-06
Bailey TL, 2009, NUCLEIC ACIDS RES, V37, pW202, DOI 10.1093/nar/gkp335
Bat-Ochir C, 2016, MOL MICROBIOL, V100, P635, DOI 10.1111/mmi.13341
Beauchemin R, 2024, BIOTECHNOL J, V19, DOI 10.1002/biot.202300232
Briggs WR, 1999, ANNU REV CELL DEV BI, V15, P33, DOI 10.1146/annurev.cellbio.15.1.33
Brunner M, 2008, MOL MICROBIOL, V68, P255, DOI 10.1111/j.1365-2958.2008.06148.x
Buckley AM, 2015, CURR OPIN CHEM BIOL, V27, P39, DOI 10.1016/j.cbpa.2015.05.011
Buckley C, 2017, SCI REP-UK, V7, DOI 10.1038/s41598-017-05028-2
Chan RH, 2013, PHOTOCHEM PHOTOBIOL, V89, P361, DOI 10.1111/php.12004
Chapman S, 2005, CURR OPIN PLANT BIOL, V8, P565, DOI 10.1016/j.pbi.2005.09.011
Chen XS, 2020, SCI CHINA LIFE SCI, V63, P206, DOI 10.1007/s11427-019-1587-x
Christie JM, 2002, PLANT J, V32, P205, DOI 10.1046/j.1365-313X.2002.01415.x
Christie JM, 2007, ANNU REV PLANT BIOL, V58, P21, DOI 10.1146/annurev.arplant.58.032806.103951
Christie JM, 2015, PLANT CELL PHYSIOL, V56, P401, DOI 10.1093/pcp/pcu196
Dali-Youcef N, 2015, SCI REP-UK, V5, DOI 10.1038/srep09087
Djouani-Tahri EB, 2011, PLANT J, V65, P578, DOI 10.1111/j.1365-313X.2010.04444.x
Dohmen E, 2020, BMC EVOL BIOL, V20, DOI 10.1186/s12862-020-1591-0
Du QL, 2022, BMC GENOMICS, V23, DOI 10.1186/s12864-021-08229-2
Ebrey T.G., 2002, A new type of photoreceptor in algae
Fedorov R, 2003, BIOPHYS J, V84, P2474, DOI 10.1016/S0006-3495(03)75052-8
Feke A, 2021, PLOS ONE, V16, DOI 10.1371/journal.pone.0235938
Ficner R, 2009, CURR TOP MED CHEM, V9, P235, DOI 10.2174/156802609788085304
Foster TJ, 2019, TRENDS MICROBIOL, V27, P927, DOI 10.1016/j.tim.2019.06.007
Gin P, 2003, J BIOL CHEM, V278, P25308, DOI 10.1074/jbc.M303234200
Glantz ST, 2016, P NATL ACAD SCI USA, V113, pE1442, DOI 10.1073/pnas.1509428113
Gligorovski V, 2023, NAT COMMUN, V14, DOI 10.1038/s41467-023-38959-8
Groicher KH, 2000, J BACTERIOL, V182, P1794, DOI 10.1128/JB.182.7.1794-1801.2000
Hall T.A., 1999, NUCL ACID S SER, V41, P95
Hart JE, 2021, J BIOL CHEM, V296, DOI 10.1016/j.jbc.2021.100594
Hegemann P, 2001, J PHYCOL, V37, P668, DOI 10.1046/j.1529-8817.2001.01095.x
Heintz U, 2016, ELIFE, V5, DOI 10.7554/eLife.11860
Heintzen C, 2001, CELL, V104, P453, DOI 10.1016/S0092-8674(01)00232-X

Herrou J, 2011, NAT REV MICROBIOL, V9, P713, DOI 10.1038/nrmicro2622
Ito S, 2012, MOL PLANT, V5, P573, DOI 10.1093/mp/sss013
JOHNSON ES, 1995, J BIOL CHEM, V270, P17442, DOI 10.1074/jbc.270.29.17442
JONES DT, 1992, COMPUT APPL BIOSCI, V8, P275, DOI 10.1093/bioinformatics/8.3.275
Karaboja X, 2021, MOL CELL, V81, P756, DOI 10.1016/j.molcel.2020.12.027
Kennedy MJ, 2010, NAT METHODS, V7, P973, DOI [10.1038/nmeth.1524, 10.1038/NMETH.1524]
Kim S, 2024, NAT COMMUN, V15, DOI 10.1038/s41467-024-52328-z
Kopka B, 2017, SCI REP-UK, V7, DOI 10.1038/s41598-017-13420-1
Krauss U, 2009, J BACTERIOL, V191, P7234, DOI 10.1128/JB.00923-09
Krueger D, 2019, DEVELOPMENT, V146, DOI 10.1242/dev.175067
Kumar S, 2024, MOL BIOL EVOL, V41, DOI 10.1093/molbev/msae263
Kuromori T, 2010, P NATL ACAD SCI USA, V107, P2361, DOI 10.1073/pnas.0912516107
Lan TH, 2022, TRENDS GENET, V38, P1253, DOI 10.1016/j.tig.2022.05.014
Lensch M, 2001, J BIOL CHEM, V276, P33645, DOI 10.1074/jbc.M100506200
Li J, 2017, SCI REP-UK, V7, DOI 10.1038/srep45456
Li X., 2021, Opt. Quant. Electron., V53, P1, DOI DOI 10.1007/S11082-021-03315-X/FIGURES/10
Liu RM, 2022, NAT BIOTECHNOL, V40, P779, DOI 10.1038/s41587-021-01112-1
Liu XC, 2013, PLANT CELL, V25, P1258, DOI 10.1105/tpc.113.109710
Losi A., 2013, Encyclopedia of Biophysics, P1312, DOI [10.1007/978-3-642-16712-6_800, DOI 10.1007/978-3-642-16712-6_800]
Lungu OI, 2012, CHEM BIOL, V19, P507, DOI 10.1016/j.chembiol.2012.02.006
Monzingo AF, 2007, PLANT PHYSIOL, V143, P1504, DOI 10.1104/pp.106.093146
Moser F, 2019, ADV FUNCT MATER, V29, DOI 10.1002/adfm.201901788
Motta-Mena LB, 2014, NAT CHEM BIOL, V10, P196, DOI [10.1038/NCHEMBIO.1430, 10.1038/nchembio.1430]
Pelosi L, 2016, MSYSTEMS, V1, DOI 10.1128/mSystems.00091-16
Pérez-Izquierdo L, 2017, MOL ECOL RESOUR, V17, pe1, DOI 10.1111/1755-0998.12678
Pilsl S, 2020, NAT COMMUN, V11, DOI 10.1038/s41467-020-18673-5
Potzkei J, 2012, BMC BIOL, V10, DOI 10.1186/1741-7007-10-28
Raffelberg S, 2013, BIOCHEM J, V455, P359, DOI 10.1042/BJ20130637
Raffelberg S, 2011, J AM CHEM SOC, V133, P5346, DOI 10.1021/ja1097379
Rosettani P, 2007, J MOL BIOL, V368, P691, DOI 10.1016/j.jmb.2007.02.019
Shannon P, 2003, GENOME RES, V13, P2498, DOI 10.1101/gr.1239303
Shao X., 2019, J. Pharm. Res. Rev., V3, P17
Sharma S, 2024, FEBS J, V291, P5156, DOI 10.1111/febs.17284
Sharma S, 2025, BIOCHIMIE, V239, P150, DOI 10.1016/j.biochi.2025.08.014
Shcherbakova DM, 2015, ANNU REV BIOCHEM, V84, P519, DOI 10.1146/annurev-biochem-060614-034411
Singh R., 2025, bioRxiv, DOI [10.1101/2025.05.22.655495,2025.05.22.655495, DOI 10.1101/2025.05.22.655495,2025.05.22.655495]
Stewart M, 1998, J MOL BIOL, V277, P635, DOI 10.1006/jmbi.1997.1602
Sultana A, 2004, EMBO J, V23, P1911, DOI 10.1038/sj.emboj.7600201
SUZUKI T, 1987, J BACTERIOL, V169, P2523, DOI 10.1128/jb.169.6.2523-2528.1987
Szklarczyk D, 2019, NUCLEIC ACIDS RES, V47, pD607, DOI [10.1093/nar/gkac1000, 10.1093/nar/gky1131]
Takahashi F, 2007, P NATL ACAD SCI USA, V104, P19625, DOI 10.1073/pnas.0707692104
Tarutina M, 2006, J BIOL CHEM, V281, P34751, DOI 10.1074/jbc.M604819200
Tischer D, 2014, NAT REV MOL CELL BIO, V15, P551, DOI 10.1038/nrm3837
Vaidya AT, 2011, SCI SIGNAL, V4, DOI 10.1126/scisignal.2001945
van Berkel WJH, 2006, J BIOTECHNOL, V124, P670, DOI 10.1016/j.jbiotec.2006.03.044
Vide U, 2023, SCI ADV, V9, DOI 10.1126/sciadv.adh4721
Voss M, 2013, BBA-BIOMEMBRANES, V1828, P2828, DOI 10.1016/j.bbamem.2013.03.033
Wang P, 2008, BIOCHEMISTRY-US, V47, P6361, DOI 10.1021/bi800657p
Weber AM, 2019, NAT CHEM BIOL, V15, P1085, DOI 10.1038/s41589-019-0346-y
Weihofen A, 2000, J BIOL CHEM, V275, P30951, DOI 10.1074/jbc.M005980200
Wu YI, 2009, NATURE, V461, P104, DOI 10.1038/nature08241

Yang JF, 2023, INT J MOL SCI, V24, DOI 10.3390/ijms242317072
Zayner JP, 2019, ACS OMEGA, V4, P1238, DOI 10.1021/acsomega.8b02872
Zayner JP, 2014, PLOS ONE, V9, DOI 10.1371/journal.pone.0087074
Zhang ZH, 2023, FRONT PLANT SCI, V14, DOI 10.3389/fpls.2023.1133021
Zhao EM, 2018, NATURE, V555, P683, DOI 10.1038/nature26141

Cited Reference Count: 91

Abstract: Light, Oxygen, or Voltage (LOV) domains mediate blue light-gated signal transduction, regulating diverse optobiological functions. LOV domain functions either standalone or fused with effector domains, regulating the downstream signalling process. The current repertoire of LOV domain-based tools is limited to a relatively small number of naturally occurring proteins. In this study, we have identified novel algal LOV domains fused with different effector domains as potential light-mediated translational, ribogenetic and proteolytic switches, highlighting their unexplored avenues of opto-biotechnology. LOV-domain fusion with eIF4E suggests its potential as light-controlled translational switch and as an opto-ribogenetic regulator. LOV-SppA would be used as light-gated cellular proteolytic switch. LOV-HDAC could be a potential opto-modulated epigenetic regulator. Additionally, LOV coupled with UFD1, UbiH, mannosyl-oligosaccharide glucosidase, HDAC, SppA1 and biosynthetic gene cluster (BCG) molecular chassis pave the way for opto-biomanufacturing strategies of relevant valuable algal bioactive. Moreover, LOV domain distribution shows gradual evolutionary expansion across diverse algal lineages. Here, we report the discovery of 14 novel algal modular LOV domain-containing proteins across the algal system through comprehensive bioinformatics and systems biology approaches. It offers important insights into the structural and functional diversity of LOV photoreceptors in diverse algae. Hence, these newly identified modular LOV domain-containing proteins expand the platform of opto-biotechnology applications. These findings lay foundation for future research on the mechanistic basis for light-driven (LOV domain-mediated) signalling cascade of RNA, translational and protein homeostasis in algae, and potentiate development of next-generation opto-biotechnological tools for optogenetics and opto-biomanufacturing of valuable bioactive via regulation of BGC in green lineage.

Accession Number: WOS:001627563900001

Language: English

Document Type: Article

Author Keywords: LOV domain; Biosynthetic gene cluster; Photoreceptor; Opto-biomanufacturing

KeyWords Plus: SIGNAL PEPTIDE PEPTIDASE; CIRCADIAN CLOCK; LIGHT; MECHANISM; PROTEASE; PHOTORECEPTOR; SPPA; PHOTOCYCLE; DIVERSITY; TRANSPORT

Addresses: [Manisha; Singh, Rajani; Kateriya, Suneel] Jawaharlal Nehru Univ, Sch Biotechnol, Lab Optobiotechnol, New Delhi 110067, India.

Corresponding Address: Kateriya, S (corresponding author), Jawaharlal Nehru Univ, Sch Biotechnol, Lab Optobiotechnol, New Delhi 110067, India.

E-mail Addresses: skateriya@jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi

Publisher: ELSEVIER

Publisher Address: RADARWEG 29, 1043 NX AMSTERDAM, NETHERLANDS

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Biotechnology & Applied Microbiology

Research Areas: Biotechnology & Applied Microbiology

IDS Number: J4522

ISSN: 2211-9264

29-char Source Abbrev.: ALGAL RES

ISO Source Abbrev.: Algal Res.

Source Item Page Count: 14

Funding:

Funding Agency	Grant Number
ANRF/SERB, Government of India	EEQ/2023/000398 CRG/2021/00315

SK is thankful to ANRF/SERB, Government of India, for granting EEQ (EEQ/2023/000398) and CRG (CRG/2021/00315) research projects.

Output Date: 2025-12-31

Record 7 of 47

Title: DNA-Dependent protease promotes parasite survival during replication stress induced through DNA damaging agents

Author(s): Shameem, R (Shameem, Risha); Bansal, A (Bansal, Abhisheka)

Source: MALARIA JOURNAL **Meeting Abstract:** T2-P9 **Volume:** 24 **Issue:** SUPPL1 **Special Issue:** SI **Published Date:** 2025 DEC 1 **Supplement:** S

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited Reference Count: 0

Accession Number: WOS:001639266900040

Language: English

Document Type: Meeting Abstract

Addresses: [Shameem, Risha; Bansal, Abhisheka] JNU, Sch Life Sci, New Delhi, India.

E-mail Addresses: abhisheka@jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi

Publisher: BMC

Publisher Address: CAMPUS, 4 CRINAN ST, LONDON N1 9XW, ENGLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Infectious Diseases; Parasitology; Tropical Medicine

Research Areas: Infectious Diseases; Parasitology; Tropical Medicine

IDS Number: W1045

eISSN: 1475-2875

29-char Source Abbrev.: MALARIA J

ISO Source Abbrev.: Malar. J.

Source Item Page Count: 2

Output Date: 2025-12-31

Record 8 of 47

Title: Archives of Sexual Violence: Some Testimonies from the Partition of India

Author(s): Mahajan, S (Mahajan, Sucheta)

Source: LAW AND HISTORY REVIEW **Volume:** 43 **Issue:** 2 **Pages:** 279-299 **DOI:** 10.1017/S0738248025101041 **Early Access Date:** DEC 2025 **Published Date:** 2025 MAY

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Adams A, 2018, EUR J INT LAW, V29, P749, DOI 10.1093/ejil/chy043
[Anonymous], 2013, J WOMEN CULTURE SOC, V38, P253
[Anonymous], 1985, CONVERSATION SAVITRI
[Anonymous], 1949, ABDUCTED PERSONS REC
[Anonymous], 1953, LEGAL PROBLEMS JOINT
[Anonymous], 1946, STATESMAN
[Anonymous], 1947, EVAN JENKINS LOUIS M
[Anonymous], PARTITION STORIES PR
[Anonymous], 1949, CONSTITUTION ASSEMBL
Bagh Memorial, COMMEMORATING INFAMO
bbc.co, PARTITION VOICES
Bhardwaj DattaA., 2006, Economic and Political Weekly, Vol, V41, P2229
bombayhighcourt, US
Bourke -White Margaret, 1963, PORTRAIT MYSELF, P283
Bryson Anna, 2016, HAST INT COMP LAW RE, V39, P299
BUTALIA U, 1993, ECON POLIT WEEKLY, V28, pWS12
Butalia Urvashi, 2000, OTHER SIDE SILENCE V
Butalia Urvashi., 1997, Embodiment: Essays on Gender and Identity, P90
Carter Lionel, 2007, PUNJAB POLITICS, VV, P228
Chattha Ilyas, 2011, PARTITION LOCALITY V
Chawla Devika, 2014, HOME UPROOTED ORAL H
cmsadmin.amritmahotsav, US
Das V, 2007, LIFE AND WORDS: VIOLENCE AND THE DESCENT INTO THE ORDINARY, P1
Dasgupta Shumona, 2015, INDIAN PARTITION LIT, P36
facebook.com, ATROCITIES HINDUS
Government of India, PARTITION HORRORS RE
Hajari Nisid, 2016, MIDNIGHTS FURIES DEA
hindugenocide, US
hindujagruti.org, ATROCITIES HINDUS
Khalsa Thoa, 2017, DRAMATIC DEPICTION S
Kidwai Anis, 2011, FREEDOMS SHADE
Kripalani J. B., 1947, JB KRIP ALL IND C CO
Leaning Jennifer, 2022, 1947 PARTITION BRIT, P47
Mahajan S, 2011, STUD HIST, V27, P281, DOI 10.1177/0257643012459422
Mahajan Sucheta, 2000, INDEPENDENCE PARTITI
Mahajan Sucheta, 2015, FREEDOM DOCUMENTS IN
Mahajan Sucheta, 2011, PARTITION INDIA WHY
Menon, 2007, 1947 PARTITION NARRA
Menon Jisha, 2013, PERFORMANCE NATIONAL, P121
MENON R, 1993, ECON POLIT WEEKLY, V28, pWS2
Menon Ritu, 1998, BORDERS BOUNDARIES, P44
Ministry of External Affairs India, 1950, AGREEMENT GOVT INDIA
Mukherjee Aditya, 2008, SCH TEXTS MURDER MAH, P58
Nayyar Sanjeev, WHY WAS GANDHI KILLE
Pandey Gyanendra, 2001, REMEMBERING PARTITIO
Partition, 1966, US
Passerini Luisa., 2003, Contested Pasts: The Politics of Memory, P238
Patel Kamlaben, 2006, MRIDULA SARABHAI PAP
Patel Meera, 2013, RAPE ACCOUNTS STILL
Renan Ernst, 1992, SORBONNE LECT MARCH
Rubin Shira, ISRAEL INVESTIGATES
Singh Anita, 1987, ORIGINS PARTITION IN
Talib Sardar Gurbachan Singh, 1991, MUSLIM LEAGUE ATTACK
Truillot Michel-Rolph, 1995, SILENCING POWER PROD, P52

Trump For Hindu Holocaust Memorial, ARNAB DEBATES
Virdee Pippa., 2013, ORAL HIST AUTUMN, P49
Wiesel Elie, 1984, BEARING WITNESS
Yong-Jian Tang, 2007, Proceedings of JSPS-CAS Core University Program Seminar on Target Materials, P1

Cited Reference Count: 58

Abstract: The article interrogates testimonies of sexual violence against women, like rape, abduction, forced conversion, and forced marriage, during the partition of India in 1947. Unlike sites of violence such as Rwanda, there were no commissions set up either by the successor governments in India or Pakistan or by international agencies to investigate the massacres. Partition violence does not easily fit into the usual frames of genocide or ethnic cleansing used in academic writing on conflict. In the absence of identifiable perpetrators and villains of the partition violence, members of a community were perpetrators wherever they dominated and victims where they were few. The archive for this article consists of statements by survivors and observers of the massacres to the local authorities; for example, army officers and social workers supervising the "recovery" of abducted women or running refugee camps. Interviews were conducted with survivors of the partition many years later, which are generally marked by silence about sexual violence. Questions arise about the meager testimonies and the bias in the archive regarding selection, collection, and publication. Ethical issues abound, including the selective appropriation of testimonies for political ends. Were women silent because disclosure would invite stigma, or is it that trauma is expressed by silence? And finally, how do survivors move toward closure?

Accession Number: WOS:001633776100001

Language: English

Document Type: Article

KeyWords Plus: STATE

Addresses: [Mahajan, Sucheta] Jawaharlal Nehru Univ, Ctr Hist Studies, Sch Social Sci, New Delhi, India.

Corresponding Address: Mahajan, S (corresponding author), Jawaharlal Nehru Univ, Ctr Hist Studies, Sch Social Sci, New Delhi, India.

E-mail Addresses: smahajanjnu@gmail.com

Affiliations: Jawaharlal Nehru University, New Delhi

Publisher: CAMBRIDGE UNIV PRESS

Publisher Address: EDINBURGH BLDG, SHAFTESBURY RD, CB2 8RU CAMBRIDGE, ENGLAND

Web of Science Index: Social Science Citation Index (SSCI); Arts & Humanities Citation Index (A&HCI)

Web of Science Categories: History; History Of Social Sciences; Law

Research Areas: History; Social Sciences - Other Topics; Government & Law

IDS Number: X2114

ISSN: 0738-2480

eISSN: 1939-9022

29-char Source Abbrev.: LAW HIST REV

ISO Source Abbrev.: Law Hist. Rev.

Source Item Page Count: 21

Funding:

Funding Agency	Grant Number
National Archives of India	
British Library, London	

I wish to thank Rosemary Byrne, Stephanie McCurry, and Jane Ohlmeyer for inviting me to join this extremely significant project on the connected histories of the archives of sexual violence. Jane went on to be an insightful editor for the paper to convert it into an article for LHR. As always, Bodh Prakash was a trouble shooter and a sounding board. I would like to thank my research students for their responses to versions of this work over the years. My special thanks to Jhansi Rangu for preparing the tables, which made the testimonies more accessible.

I am grateful to the staff of the Nehru Memorial Museum and Library (NMML), the National Archives of India (NAI), the British Library, London and the Library of Congress, Washington D.C., for their assistance.

Open Access: hybrid

Output Date: 2025-12-31

Record 9 of 47

Title: Modulatory Effect of the Polyphenol EGCG toward the Fibrillation of Monomers and Preformed Aggregates of α-Synuclein in the Presence of Small-Molecule and Polymeric Crowders

Author(s): Devi, S (Devi, Santosh); Bhat, R (Bhat, Rajiv)

Source: JOURNAL OF PHYSICAL CHEMISTRY B **Volume:** 129 **Issue:** 51 **Pages:** 13088-13104 **DOI:** 10.1021/acs.jpcb.5c05714 **Early Access Date:** DEC 2025 **Published Date:** 2025 DEC 25

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Ahmad B, 2012, J BIOL CHEM, V287, P9193, DOI 10.1074/jbc.M111.325548
Alfano C, 2024, CHEM REV, V124, P3186, DOI 10.1021/acs.chemrev.3c00615
Andersen CB, 2021, J BIOL CHEM, V296, DOI 10.1016/j.jbc.2021.100788
ARRONDO JLR, 1993, PROG BIOPHYS MOL BIO, V59, P23, DOI 10.1016/0079-6107(93)90006-6
Biancalana M, 2010, BBA-PROTEINS PROTEOM, V1804, P1405, DOI 10.1016/j.bbapap.2010.04.001
Bieschke J, 2010, P NATL ACAD SCI USA, V107, P7710, DOI 10.1073/pnas.0910723107
Bolognesi B, 2010, ACS CHEM BIOL, V5, P735, DOI 10.1021/cb1001203
Breydo L, 2014, BBA-PROTEINS PROTEOM, V1844, P346, DOI 10.1016/j.bbapap.2013.11.004
Brundin P, 2017, EXP NEUROL, V298, P225, DOI 10.1016/j.expneurol.2017.10.003
Buell AK, 2014, P NATL ACAD SCI USA, V111, P7671, DOI 10.1073/pnas.1315346111
Burg MB, 2008, J BIOL CHEM, V283, P7309, DOI 10.1074/jbc.R700042200
Cino EA, 2012, PLOS ONE, V7, DOI 10.1371/journal.pone.0049876
Dedmon MM, 2002, P NATL ACAD SCI USA, V99, P12681, DOI 10.1073/pnas.202331299
Devi S, 2025, BBA-PROTEINS PROTEOM, V1873, DOI [10.1016/j.bbapap.2025.141073, 10.1016/j.bbapap.2025.141073]
Devi S, 2023, BBA-PROTEINS PROTEOM, V1871, DOI 10.1016/j.bbapap.2023.140917
Dong H, 2010, PLOS COMPUT BIOL, V6, DOI 10.1371/journal.pcbi.1000833
EBELING W, 1974, EUR J BIOCHEM, V47, P91, DOI 10.1111/j.1432-1033.1974.tb03671.x
Ehrnhoefer DE, 2008, NAT STRUCT MOL BIOL, V15, P558, DOI 10.1038/nsmb.1437
Flaugh SL, 2001, BIOMACROMOLECULES, V2, P538, DOI 10.1021/bm015502z
Freyssin A, 2018, NEURAL REGEN RES, V13, P955, DOI 10.4103/1673-5374.233432
Galvin JE, 2001, ARCH NEUROL-CHICAGO, V58, P186, DOI 10.1001/archneur.58.2.186
Garg DK, 2022, BIOPHYS J, V121, P2568, DOI 10.1016/j.bpj.2022.05.042
Goedert M, 2001, NAT REV NEUROSCI, V2, P492, DOI 10.1038/35081564
Han YL, 2023, ACS CHEM NEUROSCI, V14, P4051, DOI 10.1021/acschemneuro.3c00586
Henriquez G, 2023, Exploration of Neuroprotective Therapy, P207, DOI [10.37349/ent.2023.00048, 10.37349/ent.2023.00048, DOI 10.37349/ENT.2023.00048]
Horvath I, 2021, BIOPHYS J, V120, P3374, DOI 10.1016/j.bpj.2021.06.032
Hudson SA, 2009, J MOL BIOL, V392, P689, DOI 10.1016/j.jmb.2009.07.031
Jain G, 2024, BIOPHYS J, V123, p488A
Khan SH, 2010, IUBMB LIFE, V62, P891, DOI 10.1002/iub.406
Kushnirov VV, 2020, PRION, V14, P11, DOI 10.1080/19336896.2019.1704612
Kuznetsova IM, 2014, INT J MOL SCI, V15, P23090, DOI 10.3390/ijms151223090
Latshaw DC, 2014, J PHYS CHEM B, V118, P13513, DOI 10.1021/jp508970q
Lurette O, 2023, CELL DEATH DIS, V14, DOI 10.1038/s41419-023-06251-8
Martins GF, 2023, ACS CHEM NEUROSCI, V14, P1905, DOI 10.1021/acschemneuro.3c00162

McGlinchey RP, 2021, P NATL ACAD SCI USA, V118, DOI 10.1073/pnas.2023487118
Mojtabavi S, 2019, IRAN J PHARM RES, V18, P13, DOI 10.22037/ijpr.2020.112621.13857
Mörman C, 2025, J AM CHEM SOC, V147, P23504, DOI 10.1021/jacs.5c01369
Mukherjee S, 2009, J MOL BIOL, V393, P227, DOI 10.1016/j.jmb.2009.08.016
Munishkina LA, 2008, BIOCHEMISTRY-US, V47, P8993, DOI 10.1021/bi8008399
Palhano FL, 2013, J AM CHEM SOC, V135, P7503, DOI 10.1021/ja3115696
Patel SP, 2024, ACS CHEM BIOL, V19, P2118, DOI 10.1021/acschembio.4c00365
Ray S, 2023, NAT CHEM, DOI 10.1038/s41557-023-01244-8
Ray S, 2020, NAT CHEM, V12, DOI 10.1038/s41557-020-0465-9
RiceEvans CA, 1997, TRENDS PLANT SCI, V2, P152, DOI 10.1016/S1360-1385(97)01018-2
Rivas G, 2016, TRENDS BIOCHEM SCI, V41, P970, DOI 10.1016/j.tibs.2016.08.013
Rocha EM, 2018, NEUROBIOL DIS, V109, P249, DOI 10.1016/j.nbd.2017.04.004
Roy S, 2018, BBA-PROTEINS PROTEOM, V1866, P1029, DOI 10.1016/j.bbapap.2018.07.003
Sneideris T, 2019, BIOMOLECULES, V9, DOI 10.3390/biom9120855
Spillantini MG, 1997, NATURE, V388, P839, DOI 10.1038/42166
Stagg L, 2007, P NATL ACAD SCI USA, V104, P18976, DOI 10.1073/pnas.0705127104
Stasiulewicz M, 2022, J PHYS CHEM B, V126, P2990, DOI 10.1021/acs.jpcb.2c00281
Stefanis L, 2012, CSH PERSPECT MED, V2, DOI 10.1101/cshperspect.a009399
Sternke-Hoffmann R, 2020, INT J MOL SCI, V21, DOI 10.3390/ijms21061995
Street TO, 2006, P NATL ACAD SCI USA, V103, P13997, DOI 10.1073/pnas.0606236103
Sung HL, 2021, J CHEM PHYS, V154, DOI 10.1063/5.0045492
Takeda A, 1998, LAB INVEST, V78, P1169
Townsend D, 2018, J BIOL CHEM, V293, P12877, DOI 10.1074/jbc.RA118.002038
van den Berg B, 1999, EMBO J, V18, P6927, DOI 10.1093/emboj/18.24.6927
Verma G, 2020, BIOPHYS CHEM, V264, DOI 10.1016/j.bpc.2020.106422
Volles MJ, 2007, J MOL BIOL, V366, P1510, DOI 10.1016/j.jmb.2006.12.044
Yang HY, 2015, NAT PROTOC, V10, DOI 10.1038/nprot.2015.024
Yang JE, 2017, SCI REP-UK, V7, DOI 10.1038/s41598-017-18349-z
Yang SN, 2022, INT J BIOL MACROMOL, V206, P175, DOI 10.1016/j.ijbiomac.2022.02.104

Cited Reference Count: 63

Abstract: Epigallocatechin gallate (EGCG) has been widely studied for its inhibitory effects on amyloidogenic protein aggregation, yet its effect on the intrinsically disordered neuronal protein alpha-synuclein (alpha-syn), which is implicated in many neurodegenerative disorders, remains unclear, especially under molecular crowding conditions that mimic cellular environments. However, recent studies have reported contrasting effects of EGCG on alpha-syn aggregation. This study comprehensively examines the effect of EGCG on monomeric alpha-syn aggregation and preformed aggregates in the absence and presence of small (polyol osmolytes) and large (PEG-8000) molecular crowders. Our results show that EGCG delays the lag phase of alpha-syn aggregation in the presence of polyols, whereas no significant change is observed in the presence of the large molecular weight crowder PEG8K. Atomic force microscopy images reveal that EGCG distinctly redirects alpha-syn to form oligomers and amorphous aggregates under crowded conditions. Furthermore, while alpha-syn, in the presence of a combination of EGCG and PEG8K, exhibits random coil and alpha-helical conformations, it shows a completely disordered conformation in its absence. Interestingly, the addition of EGCG to preformed aggregates does not alter aggregate size but impacts their morphology significantly, as shown by light scattering and AFM. Despite the changes in the morphology of aggregates, a predominantly beta-sheet-rich secondary structure was observed by CD spectroscopy after EGCG addition, suggesting complexity in the action of EGCG under crowding conditions. Our study highlights the critical role played by the physicochemical nature of the cellular environment, consisting of small-molecule osmolytes as well as macromolecular crowders, in protein aggregation and its modulation by small-molecule ligands such as EGCG.

Accession Number: WOS:001638263700001

PubMed ID: 41381387

Language: English

Document Type: Article

KeyWords Plus: PROTEINASE K; ORGANIC OSMOLYTES; ALZHEIMERS; STABILITY; MECHANISM; DISEASE; BINDING

Addresses: [Devi, Santosh; Bhat, Rajiv] Jawaharlal Nehru Univ, Sch Biotechnol, New Delhi 110067, India.

Corresponding Address: Bhat, R (corresponding author), Jawaharlal Nehru Univ, Sch Biotechnol, New Delhi 110067, India.

E-mail Addresses: rajivbhat@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi

Publisher: AMER CHEMICAL SOC

Publisher Address: 1155 16TH ST, NW, WASHINGTON, DC 20036 USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Physical

Research Areas: Chemistry

IDS Number: AH8MR

ISSN: 1520-6106

eISSN: 1520-5207

29-char Source Abbrev.: J PHYS CHEM B

ISO Source Abbrev.: J. Phys. Chem. B

Source Item Page Count: 17

Funding:

Funding Agency	Grant Number
Science and Engineering Research Board	C.R.G./2021/001396
Council of Scientific and Industrial Research, India	09/263(1213)/2019-EMR-1

We are deeply thankful to Dr. Peter T. Lansbury for providing alpha-syn, cDNA clone. The authors thank Mr. Saroj Jha and Mr. Sandeep Sarpal for their technical assistance in AFM and FTIR experiments, respectively. We further acknowledge extramural funding from the Science and Engineering Research Board, Dept. of Science and Technology, Govt of India, vide file no. C.R.G./2021/001396. S.D. thanks the Council of Scientific and Industrial Research, Govt. of India, for junior- and senior-research fellowship vide file no. 09/263(1213)/2019-EMR-1.

Output Date: 2025-12-31

Record 10 of 47

Title: Salvianolic acid B prevents the amyloid transformation of A53T mutant of α-synuclein

Author(s): Akhtar, A (Akhtar, Almas); Singh, P (Singh, Payal); Admane, N (Admane, Nikita); Grover, A (Grover, Abhinav)

Source: BIOPHYSICAL CHEMISTRY **Volume:** 318 **Article Number:** 107379 **DOI:** 10.1016/j.bpc.2024.107379 **Early Access Date:** DEC 2025 **Published Date:** 2025 MAR

Times Cited in Web of Science Core Collection: 4

Total Times Cited: 4

Usage Count (Last 180 days): 3

Usage Count (Since 2013): 10

Cited References: Abraham Mark James, 2015, SoftwareX, V1-2, P19, DOI [10.1016/j.softx.2015.06.001, 10.1016/j.softx.2015.06.001]
Admane N, 2024, SCI REP-UK, V14, DOI 10.1038/s41598-024-69344-0
Admane N, 2022, INT J BIOL MACROMOL, V223, P755, DOI 10.1016/j.ijbiomac.2022.11.049
Admane N, 2022, BIOPHYS J, V121, P56
Admane N, 2023, J BIOMOL STRUCT DYN, V41, P1366, DOI 10.1080/07391102.2021.2020165

Alam P, 2019, J NEUROCHEM, V150, P522, DOI 10.1111/jnc.14808
Ali R, 2022, BIOCELL, V46, P2681, DOI 10.32604/biocell.2022.021224
AMADEI A, 1993, PROTEINS, V17, P412, DOI 10.1002/prot.340170408
Anderson EN, 2020, FRONT CELL NEUROSCI, V13, DOI 10.3389/fncel.2019.00540
[Anonymous], 2009, V. Glide, 5.0, Schrodinger, LLC,
Baba M., 1998, Short Communication Aggregation of a-Synuclein in Lewy Bodies of Sporadic Parkinsons Disease and Dementia with Lewy Bodies
Baell JB, 2013, AUST J CHEM, V66, P1483, DOI 10.1071/CH13551
Baell JB, 2010, J MED CHEM, V53, P2719, DOI 10.1021/jm901137j
BERENDSEN HJC, 1984, J CHEM PHYS, V81, P3684, DOI 10.1063/1.448118
Bieschke J, 2010, P NATL ACAD SCI USA, V107, P7710, DOI 10.1073/pnas.0910723107
Caruana M, 2011, FEBS LETT, V585, P1113, DOI 10.1016/j.febslet.2011.03.046
Cheng B, 2013, PROTEINS, V81, P613, DOI 10.1002/prot.24216
Conway KA, 1998, NAT MED, V4, P1318, DOI 10.1038/3311
Doherty CPA, 2020, NAT STRUCT MOL BIOL, V27, P249, DOI 10.1038/s41594-020-0384-x
Du H.-N., 2003, A Peptide Motif Consisting of Glycine, Alanine, and Valine Is Required for the Fibrillization and Cytotoxicity of Human R-Synuclein, DOI 10.1021bi034028
Durairajan SSK, 2008, NEUROCHEM INT, V52, P741, DOI 10.1016/j.neuint.2007.09.006
Ehrnhoefer DE, 2008, NAT STRUCT MOL BIOL, V15, P558, DOI 10.1038/nsmb.1437
El-Agnaf OMA, 2000, J STRUCT BIOL, V130, P300, DOI 10.1006/jsbi.2000.4262
El-Agnaf OMA, 1998, FEBS LETT, V440, P71, DOI 10.1016/S0014-5793(98)01418-5
Erlanson DA, 2015, J MED CHEM, V58, P2088, DOI 10.1021/acs.jmedchem.5b00294
Fan Y, 2023, STRUCTURE, V31, P78, DOI 10.1016/j.str.2022.11.013
Ghosh D, 2017, INT J BIOL MACROMOL, V100, P37, DOI 10.1016/j.ijbiomac.2016.10.021
Ghosh D, 2014, BIOCHEMISTRY-US, V53, P6419, DOI 10.1021/bi5010365
Giasson BI, 2001, J BIOL CHEM, V276, P2380, DOI 10.1074/jbc.M008919200
Guerrero-Ferreira R., 2018, Cryo-EM Structure of Alpha-Synuclein Fibrils, DOI 10.7554eLife.36402.001
Guerrero-Ferreira R, 2019, ELIFE, V8, DOI 10.7554/eLife.48907
Hawe A, 2008, PHARM RES-DORDR, V25, P1487, DOI 10.1007/s11095-007-9516-9
Hess B., 1997, J COMPUT CHEM
Hoover W.G., 1985, PHYS REV A
Huang Y, 2012, TRANSL NEURODEGENER, V1, DOI 10.1186/2047-9158-1-2
Jahan I, 2019, BIOPHYS J, V117, P1922, DOI 10.1016/j.bpj.2019.09.046
KABSCH W, 1983, BIOPOLYMERS, V22, P2577, DOI 10.1002/bip.360221211
Karpowicz RJ, 2019, LAB INVEST, V99, P971, DOI 10.1038/s41374-019-0195-z
Khurana R, 2005, J STRUCT BIOL, V151, P229, DOI 10.1016/j.jsb.2005.06.006
Kim S, 2016, NUCLEIC ACIDS RES, V44, pD1202, DOI 10.1093/nar/gkv951
Kollman PA, 2000, ACCOUNTS CHEM RES, V33, P889, DOI 10.1021/ar000033j
Kotzbauer PT, 2004, EXP NEUROL, V187, P279, DOI 10.1016/j.expneurol.2004.01.007
Kumari A, 2020, RSC ADV, V10, P25929, DOI 10.1039/d0ra04949b
Kumari R, 2014, J CHEM INF MODEL, V54, P1951, DOI 10.1021/ci500020m
Kundu S, 2018, J BIOMOL STRUCT DYN, V36, P302, DOI 10.1080/07391102.2016.1276478
Lashuel HA, 2013, NAT REV NEUROSCI, V14, P38, DOI 10.1038/nrn3406
Laskowski RA, 2011, J CHEM INF MODEL, V51, P2778, DOI 10.1021/ci200227u
Lázaro DF, 2014, PLOS GENET, V10, DOI 10.1371/journal.pgen.1004741
LeVine H, 1999, METHOD ENZYMOL, V309, P274
Li BS, 2018, NAT COMMUN, V9, DOI 10.1038/s41467-018-05971-2
Li J, 2002, NEUROTOXICOLOGY, V23, P553, DOI 10.1016/S0161-813X(02)00066-9
Li J, 2001, BIOCHEMISTRY-US, V40, P11604, DOI 10.1021/bi010616g
Li YW, 2018, CELL RES, V28, P897, DOI 10.1038/s41422-018-0075-x
Lin YH, 2006, BIOCHEM BIOPH RES CO, V348, P593, DOI 10.1016/j.bbrc.2006.07.110
Liu YQ, 2015, EUR J MASS SPECTROM, V21, P255, DOI 10.1255/ejms.1359
Lobanov MY, 2008, MOL BIOL+, V42, P623, DOI 10.1134/S0026893308040195
Lorber B, 2012, BIOCHEM MOL BIOL EDU, V40, P372, DOI 10.1002/bmb.20644

Ma XW, 2017, CELL PHYSIOL BIOCHEM, V43, P1381, DOI 10.1159/000481849
Masuda M, 2006, BIOCHEMISTRY-US, V45, P6085, DOI 10.1021/bi0600749
Meade RM, 2019, MOL NEURODEGENER, V14, DOI 10.1186/s13024-019-0329-1
Meena VK, 2021, ACS CHEM NEUROSCI, V12, P3598, DOI 10.1021/acschemneuro.1c00317
Meena VK, 2021, J MOL LIQ, V336, DOI 10.1016/j.molliq.2021.116176
Mirecka EA, 2014, ANGEW CHEM INT EDIT, V53, P4227, DOI 10.1002/anie.201309001
Miyamoto S., 2024, SETTLE: An Analytical Version of the SHAKE and RATTLE Algorithm for Rigid Water Models
Morshedi D, 2015, J FOOD SCI, V80, pH2336, DOI 10.1111/1750-3841.13016
Narhi L, 1999, J BIOL CHEM, V274, P9843, DOI 10.1074/jbc.274.14.9843
Nelson R, 2005, NATURE, V435, P773, DOI 10.1038/nature03680
Nishikawa N, 2015, MOL SIMULAT, V41, P1041, DOI 10.1080/08927022.2014.938445
Odom GL, 2007, BBA-MOL BASIS DIS, V1772, P243, DOI 10.1016/j.bbadis.2006.09.007
Ohgita T, 2022, SCI REP-UK, V12, DOI 10.1038/s41598-022-10789-6
Ono K, 2004, J NEUROSCI RES, V75, P742, DOI 10.1002/jnr.20025
Ono K, 2006, J NEUROCHEM, V97, P105, DOI 10.1111/j.1471-4159.2006.03707.x
Ono K, 2020, MOLECULES, V25, DOI 10.3390/molecules25102444
Patriksson A, 2008, PHYS CHEM CHEM PHYS, V10, P2073, DOI 10.1039/b716554d
Periole X, 2007, J CHEM PHYS, V126, DOI 10.1063/1.2404954
Qi RX, 2018, METHODS MOL BIOL, V1777, P101, DOI 10.1007/978-1-4939-7811-3_5
Rao JN, 2008, BIOCHEMISTRY-US, V47, P4651, DOI 10.1021/bi8002378
Roberts CJ, 2007, BIOTECHNOL BIOENG, V98, P927, DOI 10.1002/bit.21627
Rodriguez JA, 2015, NATURE, V525, P486, DOI 10.1038/nature15368
Sahihi M, 2021, J MOL GRAPH MODEL, V108, DOI 10.1016/j.jmgm.2021.108010
Save SS, 2019, INT J BIOL MACROMOL, V141, P585, DOI 10.1016/j.ijbiomac.2019.09.053
Schrodinger LLC., 2010, The PyMOL Molecular Graphics System
Schüttelkopf AW, 2004, ACTA CRYSTALLOGR D, V60, P1355, DOI 10.1107/S0907444904011679
Singh P, 2024, COMPUT BIOL CHEM, V112, DOI 10.1016/j.compbiolchem.2024.108155
Sivanesam K., 2016, Send Orders for Reprints to reprints@ benthamscience.ae Modulating the Amyloidogenesis of -Synuclein
Sode K., 2007, Effect of Reparation of Repeat Sequences in the Human -Synuclein on Fibrillation Ability
Sorrentino ZA, 2020, J BIOL CHEM, V295, P10224, DOI 10.1074/jbc.REV120.011743
Spillantini M.G., 1998, P NATL ACAD SCI USA
Stankovic IM, 2020, INT J BIOL MACROMOL, V156, P949, DOI 10.1016/j.ijbiomac.2020.03.064
Sun YP, 2020, CELL RES, V30, P360, DOI 10.1038/s41422-020-0299-4
Tan FHP, 2021, J ETHNOPHARMACOL, V279, DOI 10.1016/j.jep.2021.114389
Tang MK, 2001, ACTA PHARMACOL SIN, V22, P380
Teng YL, 2019, MOLECULES, V24, DOI 10.3390/molecules24162940
Ulamec SM, 2020, FRONT NEUROSCI-SWITZ, V14, DOI 10.3389/fnins.2020.611285
Uversky V.N., 2009, Biophysics of Parkinsons Disease: Structure and Aggregation of-Synuclein
Vidovic M, 2022, CELLS-BASEL, V11, DOI 10.3390/cells11111732
Wang CX, 2012, NANOSCALE, V4, P1895, DOI 10.1039/c2nr11508e
Wang CC, 2016, FRONT MOL NEUROSCI, V9, DOI 10.3389/fnmol.2016.00048
Waxman EA, 2009, BIOCHEMISTRY-US, V48, P9427, DOI 10.1021/bi900539p
Waxman EA, 2009, BBA-MOL BASIS DIS, V1792, P616, DOI 10.1016/j.bbadis.2008.09.013
Weinreb PH, 1996, BIOCHEMISTRY-US, V35, P13709, DOI 10.1021/bi961799n
Zhao R, 2019, OXID MED CELL LONGEV, V2019, DOI 10.1155/2019/3281260
Zhu M, 2004, J BIOL CHEM, V279, P26846, DOI 10.1074/jbc.M403129200

Cited Reference Count: 103

Abstract: Parkinson's disease (PD) is a neurodegenerative disorder involving the progressive loss of dopaminergic neurons in the substantia nigra pars compacta triggered by the accumulation of amyloid aggregates of alpha-synuclein protein. This study investigates the potential of Salvianolic Acid B (Sal-B), a water-soluble polyphenol derived from Salvia miltiorrhiza Bunge, in modulating the aggregation of the A53T mutant of alpha-synuclein (A53T Syn). This mutation is associated with rapid aggregation and a higher rate of protofibril formation in early-onset familial PD. Computational and experimental approaches demonstrated Sal-B effectively prevents the amyloid fibrillation of A53T Syn by interacting with the N-terminal region and NAC domain. Sal-B particularly associates with the KTKEGV motif and NACore segment of A53T Syn by hydrophobic and hydrogen bonding interactions. Replica exchange molecular dynamics (REMD) simulations indicated that Sal-B reduces intramolecular hydrogen bonding and structural transitions into beta-sheet rich conformations, thereby lowering the aggregation propensity of A53T Syn. Systematic analysis conducted using biophysical techniques and high-end microscopy has demonstrated significant inhibition in the amyloid transformation of A53T Syn corroborated by a 92 % decrease in ThT maxima at 100 mu M Sal-B concentration and microscopic techniques validated the absence of mature fibrillar amyloids. DLS data revealed heterogeneous particle sizes, supporting the formation of smaller unstructured aggregates. These findings underscore Sal-B as a promising therapeutic candidate for PD and related synucleinopathies, warranting further investigation in cellular and animal models to advance potential treatments and early intervention strategies.

Accession Number: WOS:001429324700001

PubMed ID: 39693815

Language: English

Document Type: Article

Author Keywords: Parkinson's disease (PD); alpha-Synuclein; A53T Syn; Salvianolic acid B; Amyloid aggregation; Neurodegeneration

KeyWords Plus: POINT MUTATIONS A30P; FIBRIL FORMATION; MOLECULAR-DYNAMICS; BETA-HAIRPIN; AGGREGATION; DISEASE; TOOL; ANTIOXIDANT; INHIBITION; PROTECTS

Addresses: [Akhtar, Almas; Singh, Payal; Admane, Nikita; Grover, Abhinav] Jawaharlal Nehru Univ, Sch Biotechnol, New Delhi 110067, India.

Corresponding Address: Grover, A (corresponding author), Jawaharlal Nehru Univ, Sch Biotechnol, New Delhi 110067, India.

E-mail Addresses: abhinavgr@gmail.com

Affiliations: Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Akhtar, Almas		0000-0003-2458-1906

Publisher: ELSEVIER

Publisher Address: RADARWEG 29, 1043 NX AMSTERDAM, NETHERLANDS

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Biochemistry & Molecular Biology; Biophysics; Chemistry, Physical

Research Areas: Biochemistry & Molecular Biology; Biophysics; Chemistry

IDS Number: Y0S1Q

ISSN: 0301-4622

eISSN: 1873-4200

29-char Source Abbrev.: BIOPHYS CHEM

ISO Source Abbrev.: Biophys. Chem.

Source Item Page Count: 16

Output Date: 2025-12-31

Record 11 of 47

Title: Distribution and antibiotic resistance patterns of airborne staphylococci in urban environments of Delhi, India

Author(s): Kumari, H (Kumari, Himani); Singh, M (Singh, Madhuri); Chakrawarti, MK (Chakrawarti, Maneet Kumar); Mukhopadhyay, K (Mukhopadhyay, Kasturi)

Source: SCIENTIFIC REPORTS **Volume:** 15 **Issue:** 1 **Article Number:** 43026 **DOI:** 10.1038/s41598-025-95462-4 **Published Date:** 2025 DEC 3

Cited References: Achek Rachid, 2018, BMC Res Notes, V11, P663, DOI [10.1186/s13104-018-3762-2, 10.1186/s13104-018-3762-2]
Argemi X, 2019, INT J MOL SCI, V20, DOI 10.3390/ijms20051215
Atal S, 2021, J FAM MED PRIM CARE, V10, P4341, DOI 10.4103/jfmpc.jfmpc_812_21
Bai H, 2022, ENVIRON INT, V158, DOI 10.1016/j.envint.2021.106927
Becker K, 2020, EXPERT REV ANTI-INFE, V18, P349, DOI 10.1080/14787210.2020.1730813
Bogdanic N, 2022, PLOS ONE, V17, DOI 10.1371/journal.pone.0263437
Bonvegna M, 2021, ANTIBIOTICS-BASEL, V10, DOI 10.3390/antibiotics10060676
Che Y, 2022, MICROBIOME, V10, DOI 10.1186/s40168-021-01192-w
CLSI, 2018, CLSI guidelines M100, V28th
Egyir B, 2022, BMC MICROBIOL, V22, DOI 10.1186/s12866-022-02589-9
Goering RV, 2019, ANTIMICROB AGENTS CH, V63, DOI 10.1128/AAC.00558-19
Gollakota ARK, 2021, GONDWANA RES, V99, P178, DOI 10.1016/j.gr.2021.07.003
Gordon RJ, 2008, CLIN INFECT DIS, V46, pS350, DOI 10.1086/533591
Grice EA, 2011, NAT REV MICROBIOL, V9, P244, DOI 10.1038/nrmicro2537
Guirado P, 2022, ANTIBIOTICS-BASEL, V11, DOI 10.3390/antibiotics11040466
Guo YL, 2020, FRONT CELL INFECT MI, V10, DOI 10.3389/fcimb.2020.00107
Gwenzi W, 2022, SCI TOTAL ENVIRON, V804, DOI 10.1016/j.scitotenv.2021.150154
Haag AF, 2019, MICROBIOL SPECTR, V7, DOI 10.1128/microbiolspec.GPP3-0060-2019
Hadjadj L, 2019, EXPERT REV MOL DIAGN, V19, P349, DOI 10.1080/14737159.2019.1592678
Heo KJ, 2017, J AEROSOL SCI, V104, P58, DOI 10.1016/j.jaerosci.2016.11.008
Hiramatsu K, 2014, J INFECT CHEMOTHER, V20, P593, DOI 10.1016/j.jiac.2014.08.001
Jian ZH, 2021, J BASIC MICROB, V61, P1049, DOI 10.1002/jobm.202100201
Kameoka S, 2021, BMC GENOMICS, V22, DOI 10.1186/s12864-021-07746-4
Kandi V, 2016, CUREUS J MED SCIENCE, V8, DOI 10.7759/cureus.731
Kim KH, 2018, J ENVIRON SCI, V67, P23, DOI 10.1016/j.jes.2017.08.027
Kime L, 2019, MBIO, V10, DOI 10.1128/mBio.01755-19
Krishnananda Kamath K., 2024, Int. J. Pharm. Sci, V2, P282, DOI [10.5281/zenodo.14043460, DOI 10.5281/ZENODO.14043460]
Kumar P, 2016, J PATHOG, V2016, DOI 10.1155/2016/7163615
Kumar P, 2021, AEROBIOLOGIA, V37, P719, DOI 10.1007/s10453-021-09718-3
Kumari H, 2020, BMC MICROBIOL, V20, DOI 10.1186/s12866-020-01875-8
Lakhundi S, 2018, CLIN MICROBIOL REV, V31, DOI [10.1128/cmr.00020-18, 10.1128/CMR.00020-18]
Larsson DGJ, 2023, NAT MICROBIOL, V8, P754, DOI 10.1038/s41564-023-01351-9
Lu YQ, 2020, BMC MICROBIOL, V20, DOI [10.1186/s12866-020-1709-y, 10.1186/s12889-020-09048-y, 10.1186/s12889-019-8117-y]
Malecka-Adamowicz M, 2020, ATMOSPHERE-BASEL, V11, DOI 10.3390/atmos11101105
Malecka-Adamowicz M, 2019, AEROBIOLOGIA, V35, P731, DOI 10.1007/s10453-019-09613-y
Mehta Y, 2020, INDIAN J CRIT CARE M, V24, P55, DOI 10.5005/jp-journals-10071-23337
Moon KW, 2014, ENVIRON MONIT ASSESS, V186, P2111, DOI 10.1007/s10661-013-3521-8
Park S, 2021, CLIN MICROBIOL REV, V34, DOI 10.1128/CMR.00182-20
Parker M.T., 2009, Hospital acquired infections: Guidelines to laboratory methods
Parte AC, 2020, INT J SYST EVOL MICR, V70, P5607, DOI 10.1099/ijsem.0.004332
Patil Sharanagouda S, 2022, Oman Med J, V37, pe440, DOI [10.5001/omj.2022.22, 10.5001/omj.2022.22]
Pradhan P, 2021, PUBLIC HEALTH ACTION, V11, P46, DOI 10.5588/pha.21.0042
Rasheed H, 2023, MICROB PATHOGENESIS, V184, DOI 10.1016/j.micpath.2023.106342
Rasmussen M, 2016, CLIN MICROBIOL INFEC, V22, P22, DOI 10.1016/j.cmi.2015.09.026

Rybak MJ, 2020, AM J HEALTH-SYST PH, V77, P835, DOI 10.1093/ajhp/zxaa036
Shariati A, 2020, ANTIMICROB RESIST IN, V9, DOI 10.1186/s13756-020-00714-9
Siddiqui A. H., 2023, StatPearls
Singh M., 2021, Multidimensional approaches to impacts of changing environment on human health, P43, DOI [10.1201/9781003095422-3, DOI 10.1201/9781003095422-3]
who, about us
Wijesundara WMDA, 2019, Sri Lankan Journal of Infectious Diseases, V9, P42, DOI [10.4038/sljid.v9i1.8232, 10.4038/sljid.v9i1.8232, DOI 10.4038/SLJID.V9I1.8232]
Wolny-Koladka K, 2019, INDOOR BUILT ENVIRON, V28, P235, DOI 10.1177/1420326X17748463
Xie WW, 2021, FRONT ENV SCI ENG, V15, DOI 10.1007/s11783-020-1336-8
Yu H, 2019, MICROBIOL RESOUR ANN, V8, DOI 10.1128/MRA.00696-19
Zhao J, 2022, P NATL ACAD SCI USA, V119, DOI 10.1073/pnas.2204465119
Zuo H, 2021, SCI REP-UK, V11, DOI 10.1038/s41598-021-84481-6

Cited Reference Count: 55

Abstract: Airborne microbial contamination, especially involving antibiotic-resistant bacteria (ARB) and antibiotic resistance genes (ARGs), poses a growing public health concern in urban environments. This study explores the prevalence and diversity of staphylococci, including methicillin-resistant staphylococci (MRS), in bioaerosols from various urban settings in Delhi, India. Indoor and outdoor air samples showed significantly high staphylococcal loads far above the WHO's recommended limit of 1000 CFU/m(3) for microbial exposure. Seasonal variations revealed a peak in airborne MRS during winter, while monsoon rains reduced outdoor bioaerosol contamination. Eight staphylococcal species were identified, with Staphylococcus epidermidis and Staphylococcus arlettae being the most prevalent human- and animal-associated species, respectively. Notably, 73% of MRS isolates exhibited multidrug resistance (MDR), showing resistance to macrolides, beta-lactams, and other commonly used antibiotics. Genotypic analysis confirmed the presence of ARGs among airborne MRS encoding resistance for beta-lactam, trimethoprim, gentamicin, macrolides, chloramphenicol and lincosamides. Notably, with 14 out of 36 MDR isolates carrying the mecA gene encoding for methicillin resistance. This study emphasizes the potential health risks posed by airborne reservoirs of antibiotic resistance in urban environments and underscores the urgent need for comprehensive environmental AMR surveillance to develop effective mitigation strategies.

Accession Number: WOS:001630942400005

PubMed ID: 41339489

Language: English

Document Type: Article

Author Keywords: Bioaerosols; Staphylococci; Antimicrobial resistance; Antibiotic-resistant genes

KeyWords Plus: INDOOR AIR; AUREUS; BIOAEROSOLS

Addresses: [Kumari, Himani; Singh, Madhuri; Chakrawarti, Maneet Kumar; Mukhopadhyay, Kasturi] Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi 110067, India.

Corresponding Address: Singh, M; Mukhopadhyay, K (corresponding author), Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi 110067, India.

E-mail Addresses: vaigyanik.madhuri@gmail.com; kasturim@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi

Publisher: NATURE PORTFOLIO

Publisher Address: HEIDELBERGER PLATZ 3, BERLIN, 14197, GERMANY

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Multidisciplinary Sciences

Research Areas: Science & Technology - Other Topics

IDS Number: M8079

ISSN: 2045-2322

29-char Source Abbrev.: SCI REP-UK

ISO Source Abbrev.: Sci Rep

Source Item Page Count: 11

Funding:

Funding Agency	Grant Number
Department of Science and Technology, India	DST/WOS-A/LS-99/2021
University Grant Commission (UGC), India	

M.S. is thankful for the grant received from the Department of Science and Technology, India (DST/WOS-A/LS-99/2021). H.K. is thankful for the fellowship received from the University Grant Commission (UGC), India. H.K. is thankful to Sonali Rajput for her help during the bioaerosol sampling.

Open Access: gold

Output Date: 2025-12-31

Record 12 of 47

Title: Machine Learning Driven Urban Flood Susceptibility Analysis of National Capital Territory Delhi: Integrating Remote Sensing and GIS Technique

Author(s): Dudy, M (Dudy, Monika); Majid, SI (Majid, Syed Irtiza); Bara, AR (Bara, Anant Rajee); Kumar, M (Kumar, Manish); Kumar, R (Kumar, Rakesh); Ray, BK (Ray, Benay Kumar)

Source: JOURNAL OF THE INDIAN SOCIETY OF REMOTE SENSING **DOI:** 10.1007/s12524-025-02354-1 **Early Access Date:** DEC 2025 **Published Date:** 2025 DEC 4

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Alabdan R, 2025, SCI REP-UK, V15, DOI 10.1038/s41598-025-08912-4
Ali MHM, 2022, INT J ADV COMPUT SC, V13, P972
Anbarasan M, 2020, COMPUT COMMUN, V150, P150, DOI 10.1016/j.comcom.2019.11.022
Anni AH, 2020, J HYDROL, V588, DOI 10.1016/j.jhydrol.2020.125028
Baalaji S., 2020, International Research Journal of Engineering and Technology, V7, P6245
Bennett A., 2020, Internet Geography
Bensal Neha., 2015, International Journal of Current Research, V7, P12615
Botalb A, 2018, 2018 INTERNATIONAL CONFERENCE ON INTELLIGENT AND ADVANCED SYSTEM (ICIAS 2018) / WORLD ENGINEERING, SCIENCE & TECHNOLOGY CONGRESS (ESTCON)
Breiman L, 2001, MACH LEARN, V45, P5, DOI 10.1023/A:1010933404324
Burrough PA., 2015, Principles of geographical information systems
Charbuty B, 2021, Journal of Applied Science and Technology Trends, V2, P20, DOI [10.38094/jastt20165, 10.38094/jastt20165, DOI 10.38094/JASTT20165]
Chatterjee R, 2009, ENVIRON EARTH SCI, V59, P669, DOI 10.1007/s12665-009-0064-y
Chen JL, 2021, J ENVIRON MANAGE, V293, DOI 10.1016/j.jenvman.2021.112810
Chen J, 2023, INT J ENV RES PUB HE, V20, DOI 10.3390/ijerph20021043
Chen XL, 2021, SCI TOTAL ENVIRON, V762, DOI 10.1016/j.scitotenv.2020.143144
Cheng T, 2017, MATH PROBL ENG, V2017, DOI 10.1155/2017/5659197
Cherqui F, 2015, SCI TOTAL ENVIRON, V514, P418, DOI 10.1016/j.scitotenv.2015.02.027
Danumah JH, 2016, GEOENVIRONMENTAL DIS, V3, DOI [10.1186/s40677-016-0044-y, 10.1186/s40677-016-0044-y, DOI 10.1186/S40677-016-0044-Y, 10.1186/S40677-016-0044-Y]
De U., 2013, J. Ind. Geophys. Union, V17, P153
Elshorbagy A, 2017, HYDROL EARTH SYST SC, V21, P2219, DOI 10.5194/hess-21-2219-2017
Esfandiari M, 2020, ISPRS Annals of the Photogrammetry Remote Sensing and Spatial Information Sciences, VV-3-2020, P609, DOI [10.5194/isprs-annals-v-3-2020-609-2020, 10.5194/isprs-Annals-V-3-2020-609-2020, DOI 10.5194/ISPRS-ANNALS-V-3-2020-609-2020]

Freund Y., 1995, EUR C COMP LEARN THE, P23
Geeksforgeeks, 2023, Bernoulli naive bayes
Ghertner DA, 2017, ANN AM ASSOC GEOGR, V107, P731, DOI 10.1080/24694452.2016.1261680
Ghosh S, 2020, J CLEAN PROD, V275, DOI 10.1016/j.jclepro.2020.123475
Gupta S., 2017, Impact of floods in Delhi
Harsányi E, 2022, INT J ENV RES PUB HE, V19, DOI 10.3390/ijerph191710653
Hong HY, 2018, SCI TOTAL ENVIRON, V625, P575, DOI 10.1016/j.scitotenv.2017.12.256
Huong HTL, 2013, HYDROL EARTH SYST SC, V17, P379, DOI 10.5194/hess-17-379-2013
Kabir S, 2020, J HYDROL, V590, DOI 10.1016/j.jhydrol.2020.125481
Karamouz M, 2011, J HYDROL ENG, V16, P395, DOI 10.1061/(ASCE)HE.1943-5584.0000317
Khan TA, 2019, 2019 13TH INTERNATIONAL CONFERENCE ON MATHEMATICS, ACTUARIAL SCIENCE, COMPUTER SCIENCE AND STATISTICS (MACS-13), DOI 10.1109/macs48846.2019.9024796
Khatri S, 2023, GEOJOURNAL, V88, P277, DOI 10.1007/s10708-022-10731-3
Khosravi K, 2018, SCI TOTAL ENVIRON, V627, P744, DOI 10.1016/j.scitotenv.2018.01.266
Kumar M, 2023, ADV GEOGR EVIRON SCI, P221, DOI 10.1007/978-981-19-7855-5_14
Lai CG, 2016, J HYDROL, V542, P268, DOI 10.1016/j.jhydrol.2016.09.003
Lei XX, 2021, J HYDROL, V601, DOI 10.1016/j.jhydrol.2021.126684
Li GY, 2023, REG SUSTAIN, V4, P332, DOI 10.1016/j.regsus.2023.08.004
Li SS, 2020, J HYDROL, V588, DOI 10.1016/j.jhydrol.2020.125051
Li Y, 2023, SUSTAIN CITIES SOC, V88, DOI 10.1016/j.scs.2022.104307
LIU WZ, 1994, MACH LEARN, V15, P25, DOI 10.1007/BF01000407
Lyu HM, 2019, HYDROL EARTH SYST SC, V23, P4293, DOI 10.5194/hess-23-4293-2019
Majid SI, 2025, ENVIRON DEV SUSTAIN, V27, P30569, DOI 10.1007/s10668-024-04926-6
Maspo Nur-Adib, 2020, IOP Conference Series: Earth and Environmental Science, V479, DOI [10.1088/1755-1315/479/1/012038, 10.1088/1755-1315/479/1/012038]
Mignot E, 2019, J HYDROL, V568, P334, DOI 10.1016/j.jhydrol.2018.11.001
Mohanty MP, 2020, J ENVIRON MANAGE, V255, DOI 10.1016/j.jenvman.2019.109733
Mojaddadi H, 2017, GEOMAT NAT HAZ RISK, V8, P1080, DOI 10.1080/19475705.2017.1294113
Mukherjee Alokananda Banerjee, 2021, Water Science, V35, P109, DOI [10.1080/23570008.2021.1957641, 10.1080/23570008.2021.1957641]
Natarajan L, 2021, J INDIAN SOC REMOTE, V49, P1533, DOI 10.1007/s12524-021-01331-8
Owusu-Adjei M, 2023, PLOS DIGIT HEALTH, V2, DOI 10.1371/journal.pdig.0000290
Pourghasemi HR, 2021, IEEE J-STARS, V14, P1923, DOI 10.1109/JSTARS.2020.3045278
Predick KI, 2008, J ECOL, V96, P91, DOI 10.1111/j.1365-2745.2007.01329.x
Pham QB, 2021, GEOMAT NAT HAZ RISK, V12, P2607, DOI 10.1080/19475705.2021.1968510
Radula MW, 2018, ECOL INDIC, V85, P172, DOI 10.1016/j.ecolind.2017.10.011
Rafiei-Sardooi E, 2021, INT J DISAST RISK RE, V66, DOI 10.1016/j.ijdrr.2021.102614
Ramesh V, 2022, GEOCARTO INT, V37, P581, DOI 10.1080/10106049.2020.1730448
Ren PZ, 2022, ACM COMPUT SURV, V54, DOI 10.1145/3472291
Righini M, 2017, GEOMORPHOLOGY, V290, P184, DOI 10.1016/j.geomorph.2017.04.014
Riley S.J., 1999, INTERMT J SCI, V5, P23
Sado-Inamura Y, 2019, LAND USE POLICY, V82, P13, DOI 10.1016/j.landusepol.2018.11.031
Saikh NI, 2023, Natural Hazards Research, V3, P420, DOI [10.1016/j.nhres.2023.05.004, 10.1016/j.nhres.2023.05.004, DOI 10.1016/J.NHRES.2023.05.004]
Sanders BF, 2007, ADV WATER RESOUR, V30, P1831, DOI 10.1016/j.advwatres.2007.02.005
Saravanan S, 2022, GEOCARTO INT, V37, P15252, DOI 10.1080/10106049.2022.2096702
Sarker Iqbal H, 2021, SN Comput Sci, V2, P420, DOI [10.1007/s42979-021-00815-1, 10.1007/s42979-021-00815-1]
Sgalella, 2019, Correlation heatmaps with hierarchical clustering
Sowmya K, 2015, NAT HAZARDS, V75, P1271, DOI 10.1007/s11069-014-1372-4
Tehrany MS, 2015, CATENA, V125, P91, DOI 10.1016/j.catena.2014.10.017
Tehrany MS, 2014, ENVIRON EARTH SCI, V72, P4001, DOI 10.1007/s12665-014-3289-3
Tomar P, 2021, SUSTAINABILITY-BASEL, V13, DOI 10.3390/su132212850
Uddin K, 2021, PROG DISASTER SCI, V11, DOI 10.1016/j.pdisas.2021.100185

Wang HJ, 2024, J BIG DATA-GER, V11, DOI 10.1186/s40537-024-00905-w
Wang ZL, 2015, J HYDROL, V527, P1130, DOI 10.1016/j.jhydrol.2015.06.008
Wu ZN, 2020, SCI TOTAL ENVIRON, V716, DOI 10.1016/j.scitotenv.2020.137077
Xu HS, 2018, J HYDROL, V563, P975, DOI 10.1016/j.jhydrol.2018.06.060
Yang WM, 2016, CAAI T INTELL TECHNO, V1, P241, DOI 10.1016/j.trit.2016.10.006
Yaseen ZM, 2024, RESULTS ENG, V21, DOI 10.1016/j.rineng.2023.101665
Yildirim E, 2022, SCI TOTAL ENVIRON, V826, DOI 10.1016/j.scitotenv.2022.154165
Zhao G, 2019, SCI TOTAL ENVIRON, V659, P940, DOI 10.1016/j.scitotenv.2018.12.217
Zhu KL, 2024, J HYDROL-REG STUD, V52, DOI 10.1016/j.ejrh.2024.101739

Cited Reference Count: 79

Abstract: Urban flooding has emerged as a recurrent menace, posing severe challenges to urban infrastructure, livelihoods, and sustainable urban growth. Developing accurate models for flood susceptibility mapping is imperative for informed hazard mitigation and for strengthening urban resilience. This study develops, compares, and applies six machine learning (ML) and three deep learning (DL) models for urban flood susceptibility analysis of the National Capital Territory (NCT) Delhi, India. Fifteen flood-influencing factors were used in this study. Gradient boosted decision tree (GBDT) yielded the most accurate urban flood risk map, with a receiver operating characteristic-area under the curve (ROC-AUC) of 93.27%, an accuracy of 87.92%, and a precision score of 89.46%. The tree-based models, including GBDT, random forest (RF), and decision tree (DT), are inherently programmed to provide feature importance insights. These models efficiently decipher the complex relationships between urban floods and their influencing factors. These indicate that LULC is the most flood-influencing factor, followed by the MFI, GLG, and DNS. Finally, flood susceptibility assessment of different constituencies in NCT Delhi was predicted using the GBDT model, and it was found that forty-three out of seventy constituencies exhibit higher flooding probabilities, posing elevated risks for the residents and public infrastructure of NCT Delhi. These findings help the government prioritize constituencies for developing and implementing flood mitigation plans.

Accession Number: WOS:001630620400001

Language: English

Document Type: Article; Early Access

Author Keywords: Urban flood susceptibility; Machine learning; Gradient-boosted decision tree; Urban region; NCT Delhi

KeyWords Plus: RISK-ASSESSMENT; MODEL; CITY; VULNERABILITY; ALGORITHMS; SELECTION; WEIGHT; SYSTEM; MAP

Addresses: [Dudy, Monika; Bara, Anant Rajee; Kumar, Rakesh] Cent Univ Haryana, Dept Comp Sci & Engn, Pali 123031, Haryana, India.
[Majid, Syed Irtiza; Kumar, Manish] Cent Univ Haryana, Sch Basic Sci, Dept Geog, Pali 123031, Haryana, India.
[Ray, Benay Kumar] Jawaharlal Nehru Univ, Sch Engn, New Delhi 110067, India.

Corresponding Address: Ray, BK (corresponding author), Jawaharlal Nehru Univ, Sch Engn, New Delhi 110067, India.

E-mail Addresses: benayray@jnu.ac.in

Affiliations: Central University of Haryana; Central University of Haryana; Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Majid, Syed Irtiza	KDO-4694-2024	

Publisher: SPRINGER

Publisher Address: ONE NEW YORK PLAZA, SUITE 4600, NEW YORK, NY, UNITED STATES

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Environmental Sciences; Remote Sensing

Research Areas: Environmental Sciences & Ecology; Remote Sensing

IDS Number: M4879
ISSN: 0255-660X
eISSN: 0974-3006
29-char Source Abbrev.: J INDIAN SOC REMOTE
ISO Source Abbrev.: J. Indian Soc. Remote Sens.
Source Item Page Count: 24
Funding:

Funding Agency	Grant Number
Department of Electronics and Information Technology, Ministry of Electronics and Information Technology (MeitY)	

This research is supported by the "Visvesvaraya Ph.D. scheme for Electronics and IT- Phase II" sponsored by DeitY, MCIT, Government of India. The funding was received by the author Monika.
Output Date: 2025-12-31

Record 13 of 47
Title: Trade and Environmental Policies With Special Interest Politics: A Case of Asymmetric Information
Author(s): Bhattacharya, G (Bhattacharya, Gaurav); Mehra, MK (Mehra, Meeta Keswani)
Source: JOURNAL OF PUBLIC ECONOMIC THEORY **Volume:** 27 **Issue:** 6 **Article Number:** e70081 **DOI:** 10.1111/jpet.70081 **Published Date:** 2025 DEC 17
Times Cited in Web of Science Core Collection: 0
Total Times Cited: 0
Usage Count (Last 180 days): 0
Usage Count (Since 2013): 0
Cited References: Acemoglu D, 2013, Q J ECON, V128, P771, DOI 10.1093/qje/qjs077
Ambec I., 2006, Energy Studies Review, V14, P42, DOI [10.15173/esr.v14i2.493, DOI 10.15173/ESR.V14I2.493]
Arulampalam W, 2009, J DEV ECON, V88, P103, DOI 10.1016/j.jdeveco.2008.01.001
BAUMOL WJ, 1971, SWED J ECON, V73, P42, DOI 10.2307/3439132
BERNHEIM BD, 1986, Q J ECON, V101, P1, DOI 10.2307/1884639
Böhringer C, 2012, ENERG ECON, V34, pS97, DOI 10.1016/j.eneco.2012.10.003
Böhmelt T, 2022, INT ENVIRON AGREEM-P, V22, P507, DOI 10.1007/s10784-022-09562-x
Bombardini M, 2020, ANNU REV ECON, V12, P391, DOI 10.1146/annurev-economics-082019-024350
Bommer R., 1999, European journal of political economy, V15, P639, DOI [10.1016/s0176-2680(99)00037-3, DOI 10.1016/S0176-2680(99)00037-3]
Cabeca L. S., 2022, Why Investors in Africa Face Heightened Risks Ahead of Elections
Colantone I, 2019, J ECON PERSPECT, V33, P128, DOI 10.1257/jep.33.4.128
Conconi P, 2003, J INT ECON, V59, P399, DOI 10.1016/S0022-1996(02)00023-5
Cremer H, 2008, J PUBLIC ECON, V92, P532, DOI 10.1016/j.jpubeco.2007.06.008
CWS, 2018, E-Bulletin, Centre for WTO Studies
Damania R, 2003, J ENVIRON ECON MANAG, V46, P490, DOI 10.1016/S0095-0696(03)00025-1
Damuri Y. R., 2018, Indonesia in the New World: Globalisation, Nationalism and Sovereignty, P109
Datta R., 2022, West Bengal SSC Scam: Partha Chatterjee's False Notes
Farzin Y. H., 2014, Environmental Economics, V5, P14
Fisher-Vanden K, 2011, J ENVIRON ECON MANAG, V62, P430, DOI 10.1016/j.jeem.2011.04.003
Fleck R. K., 2017, The Law and Economics of Federalism, P91
Fleck RK, 1999, ECON INQ, V37, P609, DOI 10.1111/j.1465-7295.1999.tb01451.x
Ganga P, 2022, Journal of Illiberalism Studies, V2, P69, DOI 10.53483/wckw3544
Greenstone M, 2002, J POLIT ECON, V110, P1175, DOI 10.1086/342808
Grossman G. M., 2001, Special interest Politics

GROSSMAN GM, 1995, J POLIT ECON, V103, P675, DOI 10.1086/261999
GROSSMAN GM, 1994, AM ECON REV, V84, P833
Huber RA, 2020, ENVIRON POLIT, V29, P959, DOI 10.1080/09644016.2019.1708186
Jones RonaldW., 1971, TRADE BALANCE PAYMEN, P3
Kiely R, 2021, GEOFORUM, V124, P334, DOI 10.1016/j.geoforum.2020.02.002
Korhonen I., 2019, CESIFO FORUM, V20, P19
KRUTILLA K, 1991, J ENVIRON ECON MANAG, V20, P127, DOI 10.1016/0095-0696(91)90046-L
Le Breton M, 2003, J PUBLIC ECON, V87, P2589, DOI 10.1016/S0047-2727(02)00142-1
Limao N, 2006, AM ECON REV, V96, P896, DOI 10.1257/aer.96.3.896
Mehra MK, 2010, INDIAN GROWTH DEV RE, V3, P138, DOI 10.1108/17538251011084464
Montanari L., 2008, Technical Report, Quaderni Working Paper DSE
Schleich J., 2000, Review of International Economics, V8, P681
Schoenbaum TJ, 2023, GERMAN LAW J, V24, P102, DOI 10.1017/glj.2023.7
Schoonbeek L, 2009, J REGUL ECON, V36, P94, DOI 10.1007/s11149-009-9093-4
Villamil A, 2021, J PUBLIC ECON THEORY, V23, P660, DOI 10.1111/jpet.12519
Wang QJ, 2022, LAND USE POLICY, V119, DOI 10.1016/j.landusepol.2022.106208
Wang QJ, 2022, GLOBAL ENVIRON CHANG, V74, DOI 10.1016/j.gloenvcha.2022.102496
Wen J, 2016, ECON SYST, V40, P232, DOI 10.1016/j.ecosys.2016.04.001
World Bank, 2024, Food Production Index
World Integrated Trade Solution (WITS), 2024, Import Product Share
World Integrated Trade Solution (WITS), 2023, India Tariffs

Cited Reference Count: 45

Abstract: This paper presents a model on the political economy of trade and environmental policies in the presence of asymmetric information. Information asymmetries stem from the preference of the incumbent government towards welfare of the general voter and political contributions made by special interest groups. Special interest groups are owners of sector-specific factors of production used to produce traded final goods and there exist negative production externalities. The incumbent uses trade and environmental policies to regulate trade flows and environmental quality, respectively. Results show that: (i) information asymmetries work in favour of special interest groups as they guarantee laxer environmental policy in comparison to the baseline scenario of complete information; (ii) trade policy in the domestic country is invariant of the information on the incumbent's preference over aggregate social welfare and reflect terms-of-trade effects and addresses production externalities generated abroad; (iii) including intermediate goods along with final goods in the model creates an additional layer of distortion in the environmental policy through cross-sectoral effects on returns to the sector-specific factors of production. The downward distortion in environmental policy worsens environmental quality, which adversely affects the general voters.

Accession Number: WOS:001640707600001

Language: English

Document Type: Article

Author Keywords: asymmetric information; environmental policy; non-cooperative equilibrium; special interest groups; trade policy

KeyWords Plus: LIBERALIZATION; PROTECTION; MODEL

Addresses: [Bhattacharya, Gaurav] Ahmedabad Univ, Econ & Publ Policy Area, Ahmadabad, Gujarat, India.
[Mehra, Meeta Keswani] Jawaharlal Nehru Univ, Ctr Int Trade & Dev, New Delhi, Delhi, India.

Corresponding Address: Bhattacharya, G (corresponding author), Ahmedabad Univ, Econ & Publ Policy Area, Ahmadabad, Gujarat, India.

E-mail Addresses: gaurav.bhattacharya@ahduni.edu.in

Affiliations: Ahmedabad University; Jawaharlal Nehru University, New Delhi

Publisher: WILEY

Publisher Address: 111 RIVER ST, HOBOKEN 07030-5774, NJ USA

Web of Science Index: Social Science Citation Index (SSCI)

Web of Science Categories: Economics

Research Areas: Business & Economics
IDS Number: X5376
ISSN: 1097-3923
eISSN: 1467-9779
29-char Source Abbrev.: J PUBLIC ECON THEORY
ISO Source Abbrev.: J. Public. Econ. Theory.
Source Item Page Count: 42
Output Date: 2025-12-31

Record 14 of 47

Title: Cell membrane-based biomimetic nanoformulations as a multifaceted biomedical tool in cancer treatment

Author(s): Bhati, S (Bhati, Shivani); Prakash, C (Prakash, Chandra); Gandhi, HA (Gandhi, Harsh A.); Rabidas, SS (Rabidas, Shyam Sunder); Bhattacharya, J (Bhattacharya, Jaydeep)

Source: MATERIALS TODAY CHEMISTRY **Volume:** 50 **Article Number:** 103224 **DOI:** 10.1016/j.mtchem.2025.103224 **Published Date:** 2025 DEC

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Abbasi M, 2023, INT J BIOL MACROMOL, V233, DOI 10.1016/j.ijbiomac.2023.123585
Allen TM, 2004, SCIENCE, V303, P1818, DOI 10.1126/science.1095833
Baetke SC, 2015, BRIT J RADIOL, V88, DOI 10.1259/bjr.20150207
Bahmani B, 2021, NAT COMMUN, V12, DOI 10.1038/s41467-021-22311-z
Bu LL, 2019, ADV FUNCT MATER, V29, DOI 10.1002/adfm.201807733
Cai DF, 2019, SCI REP-UK, V9, DOI 10.1038/s41598-019-51029-8
Cai JX, 2022, INT J NANOMED, V17, P837, DOI 10.2147/IJN.S346685
Cao JX, 2021, FRONT BIOENG BIOTECH, V9, DOI 10.3389/fbioe.2021.707208
Chen BQ, 2023, BIOACT MATER, V21, P1, DOI 10.1016/j.bioactmat.2022.07.023
Chen FM, 2022, FRONT BIOENG BIOTECH, V10, DOI 10.3389/fbioe.2022.860949
Chen HY, 2025, ADV HEALTHC MATER, DOI 10.1002/adhm.202502409
Chen HY, 2020, ACTA BIOMATER, V112, P1, DOI 10.1016/j.actbio.2020.05.028
Chen HY, 2021, J NANOBIOTECHNOL, V19, DOI 10.1186/s12951-021-01088-9
Chen H, 2022, J NANOBIOTECHNOL, V20, DOI 10.1186/s12951-022-01266-3
Chen MY, 2021, DRUG DELIV, V28, P2241, DOI 10.1080/10717544.2021.1992038
Chen PM, 2020, PHARMACEUTICS, V12, DOI 10.3390/pharmaceutics12030243
Chen Q, 2020, ADV MATER, V32, DOI 10.1002/adma.201908185
Chen Z, 2016, ACS NANO, V10, P10049, DOI 10.1021/acsnano.6b04695
Chen ZH, 2021, MOL PHARMACEUT, V18, P386, DOI 10.1021/acs.molpharmaceut.0c01008
Cheng SH, 2020, ADV SCI, V7, DOI 10.1002/advs.201903301
Chiang ST, 2024, ACS NANO, V18, P33875, DOI 10.1021/acsnano.4c07074
Choi S, 2021, YONSEI MED J, V62, P1042, DOI 10.3349/ymj.2021.62.11.1042
Chowdhury P, 2022, ACS APPL BIO MATER, DOI 10.1021/acsabm.2c00614
Da X, 2023, BIOCHEM BIOPH RES CO, V671, P335, DOI 10.1016/j.bbrc.2023.05.124
Dehaini D, 2017, ADV MATER, V29, DOI 10.1002/adma.201606209
Deng B, 2024, J NANOBIOTECHNOL, V22, DOI 10.1186/s12951-024-03070-7
Deng W, 2025, J NANOBIOTECHNOL, V23, DOI 10.1186/s12951-025-03511-x
Ding L, 2023, MOL THER, V31, P2489, DOI 10.1016/j.ymthe.2023.04.011
Duan WJ, 2024, ACS APPL MATER INTER, V16, P45523, DOI 10.1021/acsami.4c08842
Egbuna C, 2021, J TOXICOL-US, V2021, DOI 10.1155/2021/9954443
Eldin ZE, 2025, BIOORG CHEM, V164, DOI 10.1016/j.bioorg.2025.108873

Fan JL, 2020, ACTA BIOMATER, V113, P554, DOI 10.1016/j.actbio.2020.06.025
Fan YY, 2021, MOLECULES, V26, DOI 10.3390/molecules26165103
Fan YY, 2023, ACS APPL MATER INTER, V15, P27183, DOI 10.1021/acsami.3c03792
Fang RH, 2023, NAT REV CLIN ONCOL, V20, P33, DOI 10.1038/s41571-022-00699-x
Fang RH, 2018, ADV MATER, V30, DOI 10.1002/adma.201706759
Fei BY, 2024, ACS BIOMATER SCI ENG, V10, P7482, DOI 10.1021/acsbiomaterials.4c01337
Feng SN, 2021, INT J NANOMED, V16, P2123, DOI 10.2147/IJN.S266948
Ferreira NN, 2023, FRONT BIOENG BIOTECH, V11, DOI 10.3389/fbioe.2023.1120179
Fontana F, 2017, ADV MATER, V29, DOI 10.1002/adma.201603239
Fu Q, 2015, NANOSCALE, V7, P4020, DOI 10.1039/c4nr07027e
Fusciello M, 2019, NAT COMMUN, V10, DOI 10.1038/s41467-019-13744-8
Gao CY, 2016, SMALL, V12, P4056, DOI 10.1002/smll.201600624
Gao P, 2023, BIOMATER SCI-UK, V11, P7616, DOI 10.1039/d3bm01206a
Gao Y, 2021, FRONT CELL DEV BIOL, V9, DOI 10.3389/fcell.2021.688070
Gong CA, 2021, J NANOBIOTECHNOL, V19, DOI 10.1186/s12951-021-00805-8
Gong CA, 2020, J NANOBIOTECHNOL, V18, DOI 10.1186/s12951-020-00649-8
Gong P, 2021, CANCERS, V13, DOI 10.3390/cancers13010077
Guo YY, 2015, ACS NANO, V9, P6918, DOI 10.1021/acsnano.5b01042
Guo YQ, 2022, ADV MATER, V34, DOI 10.1002/adma.202206861
Han SL, 2022, J CONTROL RELEASE, V348, P250, DOI 10.1016/j.jconrel.2022.05.057
Harris JC, 2022, ACS BIOMATER SCI ENG, DOI 10.1021/acsbiomaterials.2c00832
He Y, 2023, J CONTROL RELEASE, V359, P347, DOI 10.1016/j.jconrel.2023.05.043
Heberle FA, 2020, P NATL ACAD SCI USA, V117, P19943, DOI 10.1073/pnas.2002200117
Hong LQ, 2024, RSC ADV, V14, P32818, DOI 10.1039/d4ra06965j
Hou XY, 2025, DRUG DELIV TRANSL RE, V15, P1525, DOI 10.1007/s13346-024-01689-5
Hu CL, 2024, INT J NANOMED, V19, P507, DOI 10.2147/IJN.S440332
Huang DQ, 2022, BIOMATERIALS, V289, DOI 10.1016/j.biomaterials.2022.121808
Huang KW, 2018, BIOMACROMOLECULES, V19, P2330, DOI 10.1021/acs.biomac.8b00358
Huang TY, 2024, ACS APPL MATER INTER, V16, P27187, DOI 10.1021/acsami.4c05831
Huo YY, 2022, ACS APPL BIO MATER, V5, P5113, DOI 10.1021/acsabm.2c00466
Ji B, 2020, ACTA BIOMATER, V111, P363, DOI 10.1016/j.actbio.2020.04.046
Jiang Q, 2019, BIOMATERIALS, V192, P292, DOI 10.1016/j.biomaterials.2018.11.021
Jiao XX, 2022, CURR PHARM BIOTECHNO, V23, P835, DOI 10.2174/1389201022666210719164538
Jin FY, 2021, J CONTROL RELEASE, V337, P90, DOI 10.1016/j.jconrel.2021.07.021
Kamerkar S, 2017, NATURE, V546, P498, DOI 10.1038/nature22341
Kang T, 2017, ACS NANO, V11, P1397, DOI 10.1021/acsnano.6b06477
Kou QJ, 2023, NANOSCALE, V15, P9457, DOI 10.1039/d3nr00542a
Kouchakzadeh H, 2017, CURR PHARM DESIGN, V23, P5336, DOI 10.2174/1381612823666170526101408
Krishnan N, 2021, ADV DRUG DELIVER REV, V179, DOI 10.1016/j.addr.2021.114006
Kroll AV, 2017, ADV MATER, V29, DOI 10.1002/adma.201703969
Lee WH, 2017, EXPERT OPIN DRUG DEL, V14, P937, DOI 10.1080/17425247.2017.1247804
Lei W, 2022, J NANOBIOTECHNOL, V20, DOI 10.1186/s12951-022-01251-w
Leng JK, 2022, FRONT BIOENG BIOTECH, V10, DOI 10.3389/fbioe.2022.841186
Li GM, 2024, J MATER CHEM B, V12, P7429, DOI 10.1039/d4tb00813h
Li HC, 2019, CELLS-BASEL, V8, DOI 10.3390/cells8080881
Li HJ, 2024, J CONTROL RELEASE, V366, P28, DOI 10.1016/j.jconrel.2023.12.039
Li J, 2023, MED ONCOL, V40, DOI 10.1007/s12032-023-02175-7
Li LL, 2023, ADV HEALTHC MATER, V12, DOI 10.1002/adhm.202300967
Li M, 2024, INT J NANOMED, V19, P6999, DOI 10.2147/IJN.S466268
Li MH, 2021, ASIAN J PHARM SCI, V16, P97, DOI 10.1016/j.ajps.2020.06.006
Li QY, 2021, INT J NANOMED, V16, P3875, DOI 10.2147/IJN.S301855
Li RX, 2018, ACTA PHARM SIN B, V8, P14, DOI 10.1016/j.apsb.2017.11.009
Li T, 2024, BIOMATERIALS, V309, DOI 10.1016/j.biomaterials.2024.122626
Li T, 2022, NANO LETT, V22, P3095, DOI 10.1021/acs.nanolett.2c00500

Li XC, 2023, J COLLOID INTERF SCI, V652, P770, DOI 10.1016/j.jcis.2023.08.109
Li Y, 2022, FRONT BIOENG BIOTECH, V10, DOI 10.3389/fbioe.2022.1069676
Li YY, 2022, MOL PHARMACEUT, DOI 10.1021/acs.molpharmaceut.2c00212
Li YJ, 2020, ACTA BIOMATER, V101, P519, DOI 10.1016/j.actbio.2019.10.022
Li YJ, 2018, ANAL CHEM, V90, P4188, DOI 10.1021/acs.analchem.8b00311
Li Y, 2023, COLLOID SURFACE B, V222, DOI 10.1016/j.colsurfb.2023.113131
Lin TT, 2016, ACS NANO, V10, P9999, DOI 10.1021/acsnano.6b04268
Liu B, 2021, NANO LETT, V21, P9410, DOI 10.1021/acs.nanolett.1c02582
Liu F, 2022, BIOMATERIALS, V284, DOI 10.1016/j.biomaterials.2022.121485
Liu GN, 2019, ADV MATER, V31, DOI 10.1002/adma.201900795
Liu H, 2019, BIOMATER SCI-UK, V7, P3706, DOI 10.1039/c9bm00634f
Liu LZ, 2022, NAT COMMUN, V13, DOI 10.1038/s41467-022-33889-3
Liu LZ, 2021, NAT COMMUN, V12, DOI 10.1038/s41467-021-26052-x
Liu QW, 2023, J NANOBIOTECHNOL, V21, DOI 10.1186/s12951-023-02031-w
Liu RC, 2024, NANO LETT, V24, P13851, DOI 10.1021/acs.nanolett.4c04609
Liu XL, 2021, ADV SCI, V8, DOI 10.1002/advs.202003679
Liu YF, 2022, MOL PHARMACEUT, V19, P805, DOI 10.1021/acs.molpharmaceut.1c00720
Liu Y, 2019, NANO-MICRO LETT, V11, DOI 10.1007/s40820-019-0330-9
Liu YP, 2025, CELL COMMUN SIGNAL, V23, DOI 10.1186/s12964-025-02321-w
Lu K, 2022, INT J MOL SCI, V23, DOI 10.3390/ijms23073623
Luk BT, 2015, J CONTROL RELEASE, V220, P600, DOI 10.1016/j.jconrel.2015.07.019
Luo L, 2020, J MATER CHEM B, V8, P4080, DOI 10.1039/c9tb02937k
Ma WJ, 2022, ADV MATER, V34, DOI 10.1002/adma.202109609
Marshall SK, 2022, MOLECULES, V27, DOI 10.3390/molecules27196473
Mei D, 2020, J CONTROL RELEASE, V324, P341, DOI 10.1016/j.jconrel.2020.05.016
Meng Di, 2024, Biomed Pharmacother, V180, P117539, DOI [10.1016/j.biopha.2024.117539, 10.1016/j.biopha.2024.117539]
Miao YQ, 2022, ACS NANO, V16, P6527, DOI 10.1021/acsnano.2c00893
Mitchell MJ, 2021, NAT REV DRUG DISCOV, V20, P101, DOI 10.1038/s41573-020-0090-8
Najahi-Missaoui W, 2021, INT J MOL SCI, V22, DOI 10.3390/ijms22010385
Ni W, 2025, DRUG DELIV TRANSL RE, V15, P1540, DOI 10.1007/s13346-024-01690-y
Ning SP, 2022, ACTA BIOMATER, V152, P562, DOI 10.1016/j.actbio.2022.08.067
Niu YN, 2025, ADV SCI, V12, DOI 10.1002/advs.202504188
Orndorff RL, 2009, NANO LETT, V9, P2589, DOI 10.1021/nl900789e
Oroojalian F, 2021, SMALL, V17, DOI 10.1002/smll.202006484
Pan YB, 2022, ACS NANO, V16, P19038, DOI 10.1021/acsnano.2c08077
Park JH, 2021, SCI ADV, V7, DOI 10.1126/sciadv.abf7820
Patel RB, 2019, ADV MATER, V31, DOI 10.1002/adma.201902626
Pattni BS, 2015, CHEM REV, V115, P10938, DOI 10.1021/acs.chemrev.5b00046
Pei Q, 2018, ACS NANO, V12, P1630, DOI 10.1021/acsnano.7b08219
Pei WJ, 2020, INT J NANOMED, V15, P10151, DOI 10.2147/IJN.S285952
Pitchaimani A, 2018, BIOMATERIALS, V160, P124, DOI 10.1016/j.biomaterials.2018.01.018
Qu Y, 2022, ADV MATER, V34, DOI 10.1002/adma.202107883
Rao L, 2018, ADV FUNCT MATER, V28, DOI 10.1002/adfm.201803531
Raza F, 2021, ADV HEALTHC MATER, V10, DOI 10.1002/adhm.202002081
Ren LP, 2024, INT J PHARMACEUT, V652, DOI 10.1016/j.ijpharm.2024.123811
Ren YJ, 2022, PHARMACEUTICALS-BASE, V15, DOI 10.3390/ph15020157
Rezaei S, 2023, BIOMATER ADV, V151, DOI 10.1016/j.bioadv.2023.213456
Scully MA, 2023, MOL PHARMACEUT, V20, P3895, DOI 10.1021/acs.molpharmaceut.3c00009
Shao D, 2020, ADV MATER, V32, DOI 10.1002/adma.202004385
Shao FY, 2021, BIOMATERIALS, V274, DOI 10.1016/j.biomaterials.2021.120869
Shen WW, 2022, DRUG DELIV, V29, P31, DOI 10.1080/10717544.2021.2015481
Shen ZQ, 2025, J CONTROL RELEASE, V387, DOI 10.1016/j.jconrel.2025.114203
Song MM, 2024, ADV MATER, V36, DOI 10.1002/adma.202311760

Song MM, 2022, J CONTROL RELEASE, V345, P744, DOI 10.1016/j.jconrel.2022.03.060
Soprano E, 2022, J NANOBIOTECHNOL, V20, DOI 10.1186/s12951-022-01748-4
Sun HP, 2017, ADV FUNCT MATER, V27, DOI 10.1002/adfm.201604300
Sun HP, 2016, ADV MATER, V28, P9581, DOI 10.1002/adma.201602173
Sun SQ, 2024, J CONTROL RELEASE, V367, P470, DOI 10.1016/j.jconrel.2024.01.057
Sun X, 2021, ACS APPL MATER INTER, V13, P3679, DOI 10.1021/acsami.0c20617
Sun YX, 2020, J NANOBIOTECHNOL, V18, DOI 10.1186/s12951-020-00617-2
Tang L, 2021, PHARMACEUTICS, V13, DOI 10.3390/pharmaceutics13111888
Thamphiwatana S, 2017, P NATL ACAD SCI USA, V114, P11488, DOI 10.1073/pnas.1714267114
Tian R, 2020, FRONT BIOENG BIOTECH, V8, DOI 10.3389/fbioe.2020.01010
Wang CY, 2020, PHOTODIAGN PHOTODYN, V32, DOI 10.1016/j.pdpdt.2020.102014
Wang DD, 2020, ACS APPL MATER INTER, V12, P41138, DOI 10.1021/acsami.0c13169
Wang HJ, 2020, ACS APPL BIO MATER, V3, P2350, DOI 10.1021/acsabm.0c00094
Wang HJ, 2020, BIOMATER SCI-UK, V8, P552, DOI 10.1039/c9bm01392j
Wang JH, 2024, J NANOBIOTECHNOL, V22, DOI 10.1186/s12951-024-02619-w
Wang WZ, 2024, ACS NANO, V18, P34063, DOI 10.1021/acsnano.4c09653
Wang YH, 2022, ADV SCI, V9, DOI 10.1002/advs.202105631
Wang ZY, 2022, NANOTECHNOLOGY, V33, DOI 10.1088/1361-6528/ac6fee
Wang Z, 2024, ACS NANO, V18, P24219, DOI 10.1021/acsnano.4c05657
Wang ZH, 2021, ACS APPL BIO MATER, V4, P1920, DOI 10.1021/acsabm.0c01553
Wang ZH, 2020, ACS APPL NANO MATER, V3, P7105, DOI 10.1021/acsanm.0c01433
Wen H, 2023, PHARMACEUTICS, V15, DOI 10.3390/pharmaceutics15102507
Wen Q, 2021, INT J BIOL MACROMOL, V193, P228, DOI 10.1016/j.ijbiomac.2021.10.113
Wu ML, 2020, ACS APPL MATER INTER, V12, P16031, DOI 10.1021/acsami.9b23177
Wu T, 2022, CANCERS, V14, DOI 10.3390/cancers14184520
Wu Y, 2024, NANOMEDICINE-UK, V19, P109, DOI 10.2217/nnm-2023-0293
Xia Y, 2025, ACS APPL MATER INTER, V17, P12597, DOI 10.1021/acsami.4c20345
Xiao C, 2021, J CONTROL RELEASE, V339, P259, DOI 10.1016/j.jconrel.2021.09.034
Xiao YS, 2020, RSC ADV, V10, P7194, DOI 10.1039/c9ra09233a
Xie LX, 2025, BIOCONJUGATE CHEM, V36, P2448, DOI 10.1021/acs.bioconjchem.5c00437
Xie WJ, 2024, INT J NANOMED, V19, P3957, DOI 10.2147/IJN.S455355
Xie XT, 2019, PHARMACEUTICS, V11, DOI 10.3390/pharmaceutics11090429
Xiong JQ, 2021, ACS NANO, V15, P19756, DOI 10.1021/acsnano.1c07180
Xu C, 2018, ADV SCI, V5, DOI 10.1002/advs.201800382
Xu C, 2020, THERANOSTICS, V10, P3325, DOI 10.7150/thno.41228
Xu J, 2024, ACS APPL MATER INTER, V16, P59765, DOI 10.1021/acsami.4c11064
Xu XX, 2026, BIOMATERIALS, V326, DOI 10.1016/j.biomaterials.2025.123695
Yaman S, 2024, BIOACT MATER, V34, P422, DOI 10.1016/j.bioactmat.2023.12.027
Yang C, 2024, ADV SCI, V11, DOI 10.1002/advs.202400630
Yang C, 2023, SMALL, V19, DOI 10.1002/smll.202207029
Yang C, 2023, ADV HEALTHC MATER, V12, DOI 10.1002/adhm.202202064
Yang N, 2018, ACS APPL MATER INTER, V10, P22963, DOI 10.1021/acsami.8b05363
Yang R, 2018, ACS NANO, V12, P5121, DOI 10.1021/acsnano.7b09041
Yao YR, 2022, ACTA PHARM SIN B, V12, P2103, DOI 10.1016/j.apsb.2021.10.010
Ye H, 2023, ACS NANO, V17, P10637, DOI 10.1021/acsnano.3c01733
Ying KK, 2023, BIOACT MATER, V20, P449, DOI 10.1016/j.bioactmat.2022.06.013
Zeng HH, 2024, ACS BIOMATER SCI ENG, V10, P875, DOI 10.1021/acsbiomaterials.3c01325
Zhai YH, 2017, THERANOSTICS, V7, P2575, DOI 10.7150/thno.20118
Zhan MS, 2024, ACTA BIOMATER, V189, P491, DOI 10.1016/j.actbio.2024.09.030
Zhang F, 2019, ACS NANO, V13, P5662, DOI 10.1021/acsnano.9b00892
Zhang FY, 2024, SCI ADV, V10, DOI 10.1126/sciadv.adn6157
Zhang F, 2023, J CONTROL RELEASE, V354, P835, DOI 10.1016/j.jconrel.2023.01.007
Zhang L, 2022, FRONT IMMUNOL, V13, DOI 10.3389/fimmu.2022.828263
Zhang LC, 2021, J PHYS CHEM B, V125, P7417, DOI 10.1021/acs.jpcb.1c04383

Zhang LJ, 2019, SMALL, V15, DOI 10.1002/smll.201805544
Zhang LR, 2022, MATER TODAY ADV, V13, DOI 10.1016/j.mtadv.2021.100199
Zhang M, 2020, INT J NANOMED, V15, P10183, DOI 10.2147/IJN.S282931
Zhang N, 2018, BIOMATERIALS, V159, P25, DOI 10.1016/j.biomaterials.2018.01.007
Zhang S, 2024, PHARMACEUTICS, V16, DOI 10.3390/pharmaceutics16040531
Zhang W, 2021, J NANOBIOTECHNOL, V19, DOI 10.1186/s12951-021-01085-y
Zhang XL, 2023, COLLOID SURFACE B, V222, DOI 10.1016/j.colsurfb.2023.113134
Zhang YC, 2025, J CONTROL RELEASE, V385, DOI 10.1016/j.jconrel.2025.113939
Zhang Y, 2018, NANO LETT, V18, P1908, DOI 10.1021/acs.nanolett.7b05263
Zhang YY, 2022, MEDCOMM, V3, DOI 10.1002/mco2.192
Zhang ZT, 2022, ASIAN J PHARM SCI, V17, P751, DOI 10.1016/j.ajps.2022.07.006
Zhao SQ, 2022, ANN TRANSL MED, V10, DOI 10.21037/atm-22-3646
Zhao X, 2022, NAT PROTOC, V17, P2240, DOI 10.1038/s41596-022-00713-7
Zhao YJ, 2025, ACS NANO, V19, P23276, DOI 10.1021/acsnano.5c06202
Zheng YS, 2023, ACS APPL MATER INTER, V15, P22843, DOI 10.1021/acsami.3c00469
Zou Y, 2022, ADV MATER, V34, DOI 10.1002/adma.202203958

Cited Reference Count: 208

Abstract: Cancer is a predominant cause of death among the human population. The conventional treatment options for this devastating disease are limited to chemo and radiation therapy, which can cause systemic toxicity due to offtarget release. To address these challenges, an innovative therapeutic approach of biomimetic nanoformulations can be adopted. Biomimetic nanoformulations have the characteristics of synthetic nanoformulations and functional properties of cellular membranes. Cell-membrane-based biomimetic nanoformulations (CMBNs) are a type of biomimetic nanoformulation that holds promise to treat cancer due to their precise targeting capabilities. This review highlights the types of biomimetic nanoformulations, including the development strategies and application of CMBNs in drug delivery and immunotherapy. The membrane extraction and fusion processes of CMBNs are also highlighted, along with the challenges and limitations of their large-scale production and clinical applications. Furthermore, we shed light on the complex surface chemistry of various cell membranes and their functional components, as well as the different types of cores used for the synthesis of CMBNs. The application of CMBNs in targeted drug delivery has also been explored, along with the technical hurdles and optimization of the design and functionality of these nanoformulations. Overall, the review emphasized that CMBNs hold promise for revolutionising drug delivery and immune therapies in cancer.

Accession Number: WOS:001631161400002

Language: English

Document Type: Article

Author Keywords: Biomimetic nanoformulations; Cell membrane-based nanoformulations; Drug delivery; Cancer therapy; Immunotherapy; Chemotherapy

KeyWords Plus: CHEMO-PHOTOTHERMAL THERAPY; CLOAKED PACLITAXEL-NANOCRYSTALS; CO-DELIVERY; CAMOUFLAGED NANOPARTICLES; TARGETED CHEMOTHERAPY; COATED NANOPARTICLES; HIGHLY EFFICIENT; CERVICAL-CANCER; DRUG; NANOPLATFORM

Addresses: [Bhati, Shivani; Gandhi, Harsh A.; Rabidas, Shyam Sunder; Bhattacharya, Jaydeep] Jawaharlal Nehru Univ, Sch Biotechnol, Nanobiotechnol Lab, New Delhi 110067, India.
[Prakash, Chandra; Rabidas, Shyam Sunder] Jawaharlal Nehru Univ, Sch Life Sci, Neurobiol Lab, New Delhi 110067, India.

Corresponding Address: Bhattacharya, J (corresponding author), Jawaharlal Nehru Univ, Sch Biotechnol, Nanobiotechnol Lab, New Delhi 110067, India.

E-mail Addresses: jaydeep@jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Prakash, Chandra	P-1569-2018	

Bhati, Shivani	LDG-5553-2024	

Publisher: ELSEVIER SCI LTD

Publisher Address: 125 London Wall, London, ENGLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Multidisciplinary; Materials Science, Multidisciplinary

Research Areas: Chemistry; Materials Science

IDS Number: N0258

ISSN: 2468-5194

29-char Source Abbrev.: MATER TODAY CHEM

ISO Source Abbrev.: Mater. Today Chem.

Source Item Page Count: 22

Funding:

Funding Agency	Grant Number
Department of Health Research, New Delhi	R.12014/41/2022-HR 3402528
Department of Biotechnology, New Delhi	BT/PR49857/MED/32/850/2023 ANRF/PAIR/2025/000029/PAIR-A
UGC Recharge Programme	

SB was awarded Senior Research Fellowship by the Council of Scientific and Industrial Research, New Delhi (Grant No. 09/0263 (11758) /2021-EMR-I) . CP received Young-Scientist research grant from theDepartment of Health Research, New Delhi (R.12014/41/2022-HR) . HG has been awarded Prime Minister's Research Fellowship (3402528) . SSR is a recipient of a Senior Research Fellowship by the Department of Biotechnology, New Delhi (DBT/JRF/BET-18/1/2018/AL/181) . JB thanks the Department of Biotechnology, New Delhi (Grant No. BT/PR49857/MED/32/850/2023) , ANRF PAIR File No.: ANRF/PAIR/2025/000029/PAIR-A and the UGC Recharge Programme for financial support.

Output Date: 2025-12-31

Record 15 of 47

Title: Mechanistic insights into <i>LdCen1-LdDRP</i> interaction facilitating UV-induced DNA damage repair in <i>Leishmania donovani</i>

Author(s): Tandon, R (Tandon, Rati); Puri, N (Puri, Niti); Selvapandiyan, A (Selvapandiyan, A.)

Source: MEDICAL MICROBIOLOGY AND IMMUNOLOGY **Volume:** 214 **Issue:** 1 **Article Number:** 18 **DOI:** 10.1007/s00430-025-00825-3 **Published Date:** 2025 DEC

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 4

Usage Count (Since 2013): 5

Cited References: Adam S, 2012, INT J MOL SCI, V13, P11895, DOI 10.3390/ijms130911895
Ahmad S, 2000, INT J SYST EVOL MICR, V50, P1761, DOI 10.1099/00207713-50-5-1761
Ahuja K, 2015, PARASITOL INT, V64, P1, DOI 10.1016/j.parint.2015.01.003
Araki M, 2001, J BIOL CHEM, V276, P18665, DOI 10.1074/jbc.M100855200
Avishek K, 2024, SCI REP-UK, V14, DOI 10.1038/s41598-024-64592-6
Avishek K, 2016, SCI REP-UK, V6, DOI 10.1038/srep33059
Berriman M, 2005, SCIENCE, V309, P416, DOI 10.1126/science.1112642
Bhattacharya P, 2016, PLOS NEGLECT TROP D, V10, DOI 10.1371/journal.pntd.0004963
Bhatwa A, 2021, FRONT BIOENG BIOTECH, V9, DOI 10.3389/fbioe.2021.630551
Charbonnier JB, 2007, J MOL BIOL, V373, P1032, DOI 10.1016/j.jmb.2007.08.046

Chatterjee N, 2017, ENVIRON MOL MUTAGEN, V58, P235, DOI 10.1002/em.22087
Chelladurai KS, 2020, SCI REP-UK, V10, DOI 10.1038/s41598-020-77719-2
Ciccia A, 2010, MOL CELL, V40, P179, DOI 10.1016/j.molcel.2010.09.019
Czaja W, 2012, INT J MOL SCI, V13, P11954, DOI 10.3390/ijms130911954
Dhuppar S, 2020, MOL CELL BIOL, V40, DOI 10.1128/MCB.00328-20
ERRABOLU R, 1994, J CELL SCI, V107, P9
Gavet O, 2003, MOL BIOL CELL, V14, P1818, DOI 10.1091/mbc.E02-11-0709
Halicka HD, 2005, CELL CYCLE, V4, P339
Holloman WK, 2008, FUNGAL GENET BIOL, V45, pS31, DOI 10.1016/j.fgb.2008.04.006
HUANG B, 1988, J CELL BIOL, V107, P133, DOI 10.1083/jcb.107.1.133
Huang RX, 2021, SIGNAL TRANSDUCT TAR, V6, DOI 10.1038/s41392-021-00648-7
Ivens AC, 2005, SCIENCE, V309, P436, DOI 10.1126/science.1112680
Jackson SP, 2009, NATURE, V461, P1071, DOI 10.1038/nature08467
Kamran M, 2023, FRONT CELL INFECT MI, V13, DOI 10.3389/fcimb.2023.1001973
Katoh K, 2013, MOL BIOL EVOL, V30, P772, DOI 10.1093/molbev/mst010
La Verde V, 2018, INT J BIOL MACROMOL, V108, P1289, DOI 10.1016/j.ijbiomac.2017.11.044
López-Camarillo C, 2009, INFECT GENET EVOL, V9, P1051, DOI 10.1016/j.meegid.2009.06.024
Mahajan B, 2008, J BIOL CHEM, V283, P31871, DOI 10.1074/jbc.M800028200
Marzari R, 1997, FEBS LETT, V411, P27, DOI 10.1016/S0014-5793(97)00647-9
Min JH, 2007, NATURE, V449, P570, DOI 10.1038/nature06155
Minocha N, 2011, J EUKARYOT MICROBIOL, V58, P249, DOI 10.1111/j.1550-7408.2011.00539.x
Molinari M, 2007, NAT CHEM BIOL, V3, P313, DOI 10.1038/nchembio880
Molinier J, 2004, PLANT CELL, V16, P1633, DOI 10.1105/tpc.021378
Murga M, 2007, J CELL BIOL, V178, P1101, DOI 10.1083/jcb.200704140
Nishi R, 2005, MOL CELL BIOL, V25, P5664, DOI 10.1128/MCB.25.13.5664-5674.2005
Ortolan TG, 2004, NUCLEIC ACIDS RES, V32, P6490, DOI 10.1093/nar/gkh987
Paoletti A, 1996, J CELL SCI, V109, P3089
Park JM, 2016, INT J MOL SCI, V17, DOI 10.3390/ijms17111840
Popescu A, 2003, J BIOL CHEM, V278, P40252, DOI 10.1074/jbc.M302546200
Rastogi RP, 2010, J NUCLEIC ACIDS, V2010, DOI 10.4061/2010/592980
Riedl T, 2003, EMBO J, V22, P5293, DOI 10.1093/emboj/cdg489
Roshanara, 2024, ACS INFECT DIS, V10, P3273, DOI 10.1021/acsinfecdis.4c00351
SALISBURY JL, 1995, CURR OPIN CELL BIOL, V7, P39
Selvapandiyan A, 2004, J BIOL CHEM, V279, P25703, DOI 10.1074/jbc.M402794200
Selvapandiyan A, 2001, J BIOL CHEM, V276, P43253, DOI 10.1074/jbc.M106806200
Selvapandiyan A, 2007, MOL BIOL CELL, V18, P3290, DOI 10.1091/mbc.E07-01-0022
Selvapandiyan A, 2023, FEMS MICROBIOL REV, V47, DOI 10.1093/femsre/fuac041
Selvapandiyan A, 2019, PLOS NEGLECT TROP D, V13, DOI 10.1371/journal.pntd.0007616
Selvapandiyan A, 2012, PLOS ONE, V7, DOI 10.1371/journal.pone.0045288
Selvapandiyan A, 2012, J TROP MED-US, V2012, DOI 10.1155/2012/631460
Selvapandiyan A, 2009, J IMMUNOL, V183, P1813, DOI 10.4049/jimmunol.0900276
Smolarz B, 2014, ARCH MICROBIOL, V196, P1, DOI 10.1007/s00203-013-0944-0
Stokes MP, 2008, CELL CYCLE, V7, P2097, DOI 10.4161/cc.7.14.6326
Sugasawa K, 1998, MOL CELL, V2, P223, DOI 10.1016/S1097-2765(00)80132-X
Sugasawa K, 2008, ADV EXP MED BIOL, V637, P47
Thompson LH, 2012, MUTAT RES-REV MUTAT, V751, P158, DOI 10.1016/j.mrrev.2012.06.002
Turriziani Benedetta, 2014, Biology (Basel), V3, P320, DOI 10.3390/biology3020320
Vats K, 2023, BBA-MOL CELL RES, V1870, DOI 10.1016/j.bbamcr.2022.119416
Volker M, 2001, MOL CELL, V8, P213, DOI 10.1016/S1097-2765(01)00281-7
Zhang ZX, 2022, MICROB CELL FACT, V21, DOI 10.1186/s12934-022-01917-y

Cited Reference Count: 60

Abstract: Leishmania donovani is the causative agent of the fatal visceral leishmaniasis (VL) disease in humans in the tropical regions, mainly the Indian Subcontinent and Africa. We have previously described centrin1, a basal body associated cell division specific protein in this parasite important for the parasite's host intracellular stage. In this study, we identified a novel centrin1-binding protein called LdDRP through pull-down and MS/MS analysis, which is a homolog of the XPC protein of humans involved in DNA damage. The protein interaction with LdCen1 was also confirmed through peptide spectrum analysis against the UniProt database. Immunofluorescence analysis confirms that LdDRP is localized within the nucleus, suggesting the protein's possible role in DNA interaction. The overexpression of three LdDRP forms in the parasite, each fused with HA-tag (LdDRPF [full length] LdDRPN [only N-terminal], and LdDRPC [only C-terminal]), revealed that only LdDRPF and LdDRPC were able to support the retention of the parasite's shape and promote rapid division following the UV-damage recovery period. This was also correlated to the elevated expression level of both LdDRPC and LdCen1, by Western blot analysis soon after UV-C exposure in the parasites compared to control. The study emphasizes the role of the LdDRP, and its crucial domains involved in the DNA binding process, DNA damage response, and interaction with centrin, particularly in response to UV-C light-induced DNA damage.

Accession Number: WOS:001465387200001

PubMed ID: 40205189

Language: English

Document Type: Article

Author Keywords: DNA damage; DNA repair protein; Immunofluorescence analysis; UV-C light; <italic>Leishmania donovani</italic>; DNA damage response

KeyWords Plus: NUCLEOTIDE EXCISION-REPAIR; CELL-CYCLE PROGRESSION; HOMOLOGOUS RECOMBINATION; HUMAN CENTRIN-2; PROTEIN; GENOME; PARASITE; RECOGNITION; SEGREGATION; CENTROSOMES

Addresses: [Tandon, Rati; Selvapandiyan, A.] Jamia Hamdard, Dept Mol Med, New Delhi 110062, India. [Puri, Niti] Jawaharlal Nehru Univ, Sch Life Sci, New Delhi 110067, India.

Corresponding Address: Selvapandiyan, A (corresponding author), Jamia Hamdard, Dept Mol Med, New Delhi 110062, India.

E-mail Addresses: selvapandiyan@jamiahamdard.ac.in

Affiliations: Jamia Hamdard University; Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Selvapandiyan, Angamuthu	AAY-2556-2021	

Publisher: SPRINGER

Publisher Address: ONE NEW YORK PLAZA, SUITE 4600, NEW YORK, NY, UNITED STATES

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Immunology; Microbiology

Research Areas: Immunology; Microbiology

IDS Number: 1HV9K

ISSN: 0300-8584

eISSN: 1432-1831

29-char Source Abbrev.: MED MICROBIOL IMMUN

ISO Source Abbrev.: Med. Microbiol. Immunol.

Source Item Page Count: 16

Funding:

Funding Agency	Grant Number
Indian Council of Medical Research	EMR/2015/000874
DST-SERB	GIA/2/VBD/2021/ECD-II
Indian Council of Medical Research, India	59/2019-ECD-II

ICMR-SRF	

This work was supported by grants from DST-SERB to A.S. and N.P. (EMR/2015/000874); Indian Council of Medical Research, India to A.S. and N.P. (GIA/2/VBD/2021/ECD-II); ICMR-SRF to Roshanara (Fellowship no: 59/2019-ECD-II).

Output Date: 2025-12-31

Record 16 of 47

Title: Influence of plasma screening and external fields on the spectroscopic characteristics of Li-like Al XI ion

Author(s): Shivankar (Shivankar); Kumar, N (Kumar, Narendra); Dimri, M (Dimri, Mayank); Dawra, D (Dawra, Dishu); Mohan, M (Mohan, Man); Jha, AKS (Jha, Alok Kumar Singh)

Source: EUROPEAN PHYSICAL JOURNAL D **Volume:** 79 **Issue:** 12 **Article Number:** 150 **DOI:** 10.1140/epjd/s10053-025-01095-7 **Published Date:** 2025 DEC 10

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 1

Usage Count (Since 2013): 1

Cited References: aemann A., 1999, Phys. Rev. Lett, V82, P4843, DOI [10.1103/PhysRevLett.82.4843, DOI 10.1103/PHYSREVLETT.82.4843]
Aggarwal KM, 2013, ATOM DATA NUCL DATA, V99, P156, DOI 10.1016/j.adt.2012.03.001
aha B., 2007, J. Phys. B At. Mol. Opt. Phys, V40, P259, DOI [10.1088/0953-4075/40/2/002, DOI 10.1088/0953-4075/40/2/002]
Arteca G. A., 1984, Z. Phys. A, V315, P85
Becken W, 1999, J PHYS B-AT MOL OPT, V32, P1557, DOI 10.1088/0953-4075/32/6/018
Beiersdorfer P, 2019, PHYS REV A, V100, DOI 10.1103/PhysRevA.100.012511
BEIERSDORFER P, 1995, PHYS REV E, V52, P1980, DOI 10.1103/PhysRevE.52.1980
Belkhiri M, 2013, HIGH ENERG DENS PHYS, V9, P609, DOI 10.1016/j.hedp.2013.05.016
Bhattacharyya S, 2015, PHYS REV A, V91, DOI 10.1103/PhysRevA.91.042515
Bin Chen Z., 2019, Phys. Plasmas, V26
Bin Chen Z., 2018, Phys. Plasmas, V25
Bin Chen Z., 2019, J. Quantspectrosc. Radiat. Transf., V236
Bin Chen Z., 2022, Phys. Plasmas, V29
BOIKO VA, 1978, J QUANT SPECTROSC RA, V19, P11, DOI 10.1016/0022-4073(78)90038-9
Chaudhuri RK, 2012, PHYS PLASMAS, V19, DOI 10.1063/1.4742177
Chen ZB, 2021, J QUANT SPECTROSC RA, V266, DOI 10.1016/j.jqsrt.2021.107570
Chen Z. Bin, 2022, J. Quantspectrosc. Radiat. Transf., V277
Chen Z. Bin, 2019, J. Quantspectrosc. Radiat. Transf., V237
Chen ZB, 2024, J ELECTRON SPECTROSC, V270, DOI 10.1016/j.elspec.2024.147420
Chen ZB, 2022, J ELECTRON SPECTROSC, V258, DOI 10.1016/j.elspec.2022.147223
Chu Y, 2022, J ELECTRON SPECTROSC, V261, DOI 10.1016/j.elspec.2022.147264
Ciricosta O, 2016, NAT COMMUN, V7, DOI 10.1038/ncomms11713
Dimri M, 2022, EUR PHYS J D, V76, DOI 10.1140/epjd/s10053-022-00547-8
Dimri M, 2021, CAN J PHYS, V99, P559, DOI 10.1139/cjp-2020-0036
Doma SB, 2020, INT J SCI RES PHY AP, V8, P1, DOI 10.26438/ijsrpas/v8i1.17
Doma SB, 2023, EUR PHYS J D, V77, DOI 10.1140/epjd/s10053-023-00736-z
DRAWIN HW, 1969, J QUANT SPECTROSC RA, V9, P317, DOI 10.1016/0022-4073(69)90029-6
Fang TK., 2017, Phys. Rev. A, V96, DOI [10.1103/PhysRevA.96.012509, DOI 10.1103/PHYSREVA.96.012509]
Griem H.R., 1997, Principles of Plasma Spectroscopy, DOI DOI 10.1017/CBO9780511524578
Gu MF, 2008, CAN J PHYS, V86, P675, DOI 10.1139/P07-197
GUENTHER DB, 1992, ASTROPHYS J, V387, P372, DOI 10.1086/171090
HINNOV E, 1989, PHYS REV A, V40, P4357, DOI 10.1103/PhysRevA.40.4357

Hoarty DJ, 2013, HIGH ENERG DENS PHYS, V9, P661, DOI 10.1016/j.hedp.2013.06.005
Hoarty DJ, 2013, PHYS REV LETT, V110, DOI 10.1103/PhysRevLett.110.265003
Hu JS, 2023, REV MOD PLASMA PHYS, V7, DOI 10.1007/s41614-023-00114-7
Ivanov MV, 1998, PHYS REV A, V57, P3793, DOI 10.1103/PhysRevA.57.3793
Janev RK, 2016, MATTER RADIAT EXTREM, V1, P237, DOI 10.1016/j.mre.2016.10.002
Jha AKS, 2023, ATOMS, V11, DOI 10.3390/atoms11120158
Leng C. W., 2021, Few Bodysyst., V62, P103
Li JG, 2010, PLASMA SCI TECHNOL, V12, P364, DOI 10.1088/1009-0630/12/3/23
Li X., 2020, Phys. Lett. Sect. A Gener. At. Solidstate Phys, V384
Li X., 2019, Phys. Plasmas, V26, DOI [10.1063/1.5079519, DOI 10.1063/1.5079519]
Li X., 2012, J. Quant. Spectrosc. Radiat. Transf, V113, P670, DOI [10.1016/j.jqsrt.2012.02.033, DOI 10.1016/J.JQSRT.2012.02.033]
Li Y., 2009, J. Phys. B At. Mol. Opt. Phys, V42, DOI [10.1088/0953-4075/42/6/065202, DOI 10.1088/0953-4075/42/6/065202]
Liang GY, 2011, ASTRON ASTROPHYS, V528, DOI 10.1051/0004-6361/201016417
Ly DN, 2021, PHYS PLASMAS, V28, DOI 10.1063/5.0049564
Mitra-Kraev U, 2019, ASTRON ASTROPHYS, V628, DOI 10.1051/0004-6361/201834856
Namba S, 2022, ATOMS, V10, DOI 10.3390/atoms10040128
NEUPERT WM, 1973, SOL PHYS, V31, P171, DOI 10.1007/BF00156081
nist, Atomicspectra Database
Qi YY, 2008, PHYS REV A, V78, DOI 10.1103/PhysRevA.78.062511
Ray H, 1998, J PHYS B-AT MOL OPT, V31, P4427, DOI 10.1088/0953-4075/31/19/025
Saha B, 2002, ASTRON ASTROPHYS, V396, P337, DOI 10.1051/0004-6361:20021350
Sahoo S, 2000, J PHYS B-AT MOL OPT, V33, P2195, DOI 10.1088/0953-4075/33/12/303
Shivankar, 2024, J QUANT SPECTROSC RA, V321, DOI 10.1016/j.jqsrt.2024.108991
Shivankar, 2025, PHYS SCRIPTA, V100, DOI 10.1088/1402-4896/add060
Singh AK, 2020, PHYS LETT A, V384, DOI 10.1016/j.physleta.2020.126369
SKUPSKY S, 1980, PHYS REV A, V21, P1316, DOI 10.1103/PhysRevA.21.1316
Taylor AS, 2017, AM J PHYS, V85, P565, DOI 10.1119/1.4984809
Tian YS., 2022, Few Bodysyst, V63, P35, DOI [10.1007/s00601-021-01724-y, DOI 10.1007/S00601-021-01724-Y]
Xiong G, 2016, ASTROPHYS J, V816, DOI 10.3847/0004-637X/816/1/36

Cited Reference Count: 61

Abstract: The atomic spectral properties of the Li-like Al XI ion embedded in dense plasma environment have been investigated under the combined effects of external electric and magnetic fields. For this purpose, relativistic configuration interaction (RCI) method is employed, incorporating an analytical b-potential along with the electric and magnetic fields. We studied the plasma screening effect on binding energy and transition energy of the low-lying transitions 2s 2S1/2 -> 2p 2P1/2,3/2 of Al XI ion. We have also analysed the effect of electric field and plasma screening on the excitation energy levels. Additionally, we investigated plasma screening effect, along with external electric and magnetic fields on the transition probability of different states corresponding to transitions 2s 2S1/2 (+/- 1/2) -> 2p 2P1/2 (+/- 1/2), 2s 2S1/2 (+/- 1/2) -> 2p 2P3/2 (+/- 3/2, +/- 1/2). Our computed results show good agreement with the energy values available at the National Institute of Standards and Technology (NIST) database.Graphical abstractInfluence of plasma screening and external fields on the atomic structure of Li-like Al XI ion

Accession Number: WOS:001634524000001

Language: English

Document Type: Article

KeyWords Plus: ENERGY-LEVELS; LASER; HYDROGEN; ELEMENTS; ATOM

Addresses: [Shivankar; Kumar, Narendra; Jha, Alok Kumar Singh] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.
[Dimri, Mayank] Univ Delhi, Hindu Coll, Dept Phys, Delhi 110007, India.

[Dawra, Dishu] Univ Delhi, Ramjas Coll, Dept Phys, Delhi 110007, India.
[Dimri, Mayank; Dawra, Dishu; Mohan, Man] Univ Delhi, Dept Phys & Astrophys, Delhi 110007, India.

Corresponding Address: Jha, AKS (corresponding author), Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

E-mail Addresses: alokksjha@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; University of Delhi; University of Delhi; University of Delhi

Publisher: SPRINGER

Publisher Address: ONE NEW YORK PLAZA, SUITE 4600, NEW YORK, NY, UNITED STATES

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Optics; Physics, Atomic, Molecular & Chemical

Research Areas: Optics; Physics

IDS Number: Q3737

ISSN: 1434-6060

eISSN: 1434-6079

29-char Source Abbrev.: EUR PHYS J D

ISO Source Abbrev.: Eur. Phys. J. D

Source Item Page Count: 16

Funding:

Funding Agency	Grant Number
Anusandhan National Research Foundation, Department of Science and Technology, New Delhi, India	CRG/2022/008061
Department of science and technology, New Delhi, India	IF210224

The authors gratefully acknowledge the financial support provided by the Science and Engineering Research Board (SERB), Department of Science and Technology (DST), Government of India, under Project No. CRG/2022/008061. We also extend our sincere thanks to Jawaharlal Nehru University, New Delhi, India, for providing the necessary facilities and institutional support to carry out this research work. Dr. Alok Kumarsingh Jha (PI) gratefully acknowledges the Science and Engineering Research Board (SERB), DST, for providing financial support. Shivankar extends his gratitude to SERB (DST) for the Junior Research Fellowship. Narendra Kumar also expresses his thanks to DST for granting him the INSPIRE-SRF fellowship (Award No. IF210224).

Output Date: 2025-12-31

Record 17 of 47

Title: Photoelectron spectra of atom in debye plasma using femtosecond laser

Author(s): Sharma, A (Sharma, Ashish); Tyagi, M (Tyagi, Manisha); Mohan, M (Mohan, Man); Jha, AKS (Jha, Alok Kumar Singh)

Source: INTERNATIONAL JOURNAL OF MODERN PHYSICS B **DOI:** 10.1142/S0217979226500141 **Early Access Date:** DEC 2025 **Published Date:** 2025 DEC 9

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 1

Usage Count (Since 2013): 1

Cited References: AGOSTINI P, 1979, PHYS REV LETT, V42, P1127, DOI 10.1103/PhysRevLett.42.1127
Bahar MK, 2015, PHYS PLASMAS, V22, DOI 10.1063/1.4931171
Bahar MK, 2014, PHYS PLASMAS, V21, DOI 10.1063/1.4894684
Bauer D, 2006, COMPUT PHYS COMMUN, V174, P396, DOI 10.1016/j.cpc.2005.11.001

Bauer D., 2017, Computational Strong-Field Quantum Dynamics
Bertóti I, 2015, CARBON, V84, P185, DOI 10.1016/j.carbon.2014.11.056
Bordas C, 1996, REV SCI INSTRUM, V67, P2257, DOI 10.1063/1.1147044
Catoire F, 2012, PHYS REV A, V85, DOI 10.1103/PhysRevA.85.023422
Cueff R, 1997, APPL SURF SCI, V115, P292, DOI 10.1016/S0169-4332(96)01089-6
Debye P, 1923, PHYS Z, V24, P185
Dimri M, 2022, EUR PHYS J D, V76, DOI 10.1140/epjd/s10053-022-00547-8
Dörner R, 2000, PHYS REP, V330, P95, DOI 10.1016/S0370-1573(99)00109-X
EBERLY JH, 1991, PHYS REP, V204, P331, DOI 10.1016/0370-1573(91)90131-5
Ermolaev AM, 1999, PHYS REV A, V60, P4831, DOI 10.1103/PhysRevA.60.4831
Ermolaev AM, 2000, PHYS REV A, V62, DOI 10.1103/PhysRevA.62.015401
Fahlman M, 2007, J PHYS-CONDENS MAT, V19, DOI 10.1088/0953-8984/19/18/183202
Feshchenko RM, 2013, PHYS REV E, V88, DOI 10.1103/PhysRevE.88.053308
France RM, 1998, LANGMUIR, V14, P4827, DOI 10.1021/la9713053
Gengenbach TR, 1996, SURF INTERFACE ANAL, V24, P271, DOI 10.1002/(SICI)1096-9918(199604)24:4<271::AID-SIA116>3.0.CO;2-J
Gibbon P, 1996, PLASMA PHYS CONTR F, V38, P769, DOI 10.1088/0741-3335/38/6/001
Janev RK, 2016, MATTER RADIAT EXTREM, V1, P237, DOI 10.1016/j.mre.2016.10.002
Joshi R, 2023, SPECTROSC LETT, V56, P194, DOI 10.1080/00387010.2023.2194366
KULANDER KC, 1987, PHYS REV A, V35, P445, DOI 10.1103/PhysRevA.35.445
Lumb S, 2014, PHYS REV A, V90, DOI 10.1103/PhysRevA.90.032505
Morales F, 2016, J PHYS B-AT MOL OPT, V49, DOI 10.1088/0953-4075/49/24/245001
Mosert V, 2016, COMPUT PHYS COMMUN, V207, P452, DOI 10.1016/j.cpc.2016.06.015
Murillo MS, 1998, PHYS REP, V302, P1, DOI 10.1016/S0370-1573(98)00017-9
Ohmi M, 2015, PHYS REV A, V92, DOI 10.1103/PhysRevA.92.043402
Palacios A, 2007, PHYS REV A, V76, DOI 10.1103/PhysRevA.76.043420
Parker DH, 1997, J CHEM PHYS, V107, P2357, DOI 10.1063/1.474624
Paul S, 2010, PHYS PLASMAS, V17, DOI 10.1063/1.3463708
Paul S, 2008, PHYS REV A, V78, DOI 10.1103/PhysRevA.78.042711
Paul S, 2009, PHYS REV A, V79, DOI 10.1103/PhysRevA.79.032714
Salzmann D., 1998, Atomic Physics in Hot Plasmas
SCHAFER KJ, 1990, PHYS REV A, V42, P5794, DOI 10.1103/PhysRevA.42.5794
Serov VV, 2001, PHYS REV A, V63, DOI 10.1103/PhysRevA.63.062711
Singh AK, 2020, PHYS LETT A, V384, DOI 10.1016/j.physleta.2020.126369
Soylu A, 2012, PHYS PLASMAS, V19, DOI 10.1063/1.4736947
Stevie FA, 2020, J VAC SCI TECHNOL A, V38, DOI 10.1116/6.0000412
Tao L, 2012, NEW J PHYS, V14, DOI 10.1088/1367-2630/14/1/013021
Tulsky V, 2020, COMPUT PHYS COMMUN, V251, DOI 10.1016/j.cpc.2019.107098
WHITTEN BL, 1984, PHYS REV A, V29, P945, DOI 10.1103/PhysRevA.29.945
Wolkow DM, 1935, Z PHYS, V94, P250, DOI 10.1007/BF01331022
Wu GR, 2011, PHYS CHEM CHEM PHYS, V13, P18447, DOI 10.1039/c1cp22031d
Yuan HY, 2023, OPT EXPRESS, V31, P24213, DOI 10.1364/OE.495313
Yuan MH, 2015, CAN J PHYS, V93, P93, DOI 10.1139/cjp-2014-0336

Cited Reference Count: 46

Abstract: Photoelectron spectra (PES) of the atom are investigated in a Debye plasma environment using an intense, linearly polarized femtosecond (fs) pulsed laser. In the strong field approximation, for a single active electron, the three-dimensional nonrelativistic time-dependent Schr & ouml;dinger equation is solved numerically by the Crank-Nicolson method. PES is investigated for different Debye lengths (5a.u.,10a.u. and 15a.u.) using the infinite surface flux method, and a shift in the peak positions is observed. PES in the plasma environment for various laser pulse cycles (nc=10, 20 and 30) is also analyzed. Momentum-resolved PES shows the increase in the radius of the above-threshold ionization (ATI) rings due to the plasma screening effect.

Accession Number: WOS:001632937600001

Language: English

Document Type: Article; Early Access

Author Keywords: Time-dependent Schr & ouml;dinger equation; Momentum-resolved photoelectron spectra; infinite surface-flux method; Debye plasma

KeyWords Plus: SPECTROSCOPY; SURFACE; IONIZATION; QPROP; HYDROGEN; IONS

Addresses: [Sharma, Ashish; Jha, Alok Kumar Singh] Jawaharlal Nehru Univ, Sch Phys Sci, Delhi 110067, India.
[Tyagi, Manisha] Univ Delhi, Kirori Mal Coll, Dept Phys, Delhi 110007, India.
[Mohan, Man] Univ Delhi, Dept Phys & Astrophys, Delhi 110007, India.

Corresponding Address: Jha, AKS (corresponding author), Jawaharlal Nehru Univ, Sch Phys Sci, Delhi 110067, India.

E-mail Addresses: asashish10@gmail.com; manishatyagi733@gmail.com; drmanmohan.05@gmail.com; alokksjha@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; University of Delhi; University of Delhi

Publisher: WORLD SCIENTIFIC PUBL CO PTE LTD

Publisher Address: 5 TOH TUCK LINK, SINGAPORE 596224, SINGAPORE

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Physics, Applied; Physics, Condensed Matter; Physics, Mathematical

Research Areas: Physics

IDS Number: O7955

ISSN: 0217-9792

eISSN: 1793-6578

29-char Source Abbrev.: INT J MOD PHYS B

ISO Source Abbrev.: Int. J. Mod. Phys. B

Source Item Page Count: 14

Funding:

Funding Agency	Grant Number
UGC, New Delhi, India	
SERB	
DST	
Government of India	CRG/2022/008061

This work is carried out at Jawaharlal Nehru University, New Delhi, India. Ashish Sharma is thankful to the UGC, New Delhi, India, for providing him with a Junior Research Fellowship. Dr. Alok Kumar Singh Jha is thankful to SERB, DST and the Government of India for providing financial assistance under research grant no. CRG/2022/008061.

Output Date: 2025-12-31

Record 18 of 47

Title: Enhanced microwave absorption of Cr-substituted hard-soft Co-Ni ferrites conjugated with graphene oxide in the Ku band

Author(s): Dabla, M (Dabla, Manisha); Kaushik, S (Kaushik, Sanskriti); Sharma, M (Sharma, Monika); Kuanr, BK (Kuanr, Bijoy Kumar)

Source: CERAMICS INTERNATIONAL **Volume:** 51 **Issue:** 29 **Pages:** 62057-62073 **DOI:** 10.1016/j.ceramint.2025.10.436 **Published Date:** 2025 DEC **Part:** C

Times Cited in Web of Science Core Collection: 0

Cited References: Abdelal NR, 2024, DEF TECHNOL, V35, P123, DOI 10.1016/j.dt.2023.08.018
Aharoni A, 1997, J APPL PHYS, V81, P830, DOI 10.1063/1.364167
Akhtar MN, 2023, SURF INTERFACES, V42, DOI 10.1016/j.surfin.2023.103377
Ashfaq MZ, 2022, J INORG ORGANOMET P, V32, P4504, DOI 10.1007/s10904-022-02447-1
Azizighannad S, 2018, SCI REP-UK, V8, DOI 10.1038/s41598-018-28353-6
Bharati VA, 2020, J ALLOY COMPD, V821, DOI 10.1016/j.jallcom.2019.153501
Cardinaels R., Effect of the GO Reduction Method on the Dielectric Properties, Electrical Conductivity and Crystalline, DOI [10.3390/polym9110613, DOI 10.3390/POLYM9110613]
Chakrabarty S, 2015, J ALLOY COMPD, V625, P216, DOI 10.1016/j.jallcom.2014.10.179
Chem J.M., 2023, High temperature microwave absorbing materials, P4552, DOI [10.1039/d2tc04671g, DOI 10.1039/D2TC04671G]
Chen BY, 2015, J ALLOY COMPD, V618, P222, DOI 10.1016/j.jallcom.2014.08.195
Chen GL, 2025, MATER TODAY COMMUN, V43, DOI 10.1016/j.mtcomm.2025.111780
CLEARY SF, 1983, BIOSCIENCE, V33, P269, DOI 10.2307/1309041
Dabla M, 2025, J MAGN MAGN MATER, V614, DOI 10.1016/j.jmmm.2024.172746
Ding YX, 2022, RESOUR CONSERV RECY, V182, DOI 10.1016/j.resconrec.2022.106339
Ding Y, 2016, SCI REP-UK, V6, DOI 10.1038/srep32381
Elmahaishi Madiha Fathi, 2024, Nano-Structures & Nano-Objects, V39, DOI [10.1016/j.nanoso.2024.101207, 10.1016/j.nanoso.2024.101207]
Elmahaishi MF, 2022, J MATER RES TECHNOL, V20, P2188, DOI 10.1016/j.jmrt.2022.07.140
Fan GH, 2021, SCRIPTA MATER, V190, P1, DOI 10.1016/j.scriptamat.2020.08.027
Farooq I, 2024, SYNTHETIC MET, V307, DOI 10.1016/j.synthmet.2024.117674
Feng A., 2020, ferrite @ manganese dioxide composite and its, P10510, DOI [10.1039/c9ra10327a, DOI 10.1039/C9RA10327A]
Gong MY, 2020, J MAGN MAGN MATER, V514, DOI 10.1016/j.jmmm.2020.167246
Gong YN, 2015, PROG NAT SCI-MATER, V25, P379, DOI 10.1016/j.pnsc.2015.10.004
Guo L, 2019, ACS SUSTAIN CHEM ENG, V7, P9237, DOI 10.1021/acssuschemeng.9b00067
Hemeda OM, 2001, J MAGN MAGN MATER, V223, P127, DOI 10.1016/S0304-8853(00)00521-7
Houbi A, 2021, J MAGN MAGN MATER, V529, DOI 10.1016/j.jmmm.2021.167839
Hunyek A, 2017, J AUST CERAM SOC, V53, P173, DOI 10.1007/s41779-017-0022-1
Imran M, 2022, J MOL ENG MATER, V10, DOI 10.1142/S2251237322500058
Kamba S, 2004, J PHYS D APPL PHYS, V37, P1980, DOI 10.1088/0022-3727/37/14/014
Kaur M, 2024, J MAGN MAGN MATER, V600, DOI 10.1016/j.jmmm.2024.172158
Kaur S, 2022, OPT MATER, V133, DOI 10.1016/j.optmat.2022.113026
Kavinkumar T, 2015, RSC ADV, V5, P10816, DOI 10.1039/c4ra12766h
Khan MA, 2025, MATER SCI ENG B-ADV, V313, DOI 10.1016/j.mseb.2024.117959
Khoshkhoo MS, 2011, J ALLOY COMPD, V509, pS343, DOI 10.1016/j.jallcom.2011.02.066
Kim S.-S., 2025, Complex Permittivity and Permeability BT-Fundamentals and Principles of Electromagnetic Wave Absorbers: from Theory, Design, and Materials to Measurement, P69, DOI [10.1007/978-981-97-6477-8_4, DOI 10.1007/978-981-97-6477-8_4]
Knyazev AV, 2017, J MAGN MAGN MATER, V435, P9, DOI 10.1016/j.jmmm.2017.03.074
Köseoglu Y, 2012, CERAM INT, V38, P6671, DOI 10.1016/j.ceramint.2012.05.055
Kumar A, 2013, PROG ELECTROMA RES M, V29, P223, DOI 10.2528/PIERM13011604
Kumar N, 2023, CERAM INT, V49, P32458, DOI 10.1016/j.ceramint.2023.07.204
Kumar S, 2021, RSC ADV, V11, P9775, DOI 10.1039/d1ra01129d
Kumar S, 2023, J ELECTRON MATER, V52, P2762, DOI 10.1007/s11664-023-10238-8
Li T, 2023, NAT SUSTAIN, V6, P1620, DOI 10.1038/s41893-023-01206-5
Likhi FH, 2023, ACS APPL NANO MATER, V6, P11699, DOI 10.1021/acsanm.3c01674
Liu JJ, 2022, J ALLOY COMPD, V892, DOI 10.1016/j.jallcom.2021.162207
Liu ZY, 2016, J MATER SCI-MATER EL, V27, P9278, DOI 10.1007/s10854-016-4966-7

Ma JB, 2022, J ADV CERAM, V11, P754, DOI 10.1007/s40145-022-0569-3
Ma X, 2006, NDT&E INT, V39, P562, DOI 10.1016/j.ndteint.2006.03.008
Mohammadabadi FH, 2022, J ALLOY COMPD, V909, DOI 10.1016/j.jallcom.2022.164637
Mohapatra PP, 2025, ADV COLLOID INTERFAC, V337, DOI 10.1016/j.cis.2024.103381
Mumtaz S., 2022, Microwave Radiation and the Brain: Mechanisms, Current Status, and Future Prospects, DOI [10.3390/ijms23169288, DOI 10.3390/IJMS23169288]
Murtaza M, 2025, IONICS, V31, P6495, DOI 10.1007/s11581-025-06342-w
Oh JH, 2007, THIN SOLID FILMS, V515, P5054, DOI 10.1016/j.tsf.2006.10.084
Panda RK, 2016, J ALLOY COMPD, V669, P19, DOI 10.1016/j.jallcom.2016.01.256
Pandit VA, 2024, J MAGN MAGN MATER, V601, DOI 10.1016/j.jmmm.2024.172184
Pantola P., 2024, Synthesis of CoFe2O4/mesoporous-carbon hybrid nanocomposite with enhanced microwave absorption in K and Ka-band, DOI [10.1063/9.0000807, DOI 10.1063/9.0000807]
Parajuli D, 2024, Heliyon, V10, pe40471, DOI [10.1016/j.heliyon.2024.e40471, 10.1016/j.heliyon.2024.e40471]
Pathirana S., 2023, Ground-Penetrating Radar and Electromagnetic Induction: Challenges and Opportunities in Agriculture, DOI [10.3390/rs15112932, DOI 10.3390/RS15112932]
Peng Z, 2016, J MATER SCI-MATER EL, V27, P1304, DOI 10.1007/s10854-015-3890-6
Perets YS, 2014, J MATER SCI, V49, P2098, DOI 10.1007/s10853-013-7901-9
Prabhu S, 2019, J SUPERCOND NOV MAGN, V32, P1423, DOI 10.1007/s10948-018-4835-0
Qiu F, 2021, CERAM INT, V47, P24713, DOI 10.1016/j.ceramint.2021.05.194
Raghasudha M., 2013, Influence of Cr3+ ion on the dielectric properties of Nano crystalline Mg-Ferrites synthesized by citrate-gel method, P432
Rana J.N., 2023, ROS production in response to high-power microwave pulses induces p53 activation and DNA damage in brain cells: radiosensitivity and biological dosimetry evaluation, P1, DOI [10.3389/fcell.2023.1067861, DOI 10.3389/FCELL.2023.1067861]
Ren Q, 2025, COMPOS SCI TECHNOL, V259, DOI 10.1016/j.compscitech.2024.110944
Rostami M, 2023, J MATER SCI-MATER EL, V34, DOI 10.1007/s10854-023-10293-1
Ruidiaz-Martinez M., 2020, Hydrothermal Synthesis of rGO-TiO2 Composites as High-Performance UV Photocatalysts for Ethylparaben Degradation, DOI [10.3390/catal10050520, DOI 10.3390/CATAL10050520]
Sahoo P, 2023, OXF OPEN MATER SCI, V3, DOI 10.1093/oxfmat/itac012
Sahu S, 2023, MATER SCI ENG B-ADV, V294, DOI 10.1016/j.mseb.2023.116514
Salih SJ, 2023, HELIYON, V9, DOI 10.1016/j.heliyon.2023.e16601
Sarmah S, 2023, J ALLOY COMPD, V960, DOI 10.1016/j.jallcom.2023.170589
Sharma S, 2024, ADV COLLOID INTERFAC, V327, DOI 10.1016/j.cis.2024.103143
Shu RW, 2023, CARBON, V210, DOI 10.1016/j.carbon.2023.118047
Shyamaldas, 2020, J MAGN MAGN MATER, V493, DOI 10.1016/j.jmmm.2019.165703
Si Y., 2018, Enhanced Visible Light Driven Photocatalytic Behavior of BiFeO3/Reduced Graphene Oxide Composites, P1, DOI [10.3390/nano8070526, DOI 10.3390/NANO8070526]
Su Z., 2022, microwave absorption through the integration of interfacial polarization and charge-separation, P8479, DOI [10.1039/d2ta00080f, DOI 10.1039/D2TA00080F]
Su Z, 2022, J MATER CHEM A, V10, P8479, DOI 10.1039/d2ta00080f
Sukhdeep Kaur M S., 2016, International Journal of Emerging Technologies in Engineering Research (IJETER), V4, P145
Sun LF, 2023, CARBON, V208, P1, DOI 10.1016/j.carbon.2023.03.021
Thy LTM, 2020, ADSORPT SCI TECHNOL, V38, P240, DOI 10.1177/0263617420942710
Tong ZF, 2021, MATER SCI ENG B-ADV, V268, DOI 10.1016/j.mseb.2021.115092
Wang HL, 2010, J AM CHEM SOC, V132, P3270, DOI 10.1021/ja100329d
Wang H, 2023, CELL COMMUN SIGNAL, V21, DOI 10.1186/s12964-022-01011-1
Wang K, 2024, J ALLOY COMPD, V1008, DOI 10.1016/j.jallcom.2024.176721
Wang XX, 2017, SCI REP-UK, V7, DOI [10.1038/s41598-017-01529-2, 10.1038/s41598-017-15720-y]
Wongkasem N, 2021, ELECTROMAGN BIOL MED, V40, P236, DOI 10.1080/15368378.2021.1874976
Xu XQ, 2019, ACS APPL MATER INTER, V11, P13564, DOI 10.1021/acsami.9b00356
Yu JY, 2018, CERAM INT, V44, P19207, DOI 10.1016/j.ceramint.2018.07.143
Yuan L, 2023, FRONT ELECTRON, V4, DOI 10.3389/felec.2023.1274258

Yunasfi, 2024, J MAGN MAGN MATER, V603, DOI 10.1016/j.jmmm.2024.172267
Zhang H, 2022, CARBON, V196, P1024, DOI 10.1016/j.carbon.2022.05.062
Zhang QB, 2024, IEEE T INTELL TRANSP, V25, P7029, DOI 10.1109/TITS.2023.3341252
Zhang SJ, 2024, CELL REP PHYS SCI, V5, DOI 10.1016/j.xcrp.2024.102206
Zhang YH, 2023, CHEM ENG J, V471, DOI 10.1016/j.cej.2023.144679
Zhivulin V.E., 2022, Creation and Magnetic Study of Ferrites with Magnetoplumbite Structure Multisubstituted by Al3+, Cr3+, Ga3+, and In3+ Cations, DOI [10.3390/nano12081306, DOI 10.3390/NANO12081306]
Zhou XJ, 2022, J MATER SCI TECHNOL, V115, P148, DOI 10.1016/j.jmst.2021.11.029
Zhou XY, 2021, J MAGN MAGN MATER, V534, DOI 10.1016/j.jmmm.2021.168043

Cited Reference Count: 95

Abstract: In search of efficient microwave absorbing materials having light-weight, stable and cost-effective character, here we have investigated Cr incorporated Co-Ni ferrites and their nanocomposite with graphene oxide (GO). We report the microwave absorption properties of synthesized $Co_{0.5}Ni_{0.5}Cr_xFe_{2-x}O_4$ ferrites integrated with controlled amount of GO (x = 0.0,0.3,0.5,1.0; wt% = 0.0,2.5,5.0,7.5) based ferrite nanocomposites utilizing solgel auto-combustion method and hummer's method. Nanocomposites were verified using X-ray diffraction pattern which matched well with the space group: Fd-3m of cubic phase. The SEM images revealed ferrite nanoparticles to be well dispersed and agglomerated in the layering structure of GO. Magnetic properties using VSM depicts decrease of saturation magnetization with the addition of GO in the composite. Finally, the electromagnetic parameters are measured in the Ku band (12-18 GHz) using a vector network analyzer (VNA). The effect of composition and thickness of absorber with respect to matching frequency have been investigated. The quarter wavelength mechanism governs the appearance of several reflection loss (RL) peaks at various frequencies. It is interesting to note that soft ferrite ($Cr_{1.0}Co_{0.5}Ni_{0.5}Fe_{1.0}O_4$) exhibits a maximum RL of-23.79 dB and Effective Absorption Bandwidth (EAB) of 0.2 GHz centered at 16.39 GHz with a thickness of 2 mm. In contrast the Cr-0.0 substituted hard ferrite exhibits a maximum RL of-11.00 dB and EAB of 0.06 GHz centered at a 15.26 GHz. Further, we demonstrated that we achieved very large microwave absorption (RL) of-49.0 dB with EAB of 0.75 GHz centered at 14.10 GHz frequency for the soft ferrite-GO nanocomposite (Cr1.0-7.5GO) for the absorber thickness of 2.5 mm. Hence, the studied nanocomposites can be a good candidate for various applications like microwave absorber, microwave shielding, camouflaging military radar system etc.

Accession Number: WOS:001628038900017

Language: English

Document Type: Article

Author Keywords: Soft-to-hard transitioned ferrite; Microwave absorbing material (MAM); Effective absorption bandwidth (EAB); Quarter wavelength mechanism

KeyWords Plus: MAGNETIC-PROPERTIES; ELECTRICAL-CONDUCTIVITY; COMPOSITES; NANOCOMPOSITES; NANOPARTICLES; RESONANCE; ZN

Addresses: [Dabla, Manisha; Kaushik, Sanskriti; Sharma, Monika; Kuanr, Bijoy Kumar] Jawaharlal Nehru Univ, Special Ctr Nanosci, New Delhi 110067, India.
[Sharma, Monika] Univ Delhi, Deshbandhu Coll, Dept Phys, New Delhi 110019, India.

Corresponding Address: Sharma, M; Kuanr, BK (corresponding author), Jawaharlal Nehru Univ, Special Ctr Nanosci, New Delhi 110067, India.
Sharma, M (corresponding author), Univ Delhi, Deshbandhu Coll, Dept Phys, New Delhi 110019, India.

E-mail Addresses: msharma@db.du.ac.in; bkkuanr@gmail.com

Affiliations: Special Centre for Nanoscience, Jawaharlal Nehru University; Jawaharlal Nehru University, New Delhi; University of Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Kuanr, Bijoy	ABF-6805-2020	

Publisher: ELSEVIER SCI LTD

Publisher Address: 125 London Wall, London, ENGLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)
Web of Science Categories: Materials Science, Ceramics
Research Areas: Materials Science
IDS Number: J9264
ISSN: 0272-8842
eISSN: 1873-3956
29-char Source Abbrev.: CERAM INT
ISO Source Abbrev.: Ceram. Int.
Source Item Page Count: 17
Output Date: 2025-12-31

Record 19 of 47

Title: Chemical-free processing of Bermuda grass for bioethanol production: Hybrid optimization of simultaneous C5/C6 sugar utilization using response surface methodology, genetic algorithm, and artificial neural network

Author(s): Saravanan, H (Saravanan, Harini); Uppuluri, KB (Uppuluri, Kiran Babu)

Source: RENEWABLE ENERGY **Volume:** 258 **Article Number:** 124959 **DOI:** 10.1016/j.renene.2025.124959 **Early Access Date:** DEC 2025 **Published Date:** 2026 FEB 15

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Aishwarya A, 2025, ENERG ENVIRON-UK, V36, P3166, DOI 10.1177/0958305X251367113
Barreto ED, 2025, ENERG CONVERS MANAGE, V323, DOI 10.1016/j.enconman.2024.119225
Betiku E, 2015, RENEW ENERG, V74, P87, DOI 10.1016/j.renene.2014.07.054
Chen WC, 2017, J TAIWAN INST CHEM E, V79, P43, DOI 10.1016/j.jtice.2017.04.025
Dávila I, 2019, BIORESOURCE TECHNOL, V289, DOI 10.1016/j.biortech.2019.121726
de Oliveira JP, 2017, FOOD CHEM, V221, P153, DOI 10.1016/j.foodchem.2016.10.048
Dhara S, 2023, ACS AGR SCI TECHNOL, V3, P1154, DOI 10.1021/acsagscitech.3c00321
Dong CD, 2023, BIORESOURCE TECHNOL, V379, DOI 10.1016/j.biortech.2023.128992
Emon TH, 2024, BIOMASS CONVERS BIOR, V14, P19501, DOI 10.1007/s13399-023-04244-3
Galiwango E, 2019, HELIYON, V5, DOI 10.1016/j.heliyon.2019.e02937
He QF, 2018, CELLULOSE, V25, P5523, DOI 10.1007/s10570-018-1966-1
Ire FS, 2016, BIORESOUR BIOPROCESS, V3, DOI [10.1186/s40643-016-0104-x, 10.1186/s40643-016-0104-x, DOI 10.1186/S40643-016-0104-X]
Isci A, 2020, CELLULOSE, V27, P8949, DOI 10.1007/s10570-020-03371-8
Ishola MM, 2015, BIOMASS BIOENERG, V77, P192, DOI 10.1016/j.biombioe.2015.03.021
Ismail KSK, 2022, BIORESOURCE TECHNOL, V343, DOI 10.1016/j.biortech.2021.126071
Jacqueline PJ, 2024, BIOCATAL AGR BIOTECH, V58, DOI 10.1016/j.bcab.2024.103197
Jugwanth Y, 2020, FUEL, V262, DOI 10.1016/j.fuel.2019.116552
Kale RD, 2018, J POLYM ENVIRON, V26, P355, DOI 10.1007/s10924-017-0936-2
Koppram R, 2013, BIOTECHNOL BIOFUELS, V6, DOI 10.1186/1754-6834-6-2
Kumneadklang S, 2019, MATER TODAY-PROC, V17, P1995, DOI 10.1016/j.matpr.2019.06.247
Li CC, 2021, PROCESSES, V9, DOI 10.3390/pr9020384
Li YP, 2021, ENERGY, V225, DOI 10.1016/j.energy.2021.120331
Lim WL, 2019, CELLULOSE, V26, P4085, DOI 10.1007/s10570-019-02346-8
Luong TTH, 2025, BIOMASS CONVERS BIOR, V15, P9283, DOI 10.1007/s13399-024-05802-z
Machmudah S, 2025, S AFR J CHEM ENG, V51, P45, DOI 10.1016/j.sajce.2024.10.008
Mazaheri D, 2021, BIOMASS CONVERS BIOR, DOI 10.1007/s13399-021-01562-2

Narisetty V, 2022, ENERG CONVERS MANAGE, V266, DOI 10.1016/j.enconman.2022.115784
Niaze AA, 2023, RENEW ENERG, V216, DOI 10.1016/j.renene.2023.119031
Pattnaik F, 2022, FUEL, V311, DOI 10.1016/j.fuel.2021.122618
Perumal PK, 2024, J TAIWAN INST CHEM E, V164, DOI 10.1016/j.jtice.2024.105662
Qin L, 2018, BIOTECHNOL BIOFUELS, V11, DOI 10.1186/s13068-018-1118-8
Rodrigues BG, 2024, INT J BIOL MACROMOL, V283, DOI 10.1016/j.ijbiomac.2024.137432
Rosa SML, 2012, CARBOHYD POLYM, V87, P1131, DOI 10.1016/j.carbpol.2011.08.084
Sadalage PS, 2025, BIOMASS CONVERS BIOR, V15, P24313, DOI 10.1007/s13399-024-05289-8
Saravanan H, 2024, BIOMASS CONVERS BIOR, DOI 10.1007/s13399-024-06389-1
Sharma D, 2025, IND CROP PROD, V224, DOI 10.1016/j.indcrop.2024.120250
Sharma V, 2023, ENERGY ECOL ENVIRON, V8, P141, DOI 10.1007/s40974-022-00267-0
Sharma V, 2022, BIORESOURCE TECHNOL, V360, DOI 10.1016/j.biortech.2022.127631
Shenbagamuthuraman V, 2023, BIORESOURCE TECHNOL, V390, DOI 10.1016/j.biortech.2023.129867
Sivarathnakumar S, 2019, BIORESOURCE TECHNOL, V293, DOI 10.1016/j.biortech.2019.122060
Srinivasan S, 2024, INT J BIOL MACROMOL, V277, DOI 10.1016/j.ijbiomac.2024.134295
Szczesniak L, 2008, CELLULOSE, V15, P445, DOI 10.1007/s10570-007-9192-2
Tenkolu GA, 2024, BIOMASS CONVERS BIOR, V14, P5205, DOI 10.1007/s13399-022-02974-4
Trilokesh C, 2023, BIOFUEL BIOPROD BIOR, V17, P1757, DOI 10.1002/bbb.2548
Trilokesh C, 2019, SCI REP-UK, V9, DOI 10.1038/s41598-019-53412-x
Vaidyanath S, 2020, INT J BIOL MACROMOL, V160, P964, DOI 10.1016/j.ijbiomac.2020.05.185
Vishwas PA, 2024, BIORESOUR TECH REP, V28, DOI 10.1016/j.biteb.2024.101991
Won KY, 2012, KOREAN J CHEM ENG, V29, P1341, DOI 10.1007/s11814-012-0019-y
Yuan Y, 2015, ACS SUSTAIN CHEM ENG, V3, P1359, DOI 10.1021/acssuschemeng.5b00094

Cited Reference Count: 49

Abstract: The growing global demand for renewable and sustainable energy sources has intensified interest in lignocellulosic biomass as an alternative to fossil fuels. However, the recalcitrant structure of lignocellulose and the reliance on harsh chemical pretreatments remain major barriers to efficient bioethanol production. The present study addresses the challenge of efficiently converting lignocellulosic biomass into bioethanol without relying on harsh chemicals, focusing on Cynodon dactylon (Bermuda grass), an underutilized and abundant feedstock. A novel microwave-assisted deep eutectic solvent pretreatment system, composed of potassium carbonate and glycerol, was developed and applied to the biomass. Subsequently, simultaneous saccharification and co-fermentation (SSCF) using Saccharomyces cerevisiae NCIM 3219 and Kluyveromyces marxianus MTCC 1389 facilitated effective conversion of both C5 and C6 sugars into ethanol. Process optimization was conducted using response surface methodology (RSM) and a hybrid artificial neural network-genetic algorithm (ANN-GA) modeling approach. The ANN-GA model outperformed RSM in predictive capability, achieving a maximum ethanol of 23.84 +/- 0.45 g/L compared to 14.85 +/- 0.32 g/L with RSM. Overall, this work presents a novel, chemical-free valorization route for Bermuda grass and offers a promising framework for optimizing lignocellulosic bioethanol production through advanced modeling, contributing to Sustainable Development Goals on clean energy and responsible resource utilization.

Accession Number: WOS:001637433400001

Language: English

Document Type: Article

Author Keywords: Cellulase; Cynodon dactylon; Deep eutectic solvents; Kluyveromyces marxianus; Microwave; Saccharomyces cerevisiae

KeyWords Plus: MICROCRYSTALLINE CELLULOSE; LIGNOCELLULOSIC BIOMASS; HYDROLYSIS; EXTRACTION; RICE

Addresses: [Saravanan, Harini; Uppuluri, Kiran Babu] SASTRA Deemed Univ, Ctr Bioenergy, Sch Chem & Biotechnol, Bioprospecting Lab, Thanjavur 613401, India.
[Uppuluri, Kiran Babu] Jawaharlal Nehru Univ, Sch Life Sci SLS, Microbial Bioprospecting Lab, New Delhi 110067, India.

Corresponding Address: Uppuluri, KB (corresponding author), Jawaharlal Nehru Univ, Sch Life Sci SLS, Microbial Bioprospecting Lab, New Delhi 110067, India.

E-mail Addresses: kiranbabu@jnu.ac.in

Affiliations: Shanmugha Arts, Science, Technology & Research Academy (SASTRA); Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Uppuluri, Kiran	A-9290-2015	

Publisher: PERGAMON-ELSEVIER SCIENCE LTD

Publisher Address: THE BOULEVARD, LANGFORD LANE, KIDLINGTON, OXFORD OX5 1GB, ENGLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Green & Sustainable Science & Technology; Energy & Fuels

Research Areas: Science & Technology - Other Topics; Energy & Fuels

IDS Number: T2768

ISSN: 0960-1481

eISSN: 1879-0682

29-char Source Abbrev.: RENEW ENERG

ISO Source Abbrev.: Renew. Energy

Source Item Page Count: 12

Funding:

Funding Agency	Grant Number
DST/SERB, India	CRG/2023/000662

KBU was financially supported by DST/SERB, India (CRG/2023/000662) .

Output Date: 2025-12-31

Record 20 of 47

Title: Effect of thermal annealing on nonlinear optical properties of MoS₂ quantum dots decorated graphene oxide nanosheets

Author(s): Kasana, PK (Kasana, P. K.); Pandey, A (Pandey, Akanksha); Mohanty, T (Mohanty, Tanuja)

Source: APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING **Volume:** 132 **Issue:** 1 **Article Number:** 7 **DOI:** 10.1007/s00339-025-09133-2 **Published Date:** 2025 DEC 4

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 1

Usage Count (Since 2013): 1

Cited References: Alam S, 2017, 2017 INTERNATIONAL CONFERENCE ON BROADBAND COMMUNICATION, WIRELESS SENSORS AND POWERING (BCWSP), P1, DOI 10.4236/graphene.2017.61001
Ali J, 2016, J LUMIN, V169, P342, DOI 10.1016/j.jlumin.2015.09.028
Aradhana R, 2018, POLYMER, V141, P109, DOI 10.1016/j.polymer.2018.03.005
Arul NS, 2016, RSC ADV, V6, P65670, DOI 10.1039/c6ra09060e
Balram Z, Scan Technique for Nonlinear Materials Characterization: A Review
Bao QL, 2009, ADV FUNCT MATER, V19, P3077, DOI 10.1002/adfm.200901007
Biswas S, 2016, RSC ADV, V6, P10319, DOI 10.1039/c5ra21000c
Chaudhary N, 2018, SENSOR ACTUAT A-PHYS, V277, P190, DOI 10.1016/j.sna.2018.05.008
Craciun MF, 2013, J PHYS-CONDENS MAT, V25, DOI 10.1088/0953-8984/25/42/423201
Feng M., 2010, Appl. Phys. Lett., V96
Guo YM, 2020, MAT SCI ENG C-MATER, V109, DOI 10.1016/j.msec.2019.110511

Ha HW, 2012, ACS APPL MATER INTER, V4, P4623, DOI 10.1021/am300999g
Hadadian M, 2014, J NANOPART RES, V16, DOI 10.1007/s11051-014-2788-1
He MM, 2017, J PHYS CHEM C, V121, P27147, DOI 10.1021/acs.jpcc.7b08850
Iacovella F, 2021, J PHYS-CONDENS MAT, V33, DOI 10.1088/1361-648X/abbe76
Jo J, 2019, ROY SOC OPEN SCI, V6, DOI 10.1098/rsos.181978
Kasana P K, 2021, J Nanosci Nanotechnol, V21, P5603, DOI [10.1166/jnn.2021.19470, 10.1166/jnn.2021.19470]
Kukkar M, 2017, MICROCHIM ACTA, V184, P4647, DOI 10.1007/s00604-017-2506-7
Kumar Mahato P., 2023, Mater Today Proc, P668
Kumara K, 2022, MATER TODAY-PROC, V55, P186, DOI 10.1016/j.matpr.2022.02.028
Lee AY, 2021, APPL SURF SCI, V536, DOI 10.1016/j.apsusc.2020.147990
Li B, 2017, SCI REP-UK, V7, DOI 10.1038/srep42707
Lin DM, 2018, MATER TODAY CHEM, V7, P76, DOI 10.1016/j.mtchem.2018.02.001
Muruganandi G., 2017, T C Sabari Girisun Chem. Phys, V488-489, P55
Naghani ME, 2023, SCI REP-UK, V13, DOI 10.1038/s41598-023-28307-7
Najafi L, 2018, ACS NANO, V12, P10736, DOI 10.1021/acsnano.8b05514
Namita A., 2024, Emergent Mater, V2024, P1
Pandey A, 2025, OPT LASER TECHNOL, V181, DOI 10.1016/j.optlastec.2024.111761
Pandey A, 2025, AIP CONF PROC, V3198, DOI 10.1063/5.0248865
Parra I, 2021, SPECTROCHIM ACTA A, V244, DOI 10.1016/j.saa.2020.118833
Perumbilavil S, 2017, CARBON, V111, P283, DOI 10.1016/j.carbon.2016.10.009
Qadoos A., 2025, Hybrid. Adv., V8
Qiao W, 2015, RSC ADV, V5, P97696, DOI 10.1039/c5ra19893c
Radhakrishnan S, 2022, MATER ADV, V3, P1874, DOI 10.1039/d1ma00929j
Rahman BS, 2025, BIOMASS CONVERS BIOR, V15, P8543, DOI 10.1007/s13399-024-05944-0
Schedin F, 2007, NAT MATER, V6, P652, DOI 10.1038/nmat1967
Shakya J, 2020, J NANOSCI NANOTECHNO, V20, P3174, DOI 10.1166/jnn.2020.17400
Sharma V, 2017, MACROMOL SYMP, V376, DOI 10.1002/masy.201700006
Shen Y, 2013, CARBON, V62, P157, DOI 10.1016/j.carbon.2013.06.007
Shi Y.Z. Dai., 2015, Scientific reports, V5
Silambarasan K, 2021, CARBON, V181, P107, DOI 10.1016/j.carbon.2021.01.162
Sun XL, 2018, ACS NANO, V12, P11376, DOI 10.1021/acsnano.8b06236
Tene T., 2023, Front. Chem., V11
Trikkaliotis DG, 2021, CHEMENGINEERING, V5, DOI 10.3390/chemengineering5030064
Sulleiro MV, 2022, SENS BIO-SENS RES, V38, DOI 10.1016/j.sbsr.2022.100540
Veerapandian M, 2012, CARBON, V50, P4228, DOI 10.1016/j.carbon.2012.05.004
Vinoth R, 2016, ACS OMEGA, V1, P971, DOI 10.1021/acsomega.6b00275
Wang W., 2018, Nanomaterials, V8, P74, DOI DOI 10.3390/NANO8020074
Wei H, 2019, ELECTROCHIM ACTA, V327, DOI 10.1016/j.electacta.2019.134994
Wu D, 2018, J MATER CHEM C, V6, P12547, DOI 10.1039/c8tc05151h
Xu YM, 2020, CARBON, V165, P421, DOI 10.1016/j.carbon.2020.04.092
Xu YM, 2019, SCI REP-UK, V9, DOI 10.1038/s41598-019-38929-5
Zhang J, 2023, CHEM ENG J, V456, DOI 10.1016/j.cej.2022.141101
Zhang YX, 2017, RSC ADV, V7, P45129, DOI 10.1039/c7ra07551k
Zurnansyah Z., 2024, Mater. Sci. Forum, V1113, P3, DOI [10.4028/p-2gM6G0, DOI 10.4028/P-2GM6G0]

Cited Reference Count: 55

Abstract: In this study, the effect of thermal annealing on the optical and non-linear optical properties of MoS2 quantum dots decorated graphene oxide (MoS(2)QDs/GO) has been reported. The MoS2 quantum dots (MoS(2)QDs) and graphene oxide were separately synthesized by chemical exfoliation method followed by decoration of MoS(2)QDs on graphene oxide (GO) thin film by dip coating method. In the next step, the MoS(2)QDs/GO samples were annealed at temperature 300 degrees C, 500 degrees C and 600 degrees C in an ambient environment. The structural and morphological studies were carried out using FESEM, TEM and AFM techniques. The homogeneous spreading of MoS(2)QDs on large surface area GO nanosheets was confirmed from FESEM and TEM images. AFM images reveal the thickness of MoS(2)QDs/GO are in the range of nanometers. The optical absorption measurement done using UV visible spectroscopy has revealed a gradual shift of band edge with increasing annealing temperature. The vibrational properties of GO and MoS(2)QDs/GO samples were studied using Raman spectroscopic measurements. More importantly Z scan measurements exhibit enhanced nonlinear optical (NLO) performance in annealed samples. This enhancement is attributed to increased pi-pi conjugation and stronger electronic coupling between MoS(2)QDs and GO after annealing. Our study highlights the potential of annealed MoS(2)QDs/GO nanocomposites for advanced optical limiters, laser protection systems, and next-generation photonic devices.

Accession Number: WOS:001631581000001

Language: English

Document Type: Article

Author Keywords: Two dimensional materials; Graphene oxide; MoS2 quantum dots; Nonlinear absorption; Nonlinear refractive index

KeyWords Plus: NANOPARTICLES; ABSORPTION; ULTRAFAST; BAND; RGO

Addresses: [Kasana, P. K.; Pandey, Akanksha; Mohanty, Tanuja] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.
[Kasana, P. K.] Univ Delhi, Shivaji Coll, Dept Phys, New Delhi 110027, India.

Corresponding Address: Mohanty, T (corresponding author), Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

E-mail Addresses: tmohanty@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; University of Delhi

Publisher: SPRINGER HEIDELBERG

Publisher Address: TIERGARTENSTRASSE 17, D-69121 HEIDELBERG, GERMANY

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Materials Science, Multidisciplinary; Physics, Applied

Research Areas: Materials Science; Physics

IDS Number: N4454

ISSN: 0947-8396

eISSN: 1432-0630

29-char Source Abbrev.: APPL PHYS A-MATER

ISO Source Abbrev.: Appl. Phys. A-Mater. Sci. Process.

Source Item Page Count: 12

Funding:

Funding Agency	Grant Number
Science and Engineering Research Board	CRG/2022/007270

We would sincerely express our gratitude to all those who contributed in this research paper. We would like to thank AIRF JNU for their assistance to characterize Raman spectroscopy, AFM and FTIR spectroscopy and USIC, university of Delhi to provide a facility for FE-SEM and UV-Vis Spectroscopy. The authors also express their gratitude to Dr. Mahesh Kumar (CSIR-NPL) for providing Z-scan measurement facility and we are also thankful to Mr. Shivam Tiwari (Motilal Nehru college uni. Of Delhi) for his valuable suggestion and discussion on Z-scan measurements. Tanuja Mohanty is also thankful to DST for providing funding from DST-SERB (Project No. CRG/2022/007270).

Output Date: 2025-12-31

Record 21 of 47

Title: K-shell photoionization of plasma-embedded Li-like Fe XXIV

Author(s): Jha, AKS (Jha, Alok Kumar Singh); Kumar, N (Kumar, Narendra); Sharma, A (Sharma, Ashish); Dimri, M (Dimri, Mayank); Dawra, D (Dawra, Dishu); Mohan, M (Mohan, Man)

Source: PHYSICS OF PLASMAS **Volume:** 32 **Issue:** 12 **Article Number:** 122702 **DOI:** 10.1063/5.0285731 **Published Date:** 2025 DEC

Cited References: Aggarwal S, 2012, J ASTROPHYS ASTRON, V33, P291, DOI 10.1007/s12036-012-9151-7
[Anonymous], 1995, The Opacity Project, V1
Bautista MA, 1997, ASTRON ASTROPHYS SUP, V122, P167, DOI 10.1051/aas:1997327
BEIERSDORFER P, 1993, ASTROPHYS J, V409, P846, DOI 10.1086/172715
Belkhiri M, 2013, HIGH ENERG DENS PHYS, V9, P609, DOI 10.1016/j.hedp.2013.05.016
Bhattacharyya S, 2015, PHYS REV A, V91, DOI 10.1103/PhysRevA.91.042515
Bin Chen Z., 2023, Phys. Plasmas, V30, P052105, DOI [10.1063/5.0147053, DOI 10.1063/5.0147053]
Blancard C, 2018, ASTROPHYS J, V853, DOI 10.3847/1538-4357/aa9ff7
Chang TN, 2013, PHYS PLASMAS, V20, DOI 10.1063/1.4821123
Chen ZB, 2023, J ELECTRON SPECTROSC, V262, DOI 10.1016/j.elspec.2022.147283
Chen ZB, 2024, PHYS PLASMAS, V31, DOI 10.1063/5.0233256
Ciricosta O, 2012, PHYS REV LETT, V109, DOI 10.1103/PhysRevLett.109.065002
CLARK REH, 1986, ATOM DATA NUCL DATA, V34, P415, DOI 10.1016/0092-640X(86)90012-4
Das M, 2016, PHYS REV A, V93, DOI 10.1103/PhysRevA.93.052513
Das M, 2014, J PHYS B-AT MOL OPT, V47, DOI 10.1088/0953-4075/47/17/175701
Dawra D, 2021, PHYS PLASMAS, V28, DOI 10.1063/5.0055265
Deprince J, 2019, ASTRON ASTROPHYS, V626, DOI 10.1051/0004-6361/201935444
Emma P, 2010, NAT PHOTONICS, V4, P641, DOI [10.1038/nphoton.2010.176, 10.1038/NPHOTON.2010.176]
flash, 2021, About us
Geneaux R, 2019, PHILOS T R SOC A, V377, DOI 10.1098/rsta.2017.0463
Griem H. R., 2005, Principles of Plasma Spectroscopy
Gu MF, 2008, CAN J PHYS, V86, P675, DOI 10.1139/P07-197
Guillot T, 1999, SCIENCE, V286, P72, DOI 10.1126/science.286.5437.72
Hillier DJ, 2023, ATOMS, V11, DOI 10.3390/atoms11030054
Hu SX, 2010, PHYS REV LETT, V104, DOI 10.1103/PhysRevLett.104.235003
HUMMER DG, 1993, ASTRON ASTROPHYS, V279, P298
Jarrah W, 2019, HIGH ENERG DENS PHYS, V32, P8, DOI 10.1016/j.hedp.2019.04.006
Jha AKS, 2023, ATOMS, V11, DOI 10.3390/atoms11120158
Kramida A., 2025, NIST Atomic Spectra Database
Kumar N, 2024, EUR PHYS J PLUS, V139, DOI 10.1140/epjp/s13360-024-05716-9
Kumar N, 2023, EUR PHYS J PLUS, V138, DOI 10.1140/epjp/s13360-023-04751-2
Li X, 2020, PHYS LETT A, V384, DOI 10.1016/j.physleta.2020.126478
Li X, 2019, PHYS PLASMAS, V26, DOI 10.1063/1.5055689
Li X, 2010, PHYS REV A, V82, DOI 10.1103/PhysRevA.82.022503
LIEDAHL DA, 1992, ASTROPHYS J, V391, P306, DOI 10.1086/171347
Lin CY, 2011, COMPUT PHYS COMMUN, V182, P125, DOI 10.1016/j.cpc.2010.06.013
Lindl JD, 2004, PHYS PLASMAS, V11, P339, DOI 10.1063/1.1578638
Massacrier G, 2011, PHYS REV E, V84, DOI 10.1103/PhysRevE.84.056406
Miller JM, 2015, ASTROPHYS J, V814, DOI 10.1088/0004-637X/814/2/87
Murillo MS, 2013, PHYS REV E, V87, DOI 10.1103/PhysRevE.87.063113
Nahar SN, 2004, RADIAT PHYS CHEM, V70, P323, DOI 10.1016/j.radphyschem.2003.12.019
NAHAR SN, 1994, PHYS REV A, V49, P1816, DOI 10.1103/PhysRevA.49.1816
Nahar SN, 2001, ASTROPHYS J SUPPL S, V137, P201, DOI 10.1086/322540
Nahar SN, 2008, J QUANT SPECTROSC RA, V109, P2417, DOI 10.1016/j.jqsrt.2008.03.008
Nantel M, 1998, PHYS REV LETT, V80, P4442, DOI 10.1103/PhysRevLett.80.4442
PEACH G, 1988, J PHYS B-AT MOL OPT, V21, P3669, DOI 10.1088/0953-4075/21/22/006

Perry TS, 2000, ASTROPHYS J SUPPL S, V127, P433, DOI 10.1086/313368
Potekhin AY, 2005, PHYS REV E, V72, DOI 10.1103/PhysRevE.72.046402
Pradhan A, 2025, CAN J PHYS, V103, P27, DOI 10.1139/cjp-2023-0228
Pradhan A, 2023, ATOMS, V11, DOI 10.3390/atoms11030052
Pradhan AK, 2025, ATOMS, V13, DOI 10.3390/atoms13100085
Renner O, 2019, MATTER RADIAT EXTREM, V4, DOI 10.1063/1.5086344
ROGERS FJ, 1994, SCIENCE, V263, P50, DOI 10.1126/science.263.5143.50
Rosmej FB, 2007, EPL-EUROPHYS LETT, V77, DOI 10.1209/0295-5075/77/24001
Rosmej F. B., 2021, Plasma Atomic Physics
Rosmej FB, 1998, PHYS REV E, V58, pR32, DOI 10.1103/PhysRevE.58.R32
Sahoo S, 2006, PHYS PLASMAS, V13, DOI 10.1063/1.2200290
Salzmann D., 1988, Atomic Physics in Hot Plasmas
Schnittman JD, 2013, ASTROPHYS J, V769, DOI 10.1088/0004-637X/769/2/156
2001, Arxiv, DOI [arXiv:astro-ph/0110035, 10.48550/arXiv.astro-ph/0110035, DOI 10.48550/ARXIV.ASTRO-PH/0110035]
Shivankar, 2024, J QUANT SPECTROSC RA, V321, DOI 10.1016/j.jqsrt.2024.108991
Singh AK, 2020, PHYS LETT A, V384, DOI 10.1016/j.physleta.2020.126369
stanford, 2021, About us
STEWART JC, 1966, ASTROPHYS J, V144, P1203, DOI 10.1086/148714
THOMAS RJ, 1994, ASTROPHYS J SUPPL S, V91, P461, DOI 10.1086/191944
VERNER DA, 1995, ASTRON ASTROPHYS SUP, V109, P125
VERNER DA, 1993, ATOM DATA NUCL DATA, V55, P233, DOI 10.1006/adnd.1993.1022
Werner K, 2007, ADV SPACE RES, V40, P1512, DOI 10.1016/j.asr.2006.12.023
WIDING KG, 1976, ASTROPHYS J, V204, pL151, DOI 10.1086/182076
xfel, 2021, About us
Zhao LB, 2004, PHYS PLASMAS, V11, P1695, DOI 10.1063/1.1650351
ZIMMERMAN GB, 1980, J QUANT SPECTROSC RA, V23, P517, DOI 10.1016/0022-4073(80)90055-2

Cited Reference Count: 72

Abstract: The impact of dense plasma environment on the K-shell photoionization (PI) cross sections of ground and excited states of the plasma-embedded Li-like Fe XXIV ion is analyzed using the relativistic distorted wave method by incorporating analytical plasma screening potential. Excited state energies of target ion Fe XXV and transition probabilities for 1s(2 1)S(0) -> 1s3p (1,3) P(1)(o)transitions of target ion Fe XXV are investigated at various plasma conditions. Plasma screening effects on K-threshold, auger widths, auger energy, and ionization potential depression of the Li-like Fe XXIV have also been investigated. Further, plasma screening effects on the continuum wave function of the orbitals 1s(1/2), 2s(1/2), and 2p(3/2) of Fe XXIV have been shown. Furthermore, plasma screening effects on PI cross sections for the states 1s(2)2s S-2(1/2) and 1s(2)2p (2) P(1/2, 3/2)(o)and photorecombination for the states 1s(2)2s S-2(1/2) and 1s(2)2p (2) P(1/2)(o)of Li-like Fe XXIV ion are studied. These findings will be useful in the modeling of astrophysical and laboratory plasmas.

Accession Number: WOS:001629677600001

Language: English

Document Type: Article

KeyWords Plus: ELECTRON-ION RECOMBINATION; CROSS-SECTIONS; ATOMIC DATA; IONIZATION-POTENTIALS; PRESSURE IONIZATION; IRON PROJECT; EMISSION; HE; SPECTRA; REGION

Addresses: [Jha, Alok Kumar Singh; Kumar, Narendra; Sharma, Ashish] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.
[Dimri, Mayank] Univ Delhi, Hindu Coll, Delhi 110007, India.
[Dawra, Dishu] Univ Delhi, Ramjas Coll, Delhi 110007, India.
[Mohan, Man] Univ Delhi, Dept Phys & Astrophys, Delhi 110007, India.

Corresponding Address: Jha, AKS (corresponding author), Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

E-mail Addresses: alokksjha@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; University of Delhi; University of Delhi; University of Delhi

Publisher: AIP Publishing

Publisher Address: 1305 WALT WHITMAN RD, STE 300, MELVILLE, NY 11747-4501 USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Physics, Fluids & Plasmas

Research Areas: Physics

IDS Number: L5521

ISSN: 1070-664X

eISSN: 1089-7674

29-char Source Abbrev.: PHYS PLASMAS

ISO Source Abbrev.: Phys. Plasmas

Source Item Page Count: 11

Funding:

Funding Agency	Grant Number
	CRG/2022/008061
	IF210224

Alok K. S. Jha sincerely acknowledges the financial support received from SERB, the Department of Science and Technology (DST), Government of India, under project No. CRG/2022/008061. Ashish Sharma is thankful to UGC, India, for awarding him as a senior research fellow. Narendra Kumar is also thankful to DST, Government of India, for the award "Senior Research Fellowship" with Award No. IF210224.

Output Date: 2025-12-31

Record 22 of 47

Title: Hydration-Free Energies for Small Molecules With Physics-Based Descriptors: Graph Neural Network With Cross-Attention

Author(s): Sirohi, AK (Sirohi, Anuj Kumar); Yadav, AK (Yadav, Ajeet Kumar); Bandyopadhyay, P (Bandyopadhyay, Pradipta)

Source: JOURNAL OF COMPUTATIONAL CHEMISTRY **Volume:** 46 **Issue:** 31 **Article Number:** e70278 **DOI:** 10.1002/jcc.70278 **Published Date:** 2025 DEC 5

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Aguilar B, 2012, J CHEM THEORY COMPUT, V8, P2404, DOI 10.1021/ct200786m
Alibakhshi A, 2021, NAT COMMUN, V12, DOI 10.1038/s41467-021-23724-6
Baker NA, 2005, CURR OPIN STRUC BIOL, V15, P137, DOI 10.1016/j.sbi.2005.02.001
Bandyopadhyay P, 2000, J CHEM PHYS, V113, P1104, DOI 10.1063/1.481889
Bandyopadhyay P, 2002, J CHEM PHYS, V116, P5023, DOI 10.1063/1.1433503
Bashford D, 2000, ANNU REV PHYS CHEM, V51, P129, DOI 10.1146/annurev.physchem.51.1.129
Bass L, 2023, J CHEM THEORY COMPUT, V20, P396, DOI 10.1021/acs.jctc.3c00981
Bennett WFD, 2020, J CHEM INF MODEL, V60, P5375, DOI 10.1021/acs.jcim.0c00318
Brini E, 2017, CHEM REV, V117, P12385, DOI 10.1021/acs.chemrev.7b00259
Chen D, 2021, NAT COMMUN, V12, DOI 10.1038/s41467-021-23720-w
HAWKINS GD, 1995, CHEM PHYS LETT, V246, P122, DOI 10.1016/0009-2614(95)01082-K
He XB, 2020, J CHEM PHYS, V153, DOI 10.1063/5.0019056

Heyden M, 2019, WIRES COMPUT MOL SCI, V9, DOI 10.1002/wcms.1390
HONIG B, 1995, SCIENCE, V268, P1144, DOI 10.1126/science.7761829
Huang WJ, 2022, APPL INTELL, V52, P10297, DOI 10.1007/s10489-021-02930-1
Jakalian A, 2002, J COMPUT CHEM, V23, P1623, DOI 10.1002/jcc.10128
Jakalian A, 2000, J COMPUT CHEM, V21, P132, DOI 10.1002/(SICI)1096-987X(20000130)21:2<132::AID-JCC5>3.0.CO;2-P
JORGENSEN WL, 1983, J CHEM PHYS, V79, P926, DOI 10.1063/1.445869
Kipf ThomasN., 2017, INT C LEARNING REPRE, DOI DOI 10.48550/ARXIV.1609.02907
Klamt A, 2011, WIRES COMPUT MOL SCI, V1, P699, DOI 10.1002/wcms.56
Kríz K, 2019, J CHEM INF MODEL, V59, P229, DOI 10.1021/acs.jcim.8b00681
Landrum G., 2020, "Rdkit/Rdkit: 2020_03_1 (Q1 2020) Release,"
Lang EJM, 2022, J CHEM THEORY COMPUT, DOI 10.1021/acs.jctc.1c01172
Lim H, 2021, J CHEMINFORMATICS, V13, DOI 10.1186/s13321-021-00533-z
Lim H, 2019, CHEM SCI, V10, P8306, DOI 10.1039/c9sc02452b
Low K, 2022, J CHEM INF MODEL, V62, P5457, DOI 10.1021/acs.jcim.2c01013
Luukkonen S, 2020, J CHEM INF MODEL, V60, P3558, DOI 10.1021/acs.jcim.0c00526
Maas A. L., 2013, Proceedings of the ICML
Mennucci B, 1997, J CHEM PHYS, V106, P5151, DOI 10.1063/1.473558
Mennucci B, 2012, WIRES COMPUT MOL SCI, V2, P386, DOI 10.1002/wcms.1086
Mobley DL, 2014, J COMPUT AID MOL DES, V28, P711, DOI 10.1007/s10822-014-9747-x
Mongan J, 2007, J CHEM THEORY COMPUT, V3, P156, DOI 10.1021/ct600085e
Nerenberg PS, 2012, J PHYS CHEM B, V116, P4524, DOI 10.1021/jp2118373
Nguyen H, 2013, J CHEM THEORY COMPUT, V9, P2020, DOI 10.1021/ct3010485
Onufriev A, 2000, J PHYS CHEM B, V104, P3712, DOI 10.1021/jp994072s
Onufriev AV, 2019, ANNU REV BIOPHYS, V48, P275, DOI 10.1146/annurev-biophys-052118-115325
Paszke Adam., 2019, High-Performance Deep Learning Library, P8024
Pathak Y, 2021, J CHEM INF MODEL, V61, P689, DOI 10.1021/acs.jcim.0c01413
Pattanaik L, 2023, J PHYS CHEM B, V127, P10151, DOI 10.1021/acs.jpcb.3c05904
Perlovich GL, 2014, MOL PHARMACEUT, V11, P1, DOI 10.1021/mp400460r
Ramani V, 2024, J CHEM THEORY COMPUT, V20, P6549, DOI 10.1021/acs.jctc.4c00382
Riquelme M, 2018, J CHEM INF MODEL, V58, P1779, DOI 10.1021/acs.jcim.8b00180
Schaefer M, 1998, J MOL BIOL, V284, P835, DOI 10.1006/jmbi.1998.2172
Shen JH, 2025, SCI REP-UK, V15, DOI 10.1038/s41598-025-88993-3
Shivakumar D, 2012, J CHEM THEORY COMPUT, V8, P2553, DOI 10.1021/ct300203w
Shivakumar D, 2009, J CHEM THEORY COMPUT, V5, P919, DOI 10.1021/ct800445x
STILL WC, 1990, J AM CHEM SOC, V112, P6127, DOI 10.1021/ja00172a038
Tan CH, 2006, J PHYS CHEM B, V110, P18680, DOI 10.1021/jp063479b
Velickovic Petar., 2018, ICLR
Vinyals O., 2016, Proceedings of the 4th International Conference on Learning Representations, ICLR 2016, San Juan, Puerto Rico, May 2-4, 2016, Conference Track Proceedings
Voityuk AA, 2019, PHYS CHEM CHEM PHYS, V21, P18706, DOI 10.1039/c9cp03010g
Vyboishchikov SF, 2024, LIQUIDS-BASEL, V4, P525, DOI [10.3390/liquids4030030, 10.3390/liquids4030030]
Vyboishchikov SF, 2023, J CHEM THEORY COMPUT, V19, P8340, DOI 10.1021/acs.jctc.3c00858
Vyboishchikov SF, 2023, J CHEM INF MODEL, V63, P6283, DOI 10.1021/acs.jcim.3c00922
Wang JM, 2004, J COMPUT CHEM, V25, P1157, DOI 10.1002/jcc.20035
Wang MJ, 2020, Arxiv, DOI [arXiv:1909.01315, 10.48550/arXiv.1909.01315]
Wen MJ, 2021, CHEM SCI, V12, P1858, DOI 10.1039/d0sc05251e
Wu ZQ, 2018, CHEM SCI, V9, P513, DOI 10.1039/c7sc02664a
Yadav AK, 2025, J PHYS CHEM B, V129, P1640, DOI 10.1021/acs.jpcb.4c07090
Zhang DD, 2022, J CHEM INF MODEL, V62, P1840, DOI 10.1021/acs.jcim.2c00260
Zhang P, 2019, J PHYS CHEM B, V123, P901, DOI 10.1021/acs.jpcb.8b11905
Zhang ZY, 2023, J PHYS CHEM LETT, V14, P1877, DOI 10.1021/acs.jpclett.2c03858
Cited Reference Count: 62

Abstract: Hydration-free energy (HFE) is a fundamental thermodynamic property with broad relevance in both chemistry and biology, particularly in solvation processes. Traditional methods for computing HFE, such as molecular dynamics simulations, are often computationally intensive and require significant domain-specific calibration. Recent advances in machine learning (ML) have enabled more efficient HFE predictions, especially for small molecules. However, many existing ML models lack interpretability and often rely on large, opaque feature sets. In this study, a graph neural network (GNN) model is used for predicting the HFE of small molecules from the FreeSolv dataset. Our model integrates graph representations of solute and solvent molecules and captures their mutual interactions through a cross-attention mechanism during message passing. To enhance physical interpretability, we incorporate a compact set of six global molecular descriptors: approximate electrostatic energy computed via a closed-form Generalized Born (GB) model, polar surface area (PSA), logarithm of the octanol-water partition coefficient (), hydrogen bond donors, hydrogen bond acceptors, and the number of rotatable bonds. We benchmark our model against classical ML methods and recent GNN-based baselines. Our attention-based GNN not only improves prediction accuracy but also maintains transparency in feature importance. Our method outperforms existing baselines, achieving a mean absolute error (MAE) of kcal/mol and a root mean square error (RMSE) of kcal/mol, which is approximately and improvement as compared to the best-performing baseline, respectively. The ablation study reveals that among the global descriptors used for the solute, electrostatic energy and PSA are the most critical in reducing prediction error, followed by features related to hydrogen bonding. This combination of high accuracy and strong interpretability makes our framework well-suited for large-scale, data-driven investigations of solvation-free energies. The validation of the proposed framework on datasets encompassing a broader range of solvents will be undertaken in future investigations.

Accession Number: WOS:001632403500016

PubMed ID: 41329059

Language: English

Document Type: Article

Author Keywords: graph neural networks; hydration free energy; machine learning; physics-based descriptors

KeyWords Plus: SOLVATION FREE-ENERGIES; GENERALIZED BORN MODEL; EFFICIENT GENERATION; AM1-BCC MODEL; PREDICTION; SOLVENT; EXPLICIT; CHARGES

Addresses: [Sirohi, Anuj Kumar] Indian Inst Technol, Yardi Sch Artificial Intelligence, New Delhi, India. [Yadav, Ajeet Kumar; Bandyopadhyay, Pradipta] Jawaharlal Nehru Univ, Sch Computat & Integrat Sci, New Delhi, India.

Corresponding Address: Bandyopadhyay, P (corresponding author), Jawaharlal Nehru Univ, Sch Computat & Integrat Sci, New Delhi, India.

E-mail Addresses: praban07@gmail.com

Affiliations: Indian Institute of Technology System (IIT System); Indian Institute of Technology (IIT) - Delhi; Jawaharlal Nehru University, New Delhi

Publisher: WILEY

Publisher Address: 111 RIVER ST, HOBOKEN 07030-5774, NJ USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Multidisciplinary

Research Areas: Chemistry

IDS Number: O2653

ISSN: 0192-8651

eISSN: 1096-987X

29-char Source Abbrev.: J COMPUT CHEM

ISO Source Abbrev.: J. Comput. Chem.

Source Item Page Count: 12

Funding:

Funding Agency	Grant Number
DBT	BT/PR/40251/BITS/137/11/2021
Indo-Slovenia bilateral research grant	DST/ICD/Indo-Slovenia/2022/02(G)

This work was partially supported by grants from the DBT (BT/PR/40251/BITS/137/11/2021) awarded to the Centre for Computational Biology and Bioinformatics, Jawaharlal Nehru University, and by an Indo-Slovenia bilateral research grant (DST/ICD/Indo-Slovenia/2022/02(G)). P.B. wishes to thank Prof. Tomaz Urbic for insightful discussions. We dedicate this work to Prof. S. Gadre, who has been an inspiration throughout. PB cherishes the fantastic collaboration with him in the area of water clusters.

Open Access: Bronze

Output Date: 2025-12-31

Record 23 of 47

Title: Green and Efficient Synthesis of Benzylidenemalononitrile Derivatives and α-Aminonitriles Using a Bifunctional MOF Catalyst

Author(s): Kumari, S (Kumari, Sarita); Poonia, B (Poonia, Babita); Jyoti (Jyoti); Yadav, A (Yadav, Anand); Bhavana (Bhavana); Kumari, L (Kumari, Lalita); Awasthi, SK (Kumar Awasthi, Satish); Chakraborty, A (Chakraborty, Anindita); Kanoo, P (Kanoo, Prakash)

Source: CHEMISTRY-AN ASIAN JOURNAL **DOI:** 10.1002/asia.202500766 **Early Access Date:** DEC 2025 **Published Date:** 2025 DEC 15

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Asgharnejad L, 2019, CRYST GROWTH DES, V19, P2679, DOI 10.1021/acs.cgd.8b01810
Bavykina A, 2020, CHEM REV, V120, P8468, DOI 10.1021/acs.chemrev.9b00685
Behera J, 2024, CHEM-EUR J, V30, DOI 10.1002/chem.202400375
Cai GR, 2021, CHEM REV, V121, P12278, DOI 10.1021/acs.chemrev.1c00243
Chai J, 2018, INORG CHIM ACTA, V479, P165, DOI 10.1016/j.ica.2018.04.037
Chang XL, 2024, CRYST GROWTH DES, V24, P2619, DOI 10.1021/acs.cgd.3c01293
Cui WG, 2019, COORDIN CHEM REV, V387, P79, DOI 10.1016/j.ccr.2019.02.001
Das A, 2019, MICROPOR MESOPOR MAT, V284, P459, DOI 10.1016/j.micromeso.2019.04.057
Dhakshinamoorthy A, 2018, GREEN CHEM, V20, P86, DOI 10.1039/c7gc02260c
Fan WD, 2017, INORG CHEM, V56, P13634, DOI 10.1021/acs.inorgchem.7b02148
Gandhi S, 2023, CATAL LETT, V153, P887, DOI 10.1007/s10562-022-04004-4
Gao CY, 2017, CHEM COMMUN, V53, P1293, DOI 10.1039/c6cc08773f
Gao ML, 2019, CHEM COMMUN, V55, P6377, DOI 10.1039/c9cc02174d
Gascon J, 2009, J CATAL, V261, P75, DOI 10.1016/j.jcat.2008.11.010
Ghorai P, 2023, INORG CHEM, V62, P98, DOI 10.1021/acs.inorgchem.2c03027
Gómez-Oliveira EP, 2022, INORG CHEM, V61, P7523, DOI 10.1021/acs.inorgchem.2c00628
Gupta V, 2019, INORG CHEM, V58, P3219, DOI 10.1021/acs.inorgchem.8b03307
Hartmann M, 2012, MICROPOR MESOPOR MAT, V164, P38, DOI 10.1016/j.micromeso.2012.06.044
Hu L, 2018, CRYST GROWTH DES, V18, P2883, DOI 10.1021/acs.cgd.7b01728
Hu ZG, 2017, CRYSTENGCOMM, V19, P4066, DOI 10.1039/c6ce02660e
Hwang YK, 2008, ANGEW CHEM INT EDIT, V47, P4144, DOI 10.1002/anie.200705998
Jain K, 2019, NEW J CHEM, V43, P1299, DOI 10.1039/c8nj04219e
Jaishi LR, 2024, ACS SENSORS, V9, P6553, DOI 10.1021/acssensors.4c02016
Jiang W, 2017, INORG CHEM, V56, P3036, DOI 10.1021/acs.inorgchem.6b03174
Jiang W, 2016, CHEM-EUR J, V22, P16989, DOI 10.1002/chem.201603465
Jiang YS, 2020, INORG CHIM ACTA, V510, DOI 10.1016/j.ica.2020.119735
Joharian M, 2018, GREEN CHEM, V20, P5336, DOI 10.1039/c8gc02367k

Climent MJ, 2012, RSC ADV, V2, P16, DOI 10.1039/c1ra00807b
Jyoti, 2024, DALTON T, V53, DOI 10.1039/d4dt00849a
Karmakar A, 2015, CRYST GROWTH DES, V15, P4185, DOI 10.1021/acs.cgd.5b00948
Khaleeq A, 2024, RSC ADV, V14, P10736, DOI 10.1039/d4ra00914b
Khan S, 2023, INORG CHEM, V62, P275, DOI 10.1021/acs.inorgchem.2c03369
Khoshnavazi R, 2016, RSC ADV, V6, P100962, DOI 10.1039/c6ra15339a
Kirlikovali KO, 2023, ACS NANOSCI AU, V3, P37, DOI 10.1021/acsnanoscienceau.2c00046
Kumar G, 2013, INORG CHEM, V52, P10773, DOI 10.1021/ic400536e
Kumari S, 2025, DALTON T, V54, P10627, DOI 10.1039/d5dt00500k
Kumari S, 2024, INORG CHEM, V63, P7146, DOI 10.1021/acs.inorgchem.3c04062
Lee A, 2011, ANGEW CHEM INT EDIT, V50, P1707, DOI 10.1002/anie.201006319
Liang F, 2005, POLYMER, V46, P3767, DOI 10.1016/j.polymer.2005.03.036
Liang F, 2024, CRYSTENGCOMM, V26, P1032, DOI 10.1039/d3ce01034a
Liu JW, 2014, CHEM SOC REV, V43, P6011, DOI 10.1039/c4cs00094c
Liu NN, 2024, INORG CHEM, V63, P19117, DOI 10.1021/acs.inorgchem.4c02497
Luan Y, 2015, J MATER CHEM A, V3, P17320, DOI 10.1039/c5ta00816f
Lv HX, 2022, INORG CHEM FRONT, V9, P5788, DOI 10.1039/d2qi01271e
Lv XL, 2017, J AM CHEM SOC, V139, P211, DOI 10.1021/jacs.6b09463
Madasamy K, 2019, NEW J CHEM, V43, P3793, DOI 10.1039/c8nj05953e
Aguirre-Díaz LM, 2015, J AM CHEM SOC, V137, P6132, DOI 10.1021/jacs.5b02313
Mishra A, 2023, ACS ORG INORG AU, V3, P254, DOI 10.1021/acsorginorgau.3c00002
Mohanty B, 2024, COORDIN CHEM REV, V519, DOI 10.1016/j.ccr.2024.216102
Natarajan S, 2023, ACS ORG INORG AU, V4, P59, DOI 10.1021/acsorginorgau.3c00033
Opanasenko M, 2013, CATAL SCI TECHNOL, V3, P500, DOI 10.1039/c2cy20586f
Pal TK, 2015, CHEM-EUR J, V21, P19064, DOI 10.1002/chem.201503163
Park J, 2012, CHEM COMMUN, V48, P9995, DOI 10.1039/c2cc34622b
Parmar B, 2018, INORG CHEM FRONT, V5, P2630, DOI 10.1039/c8qi00744f
Patel D, 2020, NEW J CHEM, V44, P2868, DOI 10.1039/c9nj05821d
Pimparkar S, 2021, CHEM COMMUN, V57, P2210, DOI 10.1039/d0cc07783f
Poulsen RD, 2004, ACTA CRYSTALLOGR A, V60, P382, DOI 10.1107/S010876730401699X
Prakash O, 2024, J MATER CHEM B, V12, P10198, DOI 10.1039/d4tb01556h
Qiao JY, 2022, J MATER CHEM A, V10, P17773, DOI 10.1039/d2ta03524c
Rasaily S, 2022, INORG CHEM, DOI 10.1021/acs.inorgchem.2c00270
Sadjadi S, 2022, SCI REP-UK, V12, DOI 10.1038/s41598-022-05134-w
Saha R, 2013, CHEM-EUR J, V19, P16607, DOI 10.1002/chem.201302084
Sahoo R, 2023, INORG CHEM, V62, P12989, DOI 10.1021/acs.inorgchem.3c01767
Sanz M, 2024, GREEN CHEM, V26, P7337, DOI 10.1039/d3gc05022j
Saravanan S, 2013, ACS CATAL, V3, P2873, DOI 10.1021/cs400742d
Serra-Crespo P, 2011, CHEM MATER, V23, P2565, DOI 10.1021/cm103644b
Shaikh I.R., 2014, Hindawi Journal of Catalysts, P402860, DOI DOI 10.1155/2014/402860
Srirambalaji R, 2012, CHEM COMMUN, V48, P11650, DOI 10.1039/c2cc36678a
Taher A, 2020, INORG CHEM COMMUN, V119, DOI 10.1016/j.inoche.2020.108092
Taher A, 2016, SYNLETT, V27, P1433, DOI 10.1055/s-0035-1561356
Tan Y, 2011, INORG CHEM COMMUN, V14, P1966, DOI 10.1016/j.inoche.2011.09.022
Tanaka K, 2018, RSC ADV, V8, P28139, DOI 10.1039/c8ra05163a
Tavakolian M, 2019, NEW J CHEM, V43, P16437, DOI 10.1039/c9nj04647j
Tian HR, 2021, ACS SUSTAIN CHEM ENG, V9, P4660, DOI 10.1021/acssuschemeng.1c00389
Tietze LF, 2004, PURE APPL CHEM, V76, P1967, DOI 10.1351/pac200476111967
Varnaseri N, 2020, DALTON T, V49, P3234, DOI 10.1039/d0dt00433b
Verma A, 2017, INORG CHEM, V56, P13629, DOI 10.1021/acs.inorgchem.7b01915
Verma G, 2021, ACS APPL MATER INTER, V13, P52023, DOI 10.1021/acsami.1c09074
Verma K, 2021, Current Research in Green and Sustainable Chemistry, V4, P100060, DOI [10.1016/j.crgsc.2021.100060, 10.1016/j.crgsc.2021.100060, DOI 10.1016/J.CRGSC.2021.100060]
Wang FF, 2021, INORG CHEM, V60, P7329, DOI 10.1021/acs.inorgchem.1c00497

Wang PX, 2024, CATAL SCI TECHNOL, V14, P6947, DOI 10.1039/d4cy00979g
Xi FG, 2016, INORG CHEM, V55, P4701, DOI 10.1021/acs.inorgchem.6b00598
Xue GX, 2024, NAT COMMUN, V15, DOI 10.1038/s41467-024-54064-w
Yadav A, 2022, DALTON T, V51, P15496, DOI 10.1039/d2dt02098j
Yadav A, 2019, CHEM-ASIAN J, V14, P3531, DOI 10.1002/asia.201900876
Yadav CL, 2020, INORG CHEM, V59, P11417, DOI 10.1021/acs.inorgchem.0c01195
Yadav P, 2023, ACS OMEGA, V8, P28367, DOI 10.1021/acsomega.3c02418
Yang Y, 2014, J MOL CATAL A-CHEM, V390, P198, DOI 10.1016/j.molcata.2014.04.002
Yang Y, 2020, MOL CATAL, V490, DOI 10.1016/j.mcat.2020.110914
Yao C, 2018, INORG CHEM, V57, P11157, DOI 10.1021/acs.inorgchem.8b01713
Yuan S, 2018, NAT COMMUN, V9, DOI 10.1038/s41467-018-03102-5
Zhang WY, 2024, NEW J CHEM, V48, P16813, DOI 10.1039/d4nj03210a
Zhang XR, 2022, CHEM SOC REV, V51, P3243, DOI 10.1039/d0cs01192d
Zhang X, 2020, CHEM SOC REV, V49, P7406, DOI 10.1039/d0cs00997k
Zhang Y, 2018, INORG CHEM, V57, P2193, DOI 10.1021/acs.inorgchem.7b03084
Zhao DS, 2023, INORG CHEM, DOI 10.1021/acs.inorgchem.2c03828

Cited Reference Count: 96

Abstract: We report catalytic performance of a stable 3D metal-organic framework (MOF), {Mn-2(1,4-bdc)(2)(DMF)(2)}n(Mn-BDC) (1,4-bdcH(2), 1,4-benzenedicarboxylic acid; DMF, N,N-dimethylformamide) in water and solventless condition. The coordinated DMF molecules in the MOF can be removed by heating to yield a desolvated phase, Mn-BDCDesolv with unsaturated Mn(II) sites (unsaturated metal sites [UMSs]) acting as Lewis acid sites, whereas the Lewis basicity arises from the carboxylate oxygens of 1,4-bdc. Mn-BDCDesolv is explored as a bifunctional heterogeneous catalyst to synthesize several benzylidenemalononitrile (BMN) derivatives in water and alpha-aminonitriles in solventless condition. The catalyst demonstrates excellent conversion (>99%) and high turnover number (TON) up to 16,500 and turnover frequency (TOF) up to 550 min(-1). Remarkably, Mn-BDC(Desolv)maintained >99% conversion over 24 cycles during the synthesis of BMN derivatives. The catalysts broad substrate scope, robust nature, superior TON, and TOF values compared to the benchmark MOFs and high recyclability highlights its potential for various Lewis acid-base-catalyzed organic transformations. It is important to mention that Mn-BDC can be prepared in gram scale in lab easily making the catalyst economical. Further, the catalytic process with Mn-BDC can be termed "green" as it allows the reactions to proceed either in water or in solventless condition.

Accession Number: WOS:001639635400001

PubMed ID: 41398551

Language: English

Document Type: Article; Early Access

Author Keywords: green synthesis; heterogenous catalysis; metal-organic frameworks; solventless condition; unsaturated metal site (UMS)

KeyWords Plus: METAL-ORGANIC FRAMEWORK; SOLVENT-FREE CATALYST; KNOEVENAGEL CONDENSATION; HETEROGENEOUS CATALYSTS; STRECKER REACTION; BOND FORMATION; ROBUST; SITES; CO2; ORGANOCATALYST

Addresses: [Kumari, Sarita; Poonia, Babita; Jyoti; Yadav, Anand; Bhavana; Chakraborty, Anindita; Kanoo, Prakash] Cent Univ Haryana, Sch Basic Sci, Dept Chem, Mahendergarh, Haryana, India.
[Kumari, Lalita; Kumar Awasthi, Satish] Univ Delhi, Dept Chem, North Campus, Delhi, India.
[Kanoo, Prakash] Jawaharlal Nehru Univ, Special Ctr Nano Sci, New Delhi, India.

Corresponding Address: Chakraborty, A; Kanoo, P (corresponding author), Cent Univ Haryana, Sch Basic Sci, Dept Chem, Mahendergarh, Haryana, India.
Kanoo, P (corresponding author), Jawaharlal Nehru Univ, Special Ctr Nano Sci, New Delhi, India.

E-mail Addresses: achakraborty@cuh.ac.in; prakashkanoo@gmail.com

Affiliations: Central University of Haryana; University of Delhi; Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number

Kanoo, Prakash	AAI-5849-2021	

Publisher: WILEY-V C H VERLAG GMBH

Publisher Address: POSTFACH 101161, 69451 WEINHEIM, GERMANY

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Multidisciplinary

Research Areas: Chemistry

IDS Number: W4702

ISSN: 1861-4728

eISSN: 1861-471X

29-char Source Abbrev.: CHEM-ASIAN J

ISO Source Abbrev.: Chem.-Asian J.

Source Item Page Count: 17

Funding:

Funding Agency	Grant Number
Department of Science and Technology (DST), New Delhi	DST/INSPIRE/04/2020/001603
CSIR, New Delhi	
UGC, New Delhi	

Anindita Chakraborty gratefully acknowledges Department of Science and Technology (DST), New Delhi, India for an INSPIRE Faculty Fellowship (DST/INSPIRE/04/2020/001603). Prakash Kanoo and Anindita Chakraborty thankfully acknowledge infrastructural support and characterization facility at Central University of Haryana, Mahendergarh. Sarita Kumari and Lalita Kumari thank CSIR, New Delhi for senior research fellowships. Babita Poonia and Jyoti thank UGC, New Delhi for junior and senior research fellowships, respectively. The authors gratefully acknowledge Dr. Ritesh Haldar of TIFR, Hyderabad and Prof. Tapas Kumar Maji of JNCASR, Bangalore for helping in measurements. The authors are also thankful to Jyoti Varsha Yadav of JNU, New Delhi for help in PXRD measurements.

Output Date: 2025-12-31

Record 24 of 47

Title: Effect of Thickness and Buffer Layer on Magnetization and Spin Dynamics of Ferromagnetic Heterostructure: Microwave Monolithic Device Functionality

Author(s): Asif, M (Asif, Mohammad); Kumar, P (Kumar, Prashant); Beg, MT (Tariq Beg, Mirza); Nizamuddin, M (Nizamuddin, M.); Kuanr, BK (Kuanr, Bijoy Kumar)

Source: IEEE TRANSACTIONS ON MAGNETICS **Volume:** 61 **Issue:** 12 **Article Number:** 1301108 **DOI:** 10.1109/TMAG.2025.3624005 **Published Date:** 2025 DEC

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Abadias G, 2019, THIN SOLID FILMS, V688, DOI 10.1016/j.tsf.2019.06.053
Ando K, 2014, SEMICOND SCI TECH, V29, DOI 10.1088/0268-1242/29/4/043002
Arias R, 1999, PHYS REV B, V60, P7395, DOI 10.1103/PhysRevB.60.7395
Asif M, 2024, IEEE MAGN LETT, V15, DOI 10.1109/LMAG.2024.3484271
Azevedo A, 2000, PHYS REV B, V62, P5331, DOI 10.1103/PhysRevB.62.5331
Beg M, 2022, IEEE T MAGN, V58, DOI 10.1109/TMAG.2021.3078896
Belusky M, 2019, J MAGN MAGN MATER, V478, P77, DOI 10.1016/j.jmmm.2019.01.097
Bhardwaj S, 2024, AIP ADV, V14, DOI 10.1063/9.0000812
Bozorth R., 1993, FERROMAGNETISM

BOZORTH RM, 1953, PHYS REV, V89, P865, DOI 10.1103/PhysRev.89.865
COUDERCHON G, 1982, J MAGN MAGN MATER, V26, P196, DOI 10.1016/0304-8853(82)90152-4
Farle M, 1998, REP PROG PHYS, V61, P755, DOI 10.1088/0034-4885/61/7/001
Gilbert TL, 2004, IEEE T MAGN, V40, P3443, DOI 10.1109/TMAG.2004.836740
Gómez JE, 2014, PHYS REV B, V90, DOI 10.1103/PhysRevB.90.184401
Har NP, 2019, AIP CONF PROC, V2202, DOI 10.1063/1.5141641
Hashimoto A, 2008, IEEE T MAGN, V44, P3899, DOI 10.1109/TMAG.2008.2002252
Hayakawa J, 2006, JPN J APPL PHYS 2, V45, pL1057, DOI 10.1143/JJAP.45.L1057
Huang MQ, 2001, IEEE T MAGN, V37, P2239, DOI 10.1109/20.951135
Jung HS, 2002, APPL PHYS LETT, V81, P2415, DOI 10.1063/1.1510163
Kalarickal SS, 2006, J APPL PHYS, V99, DOI 10.1063/1.2197087
Kawahara T, 2012, MICROELECTRON RELIAB, V52, P613, DOI 10.1016/j.microrel.2011.09.028
Kim NH, 2015, APPL PHYS LETT, V107, DOI 10.1063/1.4932550
Kishimoto M, 2019, J MAGN MAGN MATER, V476, P229, DOI 10.1016/j.jmmm.2018.12.089
KITTEL C, 1948, PHYS REV, V73, P155, DOI 10.1103/PhysRev.73.155
Kuanr B, 2004, IEEE T MAGN, V40, P2841, DOI 10.1109/TMAG.2004.834197
Kuanr BK, 2006, IEEE T MAGN, V42, P2930, DOI 10.1109/TMAG.2006.878408
Kuanr BK, 2015, IEEE MAGN LETT, V6, DOI 10.1109/LMAG.2015.2406295
Kubota H, 2006, APPL PHYS LETT, V89, DOI 10.1063/1.2222241
Kumar A, 2015, J EXP NANOSCI, V10, P803, DOI 10.1080/17458080.2014.902543
Kumar N, 2008, J MAGN MAGN MATER, V320, P2233, DOI 10.1016/j.jmmm.2008.04.112
Lenz K, 2006, PHYS REV B, V73, DOI 10.1103/PhysRevB.73.144424
Lindner J, 2003, PHYS REV B, V68, DOI 10.1103/PhysRevB.68.060102
Lindner J, 2009, PHYS REV B, V80, DOI 10.1103/PhysRevB.80.224421
Mills DL, 2006, PHYSICA B, V384, P147, DOI 10.1016/j.physb.2006.05.209
Ngo HD, 2024, BEILSTEIN J NANOTECH, V15, P1253, DOI 10.3762/bjnano.15.101
Pan G, 2003, J APPL PHYS, V93, P5498, DOI 10.1063/1.1563824
Pati SP, 2017, IEEE T MAGN, V53, DOI 10.1109/TMAG.2017.2695560
Sahoo SC, 2012, APPL PHYS A-MATER, V106, P931, DOI 10.1007/s00339-011-6709-1
Sahoo SC, 2011, IEEE T MAGN, V47, P337, DOI 10.1109/TMAG.2010.2070791
Saitoh E, 2006, APPL PHYS LETT, V88, DOI 10.1063/1.2199473
Schoen MAW, 2016, NAT PHYS, V12, P839, DOI 10.1038/nphys3770
Seema, 2020, J MAGN MAGN MATER, V507, DOI 10.1016/j.jmmm.2020.166806
Shaw JM, 2010, J APPL PHYS, V108, DOI 10.1063/1.3506688
Suhl H, 1998, IEEE T MAGN, V34, P1834, DOI 10.1109/20.706720
Vahaplar K, 2009, J VAC SCI TECHNOL B, V27, P2112, DOI 10.1116/1.3196784
Rodriguez DV, 2020, J MAGN MAGN MATER, V504, DOI 10.1016/j.jmmm.2020.166692
Zhu WH, 2019, J PHYS D APPL PHYS, V52, DOI 10.1088/1361-6463/ab2800

Cited Reference Count: 47

Abstract: Single-layer Fe80Co20 and bilayers Ta/Fe80Co20 thin films are deposited on Si/SiO2 substrate using radio frequency (RF) magnetron sputtering. In this investigation, we systematically explore the impact of 5 nm thick Ta buffer layer and the thickness variation of Fe80Co20 films on their structural and magnetic properties. The magnetization relaxation of single-layer films deteriorates due to surface/interface roughness and defects, which cause the ferromagnetic resonance (FMR) line-widths (Delta H) to increase in comparison to bilayer Ta/Fe80Co20 thin films. We have evaluated and discussed how a 5 nm thick Ta buffer layer can reduce Delta H and hence Gilbert damping (alpha(eff)), due to the reduction in defect-induced two-magnon scattering (TMS) in comparison to FeCo films without a buffer layer. The value of alpha(eff) reduced from approximate to 7.4x10(-3) to approximate to 5.2x10(-3) for 20 nm-thick FeCo films, without and with Ta buffer. The main contribution to the reduction in alpha(eff) is attributed to a significant improvement in the surface morphology of Ta/Fe80Co20 thin films. In addition, we found that a Ta buffer layer significantly improves the static and dynamic properties of the ferromagnetic (FM) films. The saturation magnetization of the films with a Ta buffer was measured to be higher than films without buffer. Finally, we have designed, fabricated, and demonstrated microwave band-reject filters and phase shifters using the FeCo films in microstrip geometry. The band-stop filter has been tested experimentally from 7 to 20 GHz spanning in three microwave (C, X, and Ku) bands with

a bias magnetic field up to approximate to 87.56 kA/m. The advantage of FeCo films with buffer layers has been demonstrated by much higher microwave attenuation (>23 dB). Similarly, in phase shifter application, we have obtained a differential phase shift greater than 105% cm in the film with a Ta buffer layer. These microwave applications are further verified by simulation through OOMME software

Accession Number: WOS:001633521700003

Language: English

Document Type: Article

Author Keywords: Films; Buffer layers; Saturation magnetization; Surface roughness; Rough surfaces; Magnetic recording; Substrates; Magnetic films; Magnetosphere; Magnetomechanical effects; Buffer layer; Fe80Co20 films; ferromagnetic resonance; spin pumping; sputtering; two-magnon scattering (TMS)

KeyWords Plus: EXTRINSIC CONTRIBUTIONS; SUBSTRATE-TEMPERATURE; FILMS; ANISOTROPY; FE; CO; RESONANCE; BEHAVIOR

Addresses: [Asif, Mohammad; Tariq Beg, Mirza; Nizamuddin, M.] Jamia Millia Islamia, Dept Elect & Commun Engn, New Delhi 110025, India.
[Asif, Mohammad; Kuanr, Bijoy Kumar] Jawaharlal Nehru Univ, Special Ctr Nanosci, New Delhi 110067, India.
[Kumar, Prashant] Univ Delhi, Motilal Nehru Coll, South Campus, New Delhi 110021, India.

Corresponding Address: Kuanr, BK (corresponding author), Jawaharlal Nehru Univ, Special Ctr Nanosci, New Delhi 110067, India.

E-mail Addresses: bijoykuanr@mail.jnu.ac.in

Affiliations: Jamia Millia Islamia; Special Centre for Nanoscience, Jawaharlal Nehru University; Jawaharlal Nehru University, New Delhi; University of Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Kuanr, Bijoy	ABF-6805-2020	

Publisher: IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC

Publisher Address: 445 HOES LANE, PISCATAWAY, NJ 08855-4141 USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Engineering, Electrical & Electronic; Physics, Applied

Research Areas: Engineering; Physics

IDS Number: P3759

ISSN: 0018-9464

eISSN: 1941-0069

29-char Source Abbrev.: IEEE T MAGN

ISO Source Abbrev.: IEEE Trans. Magn.

Source Item Page Count: 8

Output Date: 2025-12-31

Record 25 of 47

Title: In silico design of dehydrophenylalanine containing peptide activators of glucokinase using pharmacophore modelling, molecular dynamics and machine learning: implications in type 2 diabetes

Author(s): Yadav, S (Yadav, Siddharth); Rana, S (Rana, Swati); Manish, M (Manish, Manish); Singh, S (Singh, Sohini); Lynn, A (Lynn, Andrew); Mathur, P (Mathur, Puniti)

Source: JOURNAL OF COMPUTER-AIDED MOLECULAR DESIGN **Volume:** 39 **Issue:** 1 **Article Number:** 5 **DOI:** 10.1007/s10822-024-00583-z **Published Date:** 2025 DEC

Times Cited in Web of Science Core Collection: 1

Total Times Cited: 1

Cited References: ALTMAN NS, 1992, AM STAT, V46, P175, DOI 10.2307/2685209
Charaya N, 2018, COMPUT BIOL CHEM, V73, P221, DOI 10.1016/j.compbiolchem.2018.02.018
Chen TQ, 2016, KDD'16: PROCEEDINGS OF THE 22ND ACM SIGKDD INTERNATIONAL CONFERENCE ON KNOWLEDGE DISCOVERY AND DATA MINING, P785, DOI 10.1145/2939672.2939785
Chen Z, 2009, ACTA PHARMACOL SIN, V30, P1694, DOI 10.1038/aps.2009.159
Cheng JH, 2022, SPECTROCHIM ACTA A, V268, DOI 10.1016/j.saa.2021.120652
CORTES C, 1995, MACH LEARN, V20, P273, DOI 10.1146/annurev-publhealth-060722-032021
Cox D.R., 1958, J R STAT SOC B, V20, P215, DOI [DOI 10.1111/J.2517-6161.1959.TB00334.X, 10.1111/j.2517-6161.1958.tb00292.x, DOI 10.1111/J.2517-6161.1958.TB00292.X, 10.1111/J.2517-6161.1959.TB00334.X]
de la Iglesia N, 2000, J BIOL CHEM, V275, P10597, DOI 10.1074/jbc.275.14.10597
Dixon SL, 2006, CHEM BIOL DRUG DES, V67, P370, DOI 10.1111/j.1747-0285.2006.00384.x
Dixon SL, 2006, J COMPUT AID MOL DES, V20, P647, DOI 10.1007/s10822-006-9087-6
Dong J, 2015, J CHEMINFORMATICS, V7, DOI [10.12949/realopn.7.1, 10.1186/s13321-015-0109-z]
Egan A, 2019, EXPERT OPIN INV DRUG, V28, P741, DOI 10.1080/13543784.2019.1654993
Florkowski Christopher M, 2008, Clin Biochem Rev, V29 Suppl 1, pS83
Friesner RA, 2004, J MED CHEM, V47, P1739, DOI 10.1021/jm0306430
Ghasemi M, 2021, INT J MOL SCI, V22, DOI 10.3390/ijms222312827
Giordano D, 2022, PHARMACEUTICALS-BASE, V15, DOI 10.3390/ph15050646
Grimsby J, 2003, SCIENCE, V301, P370, DOI 10.1126/science.1084073
Huang M, 2013, PLOS ONE, V8, DOI 10.1371/journal.pone.0055857
Klekota J, 2008, BIOINFORMATICS, V24, P2518, DOI 10.1093/bioinformatics/btn479
Kumar S, 2018, MOL BIOL EVOL, V35, P1547, DOI [10.1093/molbev/msy096, 10.1021/acs.jmedchem.5b00104]
Liu RW, 2017, CURR OPIN CHEM BIOL, V38, P117, DOI 10.1016/j.cbpa.2017.03.017
Liu SP, 2012, J BIOL CHEM, V287, P13598, DOI 10.1074/jbc.M111.274126
Mathur P, 2007, J PEPT SCI, V13, P253, DOI 10.1002/psc.841
Matschinsky FM, 2019, FRONT PHYSIOL, V10, DOI 10.3389/fphys.2019.00148
Meng XY, 2011, CURR COMPUT-AID DRUG, V7, P146
Mu WH, 2021, J PHYS CHEM LETT, V12, P2900, DOI 10.1021/acs.jpclett.1c00438
Muller YL, 2014, DIABETOLOGIA, V57, P1382, DOI 10.1007/s00125-014-3234-8
Mysinger MM, 2012, J MED CHEM, V55, P6582, DOI 10.1021/jm300687e
Nakamura A, 2015, J DIABETES INVEST, V6, P124, DOI 10.1111/jdi.12294
Pathak S, 2011, ANTIMICROB AGENTS CH, V55, P2178, DOI 10.1128/AAC.01493-10
Pedregosa F, 2011, J MACH LEARN RES, V12, P2825, DOI 10.1145/2786984.2786995
Petit P, 2011, ACTA CRYSTALLOGR D, V67, P929, DOI 10.1107/S0907444911036729
Roos K, 2019, J CHEM THEORY COMPUT, V15, P1863, DOI 10.1021/acs.jctc.8b01026
Saeedi P, 2019, DIABETES RES CLIN PR, V157, DOI 10.1016/j.diabres.2019.107843
Schapire RobertE., 2013, EMPIRICAL INFERENCE, P37, DOI [10.1007/978-3-642-41136-6_5, DOI 10.1007/978-3-642-41136-6_5]
Schrodinger, 2020, LIGPREP SCHRODINGER
Shaw Research DE Schrodinger Release, Desmond molecular dynamics system. Maestro-desmond interoperability tools
Stehman SV, 1997, REMOTE SENS ENVIRON, V62, P77, DOI 10.1016/S0034-4257(97)00083-7
Tin Kam Ho, 1995, Proceedings of the Third International Conference on Document Analysis and Recognition, P278, DOI 10.1109/ICDAR.1995.598994
Wang P, 2017, J DIABETES RES, V2017, DOI 10.1155/2017/5812607
Wang TW, 2020, WORLD J MICROB BIOT, V36, DOI 10.1007/s11274-020-02837-y
Williams R, 2020, DIABETES RES CLIN PR, V162, DOI 10.1016/j.diabres.2020.108072
Yadav S, 2023, COMPUT BIOL CHEM, V103, DOI 10.1016/j.compbiolchem.2023.107818

Yap CW, 2011, J COMPUT CHEM, V32, P1466, DOI 10.1002/jcc.21707
Zelent B, 2011, BIOCHEM J, V440, P203, DOI 10.1042/BJ20110440

Cited Reference Count: 45

Abstract: Diabetes represents a significant global health challenge associated with substantial healthcare costs and therapeutic complexities. Current diabetes therapies often entail adverse effects, necessitating the exploration of novel agents. Glucokinase (GK), a key enzyme in glucose homeostasis, primarily regulates blood glucose levels in hepatocytes and pancreatic cells. Unlike other hexokinases, GK exhibits unique kinetic properties, such as a high Km and lack of feedback inhibition, allowing it to function as a glucose sensor Glucokinase activators (GKAs) have emerged as promising candidates for managing type-2 diabetes by allosterically enhancing GK activity. Despite initial promise, existing GKAs face significant safety concerns, driving the need for compounds with improved safety profiles. This study introduces a novel chemical scaffold within the GKA landscape: peptide-based GKAs incorporating non-standard amino acid residues such as alpha,beta-dehydrophenylalanine (Delta Phe/Delta F). A virtual library containing 3,368,000 peptides was constructed and screened using a hybrid pharmacophore, namely DHRR (D: donor; H: hydrogen; R: aromatic ring). Molecular docking and molecular dynamics simulations assisted in identifying three peptides, Pep-11, Pep-15, and Pep-16, which depicted stable binding at the allosteric site of Glucokinase. These peptides were synthesized using a combination of solid and solution phase synthesis methods. In vitro enzymatic activity of glucokinase was increased by at least 1.5 times in the presence of these peptides. Several machine learning algorithms were explored as alternatives to conventional in-silico methods for predicting GK activity. Regression and tree-based algorithms outperformed other methods, with the logistic regression and random forest classifiers both achieving an ROC-AUC of 0.98.

Accession Number: WOS:001386431200001

PubMed ID: 39739078

Language: English

Document Type: Article

Author Keywords: Type 2 diabetes; Glucokinase; Glucokinase activators; Dehydrophenylalanine containing peptides; Molecular docking; Pharmacophore modeling; Molecular dynamics simulations; Machine learning

KeyWords Plus: DOCKING; MECHANISM; PROTEIN; PHASE

Addresses: [Yadav, Siddharth; Rana, Swati; Singh, Sohini; Mathur, Puniti] Amity Univ Uttar Pradesh, Amity Inst Biotechnol, Sect 125, Noida 201313, Uttar Pradesh, India.
[Manish, Manish; Lynn, Andrew] Jawaharlal Nehru Univ, Sch Computat & Integrat Sci, JNU Campus Rd, Delhi, India.

Corresponding Address: Mathur, P (corresponding author), Amity Univ Uttar Pradesh, Amity Inst Biotechnol, Sect 125, Noida 201313, Uttar Pradesh, India.

E-mail Addresses: pmathur@amity.edu

Affiliations: Amity University Noida; Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Manish, Manish	AAP-9469-2021	
Mathur, Puniti	AAA-8111-2021	

Publisher: SPRINGER

Publisher Address: VAN GODEWIJCKSTRAAT 30, 3311 GZ DORDRECHT, NETHERLANDS

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Biochemistry & Molecular Biology; Biophysics; Computer Science, Interdisciplinary Applications

Research Areas: Biochemistry & Molecular Biology; Biophysics; Computer Science

IDS Number: Q7K9C

ISSN: 0920-654X

eISSN: 1573-4951

29-char Source Abbrev.: J COMPUT AID MOL DES

ISO Source Abbrev.: J. Comput.-Aided Mol. Des.

Source Item Page Count: 16

Funding:

Funding Agency	Grant Number
Department of Biotechnology, Ministry of Science and Technology, Government of India, India	BT/PR19310/BIC/101/709/2016

The research was supported in part by the Department of Biotechnology, Ministry of Science and Technology, Government of India, India (grant no. BT/PR19310/BIC/101/709/2016).

Output Date: 2025-12-31

Record 26 of 47

Title: Interfacial Engineering of Ti3C2Tx -Protected CsPbBr3 Perovskite Quantum Dots for Enhanced Charge Transport and Superior Hydrogen Evolution Catalysis

Author(s): Priyanka (Priyanka); Rundla, A (Rundla, Avinash); Kumar, B (Kumar, Bheem); Singh, M (Singh, Mahaveer); Rani, D (Rani, Divya); Kumar, P (Kumar, Pushpendra); Mishra, V (Mishra, Vikash); Singh, K (Singh, Kedar)

Source: ADVANCED SUSTAINABLE SYSTEMS **DOI:** 10.1002/adsu.202501283 **Early Access Date:** DEC 2025 **Published Date:** 2025 DEC 9

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Alomar TS, 2025, INT J HYDROGEN ENERG, V116, P190, DOI 10.1016/j.ijhydene.2025.03.049
Bahamon D, 2021, RSC ADV, V11, P2947, DOI 10.1039/c9ra10634k
Bai SS, 2021, NPJ 2D MATER APPL, V5, DOI 10.1038/s41699-021-00259-4
Bao FX, 2021, CHEMELECTROCHEM, V8, P195, DOI 10.1002/celc.202001436
Bergamini L, 2020, SOL ENERGY, V212, P62, DOI 10.1016/j.solener.2020.10.047
Cai YJ, 2024, SMALL, V20, DOI 10.1002/smll.202310672
Cao YH, 2025, ADV FUNCT MATER, V35, DOI 10.1002/adfm.202423158
Chen ZJ, 2019, J MATER CHEM A, V7, P14971, DOI 10.1039/c9ta03220g
Du CF, 2018, ADV ENERGY MATER, V8, DOI 10.1002/aenm.201801127
Durst J, 2014, ENERG ENVIRON SCI, V7, P2255, DOI 10.1039/c4ee00440j
Ebrahimi M, 2025, INT J HYDROGEN ENERG, V116, P430, DOI 10.1016/j.ijhydene.2025.03.103
Fan BB, 2022, ADV FUNCT MATER, V32, DOI 10.1002/adfm.202110783
Fan XQ, 2019, ACS NANO, V13, P8124, DOI 10.1021/acsnano.9b03161
Gao LF, 2018, CHEM COMMUN, V54, P11459, DOI 10.1039/c8cc06952b
Giannozzi P, 2017, J PHYS-CONDENS MAT, V29, DOI 10.1088/1361-648X/aa8f79
Gogotsi Y, 2021, ACS NANO, V15, P5775, DOI 10.1021/acsnano.1c03161
Gogotsi Y, 2019, ACS NANO, V13, P8491, DOI 10.1021/acsnano.9b06394
Guan ZH, 2019, APPL CATAL B-ENVIRON, V245, P522, DOI 10.1016/j.apcatb.2019.01.019
Guo HY, 2023, ADV MATER, V35, DOI 10.1002/adma.202302285
Han C, 2020, CHEMSUSCHEM, V13, P4005, DOI 10.1002/cssc.202000953
Hanan A, 2024, CHEM ENG J, V483, DOI 10.1016/j.cej.2024.149107
Hanan A, 2023, INT J HYDROGEN ENERG, V48, P19494, DOI 10.1016/j.ijhydene.2023.02.049
Hao LP, 2023, CATALYSTS, V13, DOI 10.3390/catal13050802
Hermawan A, 2020, ACS APPL NANO MATER, V3, P4755, DOI 10.1021/acsanm.0c00749
Hu HM, 2020, RSC ADV, V10, P38484, DOI 10.1039/d0ra08138h
Hu SJ, 2019, CERAM INT, V45, P19902, DOI 10.1016/j.ceramint.2019.06.246

Huang HW, 2020, ACS ENERGY LETT, V5, P1107, DOI 10.1021/acsenergylett.0c00058
Huang X, 2022, J MATER SCI, V57, P16404, DOI 10.1007/s10853-022-07601-1
Kachhap S, 2023, ACS APPL OPT MATER, V1, P1974, DOI 10.1021/acsaom.3c00317
Knezevic M, 2023, J MATER CHEM A, V11, P6226, DOI 10.1039/d2ta09920a
Kumar B, 2025, J POWER SOURCES, V652, DOI 10.1016/j.jpowsour.2025.237603
Kumar R, 2023, NANOSCALE, V15, P12358, DOI 10.1039/d3nr01480k
Lazanas AC, 2023, ACS MEAS SCI AU, V3, P162, DOI 10.1021/acsmeasuresciau.2c00070
Li H, 2022, J ALLOY COMPD, V895, DOI 10.1016/j.jallcom.2021.162570
Li JX, 2024, CERAM INT, V50, P5293, DOI 10.1016/j.ceramint.2023.11.280
Li L, 2018, ACS SUSTAIN CHEM ENG, V6, P7442, DOI 10.1021/acssuschemeng.8b00047
Li N, 2019, ELECTROCHIM ACTA, V326, DOI 10.1016/j.electacta.2019.134976
Li PP, 2025, MOL CATAL, V570, DOI 10.1016/j.mcat.2024.114710
Li S, 2018, NANO ENERGY, V47, P512, DOI 10.1016/j.nanoen.2018.03.022
Li XP, 2021, CHINESE CHEM LETT, V32, P2597, DOI 10.1016/j.cclet.2021.01.047
Li X, 2023, J COLLOID INTERF SCI, V643, P174, DOI 10.1016/j.jcis.2023.04.015
Lim KRG, 2020, ACS NANO, V14, P10834, DOI 10.1021/acsnano.0c05482
Liu F, 2022, ACS CATAL, V12, P13533, DOI 10.1021/acscatal.2c02617
Liu JP, 2019, APPL CATAL B-ENVIRON, V241, P89, DOI 10.1016/j.apcatb.2018.08.083
Liu M, 2017, ADV SCI, V4, DOI 10.1002/advs.201700335
Liu WL, 2023, CATALYSTS, V13, DOI 10.3390/catal13071048
Liu Z, 2022, J MATER CHEM A, V10, P11980, DOI 10.1039/d1ta09369j
Loew N, 2022, ELECTROCHIM ACTA, V421, DOI 10.1016/j.electacta.2022.140467
Madhushree R, 2024, SURF INTERFACES, V52, DOI 10.1016/j.surfin.2024.104849
Mei BA, 2018, J PHYS CHEM C, V122, P24499, DOI 10.1021/acs.jpcc.8b05241
Muduli S, 2018, ANGEW CHEM INT EDIT, V57, P7682, DOI 10.1002/anie.201712608
Nagal V, 2023, ACS APPL OPT MATER, V1, P779, DOI 10.1021/acsaom.2c00201
Nagal V, 2023, ACS APPL NANO MATER, V6, P8894, DOI 10.1021/acsanm.3c01374
Navjyoti, 2023, LANGMUIR, DOI 10.1021/acs.langmuir.2c02845
Pan AZ, 2019, J PHYS CHEM LETT, V10, P6590, DOI 10.1021/acs.jpclett.9b02605
Pandey P, 2020, ACS APPL NANO MATER, V3, P3305, DOI 10.1021/acsanm.0c00051
Park S, 2023, NAT CHEM, V15, DOI 10.1038/s41557-023-01294-y
Parra-Puerto A, 2019, ACS CATAL, V9, P11515, DOI 10.1021/acscatal.9b03359
Pavliuk MV, 2018, MATER TODAY COMMUN, V16, P90, DOI 10.1016/j.mtcomm.2018.05.001
Poli I, 2019, NAT COMMUN, V10, DOI 10.1038/s41467-019-10124-0
Priyanka, 2024, J PHYS CHEM C, V128, P19873, DOI 10.1021/acs.jpcc.4c05757
Priyanka AR, 2025, J POWER SOURCES, V632, DOI 10.1016/j.jpowsour.2025.236408
Protesescu L, 2015, NANO LETT, V15, P3692, DOI 10.1021/nl5048779
Reddy V, 2013, IND ENG CHEM RES, V52, P556, DOI 10.1021/ie302037c
Romani L, 2020, ACS OMEGA, V5, P25511, DOI 10.1021/acsomega.0c03829
Salim O, 2019, MATER TODAY CHEM, V14, DOI 10.1016/j.mtchem.2019.08.010
Sharma V, 2025, INT J HYDROGEN ENERG, V97, P532, DOI 10.1016/j.ijhydene.2024.11.451
Sharma V, 2025, J MATER CHEM A, V13, P25457, DOI 10.1039/d5ta01195g
Shilpa MP, 2025, SENSOR ACTUAT A-PHYS, V388, DOI 10.1016/j.sna.2025.116492
Shuck CE, 2021, ACS CHEM HEALTH SAFE, V28, P326, DOI 10.1021/acs.chas.1c00051
Singh BP, 2016, RSC ADV, V6, P79410, DOI 10.1039/c6ra16040a
Singh M, 2025, J ENERGY STORAGE, V140, DOI 10.1016/j.est.2025.118945
Song WT, 2021, CHEMCATCHEM, V13, P1711, DOI 10.1002/cctc.202001955
Srivastava P, 2014, MATER LETT, V136, P337, DOI 10.1016/j.matlet.2014.08.068
Srivastava P, 2014, J EXP NANOSCI, V9, P1064, DOI 10.1080/17458080.2012.762122
Suryanto BHR, 2019, NAT COMMUN, V10, DOI 10.1038/s41467-019-13415-8
Tang XS, 2017, SENSOR ACTUAT B-CHEM, V245, P435, DOI 10.1016/j.snb.2017.01.168
Tekalgne MA, 2023, ACS OMEGA, V8, P41802, DOI 10.1021/acsomega.3c06403
Thirumal V, 2023, INT J HYDROGEN ENERG, V48, P6478, DOI 10.1016/j.ijhydene.2021.12.045
Tian B, 2023, ADV FUNCT MATER, V33, DOI 10.1002/adfm.202210298

Vedanarayanan M, 2023, ENERG FUEL, V37, P12204, DOI 10.1021/acs.energyfuels.3c01398
Vinoditha U, 2019, APPL PHYS A-MATER, V125, DOI 10.1007/s00339-019-2732-4
Wang XY, 2021, J MATER SCI, V56, P2486, DOI 10.1007/s10853-020-05362-3
Wei ZH, 2025, INT J HYDROGEN ENERG, V129, P10, DOI 10.1016/j.ijhydene.2025.04.288
Xu XL, 2022, ACS APPL MATER INTER, V14, P39524, DOI 10.1021/acsami.2c09586
Xu YF, 2017, J AM CHEM SOC, V139, P5660, DOI 10.1021/jacs.7b00489
Yan L, 2020, J MATER CHEM A, V8, P23637, DOI 10.1039/d0ta09410b
Yang M, 2024, ELECTROCHIM ACTA, V475, DOI 10.1016/j.electacta.2023.143599
Yang M, 2025, MOL CATAL, V584, DOI 10.1016/j.mcat.2025.115313
Yao ZC, 2022, ACS NANO, V16, P5153, DOI 10.1021/acsnano.2c00641
Yuan WJ, 2018, ACS APPL MATER INTER, V10, P40500, DOI 10.1021/acsami.8b13215
Zhong YB, 2025, GREEN CHEM, V27, P5455, DOI 10.1039/d5gc01214g
Zhou HY, 2024, CHEM-ASIAN J, V19, DOI 10.1002/asia.202400798
Zhou QW, 2025, J MATER CHEM C, V13, P4145, DOI 10.1039/d4tc04398g
Zhu XD, 2018, J MATER CHEM A, V6, P21255, DOI 10.1039/c8ta08374f

Cited Reference Count: 95

Abstract: Hydrogen from electrochemical water splitting is a green energy carrier, but sluggish HER kinetics necessitate cost-effective alternatives to insufficient Pt-based catalysts. In this respect, efficient, low-cost HER electrocatalysts are crucial for survivable hydrogen production, with inorganic halide perovskites offering variable ionic-electronic conductivity and processability, while MXene provide complementary benefits of high conductivity and abundant active sites. State-of-the-art engineering strategies and characterization techniques of CsPbBr3@Ti3C2Tx hierarchical structure are elucidated, emphasizing how unique crystallographic features and tuneable surface terminations of Ti3C2Tx synergistically augment catalytic activity of pristine CsPbBr3 perovskite quantum dots (PQDs). Subsequently, experimental and theoretical aspects employing CsPbBr3@Ti3C2Tx nanohybrids as efficient HER electrocatalysts are extensively discussed. Electrochemical analysis demonstrated that CsPbBr3@Ti3C2Tx delivered a low onset potential of -231.12 mV following Volmer-Heyrovsky pathway with reduced Tafel slope of 48.04 mV dec-1, indicative of accelerated HER kinetics. The hierarchical structure flaunted supercilious cycling stability compared to CsPbBr3 PQDs, with the intensified activity emerging from efficient charge ddeliveryat CsPbBr3/Ti3C2Tx interface, ample sites, and low Rct. These experimental examinations are further corroborated by theoretical calculations, disclosing laudatory Gibbs free energy and enriched total density of states. CsPbBr3@Ti3C2Tx emerge as lucrative, high-performance HER electrocatalysts, where Ti3C2Tx reinforced stability and conductivity, offering fa lexible approach for next-generation energy conversion.

Accession Number: WOS:001633925100001

Language: English

Document Type: Article; Early Access

Author Keywords: catalytic; electrochemical; gibbs free energy; hydrogen evolution reaction; TDOS

KeyWords Plus: MXENE; NANOCRYSTALS; EFFICIENT; HETEROSTRUCTURES; STABILITY; COMPOSITE; OXIDATION; EMISSION; ENERGY

Addresses: [Priyanka; Rundla, Avinash; Kumar, Bheem; Singh, Mahaveer; Rani, Divya; Kumar, Pushpendra; Singh, Kedar] Jawaharlal Nehru Univ JNU, Sch Phys Sci, New Delhi, India.
[Mishra, Vikash] Manipal Acad Higher Educ, Manipal Inst Technol, Dept Phys, Manipal, Karnataka, India.

Corresponding Address: Singh, K (corresponding author), Jawaharlal Nehru Univ JNU, Sch Phys Sci, New Delhi, India.

E-mail Addresses: kedar@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; Manipal Academy of Higher Education (MAHE)

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Garg, Divyani	X-7187-2019	

Publisher: WILEY-V C H VERLAG GMBH

Publisher Address: POSTFACH 101161, 69451 WEINHEIM, GERMANY
Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)
Web of Science Categories: Green & Sustainable Science & Technology; Materials Science, Multidisciplinary
Research Areas: Science & Technology - Other Topics; Materials Science
IDS Number: P7758
ISSN: 2366-7486
29-char Source Abbrev.: ADV SUSTAIN SYST
ISO Source Abbrev.: Adv. Sustain. Syst.
Source Item Page Count: 17
Funding:

Funding Agency	Grant Number
UGC, India	
SERB-DST, Government of India	EEQ/2023/00097

Priyanka is grateful to the UGC, India for financial support in the form of a fellowship. K.S. extends gratitude to SERB-DST, Government of India, for financial assistance under the project EEQ/2023/00097. The authors also express their sincere thanks to the Advanced Instrumentation Research Facility (AIRF), JNU, for providing advanced characterization facilities essential to this research. Additionally, the authors acknowledge the Central Instrumentation Facility (CIF), School of Physical Sciences (SPS), JNU.
Output Date: 2025-12-31

Record 27 of 47

Title: Design, synthesis, crystal structure analysis, Hirshfeld surface scrutiny, and DFT-calculations of fused 4H-pyrans and spirooxindole-embedded fused pyran

Author(s): Veeranagaiah, NS (Veeranagaiah, Naveena S.); Borah, B (Borah, Biplob); Pallepogu, R (Pallepogu, Raghavaiah); Chowhan, LR (Chowhan, L. Raju)

Source: JOURNAL OF MOLECULAR STRUCTURE **Volume:** 1347 **Article Number:** 143249 **DOI:** 10.1016/j.molstruc.2025.143249 **Early Access Date:** DEC 2025 **Published Date:** 2025 DEC 15

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 2

Usage Count (Since 2013): 2

Cited References: Abraham CS, 2019, SPECTROCHIM ACTA A, V222, DOI 10.1016/j.saa.2019.117188
Abraham CS, 2017, SPECTROCHIM ACTA A, V181, P153, DOI 10.1016/j.saa.2017.03.045
Adams D.R., 2006, J. Am. Acad. Dermatol., V54, P185, DOI [10.1016/j.jaad.2006.03.032, DOI 10.1016/J.JAAD.2006.03.032]
Aihara J, 1999, J PHYS CHEM A, V103, P7487, DOI 10.1021/jp990092i
Akhileshwari P, 2021, J MOL STRUCT, V1242, DOI 10.1016/j.molstruc.2021.130747
Asghari S, 2014, MONATSH CHEM, V145, P1337, DOI 10.1007/s00706-014-1190-0
Aytemir MD, 2010, EUR J MED CHEM, V45, P4089, DOI 10.1016/j.ejmech.2010.05.069
Azarifar D, 2019, J IRAN CHEM SOC, V16, P341, DOI 10.1007/s13738-018-1521-x
BEELIK A, 1956, ADV CARBOHYD CHEM, V11, P145
Bernhard S, 2021, ADV DRUG DELIVER REV, V171, P240, DOI 10.1016/j.addr.2021.02.002
Bochevarov AD, 2013, INT J QUANTUM CHEM, V113, P2110, DOI 10.1002/qua.24481
Borah B, 2023, RSC ADV, V13, P7063, DOI 10.1039/d3ra00017f
Borah B, 2022, RSC ADV, V12, P12843, DOI 10.1039/d2ra01917e
Borah B, 2021, ASIAN J ORG CHEM, V10, P3101, DOI 10.1002/ajoc.202100550
Borah B, 2022, POLYCYCL AROMAT COMP, V42, P5893, DOI 10.1080/10406638.2021.1962923
Burdock FA, 2001, REGUL TOXICOL PHARM, V33, P80, DOI 10.1006/rtph.2000.1442

Sundaramurthy CB, 2022, MOL SYST DES ENG, V7, P132, DOI 10.1039/d1me00113b
Chugh A, 2020, MED CHEM RES, V29, P1723, DOI 10.1007/s00044-020-02604-6
Crowley PB, 2022, ACCOUNTS CHEM RES, DOI 10.1021/acs.accounts.2c00206
Datta S, 2004, NAT REV DRUG DISCOV, V3, P42, DOI 10.1038/nrd1280
Degorce SL, 2019, ACS MED CHEM LETT, V10, P1198, DOI 10.1021/acsmedchemlett.9b00248
Ding AS, 2018, CHEM SOC REV, V47, P5946, DOI 10.1039/c6cs00825a
Dolomanov OV, 2009, J APPL CRYSTALLOGR, V42, P339, DOI 10.1107/S0021889808042726
Duan JX, 2010, J MOL GRAPH MODEL, V29, P157, DOI 10.1016/j.jmgm.2010.05.008
Eid M.P., 2006, Journal of the American Academy of Dermatology, V54, P932
Emami S, 2022, MED CHEM RES, V31, P1842, DOI 10.1007/s00044-022-02954-3
Galliford CV, 2007, ANGEW CHEM INT EDIT, V46, P8748, DOI 10.1002/anie.200701342
GASTEIGER J, 1994, J AM CHEM SOC, V116, P4608, DOI 10.1021/ja00090a009
Guo DS, 2012, CHEM SOC REV, V41, P5907, DOI 10.1039/c2cs35075k
HALL JG, 1986, AUST J CHEM, V39, P1401, DOI 10.1071/CH9861401
Jayatilaka D, 2006, ACTA CRYSTALLOGR A, V62, pS90, DOI 10.1107/S0108767306098199
Johnson ER, 2010, J AM CHEM SOC, V132, P6498, DOI 10.1021/ja100936w
JORGENSEN WL, 1988, J AM CHEM SOC, V110, P1657, DOI 10.1021/ja00214a001
Karakaya G, 2019, BIOORG CHEM, V88, DOI 10.1016/j.bioorg.2019.102950
Karakaya G, 2018, ANTI-CANCER AGENT ME, V18, P2137, DOI 10.2174/1871520618666180402141714
KATOH S, 1992, EUR SURG RES, V24, P349, DOI 10.1159/000129227
Khan M.O. Faruk, 2018, Fundamentals of Medicinal Chemistry and Drug Metabolism, DOI [10.2174/97816810868731180101, DOI 10.2174/97816810868731180101]
Kim BG, 2013, ADV FUNCT MATER, V23, P439, DOI 10.1002/adfm.201201385
KOZIKOWSKI AP, 1990, J ORG CHEM, V55, P863, DOI 10.1021/jo00290a014
LEE E, 1995, J AM CHEM SOC, V117, P8017, DOI 10.1021/ja00135a021
Lovering F, 2009, J MED CHEM, V52, P6752, DOI 10.1021/jm901241e
Macrae CF, 2020, J APPL CRYSTALLOGR, V53, P226, DOI 10.1107/S1600576719014092
Memar FO, 2020, MED CHEM RES, V29, P1792, DOI 10.1007/s00044-020-02598-1
MORTON HE, 1945, J BACTERIOL, V50, P579, DOI 10.1128/JB.50.5.579-584.1945
Muller P., 2006, CRYSTAL STRUCTURE RE, DOI 10.1093/acprof:oso/9780198570769.003.0011
Ochiai B, 2012, J POLYM SCI POL CHEM, V50, P3493, DOI 10.1002/pola.26161
Oncul S, 2019, CHEM BIOL DRUG DES, V94, P2084, DOI 10.1111/cbdd.13615
Parthasarathy K, 2013, BIOORG MED CHEM LETT, V23, P2708, DOI 10.1016/j.bmcl.2013.02.086
Reddy CM, 2010, CRYSTENGCOMM, V12, P2296, DOI 10.1039/c003466e
Riccardi L, 2018, NAT REV CHEM, V2, P100, DOI 10.1038/s41570-018-0018-6
Ritchie TJ, 2009, DRUG DISCOV TODAY, V14, P1011, DOI 10.1016/j.drudis.2009.07.014
Rosfarizan Mohamad Rosfarizan Mohamad, 2010, Biotechnology and Molecular Biology Reviews, V5, P24
Saeedi M, 2019, BIOMED PHARMACOTHER, V110, P582, DOI 10.1016/j.biopha.2018.12.006
Sheldrick GM, 2008, ACTA CRYSTALLOGR A, V64, P112, DOI 10.1107/S0108767307043930
Sheldrick GM, 2015, ACTA CRYSTALLOGR C, V71, P3, DOI [10.1107/S2053229614024218, 10.1107/S0108767307043930, 10.1107/S2053273314026370]
Shivakumar D, 2010, J CHEM THEORY COMPUT, V6, P1509, DOI 10.1021/ct900587b
Singh KS, 2020, CURR ORG CHEM, V24, P354, DOI 10.2174/1385272824666200217101400
Sivakova S, 2005, CHEM SOC REV, V34, P9, DOI 10.1039/b304608g
SJOBERG P, 1990, J PHYS CHEM-US, V94, P3959, DOI 10.1021/j100373a017
Tirado-Rives J, 2008, J CHEM THEORY COMPUT, V4, P297, DOI 10.1021/ct700248k
UCHINO K, 1988, AGR BIOL CHEM TOKYO, V52, P2609, DOI 10.1080/00021369.1988.10869087
Uher M., 1993, PARFUEM KOSMET, V74, P554, DOI DOI 10.1002/ARDP.202200215
Veeranagaiah NS, 2024, CRYST GROWTH DES, V24, P9824, DOI 10.1021/acs.cgd.4c01323
Veeranagaiah NS, 2025, J MOL STRUCT, V1321, DOI 10.1016/j.molstruc.2024.140229
Walsh CT, 2015, TETRAHEDRON LETT, V56, P3075, DOI 10.1016/j.tetlet.2014.11.046
Wang W, 2017, PROG POLYM SCI, V71, P1, DOI 10.1016/j.progpolymsci.2017.04.001
Webber MJ, 2017, CHEM SOC REV, V46, P6600, DOI 10.1039/c7cs00391a
WRIGHT AD, 1993, J NAT PROD, V56, P394, DOI 10.1021/np50093a012

Cited Reference Count: 68

Abstract: Fused 4H-pyrans and spirooxindoles comprise a significant class of heterocyclic compounds and are encountered in numerous natural products and medicinally privileged molecules. The present study demonstrated synthesising and investigating a series of title pyrano[3,2-b]pyran molecules and spirooxindole molecules. The molecular structures of all the molecules are established by single-crystal X-ray diffraction. The fused 4H-pyran molecules crystallize in the monoclinic and triclinic crystal systems with the space group P-1, P21/c, and P21/n. Spirooxindole molecule crystallizes in the highly symmetric tetragonal space group P42/n with an asymmetric core containing a single unique molecule. The analysis of the Hirshfeld surface validated the existence of intermolecular interactions and measured their contributions using 2D fingerprint plots. The structural characteristics of the compounds, encompassing their optimized molecular geometry and intramolecular hydrogen bonding, were analyzed utilizing Density Functional Theory (DFT) through the Schro<spacing diaeresis>dinger Materials Suite platform. The constructed structures demonstrated a significant alignment with the experimental findings. Furthermore, the molecular electrostatic potential was investigated to analyze the energy distribution and identify the chemically reactive areas of the molecules.

Accession Number: WOS:001533815400001

Language: English

Document Type: Article

Author Keywords: 4h-Pyrans; Spirooxindole-embedded fused Pyran; Hirshfeld surface analysis; Intermolecular interactions; SC XRD

KeyWords Plus: KOJIC ACID; PERFORMANCE; PYRANOPYRANS; DERIVATIVES; EFFICIENT; HOMO; LUMO; GAP

Addresses: [Veeranagaiah, Naveena S.; Pallepogu, Raghavaiah] Cent Univ Karnataka, Sch Chem Sci, Dept Chem, Kalaburagi 585367, Karnataka, India.
[Borah, Biplob] Royal Global Univ, Royal Sch Appl & Pure Sci, Dept Chem, Gauhati 781035, Assam, India.
[Chowhan, L. Raju] Jawaharlal Nehru Univ, Sch Phys Sci, New Mehrauli Rd, New Delhi 110067, India.

Corresponding Address: Pallepogu, R (corresponding author), Cent Univ Karnataka, Sch Chem Sci, Dept Chem, Kalaburagi 585367, Karnataka, India.
Chowhan, LR (corresponding author), Jawaharlal Nehru Univ, Sch Phys Sci, New Mehrauli Rd, New Delhi 110067, India.

E-mail Addresses: raghavaiahp@cuk.ac.in; chowhan@mail.jnu.ac.in

Affiliations: Central University of Karnataka; Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Pallepogu, Raghavaiah	H-6336-2017	
Borah, Biplob	AFG-4510-2022	
Chowhan, L Raju	S-4302-2018	0000-0002-5434-4488

Publisher: ELSEVIER

Publisher Address: RADARWEG 29, 1043 NX AMSTERDAM, NETHERLANDS

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Physical

Research Areas: Chemistry

IDS Number: 5EO3X

ISSN: 0022-2860

eISSN: 1872-8014

29-char Source Abbrev.: J MOL STRUCT

ISO Source Abbrev.: J. Mol. Struct.

Source Item Page Count: 12

Funding:

Funding Agency	Grant Number
Jawaharlal Nehru University	
ANRF (DST SERB) , New Delhi	EEQ/2023/001057

N. S. V. thanks UGC-India for the fellowship. The authors thank the Central University of Karnataka, The Assam Royal Global University,and Jawaharlal Nehru University for the infrastructure to carry out the work. The author thanks ANRF (DST SERB) , New Delhi (Grant No EEQ/2023/001057) for financial support.

Output Date: 2025-12-31

Record 28 of 47

Title: Impact of media awareness, treatment saturation, and LTBI control on tuberculosis transmission: a mathematical modeling approach

Author(s): Khoda, P (Khoda, Pooja); Sarkar, T (Sarkar, Tapan); Prasad, SN (Prasad, Sada Nand); Meena, OP (Meena, Om Prakash)

Source: COMPUTATIONAL & APPLIED MATHEMATICS **Volume:** 45 **Issue:** 3 **Article Number:** 105 **DOI:** 10.1007/s40314-025-03543-x **Published Date:** 2025 DEC 15

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Ahmed A, 2016, ORAL DIS, V22, P53, DOI 10.1111/odi.12390
Bhadauria AS, 2023, INFECT DIS MODEL, V8, P458, DOI 10.1016/j.idm.2023.03.005
Bhargava A, 2020, J CLIN TUBER OTH MYC, V19, DOI 10.1016/j.jctube.2020.100155
CAPASSO V, 1977, ANN SCLAVO, V19, P193
CAPASSO V, 1978, MATH BIOSCI, V42, P43, DOI 10.1016/0025-5564(78)90006-8
Carr J., 1981, APPL CTR MANIFOLD TH, V35
Castillo-Chavez C, 2004, MATH BIOSCI ENG, V1, P361, DOI 10.3934/mbe.2004.1.361
Chitnis N, 2008, B MATH BIOL, V70, P1272, DOI 10.1007/s11538-008-9299-0
Cohen T, 2004, NAT MED, V10, P1117, DOI 10.1038/nm1110
Collinson S, 2014, BMC PUBLIC HEALTH, V14, DOI 10.1186/1471-2458-14-376
Coppel WA., 1965, Stability and asymptotic behavior of differential equations
Das S, 2024, CHAOS, V34, DOI 10.1063/5.0179351
Das T, 2024, NONLINEAR ANAL-REAL, V79, DOI 10.1016/j.nonrwa.2024.104127
Diekmann O, 2010, J R SOC INTERFACE, V7, P873, DOI 10.1098/rsif.2009.0386
Elaydi S, 2024, J BIOL DYNAM, V18, DOI 10.1080/17513758.2024.2323724
Emery JC, 2021, P ROY SOC B-BIOL SCI, V288, DOI 10.1098/rspb.2020.1635
Feng ZL, 2000, THEOR POPUL BIOL, V57, P235, DOI 10.1006/tpbi.2000.1451
Freedman HI., 1994, Journal of Dynamics and Di erential Equations, V6, P583, DOI [10.1007/BF02218848, DOI 10.1007/BF02218848]
Haley Connie A, 2017, Microbiol Spectr, V5, DOI 10.1128/microbiolspec.TNMI7-0039-2016
Kassa SM, 2011, MATH BIOSCI, V229, P41, DOI 10.1016/j.mbs.2010.10.007
Kermack WO, 1927, P R SOC LOND A-CONTA, V115, P700, DOI 10.1098/rspa.1927.0118
Khoda P, 2025, EUR PHYS J PLUS, V140, DOI 10.1140/epjp/s13360-025-05978-x
Kumar A, 2019, MATH COMPUT SIMULAT, V157, P77, DOI 10.1016/j.matcom.2018.09.024
Kumar A, 2025, CHAOS, V35, DOI 10.1063/5.0251992
Kuznetsov Y.A., 1998, Applied Mathematical Sciences, V112
La Salle JP., 1976, The stability of dynamical systems
Li MY, 1996, SIAM J MATH ANAL, V27, P1070, DOI 10.1137/S0036141094266449
Li MY, 1999, MATH BIOSCI, V160, P191, DOI 10.1016/S0025-5564(99)00030-9
Liu R., 2007, Comput. Math. Methods Med, V8, P153, DOI /10.1080/17486700701425870
LIU WM, 1986, J MATH BIOL, V23, P187, DOI 10.1007/BF00276956

LIU WM, 1994, J MATH ANAL APPL, V182, P250, DOI 10.1006/jmaa.1994.1079
Liu XB, 2012, NONLINEAR ANAL-REAL, V13, P2671, DOI 10.1016/j.nonrwa.2012.03.010
Mandal S, 2023, INDIAN J COMMUN MED, V48, DOI 10.4103/ijcm.ijcm_160_23
Marino S, 2011, WIRES SYST BIOL MED, V3, P479, DOI 10.1002/wsbm.131
Martcheva M, 2015, An introduction to mathematical epidemiology, V61, P01
Menzies NA, 2018, LANCET INFECT DIS, V18, pE228, DOI 10.1016/S1473-3099(18)30134-8
Misra AK, 2023, Chaos: Interdiscip J Nonlinear Sci, V33
Mondal PK, 2017, INT J DYNAM CONTROL, V5, P367, DOI [10.1007/s40435-015-0176-z, DOI 10.1007/S40435-015-0176-Z]
Moreno V, 2017, THEOR BIOL MED MODEL, V14, DOI 10.1186/s12976-017-0049-6
MULDOWNEY JS, 1990, ROCKY MT J MATH, V20, P857, DOI 10.1216/rmjm/1181073047
Ochieng FO, 2025, BMC INFECT DIS, V25, DOI 10.1186/s12879-025-10710-2
Okuonghae D, 2011, J THEOR BIOL, V269, P31, DOI 10.1016/j.jtbi.2010.09.044
Purty AJ, 2018, INDIAN J COMMUN MED, V43, P1, DOI 10.4103/ijcm.IJCM_321_17
Ren SJ, 2017, MATH BIOSCI ENG, V14, P1337, DOI 10.3934/mbe.2017069
Saha S., 2019, Indian Journal of Medical Sciences, V71, P54, DOI [10.25259/ijms_18_2019, 10.25259/IJMS_18_2019]
Sarkar T, 2025, INT J BIOMATH, V18, DOI 10.1142/S1793524524500013
Shah M, 2021, NEW ENGL J MED, V385, P2271, DOI 10.1056/NEJMcp2108501
Srivastava A, 2023, EUR PHYS J PLUS, V138, DOI 10.1140/epjp/s13360-023-04754-z
The World Bank, 2018, India demographic data
Tiemersma EW, 2011, PLOS ONE, V6, DOI 10.1371/journal.pone.0017601
van den Driessche P, 2002, MATH BIOSCI, V180, P29, DOI 10.1016/S0025-5564(02)00108-6
Vishwakarma D, 2023, CUREUS J MED SCIENCE, V15, DOI 10.7759/cureus.35706
Wangari IM, 2018, PLOS ONE, V13, DOI 10.1371/journal.pone.0194256
Wiggins S., 1990, Introduction to Applied Nonlinear Dynamical Systems and Chaos, DOI DOI 10.1007/B97481
World Health Organization, 2018, Drug-resistant TB
World Health Organization, 2024, Report
World Health Organization, 2023, Technical report
WorldHealth Organization, 2025, Tuberculosis country profile: India (interactive dashboard)
Xiao DM, 2007, MATH BIOSCI, V208, P419, DOI 10.1016/j.mbs.2006.09.025
Xiao YN, 2013, MATH BIOSCI ENG, V10, P445, DOI 10.3934/mbe.2013.10.445
Xinli H., 2011, Math Biosci Eng, V9, P111
Yang YL, 2010, CHAOS SOLITON FRACT, V43, P79, DOI 10.1016/j.chaos.2010.09.002
Zhang X, 2008, J MATH ANAL APPL, V348, P433, DOI 10.1016/j.jmaa.2008.07.042

Cited Reference Count: 63

Abstract: This study develops a nonlinear mathematical model to describe the transmission dynamics of tuberculosis (TB) disease. The model incorporates endogenous reinfection and treatment of latently tuberculosis infected (LTBI) individuals through a non-monotonic saturated incidence and a saturation effect in the treatment function. A rigorous stability analysis of the equilibrium states is performed. The results show that the disease-free equilibrium is globally asymptotically stable when the basic reproduction number R-0 < 1. When R-0 > 1, the endemic equilibrium point (EEP) achieves global asymptotic stability under certain conditions. Sensitivity analysis using Partial Rank Correlation Coefficient for both state variables and the reproduction number R-0 with respect to model parameters identifies the key factors influencing disease dynamics. Interestingly, the model exhibits multiple endemic equilibria when R-0 < 1, indicating the occurrence of a backward bifurcation. The existence and direction of Hopf bifurcations are examined, with analytical results validated through numerical simulations under different parameter choices. In particular, Hopf bifurcations are investigated with respect to parameters such as m and omega. A key observation is that increasing omega causes the unique EEP to lose stability via a supercritical Hopf bifurcation. Further increases in omega restore the stability of the EEP, producing a bifurcation diagram that exhibits the characteristic structure of an endemic bubble.

Accession Number: WOS:001640210600036

Language: English

Document Type: Article
Author Keywords: Tuberculosis (TB); Stability; Sensitivity analysis; Backward bifurcation; Hopf bifurcation; Stability switch
KeyWords Plus: EPIDEMIC MODEL; MYCOBACTERIUM-TUBERCULOSIS; INFECTIOUS-DISEASES; GLOBAL-STABILITY; DYNAMICS; MATRICES
Addresses: [Khoda, Pooja] Univ Delhi, Shaheed Bhagat Singh Coll, Dept Math, New Delhi 110017, India.
[Sarkar, Tapan] Presidency Univ, Dept Math, Itgalpura, Bangalore 560064, India.
[Prasad, Sada Nand] Univ Delhi, Dr Bhim Rao Ambedkar Coll, Dept Math, New Delhi 110094, India.
[Meena, Om Prakash] Jawaharlal Nehru Univ JNU, Sch Phys Sci, New Delhi 110067, India.
Corresponding Address: Khoda, P (corresponding author), Univ Delhi, Shaheed Bhagat Singh Coll, Dept Math, New Delhi 110017, India.
E-mail Addresses: poojakhoda28@gmail.com
Affiliations: University of Delhi; Presidency University, Bangalore; University of Delhi; Jawaharlal Nehru University, New Delhi
Publisher: SPRINGER HEIDELBERG
Publisher Address: TIERGARTENSTRASSE 17, D-69121 HEIDELBERG, GERMANY
Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)
Web of Science Categories: Mathematics, Applied
Research Areas: Mathematics
IDS Number: X0426
ISSN: 2238-3603
eISSN: 1807-0302
29-char Source Abbrev.: COMPUT APPL MATH
ISO Source Abbrev.: Comput. Appl. Math.
Source Item Page Count: 47
Open Access: hybrid
Output Date: 2025-12-31

Record 29 of 47

Title: Oligocene and Late Miocene-Pleistocene Elemental Records of Sedimentary Provenance, Basin Evolution, Chemical Weathering and Depositional Environment from the Northern South China Sea

Author(s): Duraimaran, P (Duraimaran, P.); Mani, D (Mani, Devleena); Pandey, DK (Pandey, Dhananjai K.); Krishna, AK (Krishna, A. Keshav)

Source: AQUATIC GEOCHEMISTRY **Volume:** 31 **Issue:** 1 **Article Number:** 3 **DOI:** 10.1007/s10498-024-09437-4 **Published Date:** 2025 DEC
Times Cited in Web of Science Core Collection: 0
Total Times Cited: 0
Usage Count (Last 180 days): 10
Usage Count (Since 2013): 31

Cited References: An Z.S, 2001, Sci China (d), V31, P769
Anderson T.F., 1983, STABLE ISOTOPES OXYG
Ao H, 2011, QUATERNARY SCI REV, V30, P1560, DOI 10.1016/j.quascirev.2011.04.009
Cao J, 2022, GEOPHYS RES LETT, V49, DOI 10.1029/2022GL100270
Caruso MJ, 2006, J OCEANOGR, V62, P559, DOI 10.1007/s10872-006-0076-0
Clark MK, 2005, GEOPHYS J INT, V162, P575, DOI 10.1111/j.1365-246X.2005.02580.x
Clift P, 2008, TECTONICS, V27, DOI 10.1029/2007TC002216
Clift PD, 2019, GEOL SOC SPEC PUBL, V483, P631, DOI 10.1144/SP483.1
Clift PD, 2014, EARTH-SCI REV, V130, P86, DOI 10.1016/j.earscirev.2014.01.002

DILL H, 1986, ECON GEOL, V81, P889, DOI 10.2113/gsecongeo.81.4.889
Ding WJ, 2021, PALAEOGEOGR PALAEOCL, V567, DOI 10.1016/j.palaeo.2020.110205
Duraimaran P, 2024, J EARTH SYST SCI, V133, DOI 10.1007/s12040-024-02372-6
ELDERFIELD H, 1988, PHILOS T R SOC A, V325, P105, DOI 10.1098/rsta.1988.0046
Farnsworth A, 2019, SCI ADV, V5, DOI 10.1126/sciadv.aax1697
Ge Q, 2020, WATER-SUI, V12, DOI 10.3390/w12123540
Guo ZT, 2002, NATURE, V416, P159, DOI 10.1038/416159a
Huang W., 2004, Sediment distributional patterns and evolution in the South China Sea since the Oligocene
Jia GD, 2003, GEOLOGY, V31, P1093, DOI 10.1130/G19992.1
Jilan S, 2004, CONT SHELF RES, V24, P1745, DOI 10.1016/j.csr.2004.06.005
JONES B, 1994, CHEM GEOL, V111, P111, DOI 10.1016/0009-2541(94)90085-X
KLINKHAMMER GP, 1991, GEOCHIM COSMOCHIM AC, V55, P1799, DOI 10.1016/0016-7037(91)90024-Y
Li J, 2018, J ASIAN EARTH SCI, V159, P81, DOI 10.1016/j.jseaes.2018.03.013
Li QY, 2017, SCI CHINA EARTH SCI, V60, P2128, DOI 10.1007/s11430-016-0163-x
Li XH, 2003, EARTH PLANET SC LETT, V211, P207, DOI 10.1016/S0012-821X(03)00229-2
Licht A, 2014, NATURE, V513, P501, DOI 10.1038/nature13704
Liu JG, 2011, MAR GEOL, V285, P59, DOI 10.1016/j.margeo.2011.05.010
Liu SL, 2015, REV MED VIROL, V25, P115, DOI 10.1002/rmv.1827
[刘震 Liu Zhen], 2010, [现代地质, Geoscience], V24, P900
Mangini A., 1978, Meteor Forschungsergeb, V29, P1
Mani D, 2016, CHEM ERDE-GEOCHEM, V76, P117, DOI 10.1016/j.chemer.2016.01.002
MCLENNAN SM, 1989, REV MINERAL, V21, P169
MCLENNAN SM, 1993, J GEOL, V101, P295, DOI 10.1086/648222
Mi LJ, 2011, Investigation and evaluation of oil and gas resources strategy
MURRAY RW, 1993, GEOCHIM COSMOCHIM AC, V57, P4141, DOI 10.1016/0016-7037(93)90312-K
Nath BN, 1997, GEOCHIM COSMOCHIM AC, V61, P2375
NESBITT HW, 1982, NATURE, V299, P715, DOI 10.1038/299715a0
Nesbitt HW, 1997, GEOCHIM COSMOCHIM AC, V61, P1653
NOZAKI Y, 1981, EARTH PLANET SC LETT, V54, P203, DOI 10.1016/0012-821X(81)90004-2
[庞雄 PANG Xiong], 2006, [地球科学进展, Advance in Earth Sciences], V21, P793
[庞雄 Pang Xiong], 2005, [地学前缘, Earth science frontiers], V12, P167
Pattan JN, 2005, J EARTH SYST SCI, V114, P63, DOI 10.1007/BF02702009
Pearson PN, 2000, NATURE, V406, P695, DOI 10.1038/35021000
Qu T., 2002, Acta Oceanol. Sin., P175
Shao L, 2001, SCI CHINA SER D, V44, P919, DOI 10.1007/BF02907084
[邵磊 Shao Lei], 2010, [石油学报, Acta Petrolei Sinica], V31, P548
SHAW PT, 1994, DEEP-SEA RES PT I, V41, P1663, DOI 10.1016/0967-0637(94)90067-1
SHAW TJ, 1990, GEOCHIM COSMOCHIM AC, V54, P1233, DOI 10.1016/0016-7037(90)90149-F
Sun XJ, 2005, PALAEOGEOGR PALAEOCL, V222, P181, DOI 10.1016/j.palaeo.2005.03.005
Sun Z, 2016, Sci Prospect, V367
Sun Z, 2018, P INT OC DISC PROGR, V367, P103
Tamburini F, 2003, MAR GEOL, V201, P147, DOI 10.1016/S0025-3227(03)00214-7
Tapponnier P, 2001, SCIENCE, V294, P1671, DOI 10.1126/science.105978
Tardif D, 2023, EARTH-SCI REV, V243, DOI 10.1016/j.earscirev.2023.104464
Taylor S R., 1985, The Continental Crust:Its composition and evolution, DOI DOI 10.1002/GJ.3350210116
Tian J, 2002, EARTH PLANET SC LETT, V203, P1015, DOI 10.1016/S0012-821X(02)00923-8
Wan SM, 2007, SCI CHINA SER D, V50, P1536, DOI 10.1007/s11430-007-0082-0
Wan SM, 2010, MAR GEOL, V278, P115, DOI 10.1016/j.margeo.2010.09.008
Wang L, 1999, MAR GEOL, V156, P245, DOI 10.1016/S0025-3227(98)00182-0
Wang P, 2009, DEV PALEOENVIRON RES, V13, P1, DOI 10.1007/978-1-4020-9745-4
Wang PX, 2003, CHINESE SCI BULL, V48, P2524, DOI 10.1007/BF03037016
Wang RJ, 2003, CHINESE SCI BULL, V48, P363, DOI 10.1360/03tb9077

Wei G, 2006, PALEOCEANOGRAPHY, V21, DOI 10.1029/2006PA001300
Wei GJ, 2003, GEOCHEM J, V37, P593, DOI 10.2343/geochemj.37.593
Wu FL, 2022, NAT REV EARTH ENV, V3, P684, DOI 10.1038/s43017-022-00331-7
[谢锦龙 Xie Jinlong], 2008, [地质科学, Scientia Geologica Sinica], V43, P133
Yan Bin, 2012, Journal of Tropical Oceanography, V31, P67, DOI 10.3969/j.issn.1009-5470.2012.02.010
Yang C., 2002, Mar Geol Q Geol, V22, P69
Yu XJ, 2012, MAR POLLUT BULL, V64, P1699, DOI 10.1016/j.marpolbul.2012.03.018
Zachos J, 2001, SCIENCE, V292, P686, DOI 10.1126/science.1059412
Zachos JC, 2008, NATURE, V451, P279, DOI 10.1038/nature06588
Zhang Na, 2020, Disiji Yanjiu, V40, P605
Zhang Y, 2019, PALAEOGEOGR PALAEOCL, V527, P118, DOI 10.1016/j.palaeo.2019.04.029
Zheng HB, 2022, PROG EARTH PLANET SC, V9, DOI 10.1186/s40645-022-00470-x
Zhu WL., 2010, Atlas of oil and gas basins, P68

Cited Reference Count: 74

Abstract: The elemental records of the sediments from two IODP cores, U1501C (Oligocene and Late Miocene-Pliocene) and U1499A (Pliocene to Pleistocene) in the Northern South China Sea have been studied here to understand the variability in the sedimentary provenance and depositional environment, which are impacted by the tectonic and East Asian monsoon evolution through time. The major oxides and REE abundances indicate the sources of sediment influx to be significantly from the South China, North and North eastern parts of SCS since similar to 33 Ma, and prominent contributions from Pearl River, Hainan Island and Taiwanese rivers since similar to 8.3 Ma. The depositional redox is corroborated by the Ce anomaly and trace element proxies such as U/Th, V/Cr, V/(V + Ni), and Ni/Co. The chemical weathering intensity, evidenced by the Chemical Index of Alteration and major elements (Ca/Ti, Na/Ti, Al/K, Al/Ti, AL/Na), and La/Sm ratios, was observed to be low. Early Oligocene witnessed the deposition of littoral sediments, caused by the initial rifting and spreading in SCS. During the late Miocene (similar to 8.3 Ma), sedimentation was influenced by the prevailing arid climate and intensification of East Asian Winter monsoon (EAWM). Since Pliocene-Pleistocene (similar to 5.3 Ma-0.01 Ma), the sediment deposition remained unaffected by tectonism, but was majorly influenced by the intensification of EAWM and the glacial-interglacial cycles.

Accession Number: WOS:001390578300001

Language: English

Document Type: Article

Author Keywords: South China Sea; Provenance; Depositional Environment; Climate; Elemental records; Monsoon

KeyWords Plus: EAST-ASIAN MONSOON; RARE-EARTH-ELEMENTS; CLIMATE; CARBON; TRACE; MA; VARIABILITY; CIRCULATION; TRANSECT; HISTORY

Addresses: [Duraimaran, P.; Mani, Devleena] Univ Hyderabad, Ctr Earth Ocean & Atmospher Sci CEOAS, Hyderabad, India.
[Pandey, Dhananjai K.] Jawaharlal Nehru Univ JNU, New Delhi, India.
[Krishna, A. Keshav] CSIR, Natl Geophys Res Inst NGRI, Hyderabad, India.

Corresponding Address: Mani, D (corresponding author), Univ Hyderabad, Ctr Earth Ocean & Atmospher Sci CEOAS, Hyderabad, India.

E-mail Addresses: dtiwarisp@uohyd.ac.in

Affiliations: University of Hyderabad; Jawaharlal Nehru University, New Delhi; Council of Scientific & Industrial Research (CSIR) - India; CSIR - National Geophysical Research Institute (NGRI)

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Pandey, Dhananjai	HTO-0167-2023	
Tiwari, Devleena	AAO-3458-2020	

Publisher: SPRINGER

Publisher Address: ONE NEW YORK PLAZA, SUITE 4600, NEW YORK, NY, UNITED STATES

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)
Web of Science Categories: Geochemistry & Geophysics
Research Areas: Geochemistry & Geophysics
IDS Number: R3O3H
ISSN: 1380-6165
eISSN: 1573-1421
29-char Source Abbrev.: AQUAT GEOCHEM
ISO Source Abbrev.: Aquat. Geochem.
Source Item Page Count: 40
Funding:

Funding Agency	Grant Number
Ministry of Earth Sciences	

We are thankful to the Director, CSIR-NGRI for facilitating the geochemical analyses at the institute.
Output Date: 2025-12-31

Record 30 of 47

Title: Hydroxyethylamine & phthalimide analogs restoring defects due to GNE dysfunction: rare disease therapeutic significance

Author(s): Singh, S (Singh, Shagun); Bansal, M (Bansal, Meenakshi); Sharma, N (Sharma, Neha); Yadav, V (Yadav, Vikas); Mashangva, F (Mashangva, Fluencephila); Oswalia, J (Oswalia, Jyoti); Gautam, V (Gautam, Vaishali); Jhingan, GD (Jhingan, Gagan Deep); Subbarao, N (Subbarao, Naidu); Rathi, B (Rathi, Brijesh); Arya, R (Arya, Ranjana)

Source: MOLECULAR MEDICINE **Volume:** 31 **Issue:** 1 **Article Number:** 334 **DOI:** 10.1186/s10020-025-01377-1 **Published Date:** 2025 DEC 3

Cited References: Abraham Mark James, 2015, SoftwareX, V1-2, P19, DOI [10.1016/j.softx.2015.06.001, 10.1016/j.softx.2015.06.001]
Amsili S, 2008, PLOS ONE, V3, DOI 10.1371/journal.pone.0002477
Benjamin-Chung J, 2024, NAT MED, V30, DOI 10.1038/s41591-024-03134-z
Blume A, 2004, PROTEIN EXPRES PURIF, V35, P387, DOI 10.1016/j.pep.2004.02.013
Chakraborty M, 2022, PLOS GLOB PUBL HLTH, V2, DOI 10.1371/journal.pgph.0000890
Chanana P, 2017, NEUROMOL MED, V19, P525, DOI 10.1007/s12017-017-8467-5
Chaudhary P, 2021, J CELL BIOCHEM, V122, P1886, DOI 10.1002/jcb.30148
Cho A, 2017, HUM MOL GENET, V26, P3081, DOI 10.1093/hmg/ddx192
Ortiz CJC, 2022, RSC MED CHEM, V13, P568, DOI 10.1039/d1md00374g
Devi SS, 2021, MOL NEUROBIOL, V58, P6316, DOI 10.1007/s12035-021-02549-w
Devi SS, 2021, FRONT CELL DEV BIOL, V9, DOI 10.3389/fcell.2021.603742
Coelho LCD, 2014, MEDCHEMCOMM, V5, P758, DOI 10.1039/c4md00070f
Friesner RA, 2006, J MED CHEM, V49, P6177, DOI 10.1021/jm051256o
Grover S, 2014, MOL NEUROBIOL, V50, P257, DOI 10.1007/s12035-013-8604-6
Halgren TA, 2004, J MED CHEM, V47, P1750, DOI 10.1021/jm030644s
Hamdani SS, 2020, BIOORG CHEM, V96, DOI 10.1016/j.bioorg.2020.103567
Hinderlich S, 2015, TOP CURR CHEM, V366, P97, DOI 10.1007/128_2013_464
Ilouz N, 2022, FRONT GENOME EDIT, V4, DOI 10.3389/fgeed.2022.930110
Jones G, 1997, J MOL BIOL, V267, P727, DOI 10.1006/jmbi.1996.0897

Kaller MR, 2012, ACS MED CHEM LETT, V3, P886, DOI 10.1021/ml3000148
Kashif M, 2023, J BIOMOL STRUCT DYN, V41, P13914, DOI 10.1080/07391102.2023.2175382
Kocaturk NM, 2018, FRONT CELL DEV BIOL, V6, DOI 10.3389/fcell.2018.00128
Kollman PA, 2000, ACCOUNTS CHEM RES, V33, P889, DOI 10.1021/ar000033j
Kumar S, 2020, ACS OMEGA, V5, P18746, DOI 10.1021/acsomega.0c01760
Kumari R, 2014, J CHEM INF MODEL, V54, P1951, DOI 10.1021/ci500020m
Laskowski RA, 2011, J CHEM INF MODEL, V51, P2778, DOI 10.1021/ci200227u
Leleu X, 2024, NAT MED, V30, P2235, DOI 10.1038/s41591-024-03050-2
Li WL, 2018, EUR J MED CHEM, V151, P237, DOI 10.1016/j.ejmech.2018.03.066
Leite ACL, 2019, CURR MED CHEM, V26, P4323, DOI 10.2174/0929867324666171023163752
Lochmüller H, 2019, NEUROLOGY, V92, pE2109, DOI 10.1212/WNL.0000000000006932
Malicdan MCV, 2007, HUM MOL GENET, V16, P115, DOI 10.1093/hmg/ddl446
Malicdan MCV, 2008, PHYSIOL GENOMICS, V35, P106, DOI 10.1152/physiolgenomics.90219.2008
Mashangva F, 2024, BIOCHEM PHARMACOL, V223, DOI 10.1016/j.bcp.2024.116199
Mashangva F, 2024, J BIOSCIENCES, V49, DOI 10.1007/s12038-023-00414-7
Neu CT, 2024, GLYCOBIOLOGY, V34, DOI 10.1093/glycob/cwae004
Oswalia J, 2024, EXP CELL RES, V440, DOI 10.1016/j.yexcr.2024.114118
Papadimas G K, 2016, J Neuromuscul Dis, V3, P283, DOI 10.3233/jnd-160154
Phatak PS, 2019, SYNTHETIC COMMUN, V49, P2017, DOI 10.1080/00397911.2019.1614630
Pogoryelova O, 2018, ORPHANET J RARE DIS, V13, DOI 10.1186/s13023-018-0802-x
REISSIG JL, 1955, J BIOL CHEM, V217, P959
Sastry GM, 2013, J COMPUT AID MOL DES, V27, P221, DOI 10.1007/s10822-013-9644-8
Schmitt RE, 2022, NPJ REGEN MED, V7, DOI 10.1038/s41536-022-00238-3
Sela I, 2011, PLOS ONE, V6, DOI 10.1371/journal.pone.0016334
Sharma S, 2022, BIOCHIMIE, V199, P36, DOI 10.1016/j.biochi.2022.03.014
Singh S, 2020, PHARMACEUTICALS-BASE, V13, DOI 10.3390/ph13020025
Singh S, 2019, ACS INFECT DIS, V5, P184, DOI 10.1021/acsinfecdis.8b00197
Suzuki N, 2023, J NEUROMUSCULAR DIS, V10, P555, DOI 10.3233/JND-230029
Tambuyzer E, 2020, NAT REV DRUG DISCOV, V19, P93, DOI 10.1038/s41573-019-0049-9
Trudel S, 2024, NAT MED, V30, P543, DOI 10.1038/s41591-023-02703-y
Volloch Vladimir, 2018, Med Sci (Basel), V6, DOI [10.3390/medsci6020045, 10.3390/medsci6020045]
Wang RX, 2002, J COMPUT AID MOL DES, V16, P11, DOI 10.1023/A:1016357811882
Yadav R, 2022, INT J BIOCHEM CELL B, V149, DOI 10.1016/j.biocel.2022.106258
Yadav V, 2025, MOL INFORM, V44, DOI 10.1002/minf.202400372
Zahedifard F, 2024, PLOS NEGLECT TROP D, V18, DOI 10.1371/journal.pntd.0012050
Zhang TT, 2023, BIOMED PHARMACOTHER, V164, DOI 10.1016/j.biopha.2023.114958

Cited Reference Count: 55

Abstract: Rare diseases refer to a group of neglected diseases with low prevalence that face challenges in diagnostics as well as therapeutics due to phenotypic heterogeneity and ineffective clinical trials. In this study, we evaluated two novel analogs of hydroxyethylamine & phthalimide (LTC-181 and LTC-1717) for their potential effect on the epimerase activity of mutant GNE proteins associated with GNE myopathy. GNE gene encodes a key bifunctional sialic acid biosynthetic enzyme, UDP-N-acetyl Glucosamine 2-epimerase/N-acetyl Mannosamine Kinase; GNE). The compounds have significantly increased the epimerase activity of r-F307C-GNE and r-A555V-GNE mutant proteins in vitro. Reduced GNE epimerase activity and sialic acid content in muscle cell-based model for GNE function (SKM-GNEHz) was increased by 2-fold after addition of these compounds. The proteomic study showed that the compounds affected cytoskeletal organization, autophagy and muscle atrophy. Also, treatment with analogs enhanced the cell viability of SKM-GNEHz cells with increased F-actin polymerization and cell migration, thereby, restoring GNE deficient function. Additionally, effect of these compounds was observed with enhanced autophagy and reduced muscle atrophy function in GNE deficient muscle cell. Docking and interaction studies showed that LTC-1717 stabilize GNE better than LTC-181, indicating better therapeutic potential. Overall, this study indicates that HEA-phthalimide analog could be promising leads for treating GNE myopathy.

Accession Number: WOS:001629827000001

PubMed ID: 41339784

Language: English

Document Type: Article

Author Keywords: GNE myopathy; Rare genetic disease; Therapeutics; Small molecules

KeyWords Plus: RIMMED VACUOLES; INCLUSION-BODY; KINASE GNE; DOCKING; PROTEIN; VALIDATION; MYOPATHY; GLIDE; MODEL

Addresses: [Singh, Shagun; Mashangva, Fluencephila; Oswalia, Jyoti; Gautam, Vaishali; Arya, Ranjana] Jawaharlal Nehru Univ, Sch Biotechnol, New Delhi 110067, India.
[Bansal, Meenakshi; Sharma, Neha; Rathi, Brijesh] Univ Delhi, Hansraj Coll, HG Khorana Ctr Chem Biol, Dept Chem, Delhi 110007, India.
[Yadav, Vikas; Subbarao, Naidu] Jawaharlal Nehru Univ, Sch Computat & Integrat Sci, New Delhi 110067, India.
[Jhingan, Gagan Deep] VProteomics, Green Pk, New Delhi 110016, India.

Corresponding Address: Arya, R (corresponding author), Jawaharlal Nehru Univ, Sch Biotechnol, New Delhi 110067, India.
Rathi, B (corresponding author), Univ Delhi, Hansraj Coll, HG Khorana Ctr Chem Biol, Dept Chem, Delhi 110007, India.

E-mail Addresses: shagunsingh0498@gmail.com; meenakshibansal0502@gmail.com; nehasharma0024@gmail.com; vikas98_sit@jnu.ac.in; fluence111@gmail.com; oswalia.jyoti@gmail.com; vaishaliisback@gmail.com; info@vproteomics.com; nsrao@mail.jnu.ac.in; brijeshrathi@hrc.du.ac.in; ranjanaa@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; University of Delhi; Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Rathi, Brijesh	M-6860-2019	
Yadav, Vikas	KBC-3575-2024	
Subbarao, Prof Naidu	AAZ-1832-2020	

Publisher: SPRINGER

Publisher Address: ONE NEW YORK PLAZA, SUITE 4600, NEW YORK, NY, UNITED STATES

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Biochemistry & Molecular Biology; Cell Biology; Medicine, Research & Experimental

Research Areas: Biochemistry & Molecular Biology; Cell Biology; Research & Experimental Medicine

IDS Number: L7015

ISSN: 1076-1551

eISSN: 1528-3658

29-char Source Abbrev.: MOL MED

ISO Source Abbrev.: Mol. Med.

Source Item Page Count: 18

Funding:

Funding Agency	Grant Number
Department of Science and Technology, Ministry of Science and Technology, India	DST/TDT/TC/Rare/2022/21(G)/1

This work was funded by the Department of Science and Technology (DST) via grant ID: DST/TDT/TC/Rare/2022/21(G)/1.

Open Access: gold

Record 31 of 47

Title: Amyloid-Inducing Agents via Metabolite Self-Assembly Expands the Boundary of Prion Concept beyond Proteins

Author(s): Prajapati, KP (Prajapati, Kailash Prasad); Mittal, S (Mittal, Shikha); Ansari, M (Ansari, Masihuzzaman); Anand, BG (Anand, Bibin Gnanadhason); Kar, K (Kar, Karunakar)

Source: CHEMBIOCHEM **DOI:** 10.1002/cbic.202500492 **Early Access Date:** DEC 2025 **Published Date:** 2025 DEC 12

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Absi H. S. A., 2021, Mol. Genet. Metab. Rep, V26, P100703
Adams JB, 2011, NUTR METAB, V8, DOI 10.1186/1743-7075-8-34
Adler-Abramovich L, 2012, NAT CHEM BIOL, V8, P701, DOI [10.1038/NCHEMBIO.1002, 10.1038/nchembio.1002]
Agnati LF, 2007, J NEURAL TRANSM, V114, P21, DOI 10.1007/s00702-006-0564-9
AlberatiGiani D, 1996, J NEUROCHEM, V66, P996
Aliu E, 2018, ANN TRANSL MED, V6, DOI 10.21037/atm.2018.12.12
Anand BG, 2018, BIOCHEMISTRY-US, V57, P5202, DOI 10.1021/acs.biochem.8b00472
Anand BG, 2018, BIOCHEM BIOPH RES CO, V501, P158, DOI 10.1016/j.bbrc.2018.04.198
Anand BG, 2017, SCI REP-UK, V7, DOI 10.1038/s41598-017-10911-z
Anand BG, 2016, BIOCHEMISTRY-US, V55, P3345, DOI 10.1021/acs.biochem.6b00418
Anand BG, 2021, ACS APPL MATER INTER, V13, P36722, DOI 10.1021/acsami.1c04161
Anand BG, 2019, ACS NANO, V13, P6033, DOI 10.1021/acsnano.9b02284
Ansari M, 2023, MATER TODAY NANO, V22, DOI 10.1016/j.mtnano.2023.100317
Ansari M, 2025, BIOMACROMOLECULES, V26, P6405, DOI 10.1021/acs.biomac.5c00286
Arad E, 2021, CHEM CATALYSIS, V1, P908, DOI 10.1016/j.checat.2021.07.005
Arnone D, 2018, NEUROSCI BIOBEHAV R, V92, P477, DOI 10.1016/j.neubiorev.2018.05.031
Artuch R, 2001, J INHERIT METAB DIS, V24, P359, DOI 10.1023/A:1010500502275
Azeez OH, 2019, MEDICINA-LITHUANIA, V55, DOI 10.3390/medicina55100681
Babar DG, 2017, APPL NANOSCI, V7, P101, DOI 10.1007/s13204-017-0551-5
Badawy AAB, 1995, PHARMACOPSYCHIATRY, V28, P93, DOI 10.1055/s-2007-979626
BaldoEnzi G, 1996, ADV EXP MED BIOL, V398, P429
Baltyde D, 2022, FRONT ENDOCRINOL, V13, DOI 10.3389/fendo.2022.946642
Ban Y, 2007, ATHEROSCLEROSIS, V195, P153, DOI 10.1016/j.atherosclerosis.2006.09.005
Banik D, 2017, J PHYS CHEM B, V121, P1533, DOI 10.1021/acs.jpcb.6b12220
Banik D, 2016, J PHYS CHEM B, V120, P7662, DOI 10.1021/acs.jpcb.6b05209
Bano Samina, 2003, J Coll Physicians Surg Pak, V13, P5
BARASHNEV J I, 1988, Acta Paediatrica Hungarica, V29, P343
Baroni L, 2019, J ALZHEIMERS DIS, V70, P441, DOI 10.3233/JAD-190249
Bartoli F, 2021, MOL PSYCHIATR, V26, P3419, DOI 10.1038/s41380-020-00913-1
Beagles KE, 1998, J NEUROCHEM, V70, P281
Bellmaine S, 2020, FREE RADICAL BIO MED, V160, P696, DOI 10.1016/j.freeradbiomed.2020.09.002
BENEVENGA NJ, 1984, ANNU REV NUTR, V4, P157, DOI 10.1146/annurev.nu.04.070184.001105
Bera S, 2020, ACS NANO, V14, P1694, DOI 10.1021/acsnano.9b07307
Bera S, 2019, ACS NANO, V13, P1703, DOI 10.1021/acsnano.8b07775
Berman SB, 1999, J NEUROCHEM, V73, P1127, DOI 10.1046/j.1471-4159.1999.0731127.x
BERNHEIMER H, 1973, J NEUROL SCI, V20, P415, DOI 10.1016/0022-510X(73)90175-5
Blake C, 1996, STRUCTURE, V4, P989, DOI 10.1016/S0969-2126(96)00104-9
Blankfield A, 2012, INT J TRYPTOPHAN RES, V5, P27, DOI 10.4137/IJTR.S10085

Bottiglieri T, 2000, J NEUROL NEUROSUR PS, V69, P228, DOI 10.1136/jnnp.69.2.228
BOWEN DM, 1983, J NEUROCHEM, V41, P266, DOI 10.1111/j.1471-4159.1983.tb11838.x
Boyer EW, 2005, NEW ENGL J MED, V352, P1112, DOI 10.1056/NEJMra041867
Braconi D, 2017, BBA-GEN SUBJECTS, V1861, P135, DOI 10.1016/j.bbagen.2016.11.026
Bröer S, 2008, J CLIN INVEST, V118, P3881, DOI 10.1172/JCI36625
Brosnan ME, 2020, J NUTR, V150, p2570S, DOI 10.1093/jn/nxaa079
Burbulla LF, 2017, SCIENCE, V357, P1255, DOI 10.1126/science.aam9080
Burlina AB, 2000, J INHERIT METAB DIS, V23, P313, DOI 10.1023/A:1005694122277
Buxbaum JN, 2022, AMYLOID, V29, P213, DOI 10.1080/13506129.2022.2147636
Calabresi P, 2007, TRENDS NEUROSCI, V30, P211, DOI 10.1016/j.tins.2007.03.001
Cascella R, 2022, CELL MOL LIFE SCI, V79, DOI 10.1007/s00018-022-04166-9
Cervenka I, 2017, SCIENCE, V357, DOI 10.1126/science.aaf9794
Chakraborty P, 2018, CHEMNANOMAT, V4, P730, DOI 10.1002/cnma.201800147
Chandel NS, 2021, CSH PERSPECT BIOL, V13, DOI 10.1101/cshperspect.a040584
Chaudhuri A., 2013, Biochim. Biophys. Acta, V1838, P419
Chaudhuri P, 2019, AGEING RES REV, V56, DOI 10.1016/j.arr.2019.100937
Chazelas E, 2019, BMJ-BRIT MED J, V366, DOI 10.1136/bmj.l2408
Chen M, 2008, ARCH PATHOL LAB MED, V132, P851, DOI 10.1043/1543-2165(2008)132[851:GDROTL]2.0.CO;2
Chen YQ, 2009, INT J TRYPTOPHAN RES, V2, P1
Chiti F, 2017, ANNU REV BIOCHEM, V86, P27, DOI 10.1146/annurev-biochem-061516-045115
Choudhary AK, 2018, J CLIN NEUROSCI, V56, P7, DOI 10.1016/j.jocn.2018.06.043
Chuang SC, 2014, CANCER EPIDEM BIOMAR, V23, P461, DOI 10.1158/1055-9965.EPI-13-0770
Cleary M, 2013, MOL GENET METAB, V110, P418, DOI 10.1016/j.ymgme.2013.09.001
Colloby SJ, 2012, BRAIN, V135, P2798, DOI 10.1093/brain/aws211
Czarnecka K, 2021, NUTRIENTS, V13, DOI 10.3390/nu13061957
Dabney W, 2020, NATURE, V577, P671, DOI 10.1038/s41586-019-1924-6
Daskalov A, 2021, P NATL ACAD SCI USA, V118, DOI 10.1073/pnas.2014085118
Daubert EA, 2010, MOL CELL NEUROSCI, V44, P297, DOI 10.1016/j.mcn.2010.04.001
Dave R, 2024, CHEMBIOCHEM, V25, DOI 10.1002/cbic.202400109
DAVIES HE, 1963, ARCH DIS CHILD, V38, P80, DOI 10.1136/adc.38.197.80
Davies SK, 2014, P NATL ACAD SCI USA, V111, P10761, DOI 10.1073/pnas.1402663111
Davison AS, 2023, ADV CLIN CHEM, V114, P47, DOI 10.1016/bs.acc.2023.02.005
de Groot MJ, 2010, MOL GENET METAB, V99, pS86, DOI 10.1016/j.ymgme.2009.10.016
De Luigi A, 2015, SCI REP-UK, V5, DOI 10.1038/srep15902
De Rivera J, 1977, Psychol Issues, V10, P38
Dejong CHC, 2007, J NUTR, V137, p1579S, DOI 10.1093/jn/137.6.1579S
Diao WQ, 2019, INT J CHRONIC OBSTR, V14, P2015, DOI 10.2147/COPD.S210598
Do TD, 2015, J AM CHEM SOC, V137, P10080, DOI 10.1021/jacs.5b05482
Dobson CM, 2003, NATURE, V426, P884, DOI 10.1038/nature02261
Drummond PD, 2005, NEUROLOGY, V65, P620, DOI 10.1212/01.wnl.0000172339.15577.a6
Dubey K, 2014, BIOCHEMISTRY-US, V53, P8001, DOI 10.1021/bi501333q
Dudure R, 2023, SPECTROCHIM ACTA A, V290, DOI 10.1016/j.saa.2022.122269
EASTMAN CL, 1994, EXP NEUROL, V125, P119, DOI 10.1006/exnr.1994.1015
Egermayer P, 1999, THORAX, V54, P161, DOI 10.1136/thx.54.2.161
Elmonem MA, 2016, ORPHANET J RARE DIS, V11, DOI 10.1186/s13023-016-0426-y
Engin AB, 2010, EUR J CANCER CARE, V19, P803, DOI 10.1111/j.1365-2354.2009.01122.x
Eniu DT, 2019, SCAND J CLIN LAB INV, V79, P17, DOI 10.1080/00365513.2018.1542541
Esmaeili S, 2020, CHEM-BIOL INTERACT, V315, DOI 10.1016/j.cbi.2019.108884
Fagherazzi G, 2017, ANN NUTR METAB, V70, P51, DOI 10.1159/000458769
Falk RH, 1997, NEW ENGL J MED, V337, P898, DOI 10.1056/NEJM199709253371306
Fargue S, 2022, CLIN KIDNEY J, V15, pi4, DOI 10.1093/ckj/sfab217
Feksa LR, 2006, NEUROCHEM INT, V49, P87, DOI 10.1016/j.neuint.2006.01.001
Fenwick RB, 2018, J AM CHEM SOC, V140, P675, DOI 10.1021/jacs.7b09974

Fernstrom JD, 2007, J NUTR, V137, p1539S, DOI 10.1093/jn/137.6.1539S
Ferreira P, 2017, MOL GENET METAB, V120, P317, DOI 10.1016/j.ymgme.2017.02.009
Fink AL, 1998, FOLD DES, V3, pR9, DOI 10.1016/S1359-0278(98)00002-9
Fitzgerald P, 2008, NEUROGASTROENT MOTIL, V20, P1291, DOI 10.1111/j.1365-2982.2008.01195.x
Fitzpatrick AWP, 2015, P NATL ACAD SCI USA, V112, P3380, DOI 10.1073/pnas.1502214112
Fujimi TJ, 2020, J NUTR SCI VITAMINOL, V66, P561, DOI 10.3177/jnsv.66.561
Gade AK, 2020, CUREUS J MED SCIENCE, V12, DOI 10.7759/cureus.7186
Galderisi S, 2021, J CELL PHYSIOL, V236, P6011, DOI 10.1002/jcp.30284
Gao JQ, 2016, PLOS ONE, V11, DOI 10.1371/journal.pone.0168219
Garlick PJ, 2004, J NUTR, V134, p1633S, DOI 10.1093/jn/134.6.1633S
GATFIELD PD, 1969, CAN MED ASSOC J, V101, P71
Gauthier C, 2014, PSYCHONEUROENDOCRINO, V39, P170, DOI 10.1016/j.psyneuen.2013.09.009
GELIEBTER AA, 1981, AM J CLIN NUTR, V34, P119, DOI 10.1093/ajcn/34.1.119
GERBER DA, 1975, J CLIN INVEST, V55, P1164, DOI 10.1172/JCI108033
Ghorayeb I, 2001, EXP NEUROL, V167, P133, DOI 10.1006/exnr.2000.7535
Goedert M, 2015, SCIENCE, V349, DOI 10.1126/science.1255555
Gour N, 2021, CURR OPIN CHEM BIOL, V64, P154, DOI 10.1016/j.cbpa.2021.07.005
Gour N, 2019, ACS CHEM NEUROSCI, V10, P1230, DOI 10.1021/acschemneuro.8b00310
Greilberger J, 2010, CLIN LAB, V56, P441
Grosicka Anida, 2009, Wiad Lek, V62, P197
Guillemin GJ, 2012, FEBS J, V279, P1356, DOI 10.1111/j.1742-4658.2012.08485.x
Guillemin GJ, 2005, NEUROPATH APPL NEURO, V31, P395, DOI 10.1111/j.1365-2990.2005.00655.x
Guillemin GJ, 2003, ADV EXP MED BIOL, V527, P167
Guillemin GJ, 2003, NEUROREPORT, V14, P2311, DOI 10.1097/00001756-200312190-00005
Guo LL, 2018, ANAL CHEM, V90, P5451, DOI 10.1021/acs.analchem.8b00762
HALL WK, 1948, J NUTR, V36, P277, DOI 10.1093/jn/36.2.277
Hama R, 2021, HUM GENOME VAR, V8, DOI 10.1038/s41439-021-00159-5
Hankey GJ, 2001, CURR OPIN NEUROL, V14, P95, DOI 10.1097/00019052-200102000-00015
Hara K, 2004, J LAB CLIN MED, V144, P31, DOI 10.1016/j.lab.2004.03.014
Harambat J, 2012, PEDIATR NEPHROL, V27, P571, DOI 10.1007/s00467-011-2037-0
Hermann A, 2021, BIOMOLECULES, V11, DOI 10.3390/biom11050737
Herrera A, 2017, ACS CHEM NEUROSCI, V8, P702, DOI 10.1021/acschemneuro.7b00034
HEYES MP, 1992, BRAIN, V115, P1249, DOI 10.1093/brain/115.5.1249
HEYES MP, 1993, BRAIN, V116, P1425, DOI 10.1093/brain/116.6.1425
Hibino E, 2020, BIOPHYS PHYSICOBIOL, V17, P86, DOI 10.2142/biophysico.BSJ-2020012
Ho PI, 2002, J NEUROSCI RES, V70, P694, DOI 10.1002/jnr.10416
Hohenfellner K, 2023, KLIN MONATSBL AUGENH, V240, P251, DOI 10.1055/a-2022-8522
Hoppe B, 2009, KIDNEY INT, V75, P1264, DOI 10.1038/ki.2009.32
Huang A, 2002, BRIT J CANCER, V86, P1691, DOI 10.1038/sj.bjc.6600336
Iqbal M, 2015, J PEDIATR NEUROSCI, V10, P355, DOI 10.4103/1817-1745.174445
IWAGAKI H, 1995, IMMUNOL INVEST, V24, P467, DOI 10.3109/08820139509066843
Jakel RJ, 2000, TRENDS NEUROSCI, V23, P239, DOI 10.1016/S0166-2236(00)01568-X
Javitt D C, 1990, J Neuropsychiatry Clin Neurosci, V2, P44
Jenkins TA, 2016, NUTRIENTS, V8, DOI 10.3390/nu8010056
Jiang JL, 2018, REPROD TOXICOL, V76, P35, DOI 10.1016/j.reprotox.2017.12.006
Jing J, 2021, J NATL MED ASSOC, V113, P46, DOI 10.1016/j.jnma.2020.07.005
Jinnah HA, 2013, HAND CLINIC, V113, P1827, DOI 10.1016/B978-0-444-59565-2.00052-6
Kaluzna-Czaplinska J, 2019, CRIT REV FOOD SCI, V59, P72, DOI 10.1080/10408398.2017.1357534
Kanth PC, 2025, CHEMBIOCHEM, V26, DOI 10.1002/cbic.202500092
Kaplan P, 2020, INT J MOL SCI, V21, DOI 10.3390/ijms21207698
KAYE WH, 1988, BIOL PSYCHIAT, V23, P102, DOI 10.1016/0006-3223(88)90113-8
Kaye WH, 2000, BIOL PSYCHIAT, V47, P151, DOI 10.1016/S0006-3223(99)00108-0
Kayed R., 2003, Science, V300, P486, DOI 10.1126/science.1079469
Ke PC, 2020, CHEM SOC REV, V49, P5473, DOI 10.1039/c9cs00199a

KERR GR, 1965, P SOC EXP BIOL MED, V119, P561, DOI 10.3181/00379727-119-30238
KISH SJ, 1988, NEW ENGL J MED, V318, P876, DOI 10.1056/NEJM198804073181402
Klaessens S, 2021, P NATL ACAD SCI USA, V118, DOI 10.1073/pnas.2022447118
Knowles TPJ, 2009, SCIENCE, V326, P1533, DOI 10.1126/science.1178250
Kochman A, 2002, AMINO ACIDS, V23, P95, DOI 10.1007/s00726-001-0114-6
Koloteva-Levine N, 2021, P NATL ACAD SCI USA, V118, DOI 10.1073/pnas.2104148118
Kori M, 2016, OMICS, V20, P645, DOI 10.1089/omi.2016.0106
Koshti B, 2021, ACS CHEM NEUROSCI, V12, P3237, DOI 10.1021/acschemneuro.1c00427
Kraus JP, 1999, HUM MUTAT, V13, P362
Kubicova L, 2015, J ORGANOMET CHEM, V782, P111, DOI 10.1016/j.jorganchem.2015.01.030
Kumar U, 2021, ANAL SCI ADV, V2, P527, DOI 10.1002/ansa.202000181
Kundu N, 2018, LANGMUIR, V34, P11637, DOI 10.1021/acs.langmuir.7b04355
Lam WK, 1996, ARCH DIS CHILD, V74, P343, DOI 10.1136/adc.74.4.343
Laor D, 2019, NAT COMMUN, V10, DOI 10.1038/s41467-018-07966-5
Latif S, 2021, CLIN CHIM ACTA, V522, P114, DOI 10.1016/j.cca.2021.08.009
Laviano A, 1997, INT J EAT DISORDER, V21, P181, DOI 10.1002/(SICI)1098-108X(199703)21:2<181::AID-EAT9>3.0.CO;2-H
Lawrence KR, 2006, CLIN INFECT DIS, V42, P1578, DOI 10.1086/503839
Lee JM, 2017, NEUROPHARMACOLOGY, V112, P346, DOI 10.1016/j.neuropharm.2016.05.011
Lim U, 2006, CANCER EPIDEM BIOMAR, V15, P1654, DOI 10.1158/1055-9965.EPI-06-0203
Lotharius J, 2000, J BIOL CHEM, V275, P38581, DOI 10.1074/jbc.M005385200
LOU HC, 1994, ACTA PAEDIATR, V83, P86, DOI 10.1111/j.1651-2227.1994.tb13461.x
LOU HC, 1985, EUR J PEDIATR, V144, P17, DOI 10.1007/BF00491918
Machado M, 2019, SCI REP-UK, V9, DOI 10.1038/s41598-019-44205-3
MacLean MR, 2018, PULM CIRC, V8, DOI 10.1177/2045894018759125
Madrigal-Trejo D, 2021, ORIGINS LIFE EVOL B, V51, P117, DOI 10.1007/s11084-021-09606-3
Makam P, 2019, NAT CATAL, V2, P977, DOI 10.1038/s41929-019-0348-x
Mangge H, 2014, CURR MED CHEM, V21, P1931, DOI 10.2174/0929867321666140304105526
Mangge H, 2014, OBESITY, V22, P195, DOI 10.1002/oby.20491
MANN DMA, 1986, HUM NEUROBIOL, V5, P147
Manoharan S, 2016, OXID MED CELL LONGEV, V2016, DOI 10.1155/2016/8590578
Mao PZ, 2011, BBA-MOL BASIS DIS, V1812, P1359, DOI 10.1016/j.bbadis.2011.08.005
Marcinkiewcz CA, 2016, NATURE, V537, P97, DOI 10.1038/nature19318
Maresca M, 2008, PHYS CHEM CHEM PHYS, V10, P2792, DOI 10.1039/b802594k
Marsh DM, 2002, NEUROPSYCHOPHARMACOL, V26, P660, DOI 10.1016/S0893-133X(01)00369-4
MARTINEZ M, 1993, J NEURAL TRANSM-PARK, V6, P1, DOI 10.1007/BF02252617
Martorana A, 2014, FRONT AGING NEUROSCI, V6, DOI 10.3389/fnagi.2014.00252
Marx W, 2021, MOL PSYCHIATR, V26, P4158, DOI 10.1038/s41380-020-00951-9
Matt SM, 2020, J NEUROIMMUNE PHARM, V15, P114, DOI 10.1007/s11481-019-09851-4
Mazzulli JR, 2011, CELL, V146, P37, DOI 10.1016/j.cell.2011.06.001
McAllister BB, 2020, NEUROSCI BIOBEHAV R, V112, P1, DOI 10.1016/j.neubiorev.2020.01.026
MCKEAN CM, 1972, BRAIN RES, V47, P469, DOI 10.1016/0006-8993(72)90653-1
Ménard-Moyon C, 2015, CHEM-EUR J, V21, P11681, DOI 10.1002/chem.201502076
Millucci L, 2015, J INHERIT METAB DIS, V38, P797, DOI 10.1007/s10545-015-9842-8
Millucci L, 2012, BBA-MOL BASIS DIS, V1822, P1682, DOI 10.1016/j.bbadis.2012.07.011
Mistry PK, 2017, MOL GENET METAB, V120, P8, DOI 10.1016/j.ymgme.2016.11.006
Mitsubuchi H, 2008, J NUTR, V138, p2016S, DOI 10.1093/jn/138.10.2016S
Mitsubuchi H, 2014, PEDIATR INT, V56, P492, DOI 10.1111/ped.12420
Monzani E, 2019, ANGEW CHEM INT EDIT, V58, P6512, DOI 10.1002/anie.201811122
Mor DE, 2017, NAT NEUROSCI, V20, P1560, DOI 10.1038/nn.4641
Morales R, 2013, PLOS PATHOG, V9, DOI 10.1371/journal.ppat.1003537
Morris MS, 2003, LANCET NEUROL, V2, P425, DOI 10.1016/S1474-4422(03)00438-1
Mossou E, 2014, ACTA CRYSTALLOGR C, V70, P326, DOI 10.1107/S2053229614002563
Mudd SH, 2011, AM J MED GENET C, V157C, P3, DOI 10.1002/ajmg.c.30293

Murphy SC, 2004, BLOOD, V103, P1920, DOI 10.1182/blood-2003-09-3165
Namavar Y, 2021, AM J MED GENET B, V186, P289, DOI 10.1002/ajmg.b.32869
Nandi S, 2022, LANGMUIR, DOI 10.1021/acs.langmuir.2c00648
Nandi S, 2021, CHEM COMMUN, V57, P10532, DOI 10.1039/d1cc04482f
Naushad SM, 2013, INDIAN J BIOCHEM BIO, V50, P474
Nikolaus S, 2017, GASTROENTEROLOGY, V153, P1504, DOI 10.1053/j.gastro.2017.08.028
Nyhan WL, 2016, NEUROPEDIATRICS, V47, P408, DOI 10.1055/s-0036-1587594
Obrenovitch TP, 2001, ANN NY ACAD SCI, V939, P1
Oki S, 2018, INT J BIOL MACROMOL, V107, P1428, DOI 10.1016/j.ijbiomac.2017.10.004
Oldfield CJ, 2014, ANNU REV BIOCHEM, V83, P553, DOI 10.1146/annurev-biochem-072711-164947
Oluwatoba DS, 2023, ACS APPL MATER INTER, V15, P32177, DOI 10.1021/acsami.3c03267
ONO J, 1978, GASTROENTEROLOGY, V74, P196
Oskarsson ME, 2015, AM J PATHOL, V185, P834, DOI 10.1016/j.ajpath.2014.11.016
Oxenkrug GF, 2015, MOL NEUROBIOL, V52, P805, DOI 10.1007/s12035-015-9232-0
Patel M, 2024, ACS CHEM NEUROSCI, V15, P916, DOI 10.1021/acschemneuro.3c00563
Paul A, 2021, ACS NANO, V15, P11854, DOI 10.1021/acsnano.1c02957
Pemberton LA, 1997, J INTERF CYTOK RES, V17, P589, DOI 10.1089/jir.1997.17.589
PERRY TL, 1975, NEW ENGL J MED, V292, P1269, DOI 10.1056/NEJM197506122922404
Petersén Å, 2001, HUM MOL GENET, V10, P1243, DOI 10.1093/hmg/10.12.1243
Phornphutkul C, 2002, NEW ENGL J MED, V347, P2111, DOI 10.1056/NEJMoa021736
Picken MM, 2020, ACTA HAEMATOL-BASEL, V143, P322, DOI 10.1159/000506696
Polinski NK, 2018, J PARKINSON DIS, V8, P303, DOI 10.3233/JPD-171248
Porter RJ, 2002, J PSYCHOPHARMACOL, V16, P73, DOI 10.1177/026988110201600105
Prajapati KP, 2024, ACS NANO, V18, P34044, DOI 10.1021/acsnano.4c09522
Prajapati KP, 2024, ACS APPL MATER INTER, V16, P18268, DOI 10.1021/acsami.3c14606
Prajapati KP, 2023, ACS CHEM NEUROSCI, V14, P4274, DOI 10.1021/acschemneuro.3c00367
Prajapati KP, 2023, J MATER CHEM B, V11, P8765, DOI 10.1039/d3tb01203d
Prajapati KP, 2022, NANOSCALE, V14, P16270, DOI 10.1039/d2nr03544h
Prajapati KP, 2022, NANOSCALE, V14, P8649, DOI 10.1039/d1nr07741d
Rahman A, 2009, PLOS ONE, V4, DOI 10.1371/journal.pone.0006344
Ravikumar A, 2000, NEUROL INDIA, V48, P231
Raynes JK, 2017, SMALL, V13, DOI 10.1002/smll.201603591
REGLAND B, 1995, J NEURAL TRANSM-GEN, V100, P165, DOI 10.1007/BF01271539
Reininghaus EZ, 2014, BIPOLAR DISORD, V16, P432, DOI 10.1111/bdi.12166
Roberts HJ, 1997, NEUROLOGY, V48, P549, DOI 10.1212/WNL.48.2.549-b
Rowe K, 2017, CUREUS J MED SCIENCE, V9, DOI 10.7759/cureus.1228
Ruan Z, 2014, AMINO ACIDS, V46, P2681, DOI 10.1007/s00726-014-1823-y
Sade D, 2018, OPEN BIOL, V8, DOI 10.1098/rsob.170229
Sadiq S, 2022, TURK ARCH PEDIATR, V57, P377, DOI 10.5152/TurkArchPediatr.2022.22105
Saelices L, 2018, P NATL ACAD SCI USA, V115, pE6741, DOI 10.1073/pnas.1805131115
Savitz J, 2020, MOL PSYCHIATR, V25, P131, DOI 10.1038/s41380-019-0414-4
Schroecksnadel K, 2005, CANCER LETT, V223, P323, DOI 10.1016/j.canlet.2004.10.033
SCHULPI KH, 1989, CLIN PEDIATR, V28, P466, DOI 10.1177/000992288902801007
Schulpis KH, 2004, CLIN BIOCHEM, V37, P76, DOI 10.1016/j.clinbiochem.2003.08.002
Schulpis KH, 2002, CLIN BIOCHEM, V35, P281, DOI 10.1016/S0009-9120(02)00311-9
Schulpis KH, 2000, HORM RES, V53, P32, DOI 10.1159/000023510
Schweinberger BM, 2016, AMINO ACIDS, V48, P2479, DOI 10.1007/s00726-016-2302-4
Seshadri S, 2002, NEW ENGL J MED, V346, P476, DOI 10.1056/NEJMoa011613
Shaham-Niv S, 2018, ANGEW CHEM INT EDIT, V57, P12444, DOI 10.1002/anie.201806565
Shaham-Niv S, 2017, ISR J CHEM, V57, P729, DOI 10.1002/ijch.201600076
Shaham-Niv S, 2015, SCI ADV, V1, DOI 10.1126/sciadv.1500137
Sharma P., 2025, Chembiochem, V26, pe202500228
Sherpa LY, 2011, HIGH ALT MED BIOL, V12, P57, DOI 10.1089/ham.2010.1050
Shimizu Y, 2002, J AM COLL CARDIOL, V40, P1347, DOI 10.1016/S0735-1097(02)02158-7

SIMPSON PJ, 1991, J PHARMACOL EXP THER, V258, P979
Singh P, 2021, MATER CHEM FRONT, V5, P1971, DOI 10.1039/d0qm00784f
Singh P, 2017, MAT SCI ENG C-MATER, V72, P590, DOI 10.1016/j.msec.2016.11.117
Singh V, 2014, SCI REP-UK, V4, DOI 10.1038/srep03875
Sitta A, 2009, CELL MOL NEUROBIOL, V29, P211, DOI 10.1007/s10571-008-9313-y
Smith CB, 2000, P NATL ACAD SCI USA, V97, P11014, DOI 10.1073/pnas.97.20.11014
SNEDDEN W, 1982, NEW ENGL J MED, V307, P1405
Snyder SH, 2011, P NATL ACAD SCI USA, V108, P18869, DOI 10.1073/pnas.1114346108
SOLOMON JK, 1978, J NUTR, V108, P936, DOI 10.1093/jn/108.6.936
Soto C, 2006, TRENDS BIOCHEM SCI, V31, P150, DOI 10.1016/j.tibs.2006.01.002
Strasser B., 2015, European Journal of Nutrition, V54, P101, DOI 10.1007/s00394-014-0690-3
Sumathi T, 2018, J MOL NEUROSCI, V66, P322, DOI 10.1007/s12031-018-1168-1
Sunde M, 1997, ADV PROTEIN CHEM, V50, P123, DOI 10.1016/S0065-3233(08)60320-4
Surtees R, 2000, EUR J PEDIATR, V159, pS109, DOI 10.1007/PL00014370
Taffe MA, 2003, PHARMACOL BIOCHEM BE, V76, P141, DOI 10.1016/S0091-3057(03)00217-X
TANABE M, 1989, CLIN CHIM ACTA, V186, P11, DOI 10.1016/0009-8981(89)90197-6
Tang TS, 2007, J NEUROSCI, V27, P7899, DOI 10.1523/JNEUROSCI.1396-07.2007
Tavassoly O, 2018, J MOL BIOL, V430, P3847, DOI 10.1016/j.jmb.2018.08.002
Tiwari OS, 2023, ACS NANO, DOI 10.1021/acsnano.2c09872
Trösse C, 2009, MOL VIS, V15, P1332
Trupp M, 2014, J PARKINSON DIS, V4, P549, DOI 10.3233/JPD-140389
Tsakiris S, 2002, CLIN BIOCHEM, V35, P615, DOI 10.1016/S0009-9120(02)00381-8
Van Dam F, 2009, ARCH GERONTOL GERIAT, V48, P425, DOI 10.1016/j.archger.2008.03.009
van Kuilenburg Andre B P, 2019, JIMD Rep, V45, P65, DOI 10.1007/8904_2018_138
Vaneyck J, 2021, J BIOL CHEM, V296, DOI 10.1016/j.jbc.2021.100358
Venkatesan Dhivya, 2020, eNeurologicalSci, V21, P100270, DOI [10.1016/j.ensci.2020.100270, 10.1016/j.ensci.2020.100270]
Vikenes K, 1999, CIRCULATION, V100, P483, DOI 10.1161/01.CIR.100.5.483
Volpi-Abadie J, 2013, OCHSNER J, V13, P533
Walker LC, 2015, ANNU REV NEUROSCI, V38, P87, DOI 10.1146/annurev-neuro-071714-033828
Wang L., 2023, Sci. Adv, V9, peadi1057
Watanabe M, 2008, AM J CLIN NUTR, V87, P1860, DOI 10.1093/ajcn/87.6.1860
Weinlich G, 2007, DERMATOLOGY, V214, P8, DOI 10.1159/000096906
Welch GN, 1998, NEW ENGL J MED, V338, P1042, DOI 10.1056/NEJM199804093381507
Werbach M R, 2000, Altern Med Rev, V5, P93
Wetzel R, 2006, ACCOUNTS CHEM RES, V39, P671, DOI 10.1021/ar050069h
Widner B, 2002, J NEURAL TRANSM, V109, P181, DOI 10.1007/s007020200014
Wijekoon EP, 2007, BIOCHEM SOC T, V35, P1175, DOI 10.1042/BST0351175
Williams Robin A, 2008, Clin Biochem Rev, V29, P31
WINOCOUR PH, 1990, ANN CLIN BIOCHEM, V27, P238, DOI 10.1177/000456329002700310
WOLFF JA, 1989, PEDIATR RES, V26, P140, DOI 10.1203/00006450-198908000-00015
WURTMAN RJ, 1980, PHARMACOL REV, V32, P315
Yan EB, 2015, J NEUROINFLAMM, V12, DOI 10.1186/s12974-015-0328-2
Yang XJ, 2022, J NANOBIOTECHNOL, V20, DOI 10.1186/s12951-022-01285-0
Yazdi DS, 2021, P NATL ACAD SCI USA, V118, DOI 10.1073/pnas.2017575118
Zaguri D, 2020, COMMUN CHEM, V3, DOI 10.1038/s42004-019-0247-8
Zhang QH, 2004, P NATL ACAD SCI USA, V101, P4752, DOI 10.1073/pnas.0400924101
Zhang S., 2019, ACS Chem. Neurosci, V10, p945
Zhang YX, 2021, J MATER CHEM B, V9, P3300, DOI 10.1039/d0tb02958k
Zhuo JM, 2011, TRENDS PHARMACOL SCI, V32, P562, DOI 10.1016/j.tips.2011.05.003

Cited Reference Count: 301

Abstract: The prion concept fundamentally signifies the intrinsic cross-seeding potential of misfolded protein-generated amyloid entities to efficiently induce amyloid aggregation in normally folded proteins leading to formation of cytotoxic amyloid structures. A conformational crosstalk between the prion particle and the interacting protein appears critical for the molecular origin of seeded-aggregation. However, the intricacies of protein specificity, as a prerequisite for the onset of cross-seeding, hold negligible relevance to the pathobiology of amyloid-linked diseases because the amyloid-deposits are heteroprotein assemblies, and there is adequate evidence that substantiates the occurrence of sequence-independent amyloid-cross-seeding/co-aggregation reactions between diverse protein types. Importantly, extensive research on the self-assembly of single metabolites into cytotoxic amyloid-like entities containing cross-seeding competent conformers has certainly widened the boundary of prion concept much beyond the territory of proteins and peptides. Three important observations: 1) sequence-independent cross-seeding and co-aggregation among proteins; 2) efficient amyloid-cross-seeding of proteins triggered by self-assembled metabolite-nanostructures, and 3) molecular self-assembly of metabolites induced by pre-formed protein amyloid-seeds, propose a synergetic interplay between the amyloidogenic proteins and self-assembly-prone metabolites that can act as a key regulator for the overall amyloidogenesis mechanism. This review on the self-assembly of biologically relevant metabolites into amyloid-mimicking nanostructures mainly highlights their cytotoxic properties and cross-seeding potential, particularly focusing on the significance of the metabolite-aggregation in the etiology of amyloid hypothesis.

Accession Number: WOS:001636908900001

PubMed ID: 41387264

Language: English

Document Type: Review; Early Access

Author Keywords: amyloid hypothesis; cross-seeding and co-aggregation; in-born metabolite disorders; metabolite self-assembly; neurotoxicity; prion concept

KeyWords Plus: RAPID TRYPTOPHAN DEPLETION; DECREASED SERUM TRYPTOPHAN; QUINOLINIC ACID PRODUCTION; ALZHEIMERS-DISEASE; AMINO-ACID; DOPAMINE OXIDATION; L-PHENYLALANINE; KYNURENINE PATHWAY; GAUCHER-DISEASE; NONKETOTIC HYPERGLYCINEMIA

Addresses: [Prajapati, Kailash Prasad; Mittal, Shikha; Ansari, Masihuzzaman; Kar, Karunakar] Jawaharlal Nehru Univ, Sch Life Sci, Biophys & Biomat Res Lab, Room 310, New Delhi 110067, India.
[Anand, Bibin Gnanadhason] SRM Inst Sci & Technol, Sch Bioengn, Dept Biotechnol, Biomol Selfassembly Lab, Kattankulathur 603203, Tamil Nadu, India.
Univ Calif Santa Cruz, Dept Chem & Biochem, Santa Cruz, CA 95064 USA.

Corresponding Address: Kar, K (corresponding author), Jawaharlal Nehru Univ, Sch Life Sci, Biophys & Biomat Res Lab, Room 310, New Delhi 110067, India.
Anand, BG (corresponding author), SRM Inst Sci & Technol, Sch Bioengn, Dept Biotechnol, Biomol Selfassembly Lab, Kattankulathur 603203, Tamil Nadu, India.

E-mail Addresses: bibingna@srmist.edu.in; kkar@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; SRM Institute of Science & Technology Chennai; University of California System; University of California Santa Cruz

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
prajapati, kailash	OLQ-5579-2025	
Anand, Bibin	O-1743-2019	

Publisher: WILEY-V C H VERLAG GMBH

Publisher Address: POSTFACH 101161, 69451 WEINHEIM, GERMANY

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Biochemistry & Molecular Biology; Chemistry, Medicinal

Research Areas: Biochemistry & Molecular Biology; Pharmacology & Pharmacy

IDS Number: S7523

ISSN: 1439-4227

eISSN: 1439-7633

29-char Source Abbrev.: CHEMBIOCHEM

ISO Source Abbrev.: ChemBioChem

Source Item Page Count: 20

Funding:

Funding Agency	Grant Number
DBT BUILDER (Grant BT/INF/22/ SP45382/2022), DST SERB (CRG/2023/006318/IBS), DST FIST-II (Grant SR/FST/LSII-046/2016(C)), DST-PURSE II, UPE II-JNU (377), and UGC start-up GRANT and SERBDST EMR (EMR/2017/005000)	

Output Date: 2025-12-31

Record 32 of 47

Title: Long range transport and local source(s) of moisture associated with precipitation in the western Himalaya (WH)

Author(s): Jeelani, G (Jeelani, Gh.); Lone, SA (Lone, Suhail A.); Lone, A (Lone, Altaf); Deshpande, RD (Deshpande, R. D.); Sharma, A (Sharma, Akanksha); Dimri, AP (Dimri, A. P.)

Source: JOURNAL OF HYDROLOGY **Volume:** 662 **Article Number:** 133904 **DOI:** 10.1016/j.jhydrol.2025.133904 **Early Access Date:** DEC 2025 **Published Date:** 2025 DEC **Part:** B

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 13

Usage Count (Since 2013): 13

Cited References: Aggarwal PK, 2016, NAT GEOSCI, V9, P624, DOI [10.1038/ngeo2739, 10.1038/NGEO2739]
Araguás-Araguás L, 2000, HYDROL PROCESS, V14, P1341, DOI 10.1002/1099-1085(20000615)14:8<1341::AID-HYP983>3.0.CO;2-Z
Arellano LN, 2020, J HYDROL-REG STUD, V32, DOI 10.1016/j.ejrh.2020.100739
Bajracharya SR, 2019, INDUS RIVER BASIN: WATER SECURITY AND SUSTAINABILITY, P123, DOI 10.1016/B978-0-12-812782-7.00006-0
Banacos PC, 2005, WEATHER FORECAST, V20, P351, DOI 10.1175/WAF858.1
Bershaw J, 2018, GEOSCIENCES, V8, DOI 10.3390/geosciences8070257
Bershaw J, 2012, J GEOPHYS RES-ATMOS, V117, DOI 10.1029/2011JD016132
Bookhagen B, 2010, J GEOPHYS RES-EARTH, V115, DOI 10.1029/2009JF001426
Clark I., 1997, ENV ISOTOPES HYDROLO
CLEMENS S, 1991, NATURE, V353, P720, DOI 10.1038/353720a0
CRAIG H, 1961, SCIENCE, V133, P1702, DOI 10.1126/science.133.3465.1702
Crawford J, 2017, HYDROL PROCESS, V31, P20, DOI 10.1002/hyp.10885
DANSGAARD W, 1964, TELLUS, V16, P436
Dar SS, 2021, J GEOPHYS RES-ATMOS, V126, DOI 10.1029/2020JD032853
Deshpande RD, 2013, GEOCHIM COSMOCHIM AC, V100, P60, DOI 10.1016/j.gca.2012.10.009
Dimri AP, 2016, EARTH-SCI REV, V163, P297, DOI 10.1016/j.earscirev.2016.10.008
Dimri AP, 2015, REV GEOPHYS, V53, P225, DOI 10.1002/2014RG000460
Draxler R.R., 2003, HYSPLIT HYBRID SINGL, DOI DOI 10.1175/BAMS-D-14-00110.1
EPSTEIN S, 1953, GEOCHIM COSMOCHIM AC, V4, P213, DOI 10.1016/0016-7037(53)90051-9
Froehlich K, 2008, ISOT ENVIRON HEALT S, V44, P61, DOI 10.1080/10256010801887208
Gadgil S, 2003, CURR SCI INDIA, V85, P1713
GAT JR, 1970, J GEOPHYS RES, V75, P3039, DOI 10.1029/JC075i015p03039
Gat JR, 1996, ANNU REV EARTH PL SC, V24, P225, DOI 10.1146/annurev.earth.24.1.225
Gibson JJ, 2014, J HYDROL, V519, P2148, DOI 10.1016/j.jhydrol.2014.10.011
Good SP, 2015, SCIENCE, V349, P175, DOI 10.1126/science.aaa5931
Guo H, 2021, AGROFOREST SYST, V95, P907, DOI 10.1007/s10457-020-00527-0
Hersbach H, 2020, Q J ROY METEOR SOC, V146, P1999, DOI 10.1002/qj.3803

IAEA, 2005, Environmental Isotopes in the Hydrological Cycle: Principles and Applications, VI-VI
Immerzeel WW, 2012, CLIMATIC CHANGE, V110, P721, DOI 10.1007/s10584-011-0143-4
Jasechko S, 2013, NATURE, V496, P347, DOI 10.1038/nature11983
Jeelani G, 2024, SCI TOTAL ENVIRON, V919, DOI 10.1016/j.scitotenv.2024.170863
Jeelani G, 2025, CLIM DYNAM, V63, DOI 10.1007/s00382-025-07726-4
Jeelani G, 2013, J HYDROL, V481, P157, DOI 10.1016/j.jhydrol.2012.12.035
Jeelani G, 2010, J HYDROL, V393, P257, DOI 10.1016/j.jhydrol.2010.08.021
Jeelani G, 2021, GROUNDWATER SUST DEV, V15, DOI 10.1016/j.gsd.2021.100685
Jeelani G, 2021, HYDROLOG SCI J, V66, P2330, DOI 10.1080/02626667.2021.1985126
Jeelani G, 2020, J HYDROL, V591, DOI 10.1016/j.jhydrol.2020.125292
Jeelani Ghulam, 2019, International Journal of Water Resources and Arid Environments, V8, P161
Jeelani G, 2018, ATMOS CHEM PHYS, V18, P8789, DOI 10.5194/acp-18-8789-2018
Jeelani G, 2017, J EARTH SYST SCI, V126, DOI 10.1007/s12040-017-0894-z
Jeelani G, 2018, HYDROGEOL J, V26, P615, DOI 10.1007/s10040-017-1666-1
Jeelani G, 2017, ISOT ENVIRON HEALT S, V53, P400, DOI 10.1080/10256016.2016.1273224
Juhlke TR, 2019, TELLUS B, V71, DOI 10.1080/16000889.2019.1601987
Kalnay E, 1996, B AM METEOROL SOC, V77, P437, DOI 10.1175/1520-0477(1996)077<0437:TNYRP>2.0.CO;2
Kalsi S.R., 1992, Mausam (New Delhi), V43, P59
Karim A, 2002, J GEOPHYS RES-ATMOS, V107, DOI 10.1029/2000JD000253
Karki R, 2017, CLIMATE, V5, DOI 10.3390/cli5010004
Kistler R, 2001, B AM METEOROL SOC, V82, P247, DOI 10.1175/1520-0477(2001)082<0247:TNNYRM>2.3.CO;2
Konecky BL, 2019, GEOPHYS RES LETT, V46, P1622, DOI 10.1029/2018GL080188
Kumar US, 2010, J HYDROL, V391, P3, DOI 10.1016/j.jhydrol.2010.06.019
Lekshmy PR, 2014, SCI REP-UK, V4, DOI 10.1038/srep05661
Lone AM, 2020, J HYDROL, V588, DOI 10.1016/j.jhydrol.2020.125106
Lone A, 2023, ISOT ENVIRON HEALT S, V59, P454, DOI 10.1080/10256016.2023.2256454
Lone A, 2022, ISOT ENVIRON HEALT S, V58, P18, DOI 10.1080/10256016.2021.2011725
Lone A, 2021, ADV WATER RESOUR, V155, DOI 10.1016/j.advwatres.2021.103995
Lone S. A., 2022, Riverine Systems, P133, DOI DOI 10.1007/978-3-030-87067-6_8
Lone SA, 2023, J HYDROL, V619, DOI 10.1016/j.jhydrol.2023.129310
Lone SA, 2022, SCI TOTAL ENVIRON, V832, DOI 10.1016/j.scitotenv.2022.154964
Lone SA, 2021, SCI TOTAL ENVIRON, V786, DOI 10.1016/j.scitotenv.2021.147514
Lone SA, 2019, ATMOS RES, V221, P46, DOI 10.1016/j.atmosres.2019.01.025
Lone SA, 2017, ENVIRON EARTH SCI, V76, DOI 10.1007/s12665-017-6937-6
Mal S, 2021, QUATERN INT, V599, P4, DOI 10.1016/j.quaint.2021.02.010
Maurya A.S., 2009, Ahmedabad, V314, P314
MERLIVAT L, 1979, J GEOPHYS RES-OCEANS, V84, P5029, DOI 10.1029/JC084iC08p05029
Nie Y, 2021, NAT REV EARTH ENV, V2, P91, DOI 10.1038/s43017-020-00124-w
Palazzi E, 2013, J GEOPHYS RES-ATMOS, V118, P85, DOI 10.1029/2012JD018697
Pang ZH, 2011, TELLUS B, V63, P352, DOI 10.1111/j.1600-0889.2011.00532.x
Parnell A., 2016, SIMMR STABLE ISOTOPE
Peng TR, 2010, EARTH PLANET SC LETT, V289, P357, DOI 10.1016/j.epsl.2009.11.024
Penna D, 2014, HYDROL PROCESS, V28, P5637, DOI 10.1002/hyp.10273
Porter TJ, 2020, PERMAFROST PERIGLAC, V31, P429, DOI 10.1002/ppp.2052
Puranik DM, 2009, J EARTH SYST SCI, V118, P27, DOI 10.1007/s12040-009-0003-z
Qiu X, 2021, ATMOSPHERE-BASEL, V12, DOI 10.3390/atmos12060731
Rahul P., 2018, Sci. Rep., V8, P1
Rao WB, 2018, HYDROL PROCESS, V32, P436, DOI 10.1002/hyp.11431
Risi C, 2008, GEOPHYS RES LETT, V35, DOI 10.1029/2008GL035920
ROZANSKI K, 1982, TELLUS, V34, P142, DOI 10.1111/j.2153-3490.1982.tb01801.x
Rozanski K., 1993, Climate Change in Continental Isotopic Records, V78, P1, DOI [10.1029/GM078p0001, DOI 10.1029/GM078P0001]

Sandeep S, 2013, REMOTE SENS LETT, V4, P570, DOI 10.1080/2150704X.2013.769284
Scott CA, 2019, HINDU KUSH HIMALAYA ASSESSMENT: MOUNTAINS, CLIMATE CHANGE, SUSTAINABILITY AND PEOPLE, P257, DOI 10.1007/978-3-319-92288-1_8
Skrzypek G, 2015, J HYDROL, V523, P781, DOI 10.1016/j.jhydrol.2015.02.010
Sodemann H, 2008, J GEOPHYS RES-ATMOS, V113, DOI 10.1029/2007JD008503
Sodemann H., 2025, Egusphere, V2025, P1
Tian LD, 2005, CHINESE SCI BULL, V50, P1026, DOI 10.1360/04wd0030
Tian LD, 2007, J GEOPHYS RES-ATMOS, V112, DOI 10.1029/2006JD007718
Uemura R, 2008, J GEOPHYS RES-ATMOS, V113, DOI 10.1029/2008JD010209
van Zomeren J, 2007, ATMOS RES, V83, P435, DOI 10.1016/j.atmosres.2005.08.035
Wang SJ, 2022, J HYDROL, V613, DOI 10.1016/j.jhydrol.2022.128459
Wang SJ, 2017, J GEOPHYS RES-ATMOS, V122, P2667, DOI 10.1002/2015JD024626
Wang SJ, 2016, TELLUS B, V68, DOI 10.3402/tellusb.v68.26206
Warrier CU, 2010, CURR SCI INDIA, V98, P1487
Wu HW, 2015, HYDROL PROCESS, V29, P90, DOI 10.1002/hyp.10132
Wu P, 2019, INT J CLIMATOL, V39, P5241, DOI 10.1002/joc.6136
Yao SB, 2021, INT J CLIMATOL, V41, pE216, DOI 10.1002/joc.6679
Yao TD, 2013, REV GEOPHYS, V51, DOI 10.1002/rog.20023
Zhang S., 2010, ACTA ECOLOGICA SINIC, V30, P201, DOI DOI 10.1016/J.CHNAES.2010.06.003

Cited Reference Count: 96

Abstract: Western Disturbances (WDs) and the Indian Summer Monsoon (ISM) are the two principal weather systems driving the climate of the Hindu Kush Himalaya. WDs are dominant in the western Himalaya (WH) and ISM is dominant in the eastern Himalaya (EH). The Bay of Bengal (BoB) and the Arabian Sea (AS) are considered as the dominant sources of moisture for ISM. However, the source(s) of moisture associated with WDs is still debatable and unclear. We used precipitation isotopes and HYSPLIT modelling to understand the spatio-temporal patterns of precipitation isotopes and to estimate the contribution of various moisture sources to precipitation in the Upper Jhelum Basin (UJB), western Himalaya. The event based precipitation isotope data suggest that temperature and reversal of moisture source are the dominant climatological factors, and altitude as the dominant physiographic factor modifying the isotopic composition of precipitation in the region. Although there are many but discrete moisture sources associated with the precipitation brought by WDs and ISM including long range transport and local recycled moisture, the Arabian Sea provides a significant contribution for both systems. Monthly negative vertical wind velocity and less Outgoing Long Radiation (>240 W/m(2)) indicated significant convection processes throughout the year. HYSPLIT modelling and Isotope-enabled Bayesian results suggested that the long range transportation of advected moisture is dominant (53 +/- 11 %) and increases with increase in altitude. The contribution from transpiration is 29 % (+/- 7). It was also observed that out of local moisture, transpiration contributes significantly to lower altitude precipitation stations (<2000 m, asl) in summer. The study highlighted the significance of various moisture sources in shaping the hydrological regimes of the western Himalaya and highlights the role of environmental tracers to assess the hydrodynamics of the region.

Accession Number: WOS:001544008900003

Language: English

Document Type: Article

Author Keywords: Bayesian; Himalaya; Precipitation; Physiography; Recycled moisture; Stable isotopes

KeyWords Plus: STABLE-ISOTOPE COMPOSITION; FLUX CONVERGENCE; DELTA-D; DEUTERIUM; MONSOON; DISTURBANCES; REANALYSIS; WATERS; O-18

Addresses: [Jeelani, Gh.; Lone, Suhail A.; Lone, Altaf] Univ Kashmir, Dept Earth Sci, Srinagar 190006, India.
[Deshpande, R. D.] Phys Res Lab, Geosci Div, Ahmadabad 380009, India.
[Sharma, Akanksha; Dimri, A. P.] Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi 110067, India.

Corresponding Address: Jeelani, G (corresponding author), Univ Kashmir, Dept Earth Sci, Srinagar 190006, India.

E-mail Addresses: geojeelani@gmail.com

Affiliations: University of Kashmir; Department of Space (DoS), Government of India; Physical Research Laboratory - India; Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Lone, Altaf	NUP-5346-2025	0000-0001-8556-7388
Deshpande, Rajendrakumar	Q-5799-2019	
Lone, Suhail	AAP-5286-2021	

Publisher: ELSEVIER

Publisher Address: RADARWEG 29, 1043 NX AMSTERDAM, NETHERLANDS

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Engineering, Civil; Geosciences, Multidisciplinary; Water Resources

Research Areas: Engineering; Geology; Water Resources

IDS Number: 5TO6R

ISSN: 0022-1694

eISSN: 1879-2707

29-char Source Abbrev.: J HYDROL

ISO Source Abbrev.: J. Hydrol.

Source Item Page Count: 15

Funding:

Funding Agency	Grant Number
Ministry of Earth Sciences (GoI)	MoES/PAMC/H C/92/2016-PCII

This research received financial support from the Ministry of Earth Sciences (GoI) under the research project numbers MoES/PAMC/H & C/92/2016-PCII. The authors express their gratitude to the National Oceanic and Atmospheric Administration (NOAA) Air Resource Laboratory (ARL) for providing free access to the NCEP/NCAR Reanalysis data and the HYSPLIT model employed in this study. The meteorological data from IMD-Srinagar is also acknowledged. Authors highly appre-ciate the valuable comments and suggestions from reviewers that enhanced the quality of the manuscript.

Output Date: 2025-12-31

Record 33 of 47

Title: Metabolic and Structural Insights of Cerebellar Dysfunction in Spinocerebellar Ataxia Type 12

Author(s): Pankaj, P (Pankaj, Pankaj); Kumaran, SS (Kumaran, S. Senthil); Srivastava, AK (Srivastava, Achal Kumar); Kumar, M (Kumar, Mukesh); Chaudhari, S (Chaudhari, Shefali); Agarwal, RK (Agarwal, Ramesh Kumar); Nehra, A (Nehra, Ashima); Garg, A (Garg, Ajay); Rajan, R (Rajan, Roopa); Pandey, RM (Pandey, Ravindra Mohan); Joshi, D (Joshi, Deepak)

Source: MAGNETIC RESONANCE IN CHEMISTRY **DOI:** 10.1002/mrc.70059 **Early Access Date:** DEC 2025 **Published Date:** 2025 DEC 1

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Agarwal A, 2021, PARKINSONISM RELAT D, V85, P52, DOI 10.1016/j.parkreldis.2021.03.010
Agrawal Snigdha, 2024, International Journal of Information Technology, P91, DOI [10.1007/s41870-023-01579-y, 10.1007/s41870-023-01579-y]
Agrawal S, 2024, CEREB CORTEX, V34, DOI 10.1093/cercor/bhae132
Agrawal Snigdha, 2022, Stud Health Technol Inform, V290, P670, DOI 10.3233/SHTI220162

Bahl S, 2005, ANN HUM GENET, V69, P528, DOI 10.1046/j.1529-8817.2005.00173.x
Buckner RL, 2013, NEURON, V80, P807, DOI 10.1016/j.neuron.2013.10.044
Bürk K, 2007, CEREBELLUM, V6, P280, DOI 10.1080/14734220601115924
Chen Hung-Chieh, 2014, Cerebellum Ataxias, V1, P17, DOI 10.1186/s40673-014-0017-4
Constanzo J, 2018, MAGN RESON MED, V80, P1614, DOI 10.1002/mrm.27112
Dale AM, 1999, NEUROIMAGE, V9, P179, DOI 10.1006/nimg.1998.0395
Deelchand DK, 2019, MOV DISORD CLIN PRAC, V6, P549, DOI 10.1002/mdc3.12804
Della Nave R, 2008, MOVEMENT DISORD, V23, P900, DOI 10.1002/mds.21982
Diedrichsen J, 2006, NEUROIMAGE, V33, P127, DOI 10.1016/j.neuroimage.2006.05.056
Ferreira M, 2024, CEREBELLUM, V23, P1521, DOI 10.1007/s12311-024-01659-0
Ganaraja VH, 2022, TREMOR OTHER HYPERK, V12, DOI 10.5334/tohm.686
Glasser MF, 2013, NEUROIMAGE, V80, P105, DOI 10.1016/j.neuroimage.2013.04.127
Goel G, 2011, PARKINSONISM RELAT D, V17, P521, DOI 10.1016/j.parkreldis.2011.04.008
Good C. D., 2002, A Voxel-Based Morphometric Study of Ageing in 465 Normal Adult Human Brains, DOI [10.1109/SSBI.2002.1233974, DOI 10.1109/SSBI.2002.1233974]
Greene DJ, 2018, NEUROIMAGE, V171, P234, DOI 10.1016/j.neuroimage.2018.01.023
Han S, 2020, NEUROIMAGE, V218, DOI 10.1016/j.neuroimage.2020.116819
Hara Daisuke, 2016, Cerebellum Ataxias, V3, P14, DOI [10.1186/s40673-016-0052-4, 10.1186/s40673-016-0052-4]
Harno H, 2005, NEUROLOGY, V64, P542, DOI 10.1212/01.WNL.0000150589.26350.3D
Hernandez-Castillo CR, 2018, NEUROIMAGE-CLIN, V20, P931, DOI 10.1016/j.nicl.2018.09.026
Holmes SE, 1999, NAT GENET, V23, P391, DOI 10.1038/70493
Holmes SE, 2003, CYTOGENET GENOME RES, V100, P189, DOI 10.1159/000072854
Holmes SE, 2001, BRAIN RES BULL, V56, P397, DOI 10.1016/S0361-9230(01)00596-2
HOWARD RS, 1993, J NEUROL NEUROSUR PS, V56, P977, DOI 10.1136/jnnp.56.9.977
Hu JP, 2022, BRAIN IMAGING BEHAV, V16, P379, DOI 10.1007/s11682-021-00511-x
Iltis I, 2010, BRAIN RES, V1358, P200, DOI 10.1016/j.brainres.2010.08.030
Izawa J, 2012, J NEUROSCI, V32, P4230, DOI 10.1523/JNEUROSCI.6353-11.2012
Jao CW, 2019, BRAIN SCI, V9, DOI 10.3390/brainsci9120354
Jenkinson M, 2012, NEUROIMAGE, V62, P782, DOI 10.1016/j.neuroimage.2011.09.015
Krahe J, 2020, NEUROSCI BIOBEHAV R, V108, P854, DOI 10.1016/j.neubiorev.2019.12.019
KREIS R, 1993, J MAGN RESON SER B, V102, P9, DOI 10.1006/jmrb.1993.1056
Le Bihan D., 2001, Concepts and Applications, V546, P534
Lei YM, 2021, SCI REP-UK, V11, DOI 10.1038/s41598-020-77543-8
Li Haitao, 2014, Med Sci Monit, V20, P1783, DOI 10.12659/MSM.891104
Lin AD, 2021, NMR BIOMED, V34, DOI 10.1002/nbm.4484
Lirng JF, 2012, PLOS ONE, V7, DOI 10.1371/journal.pone.0047925
Mandelli ML, 2007, AM J NEURORADIOL, V28, P1996, DOI 10.3174/ajnr.A0716
Manto MU, 2005, CEREBELLUM, V4, P2, DOI 10.1080/14734220510007914
Matilla-Dueñas A, 2012, ADV EXP MED BIOL, V724, P351, DOI 10.1007/978-1-4614-0653-2_27
MILLER BL, 1991, NMR BIOMED, V4, P47, DOI 10.1002/nbm.1940040203
Miranda CO, 2022, ACTA NEUROPATHOL COM, V10, DOI 10.1186/s40478-022-01329-4
O'Hearn Elizabeth, 2012, Handb Clin Neurol, V103, P535, DOI 10.1016/B978-0-444-51892-7.00034-6
Öz G, 2011, CEREBELLUM, V10, P208, DOI 10.1007/s12311-010-0213-6
Öz G, 2021, NMR BIOMED, V34, DOI 10.1002/nbm.4236
Öz G, 2010, MOVEMENT DISORD, V25, P1253, DOI 10.1002/mds.23067
Öz G, 2010, J NEUROSCI, V30, P3831, DOI 10.1523/JNEUROSCI.5612-09.2010
Paulson HL, 2017, NAT REV NEUROSCI, V18, P613, DOI 10.1038/nrn.2017.92
Paulson HL, 2009, J NEURO-OPHTHALMOL, V29, P227, DOI 10.1097/WNO0b013e3181b416de
Pettersson A, 2018, BMC FAM PRACT, V19, DOI 10.1186/s12875-017-0674-5
Provencher SW, 2001, NMR BIOMED, V14, P260, DOI 10.1002/nbm.698
Qin YY, 2013, NEUROIMAGE-CLIN, V3, P202, DOI 10.1016/j.nicl.2013.08.006
Rabellino D, 2018, HUM BRAIN MAPP, V39, P3354, DOI 10.1002/hbm.24081
Siciliano L, 2023, J NEUROL, V270, P5071, DOI 10.1007/s00415-023-11855-3

Srivastava AK, 2017, BRAIN, V140, P27, DOI 10.1093/brain/aww269
Srivastava AK, 2001, ANN NEUROL, V50, P796, DOI 10.1002/ana.10048
Stoodley CJ, 2012, CEREBELLUM, V11, P352, DOI 10.1007/s12311-011-0260-7
Storey E, 2004, MOVEMENT DISORD, V19, P190, DOI 10.1002/mds.10657
Sullivan R, 2019, J NEUROL, V266, P533, DOI 10.1007/s00415-018-9076-4
Tal A, 2012, NMR BIOMED, V25, P1392, DOI 10.1002/nbm.2812
Tamuli D, 2021, NEUROL INDIA, V69, P1318, DOI 10.4103/0028-3886.329596
Tournier JD, 2019, NEUROIMAGE, V202, DOI 10.1016/j.neuroimage.2019.116137
TSAI GC, 1995, PROG NEUROBIOL, V46, P531, DOI 10.1016/0301-0082(95)00014-M
van Prooije T, 2021, PARKINSONISM RELAT D, V92, P112, DOI 10.1016/j.parkreldis.2021.10.023
Veale JF, 2014, LATERALITY, V19, P164, DOI 10.1080/1357650X.2013.783045
Wang PS, 2007, J NEUROL, V254, P838, DOI 10.1007/s00415-006-0383-9
Yang Z., 2016, Landmark Based Shape Analysis for Cerebellar Ataxia Classification and Cerebellar Atrophy Pattern Visualization, V9784, DOI [10.1117/12.2217313, DOI 10.1117/12.2217313]
Yang Z, 2014, LECT NOTES COMPUT SC, V8679, P68, DOI 10.1007/978-3-319-10581-9_9
Yoo YJ, 2017, PARKINSONISM RELAT D, V36, P109, DOI 10.1016/j.parkreldis.2016.12.031

Cited Reference Count: 71

Abstract: Spinocerebellar ataxia 12 (SCA12) is a progressive degenerative neurological disorder, primarily characterized by impaired coordination and balance. To investigate the correlation between proton (1H) magnetic resonance spectroscopy (MRS) and structural imaging indices in patients with SCA12. T1-weighted MRI, DTI, and single voxel MRS point resolved spectroscopy (PRESS) in the left hemispheric cerebellum were acquired using a 3-T MR scanner in 40 SCA12 patients and 25 healthy controls. Correlations between metabolites, gray and white matter volume of lobules, fractional anisotropy (FA), and clinical, nonclinical, and genetic data were examined. Three machine learning algorithms (KNN, LDA, and SVM) were used to analyze the metabolic feature differences between SCA12 and HC groups. Significant decreases in choline (Cho [GPC (glycerophosphocholine) + PCh (phosphocholine)]) and N-acetyl aspartate (NAA) levels, along with increases in myo-inositol ratios to creatine, FA, and white matter volume values ($p < 0.05$), were observed in the cerebellum of the SCA12 group compared to healthy controls. Positive correlations were observed between NAA levels and cerebellar lobule volume, the SPM IQ score with the right crus II in the SCA12 group. The International Cooperative Ataxia Rating Scale (ICARS) score showed a negative correlation with white matter and specific cerebellar lobules. Disease duration and cytosine, adenine, and guanine (CAG) repeat length were negatively correlated with right lobule VIIIB, lobule IX, and left lobule X. Machine learning algorithms achieved an accuracy of over 95% in MRS data, and 88.89% in volumetric data. MRS, VBM, and DTI techniques reveal neuronal degeneration in SCA12 compared to healthy individuals.

Accession Number: WOS:001628487200001

PubMed ID: 41326055

Language: English

Document Type: Article; Early Access

Author Keywords: cerebellum; diffusion tensor imaging; fractional anisotropy; machine learning; magnetic resonance spectroscopy; spinocerebellar ataxia

KeyWords Plus: BRAIN; SCA12; SEGMENTATION; SPECTROSCOPY; QUANTITATION; CREATINE; ATLAS; GRAY

Addresses: [Pankaj, Pankaj; Kumaran, S. Senthil; Kumar, Mukesh; Chaudhari, Shefali] All India Inst Med Sci, Dept NMR, New Delhi, India.
[Srivastava, Achal Kumar; Rajan, Roopa] All India Inst Med Sci, Dept Neurol, New Delhi, India.
[Agarwal, Ramesh Kumar] Jawaharlal Nehru Univ, Sch Comp & Syst Sci, New Delhi, India.
[Nehra, Ashima] All India Inst Med Sci, Cardiothorac & Neurosci Ctr, Clin Neuropsychol, New Delhi, India.
[Garg, Ajay] All India Inst Med Sci, Dept Neuroimaging & Intervent Neuroradiol, New Delhi, India.
[Pandey, Ravindra Mohan] All India Inst Med Sci, Dept Biostat, New Delhi, India.
[Joshi, Deepak] Indian Inst Technol Delhi, Ctr Biomed Engn, New Delhi, India.

Corresponding Address: Kumaran, SS (corresponding author), All India Inst Med Sci, Dept NMR, New Delhi, India.

E-mail Addresses: senthil@aiims.edu

Affiliations: All India Institute of Medical Sciences (AIIMS) New Delhi; All India Institute of Medical Sciences (AIIMS) New Delhi; Jawaharlal Nehru University, New Delhi; All India Institute of Medical Sciences (AIIMS) New Delhi; All India Institute of Medical Sciences (AIIMS) New Delhi; All India Institute of Medical Sciences (AIIMS) New Delhi; Indian Institute of Technology System (IIT System); Indian Institute of Technology (IIT) - Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
SELVARAJ, SENTHIL KUMARAN	C-8332-2012	
Srivastava, Achal	O-4099-2017	
Pankaj, Priya	JTT-8953-2023	

Publisher: WILEY

Publisher Address: 111 RIVER ST, HOBOKEN 07030-5774, NJ USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Multidisciplinary; Chemistry, Physical; Spectroscopy

Research Areas: Chemistry; Spectroscopy

IDS Number: K3699

ISSN: 0749-1581

eISSN: 1097-458X

29-char Source Abbrev.: MAGN RESON CHEM

ISO Source Abbrev.: Magn. Reson. Chem.

Source Item Page Count: 14

Funding:

Funding Agency	Grant Number
Science and Engineering Research Board	EMR/2017/002294
Department of Health and Research, India	R.110013/68/2021-GIA/HR

We thank the participants in this study, the members of the Ataxia Clinic Group, AIIMS, New Delhi for studies of cerebellar ataxias and for referring participants to our study.

Open Access: Bronze

Output Date: 2025-12-31

Record 34 of 47

Title: Lysine Matters: Genetic and Biotechnological Innovations to Combat Protein Malnutrition

Author(s): Singh, V (Singh, Varinder); Mishra, M (Mishra, Manjari); Singla-Pareek, SL (Singla-Pareek, Sneh Lata); Roy, JK (Roy, Joy K.); Pareek, A (Pareek, Ashwani)

Source: PLANT CELL AND ENVIRONMENT **DOI:** 10.1111/pce.70316 **Early Access Date:** DEC 2025 **Published Date:** 2025 DEC 4

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 1

Usage Count (Since 2013): 1

Cited References: Angelovici R, 2011, NEW PHYTOL, V189, P148, DOI 10.1111/j.1469-8137.2010.03478.x
Angelovici R, 2009, PLANT PHYSIOL, V151, P2058, DOI 10.1104/pp.109.145631
Atkinson SC, 2013, PLANT MOL BIOL, V81, P431, DOI 10.1007/s11103-013-0014-7
Azevedo R. A., 1997, Plant Signaling Behavior, V6, P192, DOI [10.4161/psb.6.2.14425, DOI 10.4161/PSB.6.2.14425]

Babu BK, 2012, PLANT BREEDING, V131, P20, DOI 10.1111/j.1439-0523.2011.01919.x
Batista-Silva W, 2019, PLANT CELL ENVIRON, V42, P1630, DOI 10.1111/pce.13518
Becker J, 2018, CURR OPIN MICROBIOL, V45, P180, DOI 10.1016/j.mib.2018.06.001
Bhatta BP, 2020, PLANTS-BASEL, V9, DOI 10.3390/plants9101360
Chand G, 2024, EUPHYTICA, V220, DOI 10.1007/s10681-024-03414-2
Chand G, 2022, J FOOD COMPOS ANAL, V107, DOI 10.1016/j.jfca.2021.104376
Chandran S, 2019, FRONT GENET, V10, DOI 10.3389/fgene.2019.00859
Chandrasekharan N, 2022, SCI REP-UK, V12, DOI 10.1038/s41598-022-11585-y
Chang YJ, 2015, PLOS ONE, V10, DOI 10.1371/journal.pone.0142952
Choi J, 2019, FRONT PLANT SCI, V10, DOI 10.3389/fpls.2019.01092
Clark TJ, 2015, PLANT PHYSIOL, V168, P1512, DOI 10.1104/pp.15.00364
Craciun A, 2000, FEBS LETT, V487, P234, DOI 10.1016/S0014-5793(00)02303-6
Crossa J, 2017, TRENDS PLANT SCI, V22, P961, DOI 10.1016/j.tplants.2017.08.011
Cui XC, 2025, BIOTECHNOL ADV, V82, DOI 10.1016/j.biotechadv.2025.108603
Curien G, 2008, PLANT PHYSIOL BIOCH, V46, P325, DOI 10.1016/j.plaphy.2007.12.006
Curien G, 2009, MOL SYST BIOL, V5, DOI 10.1038/msb.2009.29
Das HK, 2024, J PLANT BIOCHEM BIOT, V33, P103, DOI 10.1007/s13562-024-00881-5
Le DT, 2016, CURR GENOMICS, V17, P220, DOI 10.2174/1389202917666160202215934
Duo H, 2023, CEREAL CHEM, V100, P1336, DOI 10.1002/cche.10716
Entine J, 2021, TRANSGENIC RES, V30, P551, DOI 10.1007/s11248-021-00257-8
FALCO SC, 1995, BIO-TECHNOL, V13, P577, DOI 10.1038/nbt0695-577
Fan ZQ, 2022, BIOPROC BIOSYST ENG, V45, P541, DOI 10.1007/s00449-021-02677-6
Fao, 2019, United Nations Decade of Family Farming 2019-2028-Global Action Plan
Foissner I, 2000, PLANT J, V23, P817, DOI 10.1046/j.1365-313X.2000.00835.x
Fondi M, 2007, BMC EVOL BIOL, V7, DOI 10.1186/1471-2148-7-S2-S3
Frizzi A, 2008, PLANT BIOTECHNOL J, V6, P13, DOI 10.1111/j.1467-7652.2007.00290.x
Galili G, 2002, ANNU REV PLANT BIOL, V53, P27, DOI 10.1146/annurev.arplant.53.091401.110929
Galili G, 2001, CURR OPIN PLANT BIOL, V4, P261, DOI 10.1016/S1369-5266(00)00170-9
Galili G, 2013, PLANT BIOTECHNOL J, V11, P211, DOI 10.1111/pbi.12025
Garg M, 2018, FRONT NUTR, V5, DOI 10.3389/fnut.2018.00012
Geng F, 2013, APPL MICROBIOL BIOT, V97, P1963, DOI 10.1007/s00253-012-4062-8
Griffin MDW, 2012, PLOS ONE, V7, DOI 10.1371/journal.pone.0040318
Gruca M. A., 2018, Essential Amino Acid. The International Encyclopedia of Biological Anthropology, P1, DOI [10.1002/9781118584538.ieba0162, DOI 10.1002/9781118584538.IEBA0162]
Gunarathne R, 2025, J ADV RES, V70, P571, DOI 10.1016/j.jare.2024.05.014
Guo N, 2020, PLANT J, V103, P395, DOI 10.1111/tpj.14742
Hacham Y, 2008, PLANT J, V54, P260, DOI 10.1111/j.1365-313X.2008.03415.x
Hall CJ, 2021, FEBS J, V288, P4973, DOI 10.1111/febs.15766
Hasan MM, 2024, CURR PLANT BIOL, V39, DOI 10.1016/j.cpb.2024.100355
Hasan MM, 2018, PLOS ONE, V13, DOI 10.1371/journal.pone.0200283
He LQ, 2024, INT J MOL SCI, V25, DOI 10.3390/ijms25094667
Holecek M, 2025, INT J MOL SCI, V26, DOI 10.3390/ijms26188791
Hournard NM, 2007, PLANT BIOTECHNOL J, V5, P605, DOI 10.1111/j.1467-7652.2007.00265.x
Huang A, 2022, TRANSGENIC RES, V31, P131, DOI 10.1007/s11248-021-00291-6
Huang JW, 2021, FRONT MICROBIOL, V12, DOI 10.3389/fmicb.2021.718511
Huang S, 2006, PLANT MOL BIOL, V61, P525, DOI 10.1007/s11103-006-0027-6
Huang SS, 2005, PLANT BIOTECHNOL J, V3, P555, DOI 10.1111/j.1467-7652.2005.00146.x
Huang W, 2024, HORTIC PLANT J, V10, P273, DOI 10.1016/j.hpj.2023.01.009
Hurst JP, 2024, PLANT BIOTECHNOL J, V22, P946, DOI 10.1111/pbi.14237
Isogai S, 2024, APPL ENVIRON MICROB, V90, DOI 10.1128/aem.00155-24
Isogai S, 2021, APPL MICROBIOL BIOT, V105, P6899, DOI 10.1007/s00253-021-11519-0
Jangra A., 2024, Harnessing Crop Biofortification for Sustainable Agriculture, DOI [10.1007/978-981-97-3438-2_4, DOI 10.1007/978-981-97-3438-2_4]
Jia M, 2013, BMC PLANT BIOL, V13, DOI 10.1186/1471-2229-13-60

Jiang SY, 2016, SCI REP-UK, V6, DOI 10.1038/srep34427
Jones-Held S, 2012, FUNCT PLANT BIOL, V39, P1058, DOI 10.1071/FP12169
KARCHI H, 1994, P NATL ACAD SCI USA, V91, P2577, DOI 10.1073/pnas.91.7.2577
Kawakatsu T, 2010, PLANT CELL PHYSIOL, V51, P1964, DOI 10.1093/pcp/pcq164
Kawakatsu T, 2010, PLANT PHYSIOL, V154, P1842, DOI 10.1104/pp.110.164343
Khoury CK, 2022, NEW PHYTOL, V233, P84, DOI 10.1111/nph.17733
Kiekens R, 2022, PLANTS-BASEL, V11, DOI 10.3390/plants11131762
Kishor PBK, 2020, FRONT PLANT SCI, V11, DOI 10.3389/fpls.2020.546213
Kocsisova Z, 2023, FRONT GENOME EDIT, V5, DOI 10.3389/fgeed.2023.1209586
Kotaka M, 2006, J BIOL CHEM, V281, P31544, DOI 10.1074/jbc.M605886200
Ku HK, 2020, FRONT PLANT SCI, V11, DOI 10.3389/fpls.2020.577313
Kumamaru T, 1997, PLANT BREEDING, V116, P245, DOI 10.1111/j.1439-0523.1997.tb00990.x
Kumar D, 2022, FRONT GENET, V13, DOI 10.3389/fgene.2022.932859
Lee Ji-Yun, 2021, Plant Breeding and Biotechnology, V9, P199, DOI [10.9787/pbb.2021.9.3.199, 10.9787/PBB.2021.9.3.199]
Leinonen I, 2019, FRONT SUSTAIN FOOD S, V3, DOI 10.3389/fsufs.2019.00027
Li AX, 2018, PLANT PHYSIOL, V177, P1425, DOI 10.1104/pp.18.00200
Li CB, 2018, PLANT CELL, V30, P2402, DOI 10.1105/tpc.18.00422
Li N, 2020, MICROB CELL FACT, V19, DOI 10.1186/s12934-020-01376-3
Li XY, 2024, FOOD ENERGY SECUR, V13, DOI 10.1002/fes3.506
Liu WL, 2024, MOL CATAL, V569, DOI 10.1016/j.mcat.2024.114652
Liu XT, 2021, RSC ADV, V11, P30, DOI 10.1039/d0ra09153g
Liu X, 2016, BMC PLANT BIOL, V16, DOI 10.1186/s12870-016-0837-x
Long XH, 2013, PLANT BIOTECHNOL J, V11, P490, DOI 10.1111/pbi.12037
Lowe NM, 2021, P NUTR SOC, V80, P283, DOI 10.1017/S0029665121000902
Maqbool MA, 2021, PLANT BREEDING, V140, P375, DOI 10.1111/pbr.12923
Massafaro M, 2016, CROP SCI, V56, P2647, DOI 10.2135/cropsci2016.03.0188
Medici LO, 2009, SCI AGR, V66, P204, DOI 10.1590/S0103-90162009000200009
MERTZ ET, 1964, SCIENCE, V145, P279, DOI 10.1126/science.145.3629.279
Mishra M, 2022, FOOD ENERGY SECUR, V11, DOI 10.1002/fes3.343
Moehs CP, 2019, PLANT PHYSIOL, V179, P1692, DOI 10.1104/pp.18.00771
Muleya M, 2022, NUTRIENTS, V14, DOI 10.3390/nu14122430
Muscroft-Taylor AC, 2010, ARCH BIOCHEM BIOPHYS, V503, P202, DOI 10.1016/j.abb.2010.08.009
NELSON OE, 1965, SCIENCE, V150, P1469, DOI 10.1126/science.150.3702.1469
Neves TG, 2024, THEOR EXP PLANT PHYS, V37, DOI 10.1007/s40626-024-00355-y
Oddy J, 2023, PLANT GENOME-US, V16, DOI 10.1002/tpg2.20335
Pukalenthy B, 2020, PHYSIOL MOL BIOL PLA, V26, P1925, DOI 10.1007/s12298-020-00857-4
Rabby MG, 2022, GENET RES, V2022, DOI 10.1155/2022/2673748
Rastogi K, 2025, CURR PLANT BIOL, V42, DOI 10.1016/j.cpb.2025.100490
Rathore RS, 2024, J EXP BOT, V76, P1408, DOI 10.1093/jxb/erae414
Reyes AR, 2009, PLANT MOL BIOL, V69, P81, DOI 10.1007/s11103-008-9409-2
Rharrabti Y, 2001, J AGR FOOD CHEM, V49, P3802, DOI 10.1021/jf001139w
Sarika K, 2018, PLANT SCI, V272, P142, DOI 10.1016/j.plantsci.2018.04.014
Shi CH, 2009, CROP PASTURE SCI, V60, P295, DOI 10.1071/CP08234
Singer WM, 2023, PLANT GENOME-US, V16, DOI 10.1002/tpg2.20415
Song GP, 2023, FRONT PLANT SCI, V14, DOI 10.3389/fpls.2023.1141232
St John PC, 2019, FRONT MICROBIOL, V10, DOI 10.3389/fmicb.2019.00597
Stepansky A, 2003, PLANT PHYSIOL, V133, P1407, DOI 10.1104/pp.103.026294
Svennerstam H, 2007, PLANT PHYSIOL, V143, P1853, DOI 10.1104/pp.106.092205
Szymczyk P, 2024, APPL SCI-BASEL, V14, DOI 10.3390/app14114877
Talukder ZA, 2023, J FOOD COMPOS ANAL, V121, DOI 10.1016/j.jfca.2023.105392
Tandzi LN, 2017, AGRONOMY-BASEL, V7, DOI 10.3390/agronomy7040080
Tegeder M, 2014, J EXP BOT, V65, P1865, DOI 10.1093/jxb/eru012
Tegeder M, 2012, FRONT PLANT SCI, V3, DOI 10.3389/fpls.2012.00021

Ufaz S, 2008, PLANT PHYSIOL, V147, P954, DOI 10.1104/pp.108.118091
Varisi VA, 2008, PLANT PHYSIOL BIOCH, V46, P11, DOI 10.1016/j.plaphy.2007.10.001
Vasal S. K., 2000, Food and Nutrition Bulletin, V21, P445
Wang MZ, 2013, INT J MOL SCI, V14, P9459, DOI 10.3390/ijms14059459
Wang WY, 2016, J EXP BOT, V67, P4009, DOI 10.1093/jxb/erw254
Wang XH, 2019, BMC PLANT BIOL, V19, DOI 10.1186/s12870-019-1885-9
Watson A, 2018, NAT PLANTS, V4, P23, DOI 10.1038/s41477-017-0083-8
Weaver CA, 1998, CEREAL CHEM, V75, P665, DOI 10.1094/CCHEM.1998.75.5.665
Wenefrida I, 2013, J AGR FOOD CHEM, V61, P11702, DOI 10.1021/jf4016812
Wong HW, 2015, PLANT MOL BIOL, V87, P235, DOI 10.1007/s11103-014-0272-z
Wu PZ, 2024, BREEDING SCI, V74, P311, DOI 10.1270/jsbbs.23051
Wu Z, 2019, P NATL ACAD SCI USA, V116, P8852, DOI 10.1073/pnas.1901979116
Xia LC, 2022, PLANT COMMUN, V3, DOI 10.1016/j.xplc.2021.100266
Xu M, 2017, IRAN J BIOTECHNOL, V15, P102, DOI 10.15171/ijb.1527
Yang KK, 2019, NAT METHODS, V16, P687, DOI 10.1038/s41592-019-0496-6
Yang QQ, 2021, PLANT BIOTECHNOL J, V19, P490, DOI 10.1111/pbi.13478
Yang QQ, 2018, PLANT PHYSIOL, V176, P1965, DOI 10.1104/pp.17.01283
Yang QQ, 2016, J EXP BOT, V67, P4285, DOI 10.1093/jxb/erw209
Yang QQ, 2022, J EXP BOT, V73, P1258, DOI 10.1093/jxb/erab482
Yang QQ, 2020, FRONT PLANT SCI, V11, DOI 10.3389/fpls.2020.00928
Yang QS, 2025, AMINO ACIDS, V57, DOI 10.1007/s00726-024-03432-3
Ye Y, 2022, INT J MOL SCI, V23, DOI 10.3390/ijms232012166
Yu JJ, 2004, MOL BREEDING, V14, P1, DOI 10.1023/B:MOLB.0000037990.23718.d6
Yue J, 2014, INT J MOL SCI, V15, P5350, DOI 10.3390/ijms15045350
Zeng PL, 2013, ASIAN AUSTRAL J ANIM, V26, P1003, DOI 10.5713/ajas.2012.12555
Zhang Q, 2018, PLANT MOL BIOL, V96, P445, DOI 10.1007/s11103-018-0709-x
Zhang XL, 2024, BMC GENOMICS, V25, DOI 10.1186/s12864-024-10754-9
Zheng SJ, 2022, NAT COMMUN, V13, DOI 10.1038/s41467-022-30970-9
Zhu XH, 2004, PLANT PHYSIOL, V135, P129, DOI 10.1104/pp.103.037168

Cited Reference Count: 138

Abstract: Lysine deficiency in staple crops like maize, rice, and wheat remains a major cause for global protein malnutrition, underscoring the urgent need for effective biofortification strategies. This review critically examines recent advances in enhancing lysine content, spanning conventional breeding and metabolic engineering to cutting-edge precision genome editing. While conventional breeding, exemplified by Quality Protein Maize, has improved lysine levels, it is often constrained by yield and quality trade-offs. Metabolic engineering strategies, including overexpression of lysine biosynthetic genes, suppression of catabolic genes, and modification of storage proteins, have achieved substantial lysine enrichment but face regulatory and consumer acceptance challenges due to their transgenic nature. The advent of CRISPR/Cas technology now enables precise, transgene-free editing of key enzymes such as DHDPS, AK, and LKR/SDH offering a powerful alternative, though concerns regarding off-target effects and pleiotropy remain. While integrating multi-omics with AI-driven predictive modelling can optimise metabolic flux for higher lysine yield, coupling next-generation genome editing with speed breeding offers a transformative route to develop high-lysine, high-yielding crops for sustainable nutritional security.

Accession Number: WOS:001630899900001

PubMed ID: 41346247

Language: English

Document Type: Review; Early Access

Author Keywords: abiotic stresses; essential amino acids; gene editing; lysine biofortification; malnutrition; metabolic engineering; plant breeding

KeyWords Plus: IMPROVED NUTRITIVE QUALITY; SEED-SPECIFIC EXPRESSION; ESSENTIAL AMINO-ACIDS; ASPARTATE-KINASE; DIHYDRODIPICOLINATE SYNTHASE; SIGNIFICANTLY INCREASES; TRANSGENIC MAIZE; MUTANT-GENE; RICE; CATABOLISM

Addresses: [Singh, Varinder; Roy, Joy K.; Pareek, Ashwani] Natl Agrifood & Biomfg Inst, Mohali, Punjab, India.
[Mishra, Manjari; Singla-Pareek, Sneh Lata] Int Ctr Genet Engn & Biotechnol, Plant Stress Biol, New Delhi, India.
[Pareek, Ashwani] Jawaharlal Nehru Univ, Sch Life Sci, Stress Physiol & Mol Biol Lab, New Delhi, India.

Corresponding Address: Pareek, A (corresponding author), Natl Agrifood & Biomfg Inst, Mohali, Punjab, India.
Pareek, A (corresponding author), Jawaharlal Nehru Univ, Sch Life Sci, Stress Physiol & Mol Biol Lab, New Delhi, India.

E-mail Addresses: ashwanip@mail.jnu.ac.in

Affiliations: Department of Biotechnology (DBT) India; International Center for Genetic Engineering & Biotechnology (ICGEB); International Center for Genetic Engineering & Biotechnology (ICGEB), New Delhi; Jawaharlal Nehru University, New Delhi

Publisher: WILEY

Publisher Address: 111 RIVER ST, HOBOKEN 07030-5774, NJ USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Plant Sciences

Research Areas: Plant Sciences

IDS Number: M7656

ISSN: 0140-7791

eISSN: 1365-3040

29-char Source Abbrev.: PLANT CELL ENVIRON

ISO Source Abbrev.: Plant Cell Environ.

Source Item Page Count: 21

Funding:

Funding Agency	Grant Number
Department of Biotechnology, Ministry of Science and Technology, India	

This study was supported by Department of Biotechnology, Ministry of Science and Technology, India.

Output Date: 2025-12-31

Record 35 of 47

Title: Changes in Precipitation Characteristics Across Different Indian Sub Regions

Author(s): Sharma, A (Sharma, A.); Maharana, P (Maharana, P.); Dimri, AP (Dimri, A. P.)

Source: METEOROLOGICAL APPLICATIONS **Volume:** 32 **Issue:** 6 **Article Number:** e70127 **DOI:** 10.1002/met.70127 **Published Date:** 2025 DEC 8

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Allan RP, 2008, SCIENCE, V321, P1481, DOI 10.1126/science.1160787
Asoka A, 2018, GEOPHYS RES LETT, V45, P5536, DOI 10.1029/2018GL078466
Asoka A, 2017, NAT GEOSCI, V10, P109, DOI [10.1038/NGEO2869, 10.1038/ngeo2869]
Athira K, 2023, CLIM DYNAM, V60, P2957, DOI 10.1007/s00382-022-06477-w
Bajrang C, 2023, NPJ CLIM ATMOS SCI, V6, DOI 10.1038/s41612-023-00450-y
Ballav S, 2021, THEOR APPL CLIMATOL, V146, P883, DOI 10.1007/s00704-021-03765-z
Batisani N, 2010, APPL GEOGR, V30, P483, DOI 10.1016/j.apgeog.2009.10.007
Byju P, 2024, INT J CLIMATOL, V44, P5266, DOI 10.1002/joc.8636

Chakraborty D, 2017, ENVIRON PROCESS, V4, P937, DOI 10.1007/s40710-017-0263-6
Chou C, 2013, NAT GEOSCI, V6, P263, DOI [10.1038/ngeo1744, 10.1038/NGEO1744]
Devi JP, 2023, THEOR APPL CLIMATOL, V151, P1051, DOI 10.1007/s00704-022-04320-0
Diffenbaugh NS, 2015, P NATL ACAD SCI USA, V112, P3931, DOI 10.1073/pnas.1422385112
ENGLEHART PJ, 1985, J CLIM APPL METEOROL, V24, P350, DOI 10.1175/1520-0450(1985)024<0350:ASAOPF>2.0.CO;2
Falga R, 2022, SCI REP-UK, V12, DOI 10.1038/s41598-022-16240-0
Gao P, 2011, HYDROL EARTH SYST SC, V15, P1, DOI 10.5194/hess-15-1-2011
Ghosh S, 2016, PLOS ONE, V11, DOI 10.1371/journal.pone.0158670
Goroshi S, 2017, J EARTH SYST SCI, V126, DOI 10.1007/s12040-017-0891-2
Goswami BN, 2006, SCIENCE, V314, P1442, DOI 10.1126/science.1132027
Hersbach H, 2020, Q J ROY METEOR SOC, V146, P1999, DOI 10.1002/qj.3803
Jaiswal RK, 2015, ENVIRON PROCESS, V2, P729, DOI 10.1007/s40710-015-0105-3
Jin QJ, 2018, SCI REP-UK, V8, DOI 10.1038/s41598-018-23055-5
Konwar M, 2012, GEOPHYS RES LETT, V39, DOI 10.1029/2012GL052018
Krishnan R, 2016, CLIM DYNAM, V47, P1007, DOI 10.1007/s00382-015-2886-5
Lairenjam C, 2017, GLOBAL NEST J, V19, P547, DOI 10.30955/gnj.002384
Maharana P, 2021, CLIM DYNAM, V57, P2581, DOI 10.1007/s00382-021-05823-8
Maharana P, 2014, J EARTH SYST SCI, V123, P1147, DOI 10.1007/s12040-014-0447-7
Maharana P, 2021, INT J CLIMATOL, V41, P2137, DOI 10.1002/joc.6951
Mini V. K., 2016, Vayu Mandal, V42, P30
Mukherjee S, 2018, WEATHER CLIM EXTREME, V20, P45, DOI 10.1016/j.wace.2018.03.005
Naidu CV, 2009, J GEOPHYS RES-ATMOS, V114, DOI 10.1029/2008JD011288
Norgate M, 2024, CLIM DYNAM, V62, P10445, DOI 10.1007/s00382-024-07389-7
Pai DS, 2014, MAUSAM, V65, P1
PARTHASARATHY B, 1994, THEOR APPL CLIMATOL, V49, P217, DOI 10.1007/BF00867461
Pettitt A. N., 1979, Applied Statistics, V28, P126, DOI 10.2307/2346729
Pfahl S, 2017, NAT CLIM CHANGE, V7, P423, DOI [10.1038/NCLIMATE3287, 10.1038/nclimate3287]
Preethi B, 2017, CLIM DYNAM, V48, P2489, DOI 10.1007/s00382-016-3218-0
Rajczak J, 2016, INT J CLIMATOL, V36, P1226, DOI 10.1002/joc.4417
Rajeevan M, 2008, GEOPHYS RES LETT, V35, DOI 10.1029/2008GL035143
Rajeevan MN, 2017, SPR GEOL, P1, DOI 10.1007/978-981-10-2531-0
Rajesh PV, 2023, EARTHS FUTURE, V11, DOI 10.1029/2022EF003459
Ray K., 2013, Analysis of Increasing Heavy Rainfall Activity Over Western India, Particularly Gujarat State, in the Past Decade, DOI [10.1007/978-3-319-10217-7, DOI 10.1007/978-3-319-10217-7]
Rehana S, 2022, J EARTH SYST SCI, V131, DOI 10.1007/s12040-022-01911-3
Roxy MK, 2017, NAT COMMUN, V8, DOI 10.1038/s41467-017-00744-9
Roxy MK, 2015, NAT COMMUN, V6, DOI 10.1038/ncomms8423
Russo TA, 2017, NAT GEOSCI, V10, P105, DOI [10.1038/ngeo2883, 10.1038/NGEO2883]
Saini A, 2020, ATMOSPHERE-BASEL, V11, DOI 10.3390/atmos11111225
Samanta D., 2024, Vayumandal, V44, P15
SEN PK, 1968, J AM STAT ASSOC, V63, P1379
Shahi NK, 2021, CLIM DYNAM, V57, P1489, DOI 10.1007/s00382-021-05771-3
Sharma A, 2023, THEOR APPL CLIMATOL, V154, P737, DOI 10.1007/s00704-023-04667-y
Singh P, 2008, HYDROL PROCESS, V22, P2982, DOI 10.1002/hyp.6871
Theil H., 1950, P KONINKLIJKE NEDERL, P386, DOI [10.1007/978-94-011-2546-8_20, DOI 10.1007/978-94-011-2546-8_20]
Trenberth KE, 2003, B AM METEOROL SOC, V84, P1205, DOI 10.1175/BAMS-84-9-1205
Trenberth KE, 2011, CLIM RES, V47, P123, DOI 10.3354/cr00953
Verma A, 2023, MAUSAM, V74, P963, DOI 10.54302/mausam.v74i4.6198
Verstraeten G, 2006, J GEOPHYS RES-ATMOS, V111, DOI 10.1029/2006JD007169
Wang SJ, 2012, QUATERN INT, V282, P66, DOI 10.1016/j.quaint.2012.07.011
Wei WG, 2017, J HYDROMETEOROL, V18, P1071, DOI [10.1175/JHM-D-16-0141.1, 10.1175/jhm-d-16-0141.1]

Wijngaard JB, 2003, INT J CLIMATOL, V23, P679, DOI 10.1002/joc.906
Zahan Y, 2021, CLIMATIC CHANGE, V164, DOI 10.1007/s10584-021-02994-5
Zhang SR, 2009, CATENA, V77, P130, DOI 10.1016/j.catena.2008.09.001

Cited Reference Count: 61

Abstract: The Indian subcontinent shows significant spatial and temporal variability of precipitation. A small change in precipitation frequency and its distribution may affect agriculture and water resources and can lead to extreme events such as floods and droughts. In the present study changing precipitation characteristics over different meteorological Indian sub-regions are presented. Indian Meteorological Department (IMD) gridded precipitation and ECMWF Reanalysis 5th Generation (ERA5) reanalysis data during 1970-2020 are considered. Furthermore, the Theil-Sen slope test and Pettit's test are used for calculating the magnitude of trend and change point respectively for the number of precipitating days and associated precipitation over India and its sub-regions. Early arrival of the wettest day (day with maximum precipitation) is observed over northeast India and northern central northeast India, while the increase in the duration of the rainy season over northwest India is observed. Extension of higher precipitation to July-August-September-October is distinct over India except for the central northeast. Change point detection shows these changes occurred mostly after 1996. The decreasing precipitation trend across northeast and central northeast, while the increasing trend over northwest India reflects a westward strengthening of the monsoon precipitation. Additionally, greater moisture transport from the Arabian Sea and Bay of Bengal is detected in the recent period (1997-2020), which may be the reason for higher precipitation over northwest India. Overall, the results will aid in understanding how climate change affects the Indian summer monsoon, which will support policy making and adapting water management techniques.

Accession Number: WOS:001633027200001

Language: English

Document Type: Article

Author Keywords: change point; Indian sub-regions; precipitation; trend; wet days

KeyWords Plus: STATISTICAL-ANALYSIS; CLIMATE-CHANGE; RAINFALL; GROUNDWATER; TREND; TEMPERATURE; VARIABILITY; INCREASE; EVENTS

Addresses: [Sharma, A.; Dimri, A. P.] Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi, India.
[Maharana, P.] Delhi Univ, Delhi Coll Arts & Commerce, Dept Environm Studies, New Delhi, India.
[Dimri, A. P.] Indian Inst Geomagnetism, Mumbai, India.

Corresponding Address: Dimri, AP (corresponding author), Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi, India.
Dimri, AP (corresponding author), Indian Inst Geomagnetism, Mumbai, India.

E-mail Addresses: apdimri@hotmail.com

Affiliations: Jawaharlal Nehru University, New Delhi; University of Delhi; Department of Science & Technology (India); Indian Institute of Geomagnetism (IIG)

Publisher: WILEY

Publisher Address: 111 RIVER ST, HOBOKEN 07030-5774, NJ USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Meteorology & Atmospheric Sciences

Research Areas: Meteorology & Atmospheric Sciences

IDS Number: O8843

ISSN: 1350-4827

eISSN: 1469-8080

29-char Source Abbrev.: METEOROL APPL

ISO Source Abbrev.: Meteorol. Appl.

Source Item Page Count: 12

Funding:

Funding Agency	Grant Number
India Meteorological Department	

Authors are thankful to the India Meteorological Department for making the data freely available for research purposes.

Open Access: gold

Output Date: 2025-12-31

Record 36 of 47

Title: Advancing Sustainable Development Through Exports of Clean Energy Products From Emerging Asian Economies: A Poisson Pseudo Maximum Likelihood Estimation Approach

Author(s): Goswami, A (Goswami, Arvind); Jangir, RK (Jangir, Rajesh Kumar); Chattu, VK (Chattu, Vijay Kumar)

Source: SUSTAINABLE DEVELOPMENT **DOI:** 10.1002/sd.70520 **Early Access Date:** DEC 2025 **Published Date:** 2025 DEC 12

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Agan B, 2025, NAT RESOUR FORUM, V49, P1057, DOI 10.1111/1477-8947.12428
Ahmed Z, 2022, GONDWANA RES, V112, P105, DOI 10.1016/j.gr.2022.09.014
Al Shammre AS, 2024, ENERGIES, V17, DOI 10.3390/en17184663
Al Shammre AS, 2024, SUSTAINABILITY-BASEL, V16, DOI 10.3390/su16031324
Ali A, 2023, ENERG ENVIRON-UK, V34, P3529, DOI 10.1177/0958305X231151684
ANDERSON JE, 1979, AM ECON REV, V69, P106
[Anonymous], 2024, World Development Indicators
Asian Development Bank, 2023, QA: Meeting Asia and the Pacific's Growing Electricity Needs
Azeiteiro U., 2019, Higher Education and Sustainability: Opportunities and Challenges for Achieving Sustainable Development Goals
BALASSA B, 1965, MANCH SCH ECON SOC, V33, P99, DOI 10.1111/j.1467-9957.1965.tb00050.x
BALASSA B, 1977, MANCH SCH ECON SOC, V45, P327, DOI 10.1111/j.1467-9957.1977.tb00701.x
BALASSA B, 1986, REV ECON STAT, V68, P315, DOI 10.2307/1925512
Batra A., 2005, Revealed Comparative Advantage: An Analysis for India and China (No. 168)
Batra G, 2023, Social Science Chronicle, V2, DOI [10.56106/ssc.2023.009, DOI 10.56106/SSC.2023.009, 10.56106/ssc.2023.009]
BIKKER JA, 1987, KYKLOS, V40, P315
BROCKER J, 1989, PAP REG SCI ASSOC, V66, P7
Cantarero MMV, 2020, ENERGY RES SOC SCI, V70, DOI 10.1016/j.erss.2020.101716
Chand V., 2020, Environmental Concerns and Sustainable Development, P293, DOI [10.1007/978-981-13-5889-0_15, DOI 10.1007/978-981-13-5889-0_15]
Chen PP, 2022, NAT ENERGY, V7, P588, DOI 10.1038/s41560-022-01029-2
Chen WM, 2014, ENERG POLICY, V74, P319, DOI 10.1016/j.enpol.2014.08.019
Deardorff A., 1998, The Regionalization of the World Economy, P7, DOI DOI 10.7208/CHICAGO/9780226260228.003.0002
Delina LL, 2011, CLIM CHANG MANAG, P51, DOI 10.1007/978-3-642-14776-0_4
Dincer I, 2000, RENEW SUST ENERG REV, V4, P157, DOI 10.1016/S1364-0321(99)00011-8
Ding DK, 2022, SUSTAINABILITY-BASEL, V14, DOI 10.3390/su14020999
DOLLAR D, 1992, ECON DEV CULT CHANGE, V40, P523, DOI 10.1086/451959
Energy Institute, 2025, Statistical Review of World Energy
Findlay R., 1991, The World of Economics, P99, DOI DOI 10.1007/978-1-349-21315-3_14
Flavin TJ, 2002, MANCH SCH, V70, P87, DOI 10.1111/1467-9957.70.s1.5

Frimpong BA, 2025, INT J ENERGY SECT MA, V19, P477, DOI 10.1108/IJESM-05-2024-0005
Goswami A, 2023, SUSTAINABILITY-BASEL, V15, DOI 10.3390/su15119025
GOURIEROUX C, 1984, ECONOMETRICA, V52, P701, DOI 10.2307/1913472
Grosche T, 2007, J AIR TRANSP MANAG, V13, P175, DOI 10.1016/j.jairtraman.2007.02.001
GROSSMAN GM, 1991, EUR ECON REV, V35, P517, DOI 10.1016/0014-2921(91)90153-A
GROSSMAN GM, 1990, AM ECON REV, V80, P86
Hasheminejad M, 2024, Academia Green Energy, V1, DOI [10.20935/acadenergy7316, 10.20935/AcadEnergy7316, DOI 10.20935/ACADENERGY7316]
Hillerbrand R, 2018, SUSTAINABILITY-BASEL, V10, DOI 10.3390/su10072485
Hossin MA, 2024, SCI REP-UK, V14, DOI 10.1038/s41598-024-66800-9
Howitt P., 2018, The New Palgrave Dictionary of Economics, P3632, DOI [DOI 10.1057/978-1-349-95189-5_2545, DOI 10.1057/978-1-349-95189-5]
International Energy Agency, 2025, World Energy Investment 2025 10th Edition
Isard W, 1954, Q J ECON, V68, P305, DOI 10.2307/1884452
Jabbie M., 2021, Industry, Innovation and Infrastructure, P936, DOI [10.1007/978-3-319-95873-6_57, DOI 10.1007/978-3-319-95873-6_57]
Jaiswal A, 2022, FRONT ENERGY RES, V10, DOI 10.3389/fenrg.2022.966975
Karemera D., 1999, Journal of Economic Integration, P347
Khan SAR, 2020, J ENVIRON MANAGE, V272, DOI 10.1016/j.jenvman.2020.111089
Khan SAR, 2019, SUSTAIN DEV, V27, P1063, DOI 10.1002/sd.1958
Kickbusch I., 2013, Health Literacy
Kumar P, 2021, INT TRADE J, V35, P288, DOI 10.1080/08853908.2021.1890652
Lowe JM, 1996, J REGIONAL SCI, V36, P437
Martínez-Zarzoso I, 2021, REV WORLD ECON, V157, P631, DOI 10.1007/s10290-021-00420-7
Mele M, 2021, ENVIRON SCI POLLUT R, V28, P41127, DOI [10.1007/s11356-021-13337-3, 10.1007/s11356-021-14264-z]
Newton I., 1687, Philosophia Naturalis Principia Mathematica (Mathematical Principles of Natural Philosophy)
Njindan Iyke B., 2024, Green Finance and Energy Security, DOI [10.2139/ssrn.4724012, DOI 10.2139/SSRN.4724012]
Nuta FM, 2024, GONDWANA RES, V128, P325, DOI 10.1016/j.gr.2023.10.023
Pao H.-T., 2014, SMART GRID RENEWABLE, P198, DOI DOI 10.4236/SGRE.2014.58019
Pesaran M.H., 2004, Working Paper, CWPE 0435
Polenski K., 1969, Applications, V54
Qamruzzaman Md, 2024, Energy Strategy Reviews, V55, DOI [10.1016/j.esr.2024.101519, 10.1016/j.esr.2024.101519]
Rahman M.M., 2010, Journal of Developing Areas, V44, P229
Rakpho P, 2021, SINGAP ECON REV, V66, P413, DOI 10.1142/S0217590820430018
RIVERABATIZ LA, 1991, EUR ECON REV, V35, P971, DOI 10.1016/0014-2921(91)90048-N
ROMER P, 1993, J MONETARY ECON, V32, P543, DOI 10.1016/0304-3932(93)90029-F
ROMER PM, 1990, J POLIT ECON, V98, pS71, DOI 10.1086/261725
Ruffin RJ, 2002, HIST POLIT ECON, V34, P727, DOI 10.1215/00182702-34-4-727
Sachs J. D., 1995, Working Paper Series - National Bureau of Economic Research (Massachusetts)
Samargandi N, 2024, GONDWANA RES, V127, P47, DOI 10.1016/j.gr.2023.05.019
Silva JMCS, 2011, ECON LETT, V112, P220, DOI 10.1016/j.econlet.2011.05.008
Smith B. L., 1964, An Application of Gravity Model Theory Using a Small Sample of Origin-Destination Data
Spulber DF, 2008, J ECON THEORY, V138, P1, DOI 10.1016/j.jet.2007.06.002
Tariq G, 2022, SCI REP-UK, V12, DOI 10.1038/s41598-022-20432-z
Tinbergen J., 1962, Shaping the World Economy: Suggestions for an International Economic Policy
United Nations, 2015, THE 17 GOALS
Wooldridge J. M., 2010, Econometric Analysis of Cross Section and Panel Data, V2nd ed
World Economic Forum, 2019, In 2020, Asian Economies Will Become Larger Than the Rest of the World Combined-Here's How
Zeeshan M, 2022, FRONT ENV SCI-SWITZ, V10, DOI 10.3389/fenvs.2022.917468
Zhou P, 2023, SUSTAIN ENERGY TECHN, V58, DOI 10.1016/j.seta.2023.103371

Cited Reference Count: 75

Abstract: The promotion of clean energy is critical to achieving sustainable development. This study investigates the factors that affect the exports, trade potential, and revealed comparative advantage (RCA) of clean energy products (CEPs) in the emerging Asian economies (EAEs). The export data of the CEPs was collected from UN Comtrade based on six-digit HSN codes and for other variables, the world development indicators database was used for the period 2000-2020. The Augmented Gravity Model and Poisson Pseudo Maximum Likelihood Estimation (PPMLE) were applied for the analysis and the results show that exporting countries' economic growth is significantly promoting the exports of CEPs in all countries except Indonesia and Saudi Arabia. Surprisingly, it was found that distance is playing a positive role in export growth in most countries, a sign of a globalized world. However, these economies, especially India and Pakistan should resolve their border disputes and enhance regional cooperation to increase CEPs exports, which will help them achieve sustainable economic growth.

Accession Number: WOS:001637237900001

Language: English

Document Type: Article; Early Access

Author Keywords: Asia; clean energy products; emerging economies; export potential; gravity model; PPMLE; sustainable development

KeyWords Plus: INTERNATIONAL-TRADE; RENEWABLE ENERGY; COMPARATIVE ADVANTAGE; INNOVATION; MODEL

Addresses: [Goswami, Arvind; Jangir, Rajesh Kumar] Jawaharlal Nehru Univ, Ctr Econ Studies & Planning, Sch Social Sci, New Delhi, India.
[Chattu, Vijay Kumar] Univ Toronto, Temerty Fac Med, Dept Occupat Sci & Occupat Therapy, ReSTORE Lab, Toronto, ON, Canada.
[Chattu, Vijay Kumar] Semey Med Univ, Cent Asian Reg Ctr Planetary Hlth CARCPH, Semey, Kazakhstan.
[Chattu, Vijay Kumar] Datta Meghe Inst Med Sci DMIMS, Fac Med, Dept Community Med, Wardha, India.

Corresponding Address: Chattu, VK (corresponding author), Univ Toronto, Temerty Fac Med, Dept Occupat Sci & Occupat Therapy, ReSTORE Lab, Toronto, ON, Canada.
Chattu, VK (corresponding author), Semey Med Univ, Cent Asian Reg Ctr Planetary Hlth CARCPH, Semey, Kazakhstan.
Chattu, VK (corresponding author), Datta Meghe Inst Med Sci DMIMS, Fac Med, Dept Community Med, Wardha, India.

E-mail Addresses: vijay.chattu@mail.utoronto.ca

Affiliations: Jawaharlal Nehru University, New Delhi; University of Toronto; Semey State Medical University; Datta Meghe Institute of Higher Education & Research (Deemed to be University)

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Chattu, Vijay Kumar	C-2778-2014	

Publisher: WILEY

Publisher Address: 111 RIVER ST, HOBOKEN 07030-5774, NJ USA

Web of Science Index: Social Science Citation Index (SSCI)

Web of Science Categories: Development Studies; Green & Sustainable Science & Technology; Regional & Urban Planning

Research Areas: Development Studies; Science & Technology - Other Topics; Public Administration

IDS Number: T0813

ISSN: 0968-0802

eISSN: 1099-1719

29-char Source Abbrev.: SUSTAIN DEV

ISO Source Abbrev.: Sustain. Dev.

Source Item Page Count: 16
Open Access: hybrid
Output Date: 2025-12-31

Record 37 of 47

Title: Probing the irradiation-induced phase evolution and structural modifications in zirconolite

Author(s): Rachamalla, S (Rachamalla, Swetha); Singh, Y (Singh, Yogendar); Gupta, M (Gupta, Merry); Kedia, SK (Kedia, Sanjay Kumar); Kaur, R (Kaur, Rajveer); Rao, ADP (Rao, A. D. P.)

Source: CERAMICS INTERNATIONAL **Volume:** 51 **Issue:** 29 **Pages:** 60879-60888 **DOI:** 10.1016/j.ceramint.2025.10.282 **Published Date:** 2025 DEC **Part:** B

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Blackburn LR, 2023, CERAMICS-BASEL, V6, P1330, DOI 10.3390/ceramics6030082
Blackburn LR, 2022, INORG CHEM, V61, P5744, DOI 10.1021/acs.inorgchem.1c03816
Blackburn LR, 2021, ADV APPL CERAM, V120, P69, DOI 10.1080/17436753.2021.1877596
Caurant D, 2010, J NUCL MATER, V407, P88, DOI 10.1016/j.jnucmat.2010.09.033
Chen YB, 2023, CERAM INT, V49, P419, DOI 10.1016/j.ceramint.2022.09.006
Davoisne C, 2011, J NUCL MATER, V415, P67, DOI 10.1016/j.jnucmat.2011.05.043
Deschanels X, 2014, J NUCL MATER, V448, P184, DOI 10.1016/j.jnucmat.2014.02.003
Diver A, 2021, J NUCL MATER, V544, DOI 10.1016/j.jnucmat.2020.152654
Ewing R. C., 1995, Progress in Nuclear Energy, V29, P63, DOI 10.1016/0149-1970(94)00016-Y
EWING RC, 1992, NUCL INSTRUM METH B, V65, P319, DOI 10.1016/0168-583X(92)95059-Z
GATEHOUSE BM, 1981, ACTA CRYSTALLOGR B, V37, P306, DOI 10.1107/S0567740881002914
Gilbert M, 2011, J NUCL MATER, V416, P221, DOI 10.1016/j.jnucmat.2010.11.089
Gupta M, 2019, NUCL INSTRUM METH B, V453, P22, DOI 10.1016/j.nimb.2019.06.002
Gupta M, 2016, NUCL INSTRUM METH B, V379, P119, DOI 10.1016/j.nimb.2016.04.020
Jafar M, 2016, J NUCL MATER, V475, P192, DOI 10.1016/j.jnucmat.2016.04.016
Jafar M, 2014, J EUR CERAM SOC, V34, P4373, DOI 10.1016/j.jeurceramsoc.2014.07.001
Jafar M, 2014, J AM CERAM SOC, V97, P609, DOI 10.1111/jace.12664
Kalita P, 2019, J APPL PHYS, V125, DOI 10.1063/1.5080934
KESSON SE, 1983, NUCL CHEM WASTE MAN, V4, P259, DOI 10.1016/0191-815X(83)90019-0
Kulriya PK, 2015, NUCL INSTRUM METH B, V342, P98, DOI 10.1016/j.nimb.2014.09.024
Kulriya PK, 2007, REV SCI INSTRUM, V78, DOI 10.1063/1.2804171
Kumar A, 2020, J NUCL MATER, V539, DOI 10.1016/j.jnucmat.2020.152278
Kumar A, 2022, J NUCL MATER, V564, DOI 10.1016/j.jnucmat.2022.153682
Kumar V, 2023, J APPL PHYS, V134, DOI 10.1063/5.0159046
Lang M, 2009, J MATER RES, V24, P1322, DOI 10.1557/JMR.2009.0151
Lee WE, 2013, J AM CERAM SOC, V96, P2005, DOI 10.1111/jace.12406
Lennox TA, 2007, PROG NUCL ENERG, V49, P589, DOI 10.1016/j.pnucene.2007.02.004
Li HD, 2015, J NUCL MATER, V466, P484, DOI 10.1016/j.jnucmat.2015.08.031
MATZKE HJ, 1990, J AM CERAM SOC, V73, P370, DOI 10.1111/j.1151-2916.1990.tb06520.x
McGlinn P.J., 2006, MRS Online Proc. Libr., V932, P61, DOI [10.1557/PROC-932-61.1, DOI 10.1557/PROC-932-61.1]
Paknahad E, 2017, SOLID STATE SCI, V74, P109, DOI 10.1016/j.solidstatesciences.2017.10.013
Panghal A, 2021, J ALLOY COMPD, V862, DOI 10.1016/j.jallcom.2020.158556
Reid DP, 2010, NUCL INSTRUM METH B, V268, P1847, DOI 10.1016/j.nimb.2010.02.026
RODRIGUEZCARVAJAL J, 1993, PHYSICA B, V192, P55, DOI 10.1016/0921-4526(93)90108-I
ROSSELL HJ, 1980, NATURE, V283, P282, DOI 10.1038/283282a0
Salamat A, 2013, INORG CHEM, V52, P1550, DOI 10.1021/ic302346g

Sharma SK, 2021, J APPL PHYS, V129, DOI 10.1063/5.0039390
Sharma SK, 2019, MATERIALIA, V6, DOI 10.1016/j.mtla.2019.100317
Singh Y, 2025, J AM CERAM SOC, V108, DOI 10.1111/jace.20444
Singh Y, 2025, J AM CERAM SOC, V108, DOI 10.1111/jace.20124
Singh Y, 2024, J MATER CHEM C, V12, P13525, DOI 10.1039/d4tc02652g
Singh Y, 2024, J ALLOY COMPD, V990, DOI 10.1016/j.jallcom.2024.174249
Smith KL, 1997, J NUCL MATER, V250, P36, DOI 10.1016/S0022-3115(97)00237-7
Song YH, 2025, J AM CERAM SOC, V108, DOI 10.1111/jace.20693
Sun Z, 2023, J EUR CERAM SOC, V43, P3610, DOI 10.1016/j.jeurceramsoc.2023.02.009
Wang SX, 1999, NUCL INSTRUM METH B, V148, P704, DOI 10.1016/S0168-583X(98)00847-7
Wang SX, 2000, NUCL INSTRUM METH B, V166, P293, DOI 10.1016/S0168-583X(99)00665-5
Wang YF, 2024, INT J APPL CERAM TEC, V21, P1470, DOI 10.1111/ijac.14608
Weber WJ, 2000, NUCL INSTRUM METH B, V166, P98, DOI 10.1016/S0168-583X(99)00643-6
Wei T, 2019, APPL SURF SCI, V478, P373, DOI 10.1016/j.apsusc.2019.01.178
White T.J., 1993, MRS Online Proc. Libr., V333, P227, DOI [10.1557/PROC-333-227, DOI 10.1557/PROC-333-227]
White T.J., 1994, MRS Online Proc. Libr., V353, P1413, DOI [10.1557/PROC-353-1413, DOI 10.1557/PROC-353-1413]
WHITE TJ, 1984, P ROY SOC LOND A MAT, V392, P343, DOI 10.1098/rspa.1984.0035
Whittle KR, 2012, AM MINERAL, V97, P291, DOI 10.2138/am.2012.3848
Yadav J, 2021, APPL PHYS A-MATER, V127, DOI 10.1007/s00339-021-05130-3
Zhang YB, 2018, CERAM INT, V44, P13572, DOI 10.1016/j.ceramint.2018.04.191
Ziegler JF, 2010, NUCL INSTRUM METH B, V268, P1818, DOI 10.1016/j.nimb.2010.02.091

Cited Reference Count: 57

Abstract: The present study examines the structural and phase stability-driven modifications resulting due to low-energy irradiation (2 MeV Kr8+ ions) of zirconolite (CaZrTi2O7) ceramic material, which is of interest for the safe immobilization of nuclear waste and has shown excellent properties for the containment of actinides and their transmutation products. The influence of high-energy ball-milling (HEBM) on synthesis of the CaZrTi2O7 has been examined. The structural and micro-structural analysis was performed on using experimental results obtained by glancing angle X-ray diffraction (GIXRD), micro-Raman spectroscopy, scanning electron microscopy (SEM) and transmission electron microscopy (TEM) techniques. The results relating to GIXRD for phase analysis indicate a broadening of characteristic peak that attributed to a reduction in crystalline size and a disruption of the long-range structural order of CaZrTi2O7 and its structural transformation leading to comprehensive amorphization at a fluence (2 x 1016 ions/cm2). It is clear from the observed SEM morphology of irradiated materials that grain boundaries play a key role in increasing the defect contacts. CaZrTi2O7 exhibits enhanced radiation tolerance due to grain boundaries, which act as defect sinks, allowing for faster defect recombination. TEM microstructural study reveals the structural damage induced by ion-irradiation at a fluence (1 x 1014 ions/ cm2). However, amorphous structure ensures to evolve due to radiation damage and might accomplish a dynamic role in immobilizing nuclear waste, consequently evincing CaZrTi2O7 as a promising host material.

Accession Number: WOS:001628877800015

Language: English

Document Type: Article

Author Keywords: Zirconolite; Low-energy irradiation; Phase transformation; Ceramic waste form

KeyWords Plus: X-RAY-DIFFRACTION; INDUCED AMORPHIZATION; ALPHA-DECAY; IN-SITU; ION; PYROCHLORE; DAMAGE; CAZRTI2O7; CERAMICS; NEUTRON

Addresses: [Rachamalla, Swetha; Rao, A. D. P.] Andhra Univ, Coll Sci & Technol, Dept Nucl Phys, Visakhapatnam 530003, Andhra Prades, India.
[Gupta, Merry; Kedia, Sanjay Kumar] Inter Univ Accelerator Ctr, Aruna Asaf Ali Marg, New Delhi 110067, India.
[Kaur, Rajveer] St Longowal Inst Engn & Technol, Dept Phys, Longowal 148106, Punjab, India.
[Singh, Yogendar] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

Corresponding Address: Rao, ADP (corresponding author), Andhra Univ, Coll Sci & Technol, Dept Nucl Phys, Visakhapatnam 530003, Andhra Prades, India.

E-mail Addresses: adprao@andhrauniversity.edu.in

Affiliations: Andhra University; Inter-University Accelerator Centre; Sant Longowal Institute of Engineering & Technology (SLIET); Jawaharlal Nehru University, New Delhi

Publisher: ELSEVIER SCI LTD

Publisher Address: 125 London Wall, London, ENGLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Materials Science, Ceramics

Research Areas: Materials Science

IDS Number: K7587

ISSN: 0272-8842

eISSN: 1873-3956

29-char Source Abbrev.: CERAM INT

ISO Source Abbrev.: Ceram. Int.

Source Item Page Count: 10

Funding:

Funding Agency	Grant Number
Ministry of Education, Government of India	PMRF-2122-2836

We thank the entire team at LEIBF, XRD, FESEM, and TEM of IUAC New Delhi for their contributions to measurements and irradiation. We also acknowledge the Raman spectroscopy facility at IIT Delhi. One of the authors, Yogendar Singh, acknowledges the Ministry of Education, Government of India, for awarding the Prime Minister's Research Fellowship (PMRF) with reference number PMRF-2122-2836. We sincerely acknowledge Prof. Pawan Kumar Kulriya's supervision and assistance during the research.

Output Date: 2025-12-31

Record 38 of 47

Title: Photocatalytic and Antibacterial NiO/MgO Nanocomposites for Efficient Dyes Removal From Industrial Wastewater

Author(s): Kumari, A (Kumari, Anuradha); Roy, A (Roy, Annesha); Kaur, M (Kaur, Manjot); Kumar, A (Kumar, Akshay); Kumari, K (Kumari, Kajal); Gaharwar, US (Gaharwar, Usha Singh); Tiwari, AK (Tiwari, Atul Kumar); Meena, R (Meena, Ramovatar)

Source: CHEMISTRYSELECT **Volume:** 10 **Issue:** 46 **Article Number:** e04420 **DOI:** 10.1002/slct.202504420 **Published Date:** 2025 DEC 4

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Aggelopoulos C. A., 2024, Chemosphere, V347, P140667, DOI [10.1016/j.chemosphere.2023.140667, 10.1016/j.chemosphere.2023.140667]
Akbari A, 2020, INORG CHEM COMMUN, V115, DOI 10.1016/j.inoche.2020.107867
Argote-Fuentes S, 2021, CATALYSTS, V11, DOI 10.3390/catal11020211
Barad C, 2024, HELIYON, V10, DOI 10.1016/j.heliyon.2024.e31275
Baysal T, 2020, POLYM-PLAST TECH MAT, V59, P1522, DOI 10.1080/25740881.2020.1759212
Cambre MH, 2020, INT J MOL SCI, V21, DOI 10.3390/ijms21072355
Chahar D, 2023, MATER RES BULL, V162, DOI 10.1016/j.materresbull.2023.112205
Chen LM, 2004, APPL CATAL A-GEN, V265, P123, DOI 10.1016/j.apcata.2004.01.008

Chinthala M, 2021, ENVIRON CHEM LETT, V19, P4415, DOI 10.1007/s10311-021-01299-4
Dehkordi MM, 2024, RESULTS ENG, V23, DOI 10.1016/j.rineng.2024.102729
Duan ZJ, 2022, B MATER SCI, V45, DOI 10.1007/s12034-022-02767-5
Dutta S, 2024, J ENVIRON MANAGE, V353, DOI 10.1016/j.jenvman.2024.120103
Fuku X, 2018, MATER RES BULL, V97, P457, DOI 10.1016/j.materresbull.2017.09.022
Gatou MA, 2024, CRYSTALS, V14, DOI 10.3390/cryst14030215
Hu YH, 1999, J CATAL, V184, P298, DOI 10.1006/jcat.1999.2449
Jin JH, 2024, J ENVIRON MANAGE, V370, DOI 10.1016/j.jenvman.2024.122573
Joseph N, 2021, ELECTROCHIM ACTA, V399, DOI 10.1016/j.electacta.2021.139392
Kaya D, 2021, THIN SOLID FILMS, V732, DOI 10.1016/j.tsf.2021.138800
Lellis B, 2019, Biotechnology Research and Innovation, V3, P275, DOI [10.1016/j.biori.2019.09.001, 10.1016/j.biori.2019.09.001, DOI 10.1016/J.BIORI.2019.09.001]
Macomber L, 2011, METALLOMICS, V3, P1153, DOI 10.1039/c1mt00063b
Majeed Shahnaz, 2018, Advances in Natural Sciences: Nanoscience and Nanotechnology, V9, DOI [10.1088/2043-6254/aac42c, 10.1088/2043-6254/aac42c]
Mao T, 2024, INORGANICS, V12, DOI 10.3390/inorganics12070178
Meruvu Haritha., 2011, J chem, V4, P217
Narayanan PM, 2012, BIONANOSCIENCE, V2, P329, DOI 10.1007/s12668-012-0061-6
Oladoye Peter Olusakin, 2022, Groundwater for Sustainable Development, DOI [10.1016/j.gsd.2022.100844, 10.1016/j.gsd.2022.100844]
Pavel M, 2023, CATALYSTS, V13, DOI 10.3390/catal13020380
Rajput RB, 2022, J ENVIRON MANAGE, V307, DOI 10.1016/j.jenvman.2022.114533
Sadare O. O., 2025, Smart Nanomaterials for Environmental Applications, P387
Sajjadi E, 2024, J PHOTOCH PHOTOBIO A, V447, DOI 10.1016/j.jphotochem.2023.115283
Siddiqui SI, 2023, PROCESSES, V11, DOI 10.3390/pr11030807
Singh S, 2021, ENVIRON CHEM LETT, V19, P2351, DOI 10.1007/s10311-021-01196-w
Tabarkhoon F, 2025, INT J HYDROGEN ENERG, V126, P346, DOI [10.1016/j.ijhydene.2025.04.031, 10.1016/j.ijhydene.2025.04.031]
Tercan M, 2020, NEW J CHEM, V44, P4417, DOI 10.1039/d0nj00148a
Wang F, 2024, INNOVATION-AMSTERDAM, V5, DOI 10.1016/j.xinn.2024.100612
Wang JX, 2023, CHEM ENG J, V458, DOI 10.1016/j.cej.2023.141409
Yasmeen S, 2024, NANOMATERIALS-BASEL, V14, DOI 10.3390/nano14050470

Cited Reference Count: 36

Abstract: The presence of non-biodegradable industrial waste, particularly dyes, has led to pollution of aquatic ecosystems. Consequently, it is crucial to devise effective strategies to remove industrial contaminants. This study focused on creating nanomaterials for wastewater treatment. NiO/MgO nanocomposites (NCs) were produced via chemical precipitation and subsequently characterized. X-ray diffraction (XRD) verified the crystalline nature of NiO/MgO with a face-centered cubic (FCC) structure, which promoted strong interfacial interactions. Scanning electron microscopy (SEM) showed that the NiO/MgO NCs agglomerated into spherical and irregular shapes, whereas transmission electron microscopy (TEM) confirmed a size range of 65-100 nm. UV-vis spectroscopy indicated absorption in the UV-vis spectrum, suggesting its photocatalytic potential. The photocatalytic performance of the NiO/MgO NCs was assessed for organic dyes such as methylene blue (MB), Congo red (CR), and methyl orange (MO) under UV-vis light, demonstrating notable efficiency at higher dye concentrations. The highest degradation efficiency was recorded for CR (similar to 77% at 100 ppm over 60 min), followed by MO (similar to 71.6%) and MB (similar to 70%). The enhanced photocatalytic activity was linked to the nanostructured morphology, effective charge separation, and decreased electron-hole recombination. NiO/MgO NCs also showed strong antibacterial properties against both gram-positive and gram-negative bacterial strains. Antimicrobial mechanisms include the production of reactive oxygen species (ROS), disruption of membranes, and interactions with metal ions, which demonstrate the multi-functionality of NiO/MgO NCs as efficient wastewater treatment agents.

Accession Number: WOS:001630398600001

Language: English

Document Type: Article

Author Keywords: antimicrobial activity; dye degradation; NiO/MgO nanocomposites; photo catalysis; reactive oxygen species; wastewater treatment

KeyWords Plus: MGO; DEGRADATION

Addresses: [Kumari, Anuradha; Roy, Annesha; Kumari, Kajal; Meena, Ramovatar] Jawaharlal Nehru Univ, Sch Environm Sci, Nanotoxicol Lab 312, New Delhi, India.
[Kaur, Manjot] Chandigarh Univ, Univ Ctr Res & Dev, Mohali, Punjab, India.
[Kumar, Akshay] Sardar Patel Univ, Dept Phys, Mandi, Himachal Prades, India.
[Kumari, Kajal] Univ Eastern Finland, AI Virtanen Inst Mol Sci, Kuopio, Finland.
[Gaharwar, Usha Singh] Univ Delhi, Zakir Husain Delhi Coll, Dept Zool, Delhi, India.
[Tiwari, Atul Kumar] Indian Inst Technol BHU, Dept Chem, Varanasi, India.

Corresponding Address: Meena, R (corresponding author), Jawaharlal Nehru Univ, Sch Environm Sci, Nanotoxicol Lab 312, New Delhi, India.

E-mail Addresses: ramovatarmeena@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; Chandigarh University; University of Eastern Finland; University of Delhi; Indian Institute of Technology System (IIT System); Indian Institute of Technology BHU Varanasi (IIT BHU Varanasi)

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Tiwari, Dr. Atul	HPI-1154-2023	
Kumari, Anuradha	IAR-6647-2023	

Publisher: WILEY-V C H VERLAG GMBH

Publisher Address: POSTFACH 101161, 69451 WEINHEIM, GERMANY

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Chemistry, Multidisciplinary

Research Areas: Chemistry

IDS Number: M2661

ISSN: 2365-6549

29-char Source Abbrev.: CHEMISTRYSELECT

ISO Source Abbrev.: ChemistrySelect

Source Item Page Count: 10

Funding:

Funding Agency	Grant Number
Science and Engineering Research Board	FILE NO. EEQ/2021/000902

The authors express gratitude to the Advanced Instrumentation Research Facility (AIRF) at Jawaharlal Nehru University, New Delhi, India, for their support in conducting SEM, TEM, and XRD analyses.

Output Date: 2025-12-31

Record 39 of 47

Title: Harmony in heat: unraveling the symphony of heat shock protein 70 in Indian malarial vector- a molecular ballet shaping mosquito development and influencing<i> Plasmodium</i> transmission

Author(s): Goyal, B (Goyal, Bharti); Tushir, S (Tushir, Sheetal); Sharma, A (Sharma, Arvind); Tatu, U (Tatu, Utpal); Singh, S (Singh, Shailja); Chakraborti, S (Chakraborti, Soumyananda); Pandey, K (Pandey, Kailash)

Source: MALARIA JOURNAL **Meeting Abstract:** T3-P11 **Volume:** 24 **Issue:** SUPPL1 **Special Issue:** SI **Published Date:** 2025 DEC 1 **Supplement:** S

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited Reference Count: 0

Accession Number: WOS:001639266900068

Language: English

Document Type: Meeting Abstract

Addresses: [Goyal, Bharti; Sharma, Arvind; Chakraborti, Soumyananda; Pandey, Kailash] ICMR Natl Inst Malaria Res, Parasite Host Biol Grp, New Delhi, India.
[Goyal, Bharti; Sharma, Arvind; Chakraborti, Soumyananda; Pandey, Kailash] Acad Sci & Innovat Res AcSIR, Ghaziabad, Uttar Pradesh, India.
[Tushir, Sheetal] Indian Inst Sci, Dept Biochem, Bangalore, India.
[Singh, Shailja] Jawaharlal Nehru Univ, Special Ctr Mol Med, New Delhi, India.
[Chakraborti, Soumyananda] Birla Inst Technol & Sci Pilani, Dept Biol Sci, Hyderabad Campus, Hyderabad, India.

E-mail Addresses: soumyananda.chakraborti@hyderabad.bits-pilani.ac.in; pandey.kailash@icmr.gov.in

Affiliations: Indian Council of Medical Research (ICMR); ICMR - National Institute of Malaria Research (NIMR); Academy of Scientific & Innovative Research (AcSIR); Indian Institute of Science (IISC) - Bangalore; Jawaharlal Nehru University, New Delhi; Birla Institute of Technology & Science Pilani (BITS Pilani)

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
goyal, Bharti	JPW-8421-2023	

Publisher: BMC

Publisher Address: CAMPUS, 4 CRINAN ST, LONDON N1 9XW, ENGLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Infectious Diseases; Parasitology; Tropical Medicine

Research Areas: Infectious Diseases; Parasitology; Tropical Medicine

IDS Number: W1045

eISSN: 1475-2875

29-char Source Abbrev.: MALARIA J

ISO Source Abbrev.: Malar. J.

Source Item Page Count: 2

Output Date: 2025-12-31

Record 40 of 47

Title: Genetic insights into CRP levels in Indian adolescents: confirming adult genetic associations

Author(s): Nair, JM (Nair, Janaki M.); Bandesh, K (Bandesh, Khushdeep); Giri, AK (Giri, Anil K.); Chakraborty, S (Chakraborty, Shraddha); Marwaha, RK (Marwaha, Raman K.); Basu, A (Basu, Analabha); Tandon, N (Tandon, Nikhil); Bharadwaj, D (Bharadwaj, Dwaipayan)

Source: MOLECULAR GENETICS AND GENOMICS **Volume:** 300 **Issue:** 1 **Article Number:** 17 **DOI:** 10.1007/s00438-024-02213-7 **Published Date:** 2025 DEC

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 1

Cited References: Bandesh K, 2019, PLOS ONE, V14, DOI 10.1371/journal.pone.0213255
Black S, 2004, J BIOL CHEM, V279, P48487, DOI 10.1074/jbc.R400025200
Chakraborty S, 2020, INDIAN J MED RES, V151, P47, DOI 10.4103/ijmr.IJMR_1631_18

Cingolani P, 2012, FLY, V6, P80, DOI 10.4161/fly.19695
Comuzzie AG, 2012, PLOS ONE, V7, DOI 10.1371/journal.pone.0051954
Curocichin G, 2011, J HUM GENET, V56, P823, DOI 10.1038/jhg.2011.106
Das S, 2016, NAT GENET, V48, P1284, DOI 10.1038/ng.3656
Dehghan A, 2011, CIRCULATION, V123, P731, DOI 10.1161/CIRCULATIONAHA.110.948570
Doumatey AP, 2012, HUM MOL GENET, V21, P3063, DOI 10.1093/hmg/dds133
Elliott P, 2009, JAMA-J AM MED ASSOC, V302, P37, DOI 10.1001/jama.2009.954
Fuchsberger C, 2015, BIOINFORMATICS, V31, P782, DOI 10.1093/bioinformatics/btu704
Hegazy SH, 2022, ALZHEIMERS DEMENT, V18, P2262, DOI 10.1002/alz.12568
Khera A, 2005, J AM COLL CARDIOL, V46, P464, DOI 10.1016/j.jacc.2005.04.051
Koskeridis F, 2022, NAT COMMUN, V13, DOI 10.1038/s41467-022-34688-6
MacGregor AJ, 2004, CLIN CHEM, V50, P130, DOI 10.1373/clinchem.2003.028258
Mahajan A, 2011, PLOS ONE, V6, DOI 10.1371/journal.pone.0024645
Mbatchou J, 2021, NAT GENET, V53, P1097, DOI 10.1038/s41588-021-00870-7
Okada Y, 2011, HUM MOL GENET, V20, P1224, DOI 10.1093/hmg/ddq551
Patterson N, 2006, PLOS GENET, V2, P2074, DOI 10.1371/journal.pgen.0020190
Pradhan AD, 2001, JAMA-J AM MED ASSOC, V286, P327, DOI 10.1001/jama.286.3.327
Prasad G, 2019, J GENET, V98, DOI 10.1007/s12041-019-1065-6
Purcell S, 2007, AM J HUM GENET, V81, P559, DOI 10.1086/519795
Reiner AP, 2012, AM J HUM GENET, V91, P502, DOI 10.1016/j.ajhg.2012.07.023
Ridker PM, 2008, AM J HUM GENET, V82, P1185, DOI 10.1016/j.ajhg.2008.03.015
Ridker PM, 2003, CIRCULATION, V107, P391, DOI 10.1161/01.CIR.0000055014.62083.05
Said S, 2022, NAT COMMUN, V13, DOI 10.1038/s41467-022-29650-5
Schick UM, 2015, HUM MOL GENET, V24, P559, DOI 10.1093/hmg/ddu450
Sollis E, 2023, NUCLEIC ACIDS RES, V51, pD977, DOI 10.1093/nar/gkac1010
Szklarczyk D, 2021, NUCLEIC ACIDS RES, V49, pD605, DOI 10.1093/nar/gkaa1074
Taliun D, 2021, NATURE, V590, DOI 10.1038/s41586-021-03205-y
Tordai H, 2024, SCI DATA, V11, DOI 10.1038/s41597-024-03327-8
Visser M, 1999, JAMA-J AM MED ASSOC, V282, P2131, DOI 10.1001/jama.282.22.2131
Watanabe K, 2017, NAT COMMUN, V8, DOI 10.1038/s41467-017-01261-5
Willer CJ, 2010, BIOINFORMATICS, V26, P2190, DOI 10.1093/bioinformatics/btq340
Wu Y, 2012, INFLAMMATION, V35, P574, DOI 10.1007/s10753-011-9348-y

Cited Reference Count: 35

Abstract: CRP is a biomarker of acute inflammation linked to metabolic complications. Given the rising prevalence of these conditions in India, we investigated the genetic basis of CRP levels in Indian adolescents, an underrepresented group in genetic studies, to identify early markers of metabolic risk. We performed a two-phased genome-wide association study (GWAS; N = 5052) and an independent Exome-wide association study (ExWAS; N = 4547), to identify both common and rare genetic variants associated with CRP levels. The study identified intergenic variants near CRP and CRPP1 genes, and APOC1 gene as the key regulators of CRP levels establishing the universality of these associations. The GWAS identified the variant rs4247360 (PITPNC1) to be associated at a suggestive significance. The ExWAS single variant association identified novel associations in genes FGL1 (rs35431851), C19orf45 (rs608144, rs475923, rs484870), TRAPPC12 (rs11686212) and KIAA0087 (rs17153822). The SKATO analysis of the rare variants highlighted the role of loss of function and missense variants in genes EPS15, CCDC15, ZNF286A, ELF1, B3GNT8, ZNF850, MAP2, and PSG2. The GWAS and ExWAS in the present study validated the association of 56 variants previously reported for CRP levels. The meta-analysis with the CRP GWAS earlier reported in Indian adults revealed the shared genetic architecture of CRP levels across age groups. The gene-set enrichment analysis highlighted the role of CRP-associated genes in inflammatory and cardiometabolic pathways. The study enhances understanding of genetic predispositions to inflammation and metabolic disorders confirming known associations, identifying novel loci, and validating shared genetic architecture across age-groups, guiding targeted prevention for at-risk youth.

Accession Number: WOS:001402043600001

PubMed ID: 39843866

Language: English

Document Type: Article

Author Keywords: C-reactive protein; Genetic association; Indian adolescents; Inflammation; Cardiometabolic

KeyWords Plus: C-REACTIVE PROTEIN; GENOME-WIDE ASSOCIATION; SINGLE-NUCLEOTIDE POLYMORPHISMS; METABOLIC-SYNDROME; RISK; LOCI

Addresses: [Nair, Janaki M.; Bharadwaj, Dwaipayan] Jawaharlal Nehru Univ, Sch Biotechnol, Syst Genom Lab, New Delhi 110067, India.
[Bandesh, Khushdeep; Giri, Anil K.; Chakraborty, Shraddha] CSIR, Inst Genom & Integrat Biol, Delhi 110025, India.
[Bandesh, Khushdeep; Giri, Anil K.; Chakraborty, Shraddha] Acad Sci & Innovat Res AcSIR, Ghaziabad 201002, India.
[Marwaha, Raman K.] Int Life Sci Inst ILSI, New Delhi, India.
[Basu, Analabha] Natl Inst Biomed Genom, Kalyani 741251, West Bengal, India.
[Tandon, Nikhil] All India Inst Med Sci, Dept Endocrinol & Metab, New Delhi 110029, India.

Corresponding Address: Bharadwaj, D (corresponding author), Jawaharlal Nehru Univ, Sch Biotechnol, Syst Genom Lab, New Delhi 110067, India.
Tandon, N (corresponding author), All India Inst Med Sci, Dept Endocrinol & Metab, New Delhi 110029, India.

E-mail Addresses: nikhil_tandon@hotmail.com; db@jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; Council of Scientific & Industrial Research (CSIR) - India; CSIR - Institute of Genomics & Integrative Biology (IGIB); Academy of Scientific & Innovative Research (AcSIR); Department of Biotechnology (DBT) India; National Institute of Biomedical Genomics (NIBMG); All India Institute of Medical Sciences (AIIMS) New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Bandesh, Khushdeep	AAF-7300-2021	
Marwaha, Raman	AAQ-7475-2021	
Giri, Anil	ABC-0900-2022	
Bharadwaj, Dwaipayan		0000-0001-5268-8482

Publisher: SPRINGER HEIDELBERG

Publisher Address: TIERGARTENSTRASSE 17, D-69121 HEIDELBERG, GERMANY

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Biochemistry & Molecular Biology; Genetics & Heredity

Research Areas: Biochemistry & Molecular Biology; Genetics & Heredity

IDS Number: T0M0O

ISSN: 1617-4615

eISSN: 1617-4623

29-char Source Abbrev.: MOL GENET GENOMICS

ISO Source Abbrev.: Mol. Genet. Genomics

Source Item Page Count: 9

Funding:

Funding Agency	Grant Number
Department of Biotechnology, Ministry of Science and Technology, India	
Council of Scientific and Industrial Research, Government of India	

The authors thank all the students and their families for their kind co-operation and participation in the study. Special acknowledgment to Praveen Gupta, MD, Premas LifeSciences for always providing help whenever required. JMN thanks Council of Scientific and Industrial Research, Government of India for the Junior Research Fellowship.

Output Date: 2025-12-31

Record 41 of 47

Title: Aqueous synthesis of Fe-Au@CD nanoconjugates: Characterization, assessment of their optical behaviour and cytotoxicity potential

Author(s): Priyadarshini, E (Priyadarshini, Eepsita); Bohidar, HB (Bohidar, Himadri B.); Rajamani, P (Rajamani, Paulraj); Muthupandian, S (Muthupandian, Saravanan); Almotairi, RMJ (Almotairi, Reema Mohammed J.); Algehainy, NA (Algehainy, Naseh A.); Savariar, V (Savariar, Vincent); Sankar, M (Sankar, Muthupandi)

Source: JOURNAL OF DRUG DELIVERY SCIENCE AND TECHNOLOGY **Volume:** 115 **Article Number:** 107780 **DOI:** 10.1016/j.jddst.2025.107780 **Early Access Date:** DEC 2025 **Published Date:** 2026 JAN **Part:** 3

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Aarts M, 2012, CANCER DISCOV, V2, P524, DOI 10.1158/2159-8290.CD-11-0320
Abed MA, 2023, CHEM DATA COLLECT, V44, DOI 10.1016/j.cdc.2023.101013
Al-Nadaf AH, 2023, J DRUG DELIV SCI TEC, V86, DOI 10.1016/j.jddst.2023.104736
Bandyopadhyay S, 2012, J HAZARD MATER, V241, P379, DOI 10.1016/j.jhazmat.2012.09.056
Bao YP, 2007, J PHYS CHEM C, V111, P1941, DOI 10.1021/jp066871y
Berry CC, 2009, J PHYS D APPL PHYS, V42, DOI 10.1088/0022-3727/42/22/224003
Bohidar H.B., 2017, Design of Nanostructures: Self-Assembly of Nanomaterials
Cai T, 2018, APPL CATAL B-ENVIRON, V239, P545, DOI 10.1016/j.apcatb.2018.08.053
Carpenter EE, 1999, IEEE T MAGN, V35, P3496, DOI 10.1109/20.800568
Ekstrand-Hammarström B, 2012, NANOTOXICOLOGY, V6, P623, DOI 10.3109/17435390.2011.598245
Farahmandjou M., 2014, International Journal of Bio-Inorganic Hybrid Nanomaterials, V3, P203
Hashim N, 2020, MATER TODAY COMMUN, V25, DOI 10.1016/j.mtcomm.2020.101511
Hussein-Al-Ali SH, 2014, INT J NANOMED, V9, P3801, DOI 10.2147/IJN.S61143
Isham N, 2006, J CLIN MICROBIOL, V44, P4342, DOI 10.1128/JCM.01550-06
Jiang W, 2009, ENVIRON POLLUT, V157, P1619, DOI 10.1016/j.envpol.2008.12.025
Jokerst JV, 2011, NANOMEDICINE-UK, V6, P715, DOI [10.2217/nnm.11.19, 10.2217/NNM.11.19]
Kamaraj C, 2025, J IND ENG CHEM, V142, P329, DOI 10.1016/j.jiec.2024.07.039
Kermanizadeh A, 2013, NANOTOXICOLOGY, V7, P1255, DOI 10.3109/17435390.2012.734341
Khanam R, 2018, APOPTOSIS, V23, P113, DOI 10.1007/s10495-018-1439-x
Khatoon R, 2023, APPL NANOSCI, V13, P5467, DOI [10.1007/s13204-023-02903-5, DOI 10.1007/S13204-023-02903-5, 10.1007/s13204-023-02903-5]
Khatua A, 2020, J CLUST SCI, V31, P125, DOI 10.1007/s10876-019-01624-6
Kim IY, 2022, NANOMATERIALS-BASEL, V12, DOI 10.3390/nano12060993
Li Y, 2013, BIOCONJUGATE CHEM, V24, P133, DOI 10.1021/bc300537z
Lin J, 2001, J SOLID STATE CHEM, V159, P26, DOI 10.1006/jssc.2001.9117
Luengo Y, 2013, NANOSCALE, V5, P11428, DOI 10.1039/c3nr02148c
Luo PH, 2012, PHYS CHEM CHEM PHYS, V14, P7360, DOI 10.1039/c2cp40767a
Mathesh A, 2024, BIOMASS CONVERS BIOR, V14, P9887, DOI 10.1007/s13399-023-05265-8
Nayak VL, 2016, BIOORG MED CHEM LETT, V26, P3313, DOI 10.1016/j.bmcl.2016.05.045
Otsuka H, 2003, ADV DRUG DELIVER REV, V55, P403, DOI 10.1016/S0169-409X(02)00226-0
Prem P, 2025, J IND ENG CHEM, V142, P545, DOI 10.1016/j.jiec.2024.07.060
Priyadarshini E, 2017, J MATER CHEM B, V5, P5425, DOI 10.1039/c7tb01345k
Rifai A, 2018, ACS APPL MATER INTER, V10, P8474, DOI 10.1021/acsami.7b18596
Sangour MH, 2021, EGYPTIAN J MED HUMAN, V22, DOI 10.1186/s43042-020-00120-1
Shyam H, 2017, APOPTOSIS, V22, P570, DOI 10.1007/s10495-017-1346-6
Silva SM, 2016, CHEM COMMUN, V52, P7528, DOI 10.1039/c6cc03225g

Simon HU, 2000, APOPTOSIS, V5, P415, DOI 10.1023/A:1009616228304
Sivalingam AM, 2024, BIOMASS CONVERS BIOR, V14, P30227, DOI 10.1007/s13399-023-04907-1
Soenen SJH, 2009, CONTRAST MEDIA MOL I, V4, P207, DOI 10.1002/cmmi.282
Stroh A, 2004, FREE RADICAL BIO MED, V36, P976, DOI 10.1016/j.freeradbiomed.2004.01.016
Yano K, 2009, J PHYS CHEM C, V113, P13088, DOI 10.1021/jp901985u
Zhang HY, 2015, SMALL, V11, P3797, DOI 10.1002/smll.201500251

Cited Reference Count: 41

Abstract: In this study, core-shell structured Fe-Au@CD nanoconjugates were synthesized via an aqueous route, enabling an environmentally friendly and feasible fabrication process. The nanoconjugates had a particle size ranging between 20 and 26 nm, with tunable size modulation achieved by varying Fe precursor concentration. The optimized nanoconjugates showed an average zeta potential of 9.56 to 5.2 mV, indicating colloidal stability. Xray diffraction (XRD) analysis confirmed lattice planes corresponding to Fe and Au, validating the formation of a core-shell structure. UV-Visible spectroscopy revealed a hyperchromic shift along with peak broadening compared to AuCD, attributed to plasmonic coupling and surface modification by Fe incorporation. The synthesized nanoconjugates exhibited excellent biocompatibility towards normal cell lines, as confirmed by in vitro cytotoxicity assays, and exhibited superior antimicrobial efficiency against both gram-negative and grampositive bacteria. The results highlight the potential for biofilm inhibition and anti-microbial coatings on medical implants. Moreover, the magnetic and catalytic property bestowed by Fe suggests their promising applicability in targeted drug delivery and magnetically guided biomedical diagnosis. In brief, the novel Fe-Au@CD nanoconjugates represent a promising multifunctional nanoplatform bridging plasmonic, catalytic and biomedical applications. However, analysis of long-term stability and mechanistic understanding of antimicrobial activity is necessary for clinical translation.

Accession Number: WOS:001633053600001

Language: English

Document Type: Article

Author Keywords: Nanomaterials; Magnetic properties; Antimicrobial; Cytotoxicity; Biomedicine

KeyWords Plus: OXIDATIVE STRESS; NANOPARTICLES; CELLS; APOPTOSIS; PARTICLES

Addresses: [Priyadarshini, Eepsita] Galgotias Univ, Sch Biosci & Technol, Greater Noida, Uttar Pradesh, India.
[Bohidar, Himadri B.] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi, India.
[Rajamani, Paulraj] Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi, India.
[Muthupandian, Saravanan; Almotairi, Reema Mohammed J.; Algehainy, Naseh A.] Univ Tabuk, Fac Appl Med Sci, Dept Med Lab Technol, Tabuk, Saudi Arabia.
[Muthupandian, Saravanan; Almotairi, Reema Mohammed J.; Algehainy, Naseh A.] Univ Tabuk, Prince Fahad Bin Sultan Chair Biomed Res, Tabuk, Saudi Arabia.
[Savariar, Vincent] Tamil Nadu State Council Sci & Technol, Chennai 600025, Tamil Nadu, India.
[Sankar, Muthupandi] Saveetha Med Coll & Hosp, Saveetha Inst Med & Tech Sci, Ctr Global Hlth Res, Chennai 602105, Tamil Nadu, India.

Corresponding Address: Priyadarshini, E (corresponding author), Galgotias Univ, Sch Biosci & Technol, Greater Noida, Uttar Pradesh, India.
Muthupandian, S (corresponding author), Univ Tabuk, Fac Appl Med Sci, Dept Med Lab Technol, Tabuk, Saudi Arabia.

E-mail Addresses: lisa.eepsita@gmail.com; bioinfosaran@gmail.com

Affiliations: Galgotias University; Jawaharlal Nehru University, New Delhi; Jawaharlal Nehru University, New Delhi; University of Tabuk; University of Tabuk; Saveetha Institute of Medical & Technical Science; Saveetha Medical College & Hospital

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Muthupandian, Saravanan	F-3835-2012	
mohammed, reema	HKO-6472-2023	
Priyadarshini, Eepsita	NMJ-6197-2025	

Sankar, Muthupandi	JFB-5692-2023	

Publisher: ELSEVIER

Publisher Address: RADARWEG 29, 1043 NX AMSTERDAM, NETHERLANDS

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Pharmacology & Pharmacy

Research Areas: Pharmacology & Pharmacy

IDS Number: O9107

ISSN: 1773-2247

eISSN: 2588-8943

29-char Source Abbrev.: J DRUG DELIV SCI TEC

ISO Source Abbrev.: J. Drug Deliv. Sci. Technol.

Source Item Page Count: 13

Funding:

Funding Agency	Grant Number
Department of Science and Technology (DST) , Government of India	PDF/2017/000024
Research, Development, and Innovation Authority (RDIA) , Saudi Arabia, Riyadh	13262-Tabuk-2023-UT-R-3-1-HW

The authors gratefully acknowledge the Advanced Instrumentation Research Facility (AIRF) , Jawaharlal Nehru University (JNU) , for providing analytical characterization support. This study was supported by the Department of Science and Technology (DST) , Government of India (Grant No. PDF/2017/000024) . The authors (SM, RMJA, and NAA) also acknowledge the Research, Development, and Innovation Authority (RDIA) , Saudi Arabia, Riyadh, for support through the Reactivating & Rebuilding of Existing Labs Initiative (Project No. 13262-Tabuk-2023-UT-R-3-1-HW) .

Output Date: 2025-12-31

Record 42 of 47

Title: Targeting Alzheimer's pathophysiology with carbon dots: from mechanisms to therapy

Author(s): Tripathi, S (Tripathi, Shourya); Singh, R (Singh, Ramandeep); Jaiswal, S (Jaiswal, Srishty); Sethi, M (Sethi, Mitali); Rana, R (Rana, Rafquat); Mishra, K (Mishra, Keerti); Chourasia, MK (Chourasia, Manish K.)

Source: JOURNAL OF MATERIALS CHEMISTRY B **DOI:** 10.1039/d5tb02134k **Early Access Date:** DEC 2025 **Published Date:** 2025 DEC 8

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 3

Usage Count (Since 2013): 3

Cited References: Abdelnour C, 2022, ALZHEIMERS RES THER, V14, DOI 10.1186/s13195-022-01055-y
Alkhalifa AE, 2023, INT J MOL SCI, V24, DOI 10.3390/ijms242216288
Allan J, 2021, REGUL TOXICOL PHARM, V122, DOI 10.1016/j.yrtph.2021.104885
Araújo C, 2025, PHARMACEUTICS, V17, DOI [10.3390/pharmaceutics17040477, 10.3390/pharmaceutics17040477]
Asimakidou E, 2024, PHARMACEUTICALS-BASE, V17, DOI 10.3390/ph17050612
Atri A, 2019, MED CLIN N AM, V103, P263, DOI 10.1016/j.mcna.2018.10.009
Baker SN, 2010, ANGEW CHEM INT EDIT, V49, P6726, DOI 10.1002/anie.200906623
Banerjee S, 2025, NANOSCALE, V17, P14233, DOI 10.1039/d5nr00752f
Bao LN, 2024, CARBON, V228, DOI 10.1016/j.carbon.2024.119333
Bondi MW, 2017, J INT NEUROPSYCH SOC, V23, P818, DOI 10.1017/S135561771700100X
Bourlinos AB, 2008, SMALL, V4, P455, DOI 10.1002/smll.200700578

Busche MA, 2020, NAT NEUROSCI, V23, P1183, DOI 10.1038/s41593-020-0687-6
Cai ZY, 2018, J ALZHEIMERS DIS, V63, P1223, DOI 10.3233/JAD-180098
Ceña V, 2018, NANOMEDICINE-UK, V13, P1513, DOI 10.2217/nnm-2018-0139
Chen JJ, 2022, ENVIRON SCI-NANO, V9, P173, DOI [10.1039/d1en00651g, 10.1039/D1EN00651G]
Chou WC, 2025, WIRES NANOMED NANOBI, V17, DOI 10.1002/wnan.70027
Chung YJ, 2020, ACS NANO, V14, P16973, DOI 10.1021/acsnano.0c06078
Chung YJ, 2019, NANOSCALE, V11, P6297, DOI 10.1039/c9nr00473d
Correale J, 2009, NEUROCHEM RES, V34, P2067, DOI 10.1007/s11064-009-0081-y
Cummings J, 2021, MOL NEURODEGENER, V16, DOI 10.1186/s13024-021-00424-9
Daneman R, 2010, PLOS ONE, V5, DOI 10.1371/journal.pone.0013741
Dash RP, 2017, EUR J DRUG METAB PH, V42, P915, DOI 10.1007/s13318-017-0411-4
de Boever R, 2022, CHEM-EUR J, V28, DOI 10.1002/chem.202200748
Deeken JF, 2007, CLIN CANCER RES, V13, P1663, DOI 10.1158/1078-0432.CCR-06-2854
Dhariwal R, 2025, FRONT MED-LAUSANNE, V12, DOI 10.3389/fmed.2025.1522223
Dighe S, 2024, PHARMACEUTICS, V16, DOI 10.3390/pharmaceutics16010058
Ding HZ, 2024, BMEMAT, V2, DOI 10.1002/bmm2.12085
Dominy SS, 2019, SCI ADV, V5, DOI 10.1126/sciadv.aau3333
Dordevic L, 2022, NAT NANOTECHNOL, V17, P112, DOI 10.1038/s41565-021-01051-7
Dri DA, 2023, DRUG DELIV TRANSL RE, V13, P757, DOI 10.1007/s13346-022-01262-y
Duman AN, 2024, MATER ADV, V5, P7097, DOI 10.1039/d4ma00505h
El-Helaly SN, 2017, DRUG DELIV, V24, P692, DOI 10.1080/10717544.2017.1309476
Elkun S., 2024, Sci. Rep, P1
ElMorsy SM, 2024, J COLLOID INTERF SCI, V670, P357, DOI 10.1016/j.jcis.2024.05.072
Elsori D, 2023, FRONT ONCOL, V13, DOI 10.3389/fonc.2023.1265347
Etefa HF, 2025, INT J MOL SCI, V26, DOI 10.3390/ijms26072846
Fadeel B, 2018, NAT NANOTECHNOL, V13, P537, DOI 10.1038/s41565-018-0185-0
Falgàs N, 2021, ALZHEIMERS DEMENT, V17, P1403, DOI 10.1002/alz.12304
Gao PL, 2020, BIOCONJUGATE CHEM, V31, P646, DOI 10.1021/acs.bioconjchem.9b00801
Gao WQ, 2020, SMALL, V16, DOI 10.1002/smll.202002804
Gazzi A, 2020, J PHYS-MATER, V3, DOI 10.1088/2515-7639/ab9317
Ghiasi B, 2021, INT J POLYM MATER PO, V70, P117, DOI 10.1080/00914037.2019.1695207
Ghosh S, 2019, CHEM ENG J, V373, P468, DOI 10.1016/j.cej.2019.05.023
Gómez IJ, 2024, APPL MATER TODAY, V36, DOI 10.1016/j.apmt.2024.102072
Graff-Radford J, 2021, LANCET NEUROL, V20, P222, DOI 10.1016/S1474-4422(20)30440-3
Greenfield NJ, 2006, NAT PROTOC, V1, P2876, DOI 10.1038/nprot.2006.202
Gunes S, 2022, INT J MOL SCI, V23, DOI 10.3390/ijms23094962
Guo F, 2022, INT J NANOMED, V17, P6621, DOI 10.2147/IJN.S388030
Han C., 2025, Nanomaterials, P1
Han J, 2019, J IND ENG CHEM, V80, P722, DOI 10.1016/j.jiec.2019.02.015
Han X, 2017, NANOSCALE, V9, P12862, DOI 10.1039/c7nr04352j
Hanafy AS, 2021, ADV DRUG DELIVER REV, V176, DOI 10.1016/j.addr.2021.113859
Herrmann FC, 2021, SCI REP-UK, V11, DOI 10.1038/s41598-021-89633-2
Hou TT, 2024, COLLOID SURFACE B, V244, DOI 10.1016/j.colsurfb.2024.114182
Howard R, 2015, LANCET NEUROL, V14, P1171, DOI 10.1016/S1474-4422(15)00258-6
Hu C, 2019, CHEM SOC REV, V48, P2315, DOI 10.1039/c8cs00750k
Hu YL, 2024, ANGEW CHEM INT EDIT, V63, DOI 10.1002/anie.202412341
Hu Y, 2024, J NANOBIOTECHNOL, V22, DOI 10.1186/s12951-024-02912-8
Huang ZS, 2020, FRONT NEUROENDOCRIN, V59, DOI 10.1016/j.yfrne.2020.100857
Hutt JA, 2022, TOXICOL PATHOL, V50, P118, DOI 10.1177/01926233211041962
Jana P, 2022, MATER TODAY COMMUN, V32, DOI 10.1016/j.mtcomm.2022.104068
Jiang XY, 2018, PROG NEUROBIOL, V163, P144, DOI 10.1016/j.pneurobio.2017.10.001
Kallem Rajareddy, 2012, Drug Metab Lett, V6, P134
Kappe CO, 2004, ANGEW CHEM INT EDIT, V43, P6250, DOI 10.1002/anie.200400655
Karagianni A, 2023, CARBON, V203, P273, DOI 10.1016/j.carbon.2022.11.026

Kaurav H, 2023, FRONT CHEM, V11, DOI 10.3389/fchem.2023.1227843
Kazeminava F, 2024, SCI REP-UK, V14, DOI 10.1038/s41598-024-67934-6
Knox EG, 2022, MOL PSYCHIATR, V27, P2659, DOI 10.1038/s41380-022-01511-z
Kuznietsova H, 2023, DISCOV NANO, V18, DOI 10.1186/s11671-023-03891-9
Lane CA, 2018, EUR J NEUROL, V25, P59, DOI 10.1111/ene.13439
Li C, 2023, THERANOSTICS, V13, P3064, DOI 10.7150/thno.80579
Li DX, 2025, J MOL STRUCT, V1326, DOI 10.1016/j.molstruc.2024.141134
Li HL, 2022, COLLOID SURFACE B, V212, DOI 10.1016/j.colsurfb.2022.112373
Li JP, 2018, ADV FUNCT MATER, V28, DOI 10.1002/adfm.201800881
Li LL, 2013, NANOSCALE, V5, P4015, DOI 10.1039/c3nr33849e
Li QY, 2023, ACS APPL MATER INTER, V15, P54221, DOI 10.1021/acsami.3c10053
Li SH, 2016, COLLOID SURFACE B, V145, P251, DOI 10.1016/j.colsurfb.2016.05.007
Li SH, 2020, NAT BIOMED ENG, V4, P704, DOI 10.1038/s41551-020-0540-y
Liao JF, 2021, PHARMACEUTICS, V13, DOI 10.3390/pharmaceutics13111872
Liebner S, 2008, J CELL BIOL, V183, P409, DOI 10.1083/jcb.200806024
Lim JL, 2024, COLLOID SURFACE B, V234, DOI 10.1016/j.colsurfb.2023.113676
Lim SY, 2015, CHEM SOC REV, V44, P362, DOI 10.1039/c4cs00269e
Lin XD, 2023, ACS APPL MATER INTER, V15, P44062, DOI 10.1021/acsami.3c06948
Lin XT, 2023, INT J NANOMED, V18, P8143, DOI 10.2147/IJN.S434842
Liu JC, 2024, J COLLOID INTERF SCI, V663, P856, DOI 10.1016/j.jcis.2024.02.219
Liu JJ, 2020, ACS CENTRAL SCI, V6, P2179, DOI 10.1021/acscentsci.0c01306
Liu LB, 2021, NANOSCALE, V13, P19352, DOI 10.1039/d1nr06195j
Liu ML, 2019, GREEN CHEM, V21, P449, DOI 10.1039/c8gc02736f
Liu N, 2024, AGEING RES REV, V94, DOI 10.1016/j.arr.2024.102199
Liu YH, 2020, MATER CHEM FRONT, V4, P1586, DOI 10.1039/d0qm00090f
Lloret Ana, 2021, Focus (Am Psychiatr Publ), V19, P355, DOI 10.1176/appi.focus.19305
Lu SS, 2016, INT J NANOMED, V11, P6325, DOI 10.2147/IJN.S119252
Maheshwari R, 2025, MOL PHARMACEUT, V22, P4337, DOI 10.1021/acs.molpharmaceut.5c00056
Makhaeva GF, 2020, MOLECULES, V25, DOI 10.3390/molecules25173915
Makin B.S., Dementia treatment strives for new heights
Mansuriya BD, 2021, NANOMATERIALS-BASEL, V11, DOI 10.3390/nano11102525
Mehta RI, 2023, FLUIDS BARRIERS CNS, V20, DOI 10.1186/s12987-023-00447-y
Min J., 2024, Sci. Rep, P1
Mintz KJ, 2021, CARBON, V173, P433, DOI 10.1016/j.carbon.2020.11.017
Mintz KJ, 2019, NANOSCALE, V11, P4634, DOI 10.1039/c8nr10059d
Mintz KJ, 2019, COLLOID SURFACE B, V176, P488, DOI 10.1016/j.colsurfb.2019.01.031
Mohan V, 2023, International Journal of Advanced Nano Computing and Analytics, DOI [10.61797/ijanca.v2i1.240, 10.61797/ijanca.v2i1.240, DOI 10.61797/IJANCA.V2I1.240]
Mosalam EM, 2024, INT J BIOL MACROMOL, V275, DOI 10.1016/j.ijbiomac.2024.133742
Musaeus CS, 2020, J ALZHEIMERS DIS, V75, P429, DOI 10.3233/JAD-200168
Nedelec T, 2022, LANCET DIGIT HEALTH, V4, pE169, DOI 10.1016/S2589-7500(21)00275-2
Nguyen DHH, 2025, ENVIRON CHEM LETT, V23, P337, DOI 10.1007/s10311-024-01779-3
Nimi N, 2018, BIOMATERIALS, V171, P46, DOI 10.1016/j.biomaterials.2018.04.012
O. for C. Rights (OCR), 2015, HIPAA for Professionals, HHS.Gov 2003, P2004
Pallares RM, 2024, NANOMEDICINE-UK, V19, P2433, DOI 10.1080/17435889.2024.2405458
Pan DY, 2010, ADV MATER, V22, P734, DOI 10.1002/adma.200902825
Pan YT, 2023, MATER CHEM PHYS, V299, DOI 10.1016/j.matchemphys.2023.127522
Paradise Jordan, 2019, AMA J Ethics, V21, pE347, DOI [10.1001/amajethics.2019.347, 10.1001/amajethics.2019.347]
Pardridge William M, 2005, NeuroRx, V2, P3
Paton SEJ, 2023, J PSYCHIATR NEUROSCI, V48, pE190, DOI 10.1503/jpn.220218
Pechnikova NA, 2025, AGGREGATE, V6, DOI 10.1002/agt2.707
Peng J, 2012, NANO LETT, V12, P844, DOI 10.1021/nl2038979
Peng ZL, 2016, ANAL CHIM ACTA, V937, P113, DOI 10.1016/j.aca.2016.08.014

Pisa D, 2015, J ALZHEIMERS DIS, V43, P613, DOI 10.3233/JAD-141386
Porsteinsson AP, 2021, JPAD-J PREV ALZHEIM, V8, P371, DOI 10.14283/jpad.2021.23
Prakash A, 2024, TALANTA, V278, DOI 10.1016/j.talanta.2024.126528
Qi J, 2023, ACS APPL NANO MATER, V6, P9071, DOI 10.1021/acsanm.3c01207
Rana R, 2025, ACS APPL NANO MATER, V8, P9686, DOI 10.1021/acsanm.5c00545
Rawal M, 2019, PHARM RES-DORDR, V36, DOI 10.1007/s11095-019-2692-6
Ren LB, 2022, FRONT IMMUNOL, V12, DOI 10.3389/fimmu.2021.795232
Rezai AR, 2024, NEW ENGL J MED, V390, P55, DOI 10.1056/NEJMoa2308719
Rhea EM, 2019, FRONT NEUROSCI-SWITZ, V13, DOI 10.3389/fnins.2019.00521
Schaffenrath J, 2021, NEURO-ONCOLOGY, V23, P2095, DOI 10.1093/neuonc/noab022
Scialabba C, 2019, ACS APPL MATER INTER, V11, P19854, DOI 10.1021/acsami.9b04925
Seven ES, 2021, NANOSCALE ADV, V3, P3942, DOI 10.1039/d1na00145k
Shao X, 2025, INT J BIOL MACROMOL, V293, DOI 10.1016/j.ijbiomac.2024.139333
Shao X, 2025, COLLOID SURFACE B, V246, DOI 10.1016/j.colsurfb.2024.114380
Sharma C, 2022, BIOMEDICINES, V10, DOI 10.3390/biomedicines10040742
Sims JR, 2023, JAMA-J AM MED ASSOC, V330, P512, DOI [10.1136/dtb.2024.000020, 10.1001/jama.2023.13239]
Singh SA, 2023, CURR DRUG METAB, V24, P250, DOI 10.2174/1389200224666230608110349
Son G, 2018, ACTA BIOMATER, V67, P147, DOI 10.1016/j.actbio.2017.11.048
Song T, 2021, AGEING RES REV, V72, DOI 10.1016/j.arr.2021.101503
Su PP, 2021, ANGEW CHEM INT EDIT, V60, P16044, DOI 10.1002/anie.202103557
Sun YP, 2006, J AM CHEM SOC, V128, P7756, DOI 10.1021/ja062677d
Sundaram V. A., 2025, Nanoparticles for overcoming blood-brain barrier challenges in neurodegenerative illness, V4, DOI [10.53388/BMEC2025022.Executive, DOI 10.53388/BMEC2025022.EXECUTIVE]
Sung SY, 2019, NANO LETT, V19, P69, DOI 10.1021/acs.nanolett.8b03249
Tabish M, 2025, RSC ADV, V15, P8354, DOI 10.1039/d5ra00274e
Tajik S, 2020, RSC ADV, V10, P15406, DOI 10.1039/d0ra00799d
Tao SY, 2018, ANGEW CHEM INT EDIT, V57, P2393, DOI 10.1002/anie.201712662
Tavan M, 2025, IND CROP PROD, V231, DOI 10.1016/j.indcrop.2025.121207
Theofilatos K, 2015, ARTIF INTELL MED, V63, P181, DOI 10.1016/j.artmed.2014.12.012
Toader C, 2024, INT J MOL SCI, V25, DOI 10.3390/ijms252312613
Tomskaya A, 2022, ACS OMEGA, V7, P44093, DOI 10.1021/acsomega.2c05503
Tong X, 2020, TRAC-TREND ANAL CHEM, V131, DOI 10.1016/j.trac.2020.116008
Tripathi S, 2025, BIOANALYSIS, V17, P747, DOI 10.1080/17576180.2025.2518044
Tripathi S, 2021, J MICROENCAPSUL, V38, P572, DOI 10.1080/02652048.2021.1986585
Truskewycz A, 2022, SMALL, V18, DOI 10.1002/smll.202106342
Upadhyay V, 2024, METHODS, V225, P52, DOI 10.1016/j.ymeth.2024.03.007
van der Kant R, 2020, NAT REV NEUROSCI, V21, P21, DOI 10.1038/s41583-019-0240-3
van Dyck CH, 2023, NEW ENGL J MED, V388, P9, DOI [10.1056/NEJMoa2212948, 10.1056/NEJMc2301380]
Wang C, 2025, INT J BIOL MACROMOL, V306, DOI 10.1016/j.ijbiomac.2025.141531
Wang H, 2014, BIOMATER SCI-UK, V2, P915, DOI 10.1039/c3bm60297d
Wang SQ, 2020, ISCIENCE, V23, DOI 10.1016/j.isci.2020.101044
Wang WJ, 2025, COLLOID SURFACE B, V252, DOI 10.1016/j.colsurfb.2025.114655
Wang WJ, 2022, ACTA BIOMATER, V148, P298, DOI 10.1016/j.actbio.2022.06.029
Wang X, 2023, CHEM ENG J, V471, DOI 10.1016/j.cej.2023.144513
Wang YX, 2025, CHEM ENG J, V508, DOI 10.1016/j.cej.2025.161138
Wang YZ, 2025, INT J NANOMED, V20, P7061, DOI 10.2147/IJN.S519733
Wang YF, 2014, J MATER CHEM C, V2, P6921, DOI 10.1039/c4tc00988f
Wei ZT, 2024, COLLOID SURFACE B, V238, DOI 10.1016/j.colsurfb.2024.113907
WHO, 2022, A blueprint for dementia research
Wilson DM III, 2023, CELL, V186, P693, DOI 10.1016/j.cell.2022.12.032
Wu D, 2023, SIGNAL TRANSDUCT TAR, V8, DOI 10.1038/s41392-023-01481-w
Wu JF, 2025, CANCER GENE THER, V32, P809, DOI 10.1038/s41417-025-00916-6

Wu YF, 2019, NAT COMMUN, V10, DOI 10.1038/s41467-018-07991-4
Xia CL, 2018, CHEM-EUR J, V24, P11303, DOI 10.1002/chem.201802712
Xie YL, 2018, MOL NUTR FOOD RES, V62, DOI [10.1002/mnfr.201800107, 10.1002/mnfr.201870070]
Xu XY, 2004, J AM CHEM SOC, V126, P12736, DOI 10.1021/ja040082h
Yan CR, 2024, MATER TODAY CHEM, V40, DOI 10.1016/j.mtchem.2024.102222
Yan CR, 2021, MATER TODAY BIO, V12, DOI 10.1016/j.mtbio.2021.100167
Yan KL, 2024, CHEMISTRYSELECT, V9, DOI 10.1002/slct.202304300
Yan Y, 2019, ADV MATER, V31, DOI 10.1002/adma.201808283
Yang HL, 2023, MATER TODAY ADV, V18, DOI 10.1016/j.mtadv.2023.100376
Yang SY, 2023, CARBON, V202, P130, DOI 10.1016/j.carbon.2022.10.067
Yao XY, 2024, Theoretical and Natural Science, V29, P50, DOI [10.54254/2753-8818/29/20240729, 10.54254/2753-8818/29/20240729, DOI 10.54254/2753-8818/29/20240729]
Ye PK, 2023, J COLLOID INTERF SCI, V650, P1749, DOI 10.1016/j.jcis.2023.07.132
Yin XH, 2023, NAT COMMUN, V14, DOI 10.1038/s41467-023-41489-y
Yu SX, 2024, REV NEUROSCIENCE, V35, P895, DOI 10.1515/revneuro-2024-0040
Yuan FL, 2020, NAT PHOTONICS, V14, P171, DOI 10.1038/s41566-019-0557-5
Zhang JF, 2024, SIGNAL TRANSDUCT TAR, V9, DOI 10.1038/s41392-024-01911-3
Zhang J, 2024, MATER TODAY BIO, V29, DOI 10.1016/j.mtbio.2024.101347
Zhang W, 2024, ACTA BIOMATER, V183, P341, DOI 10.1016/j.actbio.2024.06.001
Zhang W, 2022, J COLLOID INTERF SCI, V617, P20, DOI 10.1016/j.jcis.2022.02.124
Zhang YW, 2025, CHEM ENG J, V514, DOI 10.1016/j.cej.2025.163340
Zhang ZW, 2025, ACS APPL BIO MATER, V8, P935, DOI 10.1021/acsabm.4c01785
Zheng M, 2015, ACS NANO, V9, P11455, DOI 10.1021/acsnano.5b05575
Zheng M, 2014, ADV MATER, V26, P3554, DOI 10.1002/adma.201306192
Zhou YQ, 2022, CARBON, V193, P1, DOI 10.1016/j.carbon.2022.03.021
Zhou YQ, 2019, NANOSCALE, V11, P22387, DOI 10.1039/c9nr08194a
Zhou YQ, 2018, J CONTROL RELEASE, V270, P290, DOI 10.1016/j.jconrel.2017.12.015
Zhu SJ, 2015, ANGEW CHEM INT EDIT, V54, P14626, DOI 10.1002/anie.201504951
Zhu SJ, 2011, CHEM COMMUN, V47, P6858, DOI 10.1039/c1cc11122a
Zuo L, 2015, OXID MED CELL LONGEV, V2015, DOI 10.1155/2015/604658

Cited Reference Count: 197

Abstract: Alzheimer's disease continues to be a debilitating disorder, profoundly affecting the quality of life, despite decades of extensive research. The impermeability of the blood-brain barrier, multifactorial etiology of the disease and the repeated failures of single target therapy are the major contributors of this therapeutic stagnation. If there is a silver lining, it lies in the growing advancement of multi-targeted therapeutic approaches that address the complex pathophysiology of Alzheimer's disease. In this context, carbon dots have emerged as highly promising, ultrasmall and biocompatible nanomaterials capable of traversing the blood-brain barrier and targeting various pathophysiologies of the disease. These include but are not limited to inhibition of abnormal protein aggregation, scavenging of reactive oxygen species and attenuation of neuroinflammatory processes. This review aims to critically synthesize the current body of research on carbon dots with particular emphasis on their mechanistic insights, surface chemistry driven targeting strategies and ligand free transportation mechanisms. The indulgence of photodynamic therapy in targeting carbon dots has also been touched upon. The key regulatory hurdles and translational gaps have been addressed that hinder their journey from bench to bedside. This review highlights the potential of carbon dots as intelligent nanoplatforms by integrating the molecular and pharmacological perspectives.

Accession Number: WOS:001631964400001

PubMed ID: 41355717

Language: English

Document Type: Review; Early Access

KeyWords Plus: BLOOD-BRAIN-BARRIER; GRAPHENE QUANTUM DOTS; DISEASE; DIAGNOSIS; CANCER; DELIVERY; DRUG; NANOPARTICLES; VISUALIZATION; TRANSPORTERS

Addresses: [Tripathi, Shourya; Jaiswal, Srishty; Sethi, Mitali; Rana, Rafquat; Mishra, Keerti; Chourasia, Manish K.] Cent Drug Res Inst, Div Pharmaceut & Pharmacokinet, CSIR, Lucknow 226031, India.
[Tripathi, Shourya; Rana, Rafquat; Mishra, Keerti] Jawaharlal Nehru Univ JNU, New Delhi 110067, India.
[Singh, Ramandeep] Univ Calif Santa Barbara, Neurosci Res Inst, Dept Mol Cellular & Dev Biol, Santa Barbara, CA 93106 USA.
[Jaiswal, Srishty; Sethi, Mitali; Chourasia, Manish K.] Acad Sci & Innovat Res AcSIR, Ghaziabad 201002, India.

Corresponding Address: Chourasia, MK (corresponding author), Cent Drug Res Inst, Div Pharmaceut & Pharmacokinet, CSIR, Lucknow 226031, India.
Chourasia, MK (corresponding author), Acad Sci & Innovat Res AcSIR, Ghaziabad 201002, India.

E-mail Addresses: manish_chourasia@cdri.res.in

Affiliations: Council of Scientific & Industrial Research (CSIR) - India; CSIR - Central Drug Research Institute (CDRI); Jawaharlal Nehru University, New Delhi; University of California System; University of California Santa Barbara; Academy of Scientific & Innovative Research (AcSIR)

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Rana, Rafquat	AFZ-7483-2022	

Publisher: ROYAL SOC CHEMISTRY

Publisher Address: THOMAS GRAHAM HOUSE, SCIENCE PARK, MILTON RD, CAMBRIDGE CB4 0WF, CAMBS, ENGLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Materials Science, Biomaterials

Research Areas: Materials Science

IDS Number: N8288

ISSN: 2050-750X

eISSN: 2050-7518

29-char Source Abbrev.: J MATER CHEM B

ISO Source Abbrev.: J. Mat. Chem. B

Source Item Page Count: 34

Output Date: 2025-12-31

Record 43 of 47

Title: Phototropin localization and interactions regulate photophysiological processes in Chlamydomonas reinhardtii

Author(s): Sharma, S (Sharma, Sunita); Sushmita, K (Sushmita, Kumari); Singh, R (Singh, Rajani); Sanyal, SK (Sanyal, Sibaji K.); Kateriya, S (Kateriya, Suneel)

Source: BIOCHIMIE **Volume:** 239 **Pages:** 150-162 **DOI:** 10.1016/j.biochi.2025.08.014 **Published Date:** 2025 DEC **Part:** B

Cited References: ADAMS GMW, 1982, GENETICS, V100, P579
Awasthi M, 2016, SCI REP-UK, V6, DOI 10.1038/srep34646
Betleja E, 2010, CURR BIOL, V20, pR928, DOI 10.1016/j.cub.2010.09.058
Castruita M, 2011, PLANT CELL, V23, P1273, DOI 10.1105/tpc.111.084400
Craige B, 2010, J CELL BIOL, V190, P927, DOI 10.1083/jcb.201006105
Engel BD, 2012, J CELL BIOL, V199, P151, DOI 10.1083/jcb.201206068

Ermilova EV, 2004, PLANTA, V219, P420, DOI 10.1007/s00425-004-1241-6
Ferris PJ, 1997, GENETICS, V146, P859
Ferris PJ, 2005, PLANT CELL, V17, P597, DOI 10.1105/tpc.104.028035
Fu HA, 2000, ANNU REV PHARMACOL, V40, P617, DOI 10.1146/annurev.pharmtox.40.1.617
Greiner A, 2017, PLANT CELL, V29, P2498, DOI 10.1105/tpc.17.00659
Hegemann P, 2008, ANNU REV PLANT BIOL, V59, P167, DOI 10.1146/annurev.arplant.59.032607.092847
Huang KY, 2004, MOL BIOL CELL, V15, P3605, DOI 10.1091/mbc.E04-01-0010
Huang KY, 2003, P NATL ACAD SCI USA, V100, P6269, DOI 10.1073/pnas.0931459100
Im CS, 2006, PLANT J, V48, P1, DOI 10.1111/j.1365-313X.2006.02852.x
Inoue S, 2010, CURR OPIN PLANT BIOL, V13, P587, DOI 10.1016/j.pbi.2010.09.002
Lacey SE, 2023, NAT STRUCT MOL BIOL, V30, P584, DOI 10.1038/s41594-022-00905-5
Lin H, 2007, GENETICS, V176, P913, DOI 10.1534/genetics.106.066167
Miller MS, 2005, MOL BIOL CELL, V16, P3810, DOI 10.1091/mbc.E05-05-0404
Nagel G, 2002, SCIENCE, V296, P2395, DOI 10.1126/science.1072068
Pedersen LB, 2005, CURR BIOL, V15, P262, DOI 10.1016/j.cub.2005.01.037
Petroutsos D, 2016, NATURE, V537, P563, DOI 10.1038/nature19358
Richey EA, 2012, PLOS ONE, V7, DOI 10.1371/journal.pone.0043118
Scheidel N, 2018, CURR BIOL, V28, P3279, DOI 10.1016/j.cub.2018.08.017
Schleicher E, 2004, J AM CHEM SOC, V126, P11067, DOI 10.1021/ja049553q
Sharma K, 2023, INT J BIOL MACROMOL, V243, DOI 10.1016/j.ijbiomac.2023.125135
Sharma S, 2021, CURR GENOMICS, V22, P181, DOI 10.2174/1389202922666210412104817
Silva DA, 2012, CYTOSKELETON, V69, P33, DOI 10.1002/cm.20546
Stowe TR, 2012, MOL BIOL CELL, V23, P3322, DOI 10.1091/mbc.E12-02-0134
Takahashi S, 2011, TRENDS PLANT SCI, V16, P53, DOI 10.1016/j.tplants.2010.10.001
Taschner M, 2016, CSH PERSPECT BIOL, V8, DOI 10.1101/cshperspect.a028092
Taschner M, 2014, J CELL BIOL, V207, P269, DOI 10.1083/jcb.201408002
Trippens J, 2012, PLANT CELL, V24, P4687, DOI 10.1105/tpc.112.103523
Tseng TS, 2012, PLANT CELL, V24, P1114, DOI 10.1105/tpc.111.092130
WALTHER Z, 1994, J CELL BIOL, V126, P175, DOI 10.1083/jcb.126.1.175

Cited Reference Count: 35

Abstract: Phototropin, a blue-light sensing serine/threonine kinase, plays a pivotal role in regulating diverse photophysiological processes in both plants and algae. In Chlamydomonas reinhardtii, phototropin (CrPhot) localizes to the eyespot and flagella, coordinating key cellular functions such as phototaxis, photosynthesis, gametogenesis, and chlorophyll biosynthesis. Although prior studies have identified phototropin interactions with signaling proteins such as channelrhodopsins and light-harvesting complex proteins, its broader interaction network and regulatory mechanisms remain poorly understood. In this study, we identified novel protein partners of phototropin and their roles in modulating its regulatory functions in C. reinhardtii. Employing a range of intraflagellar transport (IFT) mutants of C. reinhardtii, we demonstrated that phototropin localization to the flagella and eyespot is IFT-mediated. Our results reveal novel interactions between phototropin and other photoreceptors, includingchannelrhodopsins (ChR1 and ChR2), chlamyopsin 6, LOV-histidine kinases (LOV-HK1, LOV-HK2) and the signaling protein- 14-3-3. CRISPR-Cas9 generated knockouts of phototropin led to reduced expression of ChR1 and 14-3-3, accompanied by impaired photomotility of the mutants. Additionally, gene expression of LOV-HK1 and LOV-HK2 were found to be elevated under UV-light in C. reinhardtii and these had altered expression in phototropin knockout line. These findings provide novel insights into phototropin interactome and elucidate molecular mechanisms underlying its localization and signaling functions in C. reinhardtii. This work advances our understanding of phototropin-mediated signal transduction and lays the groundwork for future exploration of its broader physiological roles in cellular responses.

Accession Number: WOS:001632760100013

PubMed ID: 40825504

Language: English

Document Type: Article

Author Keywords: Phototropin; Chlamydomonas reinhardtii; Intraflagellar transport; Trafficking; Localization

KeyWords Plus: BLUE-LIGHT RECEPTOR; SEXUAL LIFE-CYCLE; INTRAFLAGELLAR TRANSPORT; MATING-TYPE; GENES; PROTEINS; FLAGELLA; IFT

Addresses: [Sharma, Sunita; Sushmita, Kumari; Singh, Rajani; Sanyal, Sibaji K.; Kateriya, Suneel] Jawaharlal Nehru Univ, Sch Biotechnol, Lab Optobiotechnol, New Delhi 110067, India.
[Sharma, Sunita] Univ Georgia, Dept Cellular Biol, Athens, GA 30602 USA.
[Sanyal, Sibaji K.] Heinrich Heine Univ, Inst Bot, D-40225 Dusseldorf, Germany.

Corresponding Address: Kateriya, S (corresponding author), Jawaharlal Nehru Univ, Sch Biotechnol, Lab Optobiotechnol, New Delhi 110067, India.

E-mail Addresses: skateriya@jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; University System of Georgia; University of Georgia; Heinrich Heine University Dusseldorf

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
null, Kumari Sushmita	LRU-8667-2024	

Publisher: ELSEVIER FRANCE-EDITIONS SCIENTIFIQUES MEDICALES ELSEVIER

Publisher Address: 65 RUE CAMILLE DESMOULINS, CS50083, 92442 ISSY-LES-MOULINEAUX, FRANCE

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Biochemistry & Molecular Biology

Research Areas: Biochemistry & Molecular Biology

IDS Number: O6190

ISSN: 0300-9084

eISSN: 1638-6183

29-char Source Abbrev.: BIOCHIMIE

ISO Source Abbrev.: Biochimie

Source Item Page Count: 13

Funding:

Funding Agency	Grant Number
ANRF/SERB	EEQ/2023/000398 CRG/2021/00315
CSIR	
DBT-RA program	DBT-RA/2022/July/N/2560

We would like to express our gratitude to Prof. Peter Hegemann from Humboldt University, Germany, for generously providing us with the phototropin mutant strains (Phot-B5 and Phot-C4-1) [9] . SK is grateful to ANRF/SERB for providing research grants (EEQ/2023/000398 & CRG/2021/00315) , respectively. S.S. is highly thankful to CSIR for providing financial assistance. RS acknowledge DBT-RA program (DBT-RA/2022/July/N/2560) . We gratefully acknowledge S.K. lab members for their suggestions. The authors acknowledge Dr. Neetu Singh and the Advanced Instrumentation Research Facility (AIRF) , Jawaharlal Nehru University.

Output Date: 2025-12-31

Record 44 of 47

Title: Intensification of Compound Extremes Over India Under 1.5°C and 2°C Global Warming Levels: Insights From Bias-Corrected CMIP6 Simulations

Author(s): Rao, KK (Rao, K. Koteswara); Vinodhkumar, B (Vinodhkumar, Buri); Raavi, PH (Raavi, Pavan Harika); Kumar, TVL (Kumar, T. V. Lakshmi); Desamsetti, S (Desamsetti, Srinivas); Gummadi, S (Gummadi, Sridhar); Chowdary, JS (Chowdary, J. S.); Nambeesan, AU (Nambeesan, Athira Unnikrishnan); Al-Ghamdi, SG (Al-ghamdi, Sami G.)

Source: JOURNAL OF GEOPHYSICAL RESEARCH-ATMOSPHERES **Volume:** 130 **Issue:** 24 **Article Number:** e2025JD044366 **DOI:** 10.1029/2025JD044366 **Published Date:** 2025 DEC 17

Cited References: AghaKouchak A, 2020, ANNU REV EARTH PL SC, V48, P519, DOI 10.1146/annurev-earth-071719-055228
Athira UN, 2021, DYNAM ATMOS OCEANS, V95, DOI 10.1016/j.dynatmoce.2021.101225
Ayugi BO, 2024, CLIMATIC CHANGE, V177, DOI 10.1007/s10584-024-03802-6
Becsi B, 2024, ENVIRON RES-CLIM, V3, DOI 10.1088/2752-5295/ad574e
Beniston M, 2009, GEOPHYS RES LETT, V36, DOI 10.1029/2008GL037119
Chakra S, 2023, J HYDROL, V624, DOI 10.1016/j.jhydrol.2023.129975
Das J, 2022, SCI TOTAL ENVIRON, V806, DOI 10.1016/j.scitotenv.2021.150424
Das S, 2022, J HYDROL, V610, DOI 10.1016/j.jhydrol.2022.128002
Dash S, 2023, J HYDROMETEOROL, V24, P2409, DOI 10.1175/JHM-D-22-0238.1
Dash S, 2021, SCI REP-UK, V11, DOI 10.1038/s41598-021-97601-z
Doshi SC, 2023, SCI REP-UK, V13, DOI 10.1038/s41598-023-45067-6
Eyring V, 2016, GEOSCI MODEL DEV, V9, P1937, DOI 10.5194/gmd-9-1937-2016
Fang P, 2025, NPJ CLIM ATMOS SCI, V8, DOI 10.1038/s41612-025-00910-7
Field CB, 2014, CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY, PT A: GLOBAL AND SECTORAL ASPECTS, P1
Gallant AJE, 2014, J CLIMATE, V27, P1379, DOI 10.1175/JCLI-D-12-00783.1
Ganguli P, 2023, CLIM DYNAM, V60, P1061, DOI 10.1007/s00382-022-06324-y
Gao J, 2020, NASA SEDAC, DOI 10.7927/q7z9-9r69
Garg S, 2019, WATER RESOUR RES, V55, P9191, DOI 10.1029/2019WR025863
Guntu RK, 2023, ATMOS RES, V290, DOI 10.1016/j.atmosres.2023.106789
Guntu RK, 2021, SCI REP-UK, V11, DOI 10.1038/s41598-021-95775-0
Halder B, 2024, GEOMAT NAT HAZ RISK, V15, DOI 10.1080/19475705.2024.2409206
Han L, 2023, COMPUT GEOTECH, V164, DOI 10.1016/j.compgeo.2023.105777
Hao ZC, 2018, J HYDROL, V565, P87, DOI 10.1016/j.jhydrol.2018.08.025
Hao ZC, 2013, ENVIRON RES LETT, V8, DOI 10.1088/1748-9326/8/3/034014
Hu YJ, 2024, ATMOS RES, V299, DOI 10.1016/j.atmosres.2023.107160
IPCC, 2022, Global warming of 1.5 C: IPCC special report on impacts of global warming of 1.5 C above pre-industrial levels in context of strengthening response to climate change, sustainable development
ISAAC GA, 1992, J CLIMATE, V5, P822, DOI 10.1175/1520-0442(1992)005<0822:TRFCS>2.0.CO;2
Ji D, 2024, SCI REP-UK, V14, DOI 10.1038/s41598-024-75425-x
Jones B, 2016, ENVIRON RES LETT, V11, DOI 10.1088/1748-9326/11/8/084003
Jones B, 2018, CLIMATIC CHANGE, V146, P423, DOI 10.1007/s10584-017-2133-7
Kumar R, 2023, NPJ CLIM ATMOS SCI, V6, DOI 10.1038/s41612-023-00494-0
Lakshmi Kumar T. V., 2021, Moisture recycing over monsoon core region of India in response to global warming from CMIP 5 model data sets, book, Asian Monsoon-Beyond teleconnections
Lee H., 2023, Climate change 2023: Synthesis report. Contribution of working groups I
Leonard M, 2014, WIRES CLIM CHANGE, V5, P113, DOI 10.1002/wcc.252
Li BH, 2023, EARTHS FUTURE, V11, DOI 10.1029/2023EF003786
Li ZB, 2021, J CLIMATE, V34, P7913, DOI 10.1175/JCLI-D-20-0547.1
Liu WB, 2021, ENVIRON RES LETT, V16, DOI 10.1088/1748-9326/ac188f
MADDEN RA, 1978, MON WEATHER REV, V106, P142, DOI 10.1175/1520-0493(1978)106<0142:TCBTAP>2.0.CO;2

Min RY, 2023, J HYDROL, V621, DOI 10.1016/j.jhydrol.2023.129553
Mukherjee S, 2021, GEOPHYS RES LETT, V48, DOI 10.1029/2020GL090617
NEX-GDDP-CMIP6, 2022, NASA Center for climate simulation, NASA Earth exchange global daily downscaled projections
Nishant N., 2022, Handbook of Himalayan ecosystems and sustainability, V1, P203, DOI [10.1201/9781003268383-14, DOI 10.1201/9781003268383-14]
O'Neill BC, 2016, GEOSCI MODEL DEV, V9, P3461, DOI 10.5194/gmd-9-3461-2016
Pai DS, 2014, MAUSAM, V65, P1
Patel L, 2022, NEJM CATAL INNOV CAR, V3, DOI 10.1056/CAT.21.0454
Patwardhan S, 2018, THEOR APPL CLIMATOL, V131, P581, DOI 10.1007/s00704-016-1999-z
Qi ZX, 2024, CLIM SERV, V34, DOI 10.1016/j.cliser.2024.100477
Qin PH, 2022, ATMOS RES, V273, DOI 10.1016/j.atmosres.2022.106165
Quesada B, 2012, NAT CLIM CHANGE, V2, P736, DOI [10.1038/nclimate1536, 10.1038/NCLIMATE1536]
Rajeev A, 2022, ISCIENCE, V25, DOI 10.1016/j.isci.2022.105377
Rao KK, 2024, SCI REP-UK, V14, DOI 10.1038/s41598-023-49910-8
Rao KK, 2020, SCI REP-UK, V10, DOI 10.1038/s41598-020-73245-3
Raymond C, 2020, NAT CLIM CHANGE, V10, P611, DOI 10.1038/s41558-020-0790-4
Rehana S, 2024, SCI TOTAL ENVIRON, V950, DOI 10.1016/j.scitotenv.2024.175164
Ridder NN, 2022, NPJ CLIM ATMOS SCI, V5, DOI 10.1038/s41612-021-00224-4
Salunke P, 2023, FRONT CLIM, V5, DOI 10.3389/fclim.2023.1069994
Samantray P., 2023, A review on the extreme rainfall studies in India
Sarhadi A, 2018, SCI ADV, V4, DOI 10.1126/sciadv.aau3487
Sarkar S, 2022, J GEOPHYS RES-ATMOS, V127, DOI 10.1029/2021JD035539
Sedlmeier K, 2018, THEOR APPL CLIMATOL, V131, P1493, DOI 10.1007/s00704-017-2061-5
Seneviratne SI, 2020, EARTHS FUTURE, V8, DOI 10.1029/2019EF001474
Shaby BA, 2016, ANN APPL STAT, V10, P74, DOI 10.1214/15-AOAS873
Srivastava AK, 2009, ATMOS SCI LETT, V10, P249, DOI 10.1002/asl.232
Sun XR, 2023, EARTHS FUTURE, V11, DOI 10.1029/2022EF003179
Tamoffo AT, 2024, J GEOPHYS RES-ATMOS, V129, DOI 10.1029/2023JD039385
Thrasher B, 2022, SCI DATA, V9, DOI 10.1038/s41597-022-01393-4
Trenberth KE, 2005, GEOPHYS RES LETT, V32, DOI 10.1029/2005GL022760
Vinodhkumar B, 2025, MODEL EARTH SYST ENV, V11, DOI 10.1007/s40808-024-02261-3
Vinodhkumar B, 2024, SCI REP-UK, V14, DOI 10.1038/s41598-024-67514-8
Vogel MM, 2020, ENVIRON RES LETT, V15, DOI 10.1088/1748-9326/ab90a7
Vyshkvarkova E, 2022, CLIMATE, V10, DOI 10.3390/cli10090133
Wang JB, 2024, COMMUN EARTH ENVIRON, V5, DOI 10.1038/s43247-024-01449-w
Watterson IG, 2021, INT J CLIMATOL, V41, pE1417, DOI 10.1002/joc.6777
Weber T, 2020, EARTHS FUTURE, V8, DOI 10.1029/2019EF001473
Wu XY, 2021, INT J CLIMATOL, V41, P5766, DOI 10.1002/joc.7152
Wu Y, 2021, GEOHEALTH, V5, DOI 10.1029/2021GH000390
Zhang W, 2021, FRONT EARTH SC-SWITZ, V9, DOI 10.3389/feart.2021.673495
Zhou ZL, 2024, NPJ CLIM ATMOS SCI, V7, DOI 10.1038/s41612-024-00579-4
Zscheischler J, 2020, NAT REV EARTH ENV, V1, P333, DOI 10.1038/s43017-020-0060-z
Zscheischler J, 2018, NAT CLIM CHANGE, V8, P469, DOI 10.1038/s41558-018-0156-3

Cited Reference Count: 80

Abstract: Compound climate extremes, where temperature and precipitation extremes occur together are increasing globally and pose growing risks to human and natural systems. India is already experiencing more frequent extreme weather events, underscoring the urgency of assessing how such events may evolve with continued warming. This study uses high-resolution, statistically downscaled, and bias-corrected CMIP6 climate projections from 30 different models to assess the future compound extremes such as Cold-Dry (CD), Cold-Wet (CW), Warm-Dry (WD), and Warm-Wet (WW) under 1.5 degrees C and 2.0 degrees C global warming levels for two future climate scenarios (SSP2-4.5 and SSP5-8.5) during the pre-monsoon season (March-June). The projections indicate that cold-related extremes (CD, CW) will become rare while warm-related extremes (WD, WW) will increase significantly across India, with the largest changes emerging by the mid-21st century across the West Central India (WCI), North East India (NEI), and Central North East India (CNEI). The occurrence of WD events has approximately doubled while WW events have increased nearly threefold across India during this season. Temperature increases, reinforced by land-atmosphere coupling and thermodynamic constraints such as higher vapor pressure deficit and greater moisture holding capacity, intensify wet and dry extremes, while circulation-driven precipitation changes play a lesser role. Population exposure to WD and WW events is projected to rise sharply, particularly in densely populated and climate-sensitive regions. These findings highlight the need for targeted, region-specific adaptation planning and risk-informed decision-making to manage the escalating risks from compound extremes in a warming climate.

Accession Number: WOS:001640713000001

Language: English

Document Type: Article

Author Keywords: climate change; compound extremes; climate impacts; large-scale drivers; India; regional climate

KeyWords Plus: UNITED-STATES; DATA SET; TEMPERATURE; PRECIPITATION; RAINFALL

Addresses: [Rao, K. Koteswara] Natl Ctr Meteorol NCM, Abu Dhabi, U Arab Emirates.
[Vinodhkumar, Buri; Nambeesan, Athira Unnikrishnan; Al-ghamdi, Sami G.] King Abdullah Univ Sci & Technol KAUST, Environm Sci & Engn Program, Biol & Environm Sci & Engn BESE Div, Thuwal, Saudi Arabia.
[Vinodhkumar, Buri; Nambeesan, Athira Unnikrishnan; Al-ghamdi, Sami G.] King Abdullah Univ Sci & Technol KAUST, KAUST Climate & Livabil Initiat, Thuwal, Saudi Arabia.
[Vinodhkumar, Buri] Natl Inst Technol Rourkela, Dept Earth & Atmospher Sci, Rourkela, India.
[Raavi, Pavan Harika] Natl Environm Agcy NEA, Ctr Climate Res Singapore, Singapore, Singapore.
[Kumar, T. V. Lakshmi] Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi, India.
[Desamsetti, Srinivas] Minist Earth Sci, Natl Ctr Medium Range Weather Forecasting, Noida, India.
[Gummadi, Sridhar] Int Ctr Biosaline Agr ICBA, Dubai, U Arab Emirates.
[Chowdary, J. S.] Minist Earth Sci, Indian Inst Trop Meteorol, Pune, India.

Corresponding Address: Raavi, PH (corresponding author), Natl Environm Agcy NEA, Ctr Climate Res Singapore, Singapore, Singapore.

E-mail Addresses: pavan.harika.raavi.ccrs@gmail.com

Affiliations: King Abdullah University of Science & Technology; King Abdullah University of Science & Technology; National Institute of Technology (NIT System); National Institute of Technology Rourkela; Jawaharlal Nehru University, New Delhi; Ministry of Earth Sciences (MoES) - India; National Centre for Medium Range Weather Forecasting (NCMRWF); Ministry of Earth Sciences (MoES) - India; Indian Institute of Tropical Meteorology (IITM)

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Al-Ghamdi, Sami	AAH-6959-2020	
Jasti, S Chowdary	GRY-5010-2022	

Publisher: AMER GEOPHYSICAL UNION

Publisher Address: 2000 FLORIDA AVE NW, WASHINGTON, DC 20009 USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Meteorology & Atmospheric Sciences

Research Areas: Meteorology & Atmospheric Sciences

IDS Number: X5430

ISSN: 2169-897X

eISSN: 2169-8996

29-char Source Abbrev.: J GEOPHYS RES-ATMOS

ISO Source Abbrev.: J. Geophys. Res.-Atmos.

Source Item Page Count: 16

Output Date: 2025-12-31

Record 45 of 47

Title: Decoding the multifaceted role of erythrocyte PMCA4b in oxidative stress-mediated malaria protection and artemisinin resistance

Author(s): Agrohi, P (Agrohi, Priya); Garg, S (Garg, Swati); Biswas, S (Biswas, Shreeja); Maurya, P (Maurya, Preeti); Kumar, V (Kumar, Vijay); Sharma, J (Sharma, Jyoti); Goswami, B (Goswami, Bidhan); Sil, SK (Sil, Samir Kumar); Singh, MP (Singh, Mrigendra Pal); Chand, SK (Chand, Sunil Kumar); Shalini, S (Shalini, Sneh); Singh, OP (Singh, Om P.); Dhangadamajhi, G (Dhangadamajhi, Gunanidhi); Mishra, N (Mishra, Neelima); Ramalingam, S (Ramalingam, Sivaprakash); Mallick, PK (Mallick, Prashant Kumar); Singh, S (Singh, Shailja)

Source: MBIO **DOI:** 10.1128/mbio.01738-25 **Early Access Date:** DEC 2025 **Published Date:** 2025 DEC 16

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Acharya P, 2017, FRONT MICROBIOL, V8, DOI 10.3389/fmicb.2017.00889
Agrohi P., 2024, Aqueous affairs of red blood cell: variations that alter parasite growth, DOI [10.5772/intechopen.115013, DOI 10.5772/INTECHOPEN.115013]
Allegrini B, 2025, J BIOL CHEM, V301, DOI 10.1016/j.jbc.2024.108114
Amambua-Ngwa A, 2017, ANTIMICROB AGENTS CH, V61, DOI 10.1128/AAC.00759-17
Ashley EA, 2014, NEW ENGL J MED, V371, P786
Asih PBS, 2022, MALARIA J, V21, DOI 10.1186/s12936-022-04228-0
Assefa A, 2024, MALARIA J, V23, DOI 10.1186/s12936-024-04848-8
Band G, 2019, NAT COMMUN, V10, DOI 10.1038/s41467-019-13480-z
Bedu-Addo G, 2013, J INFECT DIS, V207, P1600, DOI 10.1093/infdis/jit070
Bei AK, 2010, AM J HEMATOL, V85, P234, DOI 10.1002/ajh.21642
Bradbury PJ, 2007, BIOINFORMATICS, V23, P2633, DOI 10.1093/bioinformatics/btm308
Carter R, 2002, CLIN MICROBIOL REV, V15, P564, DOI 10.1128/CMR.15.4.564-594.2002
Clark MA, 2014, NAT COMMUN, V5, DOI 10.1038/ncomms5446
Dawn A, 2014, PLOS PATHOG, V10, DOI 10.1371/journal.ppat.1004520
de Jong K, 2007, CYTOM PART A, V71A, P693, DOI 10.1002/cyto.a.20429
Dhangadamajhi G, 2019, ACTA TROP, V190, P1, DOI 10.1016/j.actatropica.2018.10.007
Dhorda M, 2021, CURR OPIN INFECT DIS, V34, P432, DOI 10.1097/QCO.0000000000000766
Dondorp AM, 2011, NEW ENGL J MED, V365, P1073, DOI 10.1056/NEJMp1108322
Eridani S, 2011, HEMATOL REP, V3, P72, DOI 10.4081/hr.2011.e24
Evans AG, 2002, INTEGR COMP BIOL, V42, P401, DOI 10.1093/icb/42.2.401
Fofana B, 2023, African Journal of Parasitology Mycology and Entomology, V1, P1, DOI [10.35995/ajpme1010006, 10.35995/ajpme1010006, DOI 10.35995/AJPME1010006]
Fukuda N, 2023, CLIN INFECT DIS, V76, P1585, DOI 10.1093/cid/ciac944
Garg S, 2013, NAT COMMUN, V4, DOI 10.1038/ncomms2725
Gbessi EA, 2021, PARASITE, V28, DOI 10.1051/parasite/2021063
Görlach A, 2015, REDOX BIOL, V6, P260, DOI 10.1016/j.redox.2015.08.010
Heiber A., 2014, Bio Protoc, V4, DOI [10.21769/BioProtoc.1136, DOI 10.21769/BIOPROTOC.1136]
Jain A, 2021, NUCLEIC ACIDS RES, V49, pD1225, DOI 10.1093/nar/gkaa923
Jamwal A, 2023, ELIFE, V12, DOI 10.7554/eLife.83681
Joof F, 2023, MALARIA J, V22, DOI 10.1186/s12936-022-04359-4
KAMCHONWONGPAISAN S, 1994, J CLIN INVEST, V93, P467, DOI 10.1172/JCI116994
Kariuki SN, 2020, HUM GENET, V139, P801, DOI 10.1007/s00439-020-02142-6
Kent WJ, 2002, GENOME RES, V12, P996, DOI 10.1101/gr.229102
Kumari G, 2022, ACS INFECT DIS, V8, P2106, DOI 10.1021/acsinfecdis.2c00199

Kurusamy S, 2017, J MOL CELL CARDIOL, V109, P38, DOI 10.1016/j.yjmcc.2017.07.001
Kwiatkowski DP, 2005, AM J HUM GENET, V77, P171, DOI 10.1086/432519
Lessard S, 2017, J CLIN INVEST, V127, P3065, DOI [10.1172/jci94378, 10.1172/JCI94378]
Ma S, 2018, CELL, V173, P443, DOI 10.1016/j.cell.2018.02.047
Mihreteab S, 2025, LANCET MICROBE, V6, DOI 10.1016/S2666-5247(24)00172-1
Mózner O, 2021, MEMBRANES-BASEL, V11, DOI 10.3390/membranes11080586
Muwanguzi J, 2016, MALARIA J, V15, DOI 10.1186/s12936-016-1095-y
Nayak B, 2024, MBIO, V15, DOI 10.1128/mbio.00232-24
Nayak S, 2024, NAT COMMUN, V15, DOI 10.1038/s41467-024-54915-6
Ndila CM, 2018, LANCET HAEMATOL, V5, pE333, DOI 10.1016/S2352-3026(18)30107-8
Nisar S, 2022, INT J MOL SCI, V23, DOI 10.3390/ijms23094849
Olli KE, 2018, J CELL PHYSIOL, V233, P11, DOI 10.1002/jcp.25882
Peterson Joshua Allen, 2016, Biochem Biophys Rep, V7, P253, DOI [10.1016/j.bbrep.2016.06.019, 10.1016/j.bbrep.2016.06.019]
Pires CV, 2024, MBIO, V15, DOI 10.1128/mbio.03169-23
Rockett KA, 2014, NAT GENET, V46, P1197, DOI 10.1038/ng.3107
Rozas J, 2017, MOL BIOL EVOL, V34, P3299, DOI 10.1093/molbev/msx248
Scheet P, 2006, AM J HUM GENET, V78, P629, DOI 10.1086/502802
SCHWOCH G, 1973, MOL CELL BIOCHEM, V2, P197, DOI 10.1007/BF01795474
Shcherbachenko IM, 2007, FREE RADICAL RES, V41, P536, DOI 10.1080/10715760601161452
Sims JN, 2023, EUR BIOPHYS J BIOPHY, V52, P101, DOI 10.1007/s00249-022-01623-y
Singh S, 2010, PLOS PATHOG, V6, DOI 10.1371/journal.ppat.1000746
Stephens M, 2001, AM J HUM GENET, V68, P978, DOI 10.1086/319501
Stokes BH, 2022, NEW ENGL J MED, V386, P1385, DOI 10.1056/NEJMc2117480
Tamura K, 2021, MOL BIOL EVOL, V38, P3022, DOI 10.1093/molbev/msab120
Thiam A, 2023, MALARIA J, V22, DOI 10.1186/s12936-023-04503-8
Tiffert T, 2005, BLOOD, V105, P4853, DOI 10.1182/blood-2004-12-4948
Timmann C, 2012, NATURE, V489, P443, DOI 10.1038/nature11334
TRAGER W, 1976, SCIENCE, V193, P673, DOI 10.1126/science.781840
Trakarnsanga K, 2017, NAT COMMUN, V8, DOI 10.1038/ncomms14750
Tubman VN, 2016, ANTIMICROB AGENTS CH, V60, P613, DOI 10.1128/AAC.01668-15
Uyoga S, 2022, NAT COMMUN, V13, DOI 10.1038/s41467-022-30990-5
Villegas-Mendez A, 2021, MALARIA J, V20, DOI 10.1186/s12936-021-03832-w
Wang LS, 2003, BIOINFORMATICS, V19, P1773, DOI 10.1093/bioinformatics/btg239
Zámbó B, 2017, CELL CALCIUM, V65, P73, DOI 10.1016/j.ceca.2017.02.001
Zamek-Gliszczynski MJ, 2003, J PHARMACOL EXP THER, V304, P801, DOI 10.1124/jpet.102.044107
Zipprer EM, 2014, MALARIA J, V13, DOI 10.1186/1475-2875-13-184

Cited Reference Count: 69

Abstract: The ATP2B4 gene, encoding the PMCA4b Ca-2+-ATPase in erythrocytes, has been linked to malaria protection via genome-wide association studies, though the proposed dehydration mechanism remains unclear. This study evaluates ATP2B4 genotypes and PMCA4b expression in malaria susceptibility and artemisinin sensitivity. ATP2B4 genotypes were compared across severe malaria, uncomplicated malaria, and healthy controls in Indian population. PMCA4b expression, intra-erythrocytic calcium, oxidative stress markers, Gardos channel activity, and Plasmodium falciparum growth dynamics were analyzed. Artemisinin sensitivity was assessed using growth inhibition and ring survival assays. ATP2B4 genotypes showed no significant association with malaria protection. Regardless of genotype, low PMCA4b expression correlated with increased intra-erythrocytic calcium, oxidative stress, and reduced in-vitro parasite growth. Gardos channel activity inversely correlated with PMCA4b but did not induce dehydration. Instead, oxidative-stress regulation by PMCA4b emerged as a key factor in malaria protection. Treatment of RBCs with resveratrol, a PMCA inhibitor, further validates the functional role of PMCA in regulation of intracellular calcium and oxidative stress. Notably, low PMCA4b expression also reduced P. falciparum artemisinin sensitivity, providing evidence that host genetic variation can influence drug efficacy. These findings suggest a role for PMCA4b in oxidative stress and drug response as critical to malaria pathophysiology. We further emphasize that many redox modulating RBC polymorphisms in malaria endemic areas could also influence artemisinin efficacy and serve as potential biomarkers for predicting therapeutic response.IMPORTANCEDiscovery of the mechanism by which human host variations affect the sensitivity of artemisinin in parasite provides an interestingly important view for optimizing anti-malarial treatment strategies. The human host and malaria parasite share a closely interconnected relationship; hence, we propose that parasite physiology or drug resistance cannot be studied alone without considering the host's biological factors. This study demonstrates that increase in intracellular calcium of RBCs is associated with a proportionate increase in intracellular oxidative stress, which affects the artemisinin sensitivity. Thus, variations in PMCA4b expression, the primary calcium efflux pump in RBCs, significantly alter the erythrocytic ROS levels, thereby affecting the P. falciparum growth and artemisinin sensitivity. Notably, intracellular redox imbalance is a common phenotype of multiple erythrocytic polymorphisms prevalent in malaria endemic areas, such as sickle cell, thalassemia, G6PD deficiency, etc. This study advocates the need for a widespread population-based investigation that associates the importance of host erythrocyte oxidative microenvironment surveillance in monitoring antimalarial drug resistance.

Accession Number: WOS:001639389000001

PubMed ID: 41400477

Language: English

Document Type: Article; Early Access

Author Keywords: malaria; artemisinin resistance; PMCA4b; oxidative stress; resveratrol

KeyWords Plus: RED-BLOOD-CELLS; HUMAN GENOME; CALCIUM; HAPLOTYPE; PARASITES; ASSOCIATION; HYDRATION; GENETICS; INVASION; LOCI

Addresses: [Agrohi, Priya; Kumar, Vijay; Singh, Om P.; Mishra, Neelima; Mallick, Prashant Kumar] ICMR Natl Inst Malaria Res, New Delhi, India.
[Agrohi, Priya; Kumar, Vijay; Mishra, Neelima; Mallick, Prashant Kumar] Acad Sci & Innovat Res AcSIR, Ghaziabad, Uttar Pradesh, India.
[Garg, Swati; Biswas, Shreeja; Maurya, Preeti; Sharma, Jyoti; Singh, Shailja] Jawaharlal Nehru Univ, Special Ctr Mol Med, New Delhi, India.
[Garg, Swati] Sharda Univ, Dept Life Sci, Greater Noida 201310, Uttar Pradesh, India.
[Goswami, Bidhan] Tripura Univ, Dept Human Physiol, Mol Genet & Canc Biol Lab, Suryamaninagar, Tripura, India.
[Goswami, Bidhan; Sil, Samir Kumar] Tripura Univ, Dept Human Physiol, Suryamaninagar, Tripura, India.
[Singh, Mrigendra Pal; Chand, Sunil Kumar] ICMR Natl Inst Malaria Res Field Unit Jabalpur, Jabalpur, Madhya Pradesh, India.
[Shalini, Sneh] Indian Council Med Res, New Delhi, India.
[Dhangadamajhi, Gunanidhi] North Orissa Univ, Dept Biotechnol, Baripada, Odisha, India.
[Ramalingam, Sivaprakash] CSIR Inst Genom & Integrat Biol CSIR IGIB, New Delhi, India.

Corresponding Address: Mallick, PK (corresponding author), ICMR Natl Inst Malaria Res, New Delhi, India.
Mallick, PK (corresponding author), Acad Sci & Innovat Res AcSIR, Ghaziabad, Uttar Pradesh, India.
Singh, S (corresponding author), Jawaharlal Nehru Univ, Special Ctr Mol Med, New Delhi, India.

E-mail Addresses: pkmmrc01@gmail.com; shailja.jnu@gmail.com

Affiliations: Indian Council of Medical Research (ICMR); ICMR - National Institute of Malaria Research (NIMR); Academy of Scientific & Innovative Research (AcSIR); Jawaharlal Nehru University, New Delhi; Sharda University; Tripura University; Tripura University; Indian Council of Medical Research (ICMR); ICMR - National Institute of Malaria Research (NIMR); Indian Council of Medical Research (ICMR); Council of Scientific & Industrial Research (CSIR) - India; CSIR - Institute of Genomics & Integrative Biology (IGIB)

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
MALLICK, PRASHANT	AIE-3523-2022	

Publisher: AMER SOC MICROBIOLOGY

Publisher Address: 1752 N ST NW, WASHINGTON, DC 20036-2904 USA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Microbiology

Research Areas: Microbiology
IDS Number: W2262
eISSN: 2150-7511
29-char Source Abbrev.: MBIO
ISO Source Abbrev.: mBio
Source Item Page Count: 25
Funding:

Funding Agency	Grant Number
Indian Council of Medical Research	NER/84/2022-ECD-I
Department of Biotechnology, Ministry of Science and Technology, India	IC-12044(11)/10/2021-ICD-DBT

We express our gratitude to all donors who participated in the study. The director of ICMR-NIMR is acknowledged for providing infrastructure and research facility. We thank AIRF for access to the AFM facility at JNU.

Open Access: gold
Output Date: 2025-12-31

Record 46 of 47

Title: Engineering brain organoids and organ-on-chip systems for modeling neurodevelopmental and neurodegenerative pathophysiology

Author(s): Banerjee, S (Banerjee, Soupayan); Chandu, PM (Chandu, Pranathi Mirale); Sarkar, M (Sarkar, Meghna); Soni, TK (Soni, Tanveen Kaur); Saha, M (Saha, Madhumita); Muhammad, LF (Muhammad, L. Fathah); Chatterjee, B (Chatterjee, Bhaskarjyaa); Das, U (Das, Uddalak)

Source: NEUROLOGICAL RESEARCH **DOI:** 10.1080/01616412.2025.2600434 **Early Access Date:** DEC 2025 **Published Date:** 2025 DEC 10

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Abud EM, 2017, NEURON, V94, P278, DOI 10.1016/j.neuron.2017.03.042
Acharya P, 2024, BIOTECHNOL BIOENG, V121, P489, DOI 10.1002/bit.28606
Ameen TB, 2024, EGYPT J NEUROL PSYCH, V60, DOI 10.1186/s41983-024-00845-5
Amin ND, 2018, NEURON, V100, P389, DOI 10.1016/j.neuron.2018.10.007
Atamian A, 2024, CELL STEM CELL, V31, DOI 10.1016/j.stem.2023.11.013
Bagchi S, 2019, DRUG DES DEV THER, V13, P3591, DOI 10.2147/DDDT.S218708
Bagley JA, 2017, NAT METHODS, V14, P743, DOI 10.1038/nmeth.4304
Benito-Kwiecinski S, 2020, CSH PERSPECT BIOL, V12, DOI 10.1101/cshperspect.a035709
Berg J, 2021, NATURE, V598, P151, DOI 10.1038/s41586-021-03813-8
Bhaduri A, 2020, NATURE, V578, P142, DOI 10.1038/s41586-020-1962-0
Birey F, 2017, NATURE, V545, P54, DOI 10.1038/nature22330
Martin CB, 2021, FRONT NEUROSCI-SWITZ, V15, DOI 10.3389/fnins.2021.629067
Cakir B, 2019, NAT METHODS, V16, P1169, DOI 10.1038/s41592-019-0586-5
Camp JG, 2015, P NATL ACAD SCI USA, V112, P15672, DOI 10.1073/pnas.1520760112
Castiglione H, 2022, PHARMACEUTICS, V14, DOI 10.3390/pharmaceutics14112301
Choi YJ, 2016, INT J ONCOL, V49, P1479, DOI 10.3892/ijo.2016.3647
Chortos A, 2022, CELL, V185, P2653, DOI 10.1016/j.cell.2022.06.017
Corrò C, 2020, AM J PHYSIOL-CELL PH, V319, pC151, DOI 10.1152/ajpcell.00120.2020
Das U, 2025, Cancer Plus, V7, P64, DOI [10.36922/cp025060008, 10.36922/CP025060008, DOI 10.36922/CP025060008]

Das U, 2025, ASPECTS MOL MED, V5, DOI [10.1016/j.amolm.2024.100058, 10.1016/j.amolm.2024.100058]
Das U, 2025, Vacunas, P500391, DOI [10.1016/j.vacun.2025.500391, DOI 10.1016/J.VACUN.2025.500391, 10.1016/j.vacun.2025.500391]
Das U, 2025, CANCER PATHOG THER, V3, P309, DOI [10.1016/j.cpt.2024.11.003, 10.1016/j.cpt.2024.11.003]
Das U, 2025, In Silico Research in Biomedicine, V1, P100006, DOI [10.1016/j.insi.2025.100006, 10.1016/j.insi.2025.100006, DOI 10.1016/J.INSI.2025.100006]
Das U, 2025, COMPUT BIOL CHEM, V117, DOI 10.1016/j.compbiolchem.2025.108427
Das U, 2025, CHEMISTRYSELECT, V10, DOI 10.1002/slct.202502448
Das U, 2025, Medicine in Drug Discovery, V27, P100213, DOI [10.1016/j.medidd.2025.100213, 10.1016/j.medidd.2025.100213]
Dawson TM, 2018, NAT NEUROSCI, V21, P1370, DOI 10.1038/s41593-018-0236-8
Di Lullo E, 2017, NAT REV NEUROSCI, V18, P573, DOI 10.1038/nrn.2017.107
Dunn KM, 2014, AM J PHYSIOL-HEART C, V306, pH1, DOI 10.1152/ajpheart.00364.2013
Eiraku M, 2008, CELL STEM CELL, V3, P519, DOI 10.1016/j.stem.2008.09.002
Ene HM, 2023, MOL PSYCHIATR, V28, P1170, DOI 10.1038/s41380-022-01865-4
Feng DD, 2023, J ETHNOPHARMACOL, V317, DOI 10.1016/j.jep.2023.116823
Gan YQ, 2024, CURR OPIN BEHAV SCI, V59, DOI 10.1016/j.cobeha.2024.101431
Giandomenico SL, 2019, NAT NEUROSCI, V22, P669, DOI 10.1038/s41593-019-0350-2
He WH, 2024, NAT COMMUN, V15, DOI 10.1038/s41467-024-55094-0
Hofer M, 2021, NAT REV MATER, V6, P402, DOI 10.1038/s41578-021-00279-y
Hu B, 2025, J THEOR BIOL, V602, DOI 10.1016/j.jtbi.2025.112059
Huang D, 2024, NATURE, V625, DOI 10.1038/s41586-023-06834-7
Huang SC, 2022, CELL PROLIFERAT, V55, DOI 10.1111/cpr.13201
Hui Z, 2024, J ASIAN NAT PROD RES, V26, P1405, DOI 10.1080/10286020.2024.2371040
Jacob F, 2021, CURR TOP DEV BIOL, V142, P477, DOI 10.1016/bs.ctdb.2020.12.011
Jiang YB, 2025, SCI BULL, V70, P162, DOI 10.1016/j.scib.2024.06.005
Jusop AS, 2023, FRONT MOL NEUROSCI, V16, DOI 10.3389/fnmol.2023.1173433
Kang UJ, 2019, MOVEMENT DISORD, V34, P536, DOI 10.1002/mds.27646
Kathuria A, 2020, GENOME MED, V12, DOI 10.1186/s13073-020-00733-6
Kim J, 2020, NAT REV MOL CELL BIO, V21, P571, DOI 10.1038/s41580-020-0259-3
Kong DS, 2023, CELL DEATH DISCOV, V9, DOI 10.1038/s41420-022-01288-8
Lancaster MA, 2014, SCIENCE, V345, DOI 10.1126/science.1247125
Lancaster MA, 2013, NATURE, V501, P373, DOI 10.1038/nature12517
Li ZG, 2024, LEUKEMIA, V38, P2699, DOI 10.1038/s41375-024-02423-3
Liang JQ, 2024, SCHIZOPHRENIA BULL, V50, P913, DOI 10.1093/schbul/sbae063
Lin YT, 2018, NEURON, V98, P1141, DOI 10.1016/j.neuron.2018.05.008
Lu T, 2024, CELL, V187, P7374, DOI 10.1016/j.cell.2024.10.023
Lu XB, 2019, NATURE, V574, P653, DOI 10.1038/s41586-019-1695-0
Lu YF, 2020, DEV CELL, V53, P473, DOI 10.1016/j.devcel.2020.04.009
Luo HQ, 2025, FRONT PHARMACOL, V16, DOI [10.3389/fphar.2025.1511011, 10.3389/fphar.2025.1511011]
Luo HQ, 2019, FRONT PHARMACOL, V10, DOI 10.3389/fphar.2019.00395
Ma N, 2024, OPT EXPRESS, V32, P33378, DOI 10.1364/OE.530764
Mansour AA, 2021, SEMIN CELL DEV BIOL, V111, P32, DOI 10.1016/j.semcdb.2020.05.013
Mansour AA, 2018, NAT BIOTECHNOL, V36, P432, DOI 10.1038/nbt.4127
Maoz BM, 2018, NAT BIOTECHNOL, V36, P865, DOI 10.1038/nbt.4226
Marton RM, 2019, NAT NEUROSCI, V22, P484, DOI 10.1038/s41593-018-0316-9
Miura Y, 2020, NAT BIOTECHNOL, V38, DOI 10.1038/s41587-020-00763-w
Molnar Z, 2019, J ANAT, V235, P432, DOI 10.1111/joa.13055
Morita R, 2015, P NATL ACAD SCI USA, V112, P160, DOI 10.1073/pnas.1413234112
Nzou G, 2018, SCI REP-UK, V8, DOI 10.1038/s41598-018-25603-5
Ormel PR, 2018, NAT COMMUN, V9, DOI 10.1038/s41467-018-06684-2
Osaki T, 2020, NAT PROTOC, V15, P421, DOI 10.1038/s41596-019-0248-1

Park JC, 2021, NAT COMMUN, V12, DOI 10.1038/s41467-020-20440-5
Park SE, 2019, SCIENCE, V364, P960, DOI 10.1126/science.aaw7894
Patsch C, 2015, NAT CELL BIOL, V17, P994, DOI 10.1038/ncb3205
Prager BC, 2019, CELL STEM CELL, V24, P41, DOI 10.1016/j.stem.2018.12.009
Qian XY, 2019, DEVELOPMENT, V146, DOI 10.1242/dev.166074
Quadrato G, 2017, NATURE, V545, P48, DOI 10.1038/nature22047
Rauth S, 2021, BBA-REV CANCER, V1875, DOI 10.1016/j.bbcan.2021.188527
Saglam-Metiner P, 2024, MICROCHIM ACTA, V191, DOI 10.1007/s00604-023-06165-4
Saglam-Metiner P, 2023, COMMUN BIOL, V6, DOI 10.1038/s42003-023-04547-1
Saha M., 2025, Curr. Biotechnol., V14, DOI DOI 10.2174/0122115501377525250604094459
Sandoval SO, 2024, STEM CELL REP, V19, P796, DOI 10.1016/j.stemcr.2024.04.008
Shi YC, 2020, PLOS BIOL, V18, DOI 10.1371/journal.pbio.3000705
Shin AE, 2023, TRENDS PHARMACOL SCI, V44, P222, DOI 10.1016/j.tips.2023.01.003
Shin H, 2021, NAT COMMUN, V12, DOI 10.1038/s41467-020-20763-3
Short PJ, 2018, NATURE, V555, P611, DOI 10.1038/nature25983
Sidhaye J, 2021, CELL DEATH DIFFER, V28, P52, DOI 10.1038/s41418-020-0566-4
Silbereis JC, 2016, NEURON, V89, P248, DOI 10.1016/j.neuron.2015.12.008
Skylar-Scott MA, 2019, SCI ADV, V5, DOI 10.1126/sciadv.aaw2459
Sloan SA, 2018, NAT PROTOC, V13, P2062, DOI 10.1038/s41596-018-0032-7
Smirnova L, 2023, Frontiers in Science, V1, DOI [10.3389/fsci.2023.1017235, 10.3389/fsci.2023.1017235, DOI 10.3389/FSCI.2023.1017235]
Stiles J, 2010, NEUROPSYCHOL REV, V20, P327, DOI 10.1007/s11065-010-9148-4
Studer L, 2015, CELL STEM CELL, V16, P591, DOI 10.1016/j.stem.2015.05.004
Sun XH, 2024, STEM CELLS, V42, P107, DOI 10.1093/stmcls/sxad086
Sun XY, 2022, J MOL CELL BIOL, V14, DOI 10.1093/jmcb/mjac040
Sun XY, 2022, ELIFE, V11, DOI 10.7554/eLife.76707
Sung JH, 2019, ANAL CHEM, V91, P330, DOI 10.1021/acs.analchem.8b05293
Susaimanickam PJ, 2022, INT J STEM CELLS, V15, P26, DOI 10.15283/ijsc22006
Sweeney MD, 2018, NAT NEUROSCI, V21, P1318, DOI 10.1038/s41593-018-0234-x
Tian HG, 2025, CHAOS SOLITON FRACT, V199, DOI 10.1016/j.chaos.2025.116863
Trujillo CA, 2019, CELL STEM CELL, V25, P558, DOI 10.1016/j.stem.2019.08.002
Uzquiano A, 2022, CELL, V185, P3770, DOI 10.1016/j.cell.2022.09.010
van der Helm MW, 2016, TISSUE BARRIERS, V4, DOI 10.1080/21688370.2016.1142493
Vatine GD, 2019, CELL STEM CELL, V24, P995, DOI 10.1016/j.stem.2019.05.011
Vodyanik MA, 2010, CELL STEM CELL, V7, P718, DOI 10.1016/j.stem.2010.11.011
Wadan AS, 2025, Brain Organoid and Systems Neuroscience Journal, V3, P8, DOI [10.1016/j.bosn.2025.01.002, 10.1016/j.bosn.2025.01.002, DOI 10.1016/J.BOSN.2025.01.002]
Wan L, 2024, EUR PSYCHIAT, V67, DOI 10.1192/j.eurpsy.2024.1785
Wang FF, 2021, ANAL CHEM, V93, P1702, DOI 10.1021/acs.analchem.0c04307
Wang H, 2024, THERANOSTICS, V14, P788, DOI 10.7150/thno.90492
Wang YQ, 2018, RSC ADV, V8, P1677, DOI 10.1039/c7ra11714k
Wang YI, 2017, BIOTECHNOL BIOENG, V114, P184, DOI 10.1002/bit.26045
Wang YC, 2022, ADV DRUG DELIVER REV, V180, DOI 10.1016/j.addr.2021.114066
Wray S, 2021, SEMIN CELL DEV BIOL, V111, P60, DOI 10.1016/j.semcdb.2020.05.012
Wu S, 2021, CELL SYST, V12, P907, DOI 10.1016/j.cels.2021.07.002
Xiang YF, 2017, CELL STEM CELL, V21, P383, DOI 10.1016/j.stem.2017.07.007
Xue WW, 2024, CELL REP METHODS, V4, DOI 10.1016/j.crmeth.2024.100777
Yang NN, 2025, AUTOPHAGY, V21, P2168, DOI 10.1080/15548627.2025.2493455
Yemini E, 2021, CELL, V184, P272, DOI 10.1016/j.cell.2020.12.012
Zhan XH, 2025, J BIOMECH, V179, DOI 10.1016/j.jbiomech.2024.112456
Zhang C, 2024, INT J SURG, V110, P4804, DOI 10.1097/JS9.0000000000001466
Zhang H, 2025, FRONT PHARMACOL, V16, DOI 10.3389/fphar.2025.1581320
Zhang XN, 2016, METHODS MOL BIOL, V1402, P33, DOI 10.1007/978-1-4939-3378-5_5
Zheng LJ, 2024, FRONT CELL DEV BIOL, V12, DOI 10.3389/fcell.2024.1432744

Ziffra RS, 2021, NATURE, V598, P205, DOI 10.1038/s41586-021-03209-8
Zlokovic BV, 1998, NEUROSURGERY, V43, P877, DOI 10.1097/00006123-199810000-00089
Zou WZ, 2024, DEV CELL, V59, DOI 10.1016/j.devcel.2023.11.021

Cited Reference Count: 123

Abstract: ObjectivesNeurodevelopmental and neurodegenerative disorders arise from complex disruptions in brain structure and function, many originating during early development. However, conventional in vitro and animal models often fail to capture the cellular diversity, temporal dynamics, and architectural complexity of the human brain. This review aims to synthesize recent advances in stem-cell-derived in vitro platforms, specifically brain organoids, assembloids, and organ-on-chip technologies, and evaluate how these systems are reshaping research on Alzheimer's and Parkinson's diseases by enabling more human-relevant modeling.MethodsWe surveyed recent literature focusing on region-specific and vascularized organoids, integrated neuronal subtype models, and microfluidic organ-on-chip systems. Particular attention was given to studies demonstrating increased physiological relevance, enhanced modeling of disease-specific phenotypes, and expanding utility in translational research, therapeutic screening, and drug discovery pipelines.ResultsInnovations in organoid engineering have enabled more faithful recapitulation of human brain development and degeneration. These platforms have advanced understanding of amyloid aggregation, neuroinflammatory processes, dopaminergic neuron vulnerability, and gut-brain axis contributions. The incorporation of vascular structures, improved microfluidic control, and assembly of multi-region neuronal circuits have strengthened functional readouts and boosted mechanistic insight. Collectively, these developments are accelerating preclinical therapeutic testing and enabling more predictive disease modeling.DiscussionCompared to prior reviews, this article uniquely integrates developmental and degenerative perspectives while evaluating emerging strategies that increase reproducibility and translational accuracy. Persistent limitations, including incomplete vascularization, cellular stress responses, and batch-to-batch variability, underscore the need for improved standardization and incorporation of immune components. Future directions that merge vascular, immune, and circuit-level complexity promise to advance organoid-based neuroscience toward personalized modeling and therapeutic application.

Accession Number: WOS:001632935800001

PubMed ID: 41359798

Language: English

Document Type: Review; Early Access

Author Keywords: Brain organoids; neurodegenerative diseases; human pluripotent stem cells (hPSCs); organs-on-a-chip; vascularization

KeyWords Plus: NEURAL DEVELOPMENT; STEM-CELLS; MECHANISMS

Addresses: [Banerjee, Soupayan] CSIR, Ctr Cellular & Mol Biol, Dept Neurosci, Hyderabad, India.
[Chandu, Pranathi Mirale; Muhammad, L. Fathah] Ctr Human Genet, Dept Genet, Bengaluru, India.
[Sarkar, Meghna] Brandenburg Tech Univ Cottbus, Dept Biotechnol, Senftenberg, Germany.
[Soni, Tanveen Kaur] JIS Univ, Dept Biosci, Kolkata, India.
[Saha, Madhumita] Inst Nano Sci & Technol, Chem Biol Unit, SAS Nagar, India.
[Chatterjee, Bhaskarjyaa] Anna Univ, Dept Biotechnol, Chennai, India.
[Das, Uddalak] Indian Inst Sci, Div Biol Sci, Dev Biol & Genet, Bengaluru 560012, India.
[Das, Uddalak] Jawaharlal Nehru Univ, Sch Biotechnol, New Delhi, India.

Corresponding Address: Das, U (corresponding author), Indian Inst Sci, Div Biol Sci, Dev Biol & Genet, Bengaluru 560012, India.

E-mail Addresses: uddalakdas@iisc.ac.in

Affiliations: Council of Scientific & Industrial Research (CSIR) - India; CSIR - Centre for Cellular & Molecular Biology (CCMB); Brandenburg University of Technology Cottbus; Department of Science & Technology (India); Institute of Nano Science & Technology (INST); Anna University; Anna University Chennai; Indian Institute of Science (IISC) - Bangalore; Jawaharlal Nehru University, New Delhi

Publisher: TAYLOR & FRANCIS LTD

Publisher Address: 2-4 PARK SQUARE, MILTON PARK, ABINGDON OR14 4RN, OXON, ENGLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Clinical Neurology; Neurosciences
Research Areas: Neurosciences & Neurology
IDS Number: O7937
ISSN: 0161-6412
eISSN: 1743-1328
29-char Source Abbrev.: NEUROL RES
ISO Source Abbrev.: Neurol. Res.
Source Item Page Count: 18
Funding:

Funding Agency	Grant Number
Department of Biotechnology	DBTHRDPMU/JRF/BET-24/I/2024-25/376
Council of Scientific and Industrial Research	24J/01/00130
Indian Council of Medical Research	3/1/3/BRET-2024/HRD (L1)

The author(s) acknowledge the funds received by Uddalak das from the Department of Biotechnology [DBTHRDPMU/JRF/BET-24/I/2024-25/376], the Council of Scientific and Industrial Research [24J/01/00130], and the Indian Council of Medical Research [3/1/3/BRET-2024/HRD (L1)].
Output Date: 2025-12-31

Record 47 of 47

Title: Uncovering functional divergence and cellular clusters with specific gene signatures in HNSCC clonal spheroids

Author(s): Pandey, J (Pandey, Jyoti); Malik, MZ (Malik, Md. Zubbair); Shyanti, RK (Shyanti, Ritis K.); Parashar, P (Parashar, Palak); Kujur, PK (Kujur, Praveen K.); Mishra, D (Mishra, Deepali); Tailor, D (Tailor, Dhanir); Lee, JM (Lee, Jee Min); Kataria, T (Kataria, Tejinder); Gupta, D (Gupta, Deepak); Verma, H (Verma, Hitesh); Yadav, A (Yadav, Anshu); Kateriya, S (Kateriya, Suneel); Malhotra, SV (Malhotra, Sanjay V.); Tandon, V (Tandon, Vibha); Chaturvedi, R (Chaturvedi, Rupesh); Singh, RP (Singh, Rana P.)

Source: CELL COMMUNICATION AND SIGNALING **Volume:** 23 **Issue:** 1 **Article Number:** 527 **DOI:** 10.1186/s12964-025-02360-3 **Published Date:** 2025 DEC 12

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited References: Bartha A, 2021, INT J MOL SCI, V22, DOI 10.3390/ijms22052622
Becht E, 2019, NAT BIOTECHNOL, V37, P38, DOI 10.1038/nbt.4314
Bhat AA, 2021, SIGNAL TRANSDUCT TAR, V6, DOI 10.1038/s41392-020-00419-w
Boeckx C, 2014, CANCER LETT, V354, P365, DOI 10.1016/j.canlet.2014.08.039
Canning M, 2019, FRONT CELL DEV BIOL, V7, DOI 10.3389/fcell.2019.00052
Chen CJ, 2019, MOL MED REP, V19, P3477, DOI 10.3892/mmr.2019.10055
de Miranda MC, 2021, BIOMED PHARMACOTHER, V144, DOI 10.1016/j.biopha.2021.112269
Eberly HW, 2024, BIOMEDICINES, V12, DOI 10.3390/biomedicines12020415
Finak G, 2015, GENOME BIOL, V16, DOI 10.1186/s13059-015-0844-5
Gao F, 2021, J ORAL PATHOL MED, V50, P175, DOI 10.1111/jop.13116
Hao YH, 2021, CELL, V184, P3573, DOI 10.1016/j.cell.2021.04.048
Hatthakarnkul P, 2023, J CANCER, V14, P1837, DOI 10.7150/jca.83910
Jin YL, 2021, INT J MOL SCI, V22, DOI 10.3390/ijms222011151
Johnson DE, 2020, NAT REV DIS PRIMERS, V6, DOI 10.1038/s41572-020-00224-3
Kinker GS, 2020, NAT GENET, V52, P1208, DOI 10.1038/s41588-020-00726-6
Kochanek SJ, 2020, SLAS DISCOV, V25, P329, DOI 10.1177/2472555219896999

Kogashiwa Y, 2018, HEAD NECK-J SCI SPEC, V40, P2424, DOI 10.1002/hed.25353
Lee JW, 2018, BIOTECHNIQUES, V65, P197, DOI 10.2144/btn-2018-0046
Liang JF, 2023, FRONT ONCOL, V13, DOI 10.3389/fonc.2023.1271505
Liyanage C, 2019, BIOMOLECULES, V9, DOI 10.3390/biom9040148
Marusyk A, 2012, NAT REV CANCER, V12, P323, DOI 10.1038/nrc3261
McBride WH, 2020, J PATHOL, V250, P647, DOI 10.1002/path.5389
Mehra R, 2013, LANCET ONCOL, V14, pE425, DOI 10.1016/S1470-2045(13)70128-1
Niklander SE, 2021, FRONT ORAL HEALTH, V2, DOI 10.3389/froh.2021.722676
Puram SV, 2017, CELL, V171, P1611, DOI 10.1016/j.cell.2017.10.044
Quah HS, 2023, NAT COMMUN, V14, DOI 10.1038/s41467-023-37379-y
Rodrigues DB, 2024, J BIOMED SCI, V31, DOI 10.1186/s12929-024-00997-9
Schmidt M, 2016, ONCOL REP, V35, P2431, DOI 10.3892/or.2016.4581
Sun LL, 2023, CELL DISCOV, V9, DOI 10.1038/s41421-023-00532-4
Sung H, 2021, CA-CANCER J CLIN, V71, P209, DOI 10.3322/caac.21660
Tada H, 2020, ANTICANCER RES, V40, P3559, DOI 10.21873/anticanres.14345
Takenawa T, 2023, J ORAL MAX SURG MED, V35, P282, DOI 10.1016/j.ajoms.2022.10.004
Tirier SM, 2019, SCI REP-UK, V9, DOI 10.1038/s41598-019-48771-4
Van den Bossche V, 2022, DRUG RESIST UPDATE, V60, DOI 10.1016/j.drup.2022.100806
Velletri T, 2022, CELL DEATH DIFFER, V29, P614, DOI 10.1038/s41418-021-00878-w
Wang B, 2021, HEAD FACE MED, V17, DOI 10.1186/s13005-021-00269-z
Wang X, 2020, EBIOMEDICINE, V53, DOI 10.1016/j.ebiom.2020.102685
Wang ZY, 2022, FRONT IMMUNOL, V13, DOI 10.3389/fimmu.2022.843322
You GR, 2022, Cells, V11
Zhang Q, 2021, ANN TRANSL MED, V9, DOI 10.21037/atm-21-2767
Zhao FL, 2022, FRONT GENET, V13, DOI 10.3389/fgene.2022.856692
Zhao ZL, 2023, FRONT ONCOL, V13, DOI 10.3389/fonc.2023.1117642

Cited Reference Count: 42

Abstract: Head and neck squamous cell carcinoma (HNSCC) exhibits substantial genetic and functional heterogeneities. We generated clonal spheroids (CS) from HNSCC cell lines and patient tumor cells, uncovering distinct functional differences. Hyperproliferative spheroids (HRPS) showed increased proliferation and tumorigenic potential, whereas hypoproliferative spheroids (HOPS) demonstrated enhanced migration and resistance to cisplatin and radiation. In patient tumor-derived spheroids, spheroid size distribution analysis across various TNM stages indicated that early-stage tumors (T2N0M0) predominantly formed HRPS, while later-stage tumors (T4N2M0) exhibited a higher prevalence of HOPS. Single-cell RNA sequencing (scRNA-seq) identified six clusters in the HOPS and four in the HRPS, each defined by unique gene expression profiles and pathway enrichment. HOPS were enriched with fibroblast, mesenchymal, and keratinizing epithelial cells, indicating a metastatic phenotype. They also expressed genes associated with stemness (KRT15 and ALDH3A1). Conversely, HRPS was characterized by proliferative genes, including TOP2A, AURKA, CKS2, AREG, and ANLN, suggesting an advanced HNSCC proliferative signature. Despite being generated from only two cells/well, the various clusters in both spheroid types mirrored the diverse tumor microenvironment in HNSCC, including neoplastic, epithelial, basal, fibroblast, and mesenchymal cells. Notably, the gene expression profiles of Cluster 3 in the HOPS and Cluster 1 in the HRPS closely matched the expression patterns observed in the HNSCC-TCGA dataset. These clusters also displayed a high transcriptional correlation between patient tumors and their xenografts, reinforcing the clonal nature of HNSCC's genetic and functional diversity of HNSCC.

Accession Number: WOS:001637330100001

PubMed ID: 41388470

Language: English

Document Type: Article

Author Keywords: HNSCC; Structural-functional-genetic heterogeneity; Clonal spheroid

KeyWords Plus: HEAD; CELLS

Addresses: [Pandey, Jyoti; Malik, Md. Zubbair; Yadav, Anshu; Kateriya, Suneel; Chaturvedi, Rupesh] Jawaharlal Nehru Univ, Sch Biotechnol, New Delhi, India.
[Malik, Md. Zubbair] Dasman Diabet Inst, Dept Genet & Bioinformat, POB 1180, Kuwait 15462, Kuwait.
[Shyanti, Ritis K.; Kujur, Praveen K.; Mishra, Deepali; Singh, Rana P.] Jawaharlal Nehru Univ, Sch Life Sci, Canc Biol Lab, New Delhi, India.
[Shyanti, Ritis K.] Alabama State Univ, Dept Biol Sci, Canc Biol Res & Training Program, Montgomery, AL 36101 USA.
[Parashar, Palak; Tandon, Vibha] Jawaharlal Nehru Univ, Special Ctr Mol Med, New Delhi, India.
[Tailor, Dhanir; Lee, Jee Min; Malhotra, Sanjay V.] Oregon Hlth & Sci Univ, Dept Cell Dev & Canc Biol, Portland, OR USA.
[Tailor, Dhanir; Lee, Jee Min; Malhotra, Sanjay V.] Oregon Hlth & Sci Univ, Knight Canc Inst, Ctr Expt Therapeut, Portland, OR 97239 USA.
[Kataria, Tejinder; Gupta, Deepak] Medanta Medicity, Div Radiat Oncol, Gurgaon, India.
[Verma, Hitesh] All India Inst Med Sci, Otolaryngol & Head Neck Surg, New Delhi, India.
[Tandon, Vibha] CSIR Indian Inst Chem Biol, Kolkata, India.
[Chaturvedi, Rupesh; Singh, Rana P.] Jawaharlal Nehru Univ, Special Ctr Syst Med, New Delhi, India.
[Chaturvedi, Rupesh] Jawaharlal Nehru Univ, Fdn Innovat, Nanofluid Pvt Ltd, New Delhi, India.
[Singh, Rana P.] Univ Colorado, Skaggs Sch Pharm & Pharmaceut Sci, Dept Pharmaceut Sci, Anschutz Med Campus, Aurora, CO 80045 USA.
[Singh, Rana P.] Gautam Buddha Univ, Sch Biotechnol, Greater Noida, Uttar Pradesh, India.

Corresponding Address: Chaturvedi, R (corresponding author), Jawaharlal Nehru Univ, Sch Biotechnol, New Delhi, India.
Singh, RP (corresponding author), Jawaharlal Nehru Univ, Sch Life Sci, Canc Biol Lab, New Delhi, India.
Tandon, V (corresponding author), Jawaharlal Nehru Univ, Special Ctr Mol Med, New Delhi, India.
Tandon, V (corresponding author), CSIR Indian Inst Chem Biol, Kolkata, India.
Chaturvedi, R; Singh, RP (corresponding author), Jawaharlal Nehru Univ, Special Ctr Syst Med, New Delhi, India.
Chaturvedi, R (corresponding author), Jawaharlal Nehru Univ, Fdn Innovat, Nanofluid Pvt Ltd, New Delhi, India.
Singh, RP (corresponding author), Univ Colorado, Skaggs Sch Pharm & Pharmaceut Sci, Dept Pharmaceut Sci, Anschutz Med Campus, Aurora, CO 80045 USA.
Singh, RP (corresponding author), Gautam Buddha Univ, Sch Biotechnol, Greater Noida, Uttar Pradesh, India.

E-mail Addresses: vtandon@mail.jnu.ac.in; rupesh@mail.jnu.ac.in; rana_singh@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; Dasman Diabetes Institute (DDI); Jawaharlal Nehru University, New Delhi; Alabama State University; Jawaharlal Nehru University, New Delhi; Oregon Health & Science University; Oregon Health & Science University; All India Institute of Medical Sciences (AIIMS) New Delhi; Council of Scientific & Industrial Research (CSIR) - India; CSIR - Indian Institute of Chemical Biology (IICB); Jawaharlal Nehru University, New Delhi; Jawaharlal Nehru University, New Delhi; University of Colorado System; University of Colorado Anschutz Medical Campus; Gautam Buddha University

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Singh, Surya	HSG-5763-2023	
Shyanti, Ritis Kumar	IRZ-0452-2023	

Publisher: BMC

Publisher Address: CAMPUS, 4 CRINAN ST, LONDON N1 9XW, ENGLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Cell Biology

Research Areas: Cell Biology

IDS Number: T1735

eISSN: 1478-811X

29-char Source Abbrev.: CELL COMMUN SIGNAL

ISO Source Abbrev.: Cell Commun. Signal.
Source Item Page Count: 20
Funding:

Funding Agency	Grant Number
Indian Council of Medical Research	6/11/23/dr/icmr
Indo-US Science and Technology Forum	IUSSTF/JC-131/2019
Department of Science and Technology, Ministry of Science and Technology, India	VI-D&P/546/2016-17/TDT (C)

This research was funded by the Department of Science & Technology (VI-D&P/546/2016-17/TDT (C)), Indo-US Science Technology Forum (IUSSTF/JC-131/2019), and the Indian Council of Medical Research (F. No. 6/11/23/dr/ICMR), India.

Open Access: Green Submitted, gold
Output Date: 2025-12-31

End of File