CURRICULUM VITAE



Dr. ADHIRAJ ROY

Associate Professor | Former DBT-Ramalingaswami Fellow | Molecular Oncologist

Amity Institute of Molecular Medicine & Stem Cell Research, Amity University Noida, UP, India

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Cancer Cell Signalling | Translational Oncology | Protein Kinase D Biology | Extracellular Matrix | Epithelial Ovarian Cancer | Metastatic Prostate Adenocarcinoma | Cancer Therapeutics | Cancer Nanotheranostics

Digital Profiles: Adhiraj Roy - Google Scholar | ORCID: 0000-0001-7584-8872 | Scopus ID: 54390138200 | Dr. Adhiraj Roy | LinkedIn

RESEARCH SNAPSHOT:

Molecular oncologist with over 15 years of research and teaching experience spanning India and the United States. **Recipient of the prestigious DBT-Ramalingaswami Re-entry Fellowship** with expertise in cancer cell signalling, translational oncology, extracellular matrix biology, and targeted therapeutics.

Established an independent research programme focused on elucidating the role of Protein Kinase D signalling in ovarian and prostate cancers. Demonstrated success in securing competitive extramural funding, building interdisciplinary collaborations, mentoring doctoral researchers, and publishing in high-impact international journals.

- **Global Research Footprint:** 15+ years of experience in cutting-edge biomedical research experience across premiere institutions in USA and India including University of Pittsburgh Medical Centre, USA and Banaras Hindu University, India
- **Extramural Funding:** Secured over **₹1.55 Crores** in competitive research grants as Principal Investigator (PI) from elite national bodies (DBT, ICMR, UP-CST)
- **Research Outputs**: **33 peer-reviewed publications** in high-impact international journals including Molecular Cancer Research, Journal of Biological Chemistry and BBA-Reviews on Cancer
- **Corresponding Author: 18 with 12 Q1 publications as corresponding author**
- **Q1 Publications: 16**
- **Citation Metrics**: **Citations: 1014+** | **h-index: 19** | **i10-index: 22**
- **Book Chapter published:** 4
- **Intellectual Property: 1 Patent filed** (Provisional, 2024) for target-driven nano-formulated therapeutics
- **Academic Leadership**: Successfully supervised **2 PhDs (Degrees Awarded) with 5 ongoing** and mentored over 13 UG/PG dissertations. Proven expertise in institutional governance, curriculum design, and laboratory establishment

CORE ACADEMIC & PROFESSIONAL APPOINTMENTS:

Associate Professor | 5th March 2024-Present
Amity Institute of Molecular Medicine & Stem Cell Research, Amity University Noida, India

- **Research Leadership:** Principal Investigator running a fully independent cancer signalling and therapeutics laboratory. Managing extramural grant allocations, regulatory compliances, and multi-personnel research teams.

- **Academic Administration:** Appointed as Program Leader for multiple B.Sc. and M.Sc. batches; directly designed and launched the B.Sc. (Hons) Medical Lab Technology curriculum.

Associate Professor& Ramalingaswami Fellow | 1st November 2019-4th March 2024
Amity Institute of Molecular Medicine & Stem Cell Research, Amity University Noida, India

- **Research Leadership:** Principal Investigator running a fully independent cancer signalling and therapeutics laboratory. Managing extramural grant allocations, regulatory compliances, and multi-personnel research teams.
- **Academic Administration:** Appointed as Program Leader for multiple B.Sc. and M.Sc. batches; directly designed and launched the B.Sc. (Hons) Medical Lab Technology curriculum.

Ramalingaswami Fellow | 5th March 2019-31st October 2019
Banaras Hindu University, Varanasi, India

- **Independent Fellowship:** Awarded the highly competitive national re-entry fellowship by the Department of Biotechnology (DBT), Govt. of India, to establish independent operations investigating diacylglycerol-targeted kinase networks.
- **Teaching Contribution:** Taught Advances in Biochemistry course to Integrated M.Phil./Ph.D. batch.

Senior Research Scientist | 1st August 2018-28th February 2019
TCG Life Sciences Pvt Ltd, Kolkata, India

- **Industrial R&D:** Spearheaded high-throughput drug screening pipelines and automated cell-based validation assays for commercial oncology discovery projects.

Postdoctoral Associate | 1st June 2016-31st July 2018
Department of Pharmacology & Chemical Biology,
University of Pittsburgh Medical Centre, Pittsburgh, USA

- **Translational Therapeutics:** Developed sophisticated *in vitro* and *in vivo* preclinical oncology assays. Led independent project arms tracking cell cycle modulations, molecular neurobiology, and dermal fibrosis.
- **Mentorship:** Supervised 1 PhD candidate and 3 visiting international scholars in advanced biochemical techniques.

Postdoctoral Scientist | 1st June 2014-31st May 2016
Department of Biochemistry & Molecular Medicine,
The George Washington University, Washington DC, USA

- **Metabolic Oncology:** Conceptualized and executed genetic screens and biochemical assays tracking the Warburg effect using yeast models and prostate cancer cell lines.

Graduate Research Assistant | 12th August 2008-31st May 2010
Department of Biological Sciences,
University of Southern Mississippi, Mississippi, USA

- **Molecular Oncology:** Investigated leukemogenic mechanisms using specialized genetic engineering setups.
- **Teaching Assistantship**: Anatomy and Physiology laboratory, (BSC 250 and BSC 251)

RESEARCH INTERESTS:

Cancer Cell Signalling | Molecular Oncology | Protein Kinase D Biology in Cancer | Extracellular Matrix in Cancer | Cancer Pharmacology | Cancer Metabolism | Cancer Therapeutics | Targeted Drug Delivery | Epithelial Ovarian Cancer | Castration-resistant Metastatic Prostate Adenocarcinoma

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RESEARCH VISION:

To decipher the molecular mechanisms governing tumour progression, metastasis, and therapeutic resistance in ovarian and prostate cancers through integrative approaches involving signalling biology, extracellular matrix remodelling, and tumour microenvironment interactions, and to translate these discoveries into innovative therapeutic interventions via biochemical and multi-omics approaches.

RESEARCH PROGRAMMES:

Theme 1: Targeting the PKD/LAMA5 Signaling Axis in Refractory Ovarian Cancers:
Expanding upon current DBT/UP-CST funded frameworks to dissect how the Protein Kinase D and Laminin α5 crosstalk drives mechanotransduction networking and chemoresistance in high grade serous ovarian cancer.

Theme 2: Translational Development of Nano-Formulated Metal-Based Complexes:
Preclinical evaluation and target validation of novel, provisional-patented Zinc (II) trinuclear and Schiff-Base platforms against castration-resistant prostate adenocarcinomas.

Theme 3: Metabolic Reprogramming & Microenvironment Interventions:
Mapping the cellular intersections of the Warburg effect, microbial dysbiosis, and exosomal micro-RNA transport under hypoxic stress profiles.

Competitive Research Funding:

Title	Funding Agency	Role	Budget	Tenure	Status
Therapeutic targeting of protein kinase D (PKD)/Laminin subunit 5 (LAMA5) signalling axis in high grade serous ovarian cancer	Council of Science & Technology, Govt. of Uttar Pradesh	PI	₹ 14,36,000	15th January 2025-14th January 2028	Ongoing
Elucidation of the role of Protein kinase D (PKD) and PI3 kinase-Protein kinase C iota (PKCiota) signalling axes in refractory ovarian cancer	DBT, Govt. of India	PI	₹1,13,00,000	5th March 2019-4th March 2024	Completed
Elucidation of the role of autophagy in regulation of exosomal micro-RNA in triple negative breast cancer	ICMR, Govt. of India	PI	₹9,47,600	1st March 2021-29th February 2022	Completed
Elucidation of the molecular role of protein kinase d (PKD) in chemoresistant epithelial ovarian cancer (ICMR-SRF setup)	ICMR, Govt. of India	Co-PI	₹18,78,530	25th May 2022-24th May 2025	Completed

EDUCATION & NATIONAL EXAMINATIONS:

Ph.D. (Biochemistry & Molecular Genetics | July 2010-May 2014
Department of Biochemistry & Molecular Medicine,
The George Washington University, Washington DC, USA

- **Dissertation title: "**The Glucose Signal Transduction Pathway Mediated by the Rgt2 and Snf3 Glucose Sensors in the Budding Yeast *Saccharomyces cerevisiae*"
- **CGPA:** 3.55/4.00 | **Advisor:** Dr. Jeong-Ho Kim
- **Submission:** 18th March 2014 | Degree awarded: 18th May 2014

M.Sc. (Microbiology) | July 2005-June 2007
Department of Microbiology,
University of Calcutta, India

- **Metrics:** CGPA: 4.95/6.00 6.00 (Grade A+) | **University 6th Rank Holder**

B.Sc. (Hons.) (Microbiology) | August 2002-July 2005
Department of Microbiology,
University of Calcutta, India

- **Metrics:** Percentage: 70.5% (1st Class) | **University 6th Rank Holder**

GATE (Life Sciences XL) | 2007

- **IIT Kanpur** | **All India Rank (AIR): 986** (Top 9% globally out of 10,900 candidates).

INTELLECTUAL PROPERTY AND PATENTS:

- **Patent Title:** *"A nano-formulated Zinc (II) trinuclear complex for targeted prostate cancer therapy and method thereof"* (Inventors: **Roy A**, Nagpal K, Wasai A)
- **Status:** Provisional Filed (Application No: 202411059070, TEMP/E-1/68049/2024-DEL), 2024.

PEER-REVIEWED PUBLICATIONS:

Journal Articles:

1. **Roy A***, Pathophysiological affair between protein kinase D and epithelial ovarian cancer: A roadmap towards translating the mechanism from bench to bedside. Biochimica et Biophysica Acta (BBA) - Reviews on Cancer, Volume 1881, Issue 4, 2026, 189661, ISSN 0304-419X, https://doi.org/10.1016/j.bbcan.2026.189661. (**2026 IF: 11.2**, 5 yr IF: 12.5, JCR: Q1**).**
2. Wasai A, **Roy A***, Barua M, Ghosh P, Saxena A, Boulaamane Y, Goyal N, Chandra A, Koner SN, Saha S, Saha B, Pore SK, Rizzoli C & Mandal S. Anti-Cancer and Dual Inhibitory Potential of PI3K/AKT and Ras/MAPK/ERK Signalling of a Novel Zinc (II) Trinuclear Complex with Tetradentate Schiff Base Ligand and Azido Ion in Prostate Adenocarcinoma: Synthesis, in silico and in vitro Evaluation. J. Mol. Struc. Volume 1360, Feb 2026, 145636, https://doi.org/10.1016/j.molstruc.2026.145636. (**2025 IF: 4.7**, 5 yr IF: 4, JCR: Q2**).**
3. Wasai A, **Roy A***, Pandita D. Targeting prostate adenocarcinoma tumor microenvironment via cancer nanotheranostics: a comprehensive update on improved roadmap for disease diagnosis, therapy and management. 20: 1484–1500, Clin Transl Oncol. 2025 Nov 19. doi: 10.1007/s12094-025-04121-7. PMID: 41258335 (**2025 IF: 2.5,** 5 yr IF: 2.7 JCR: Q2**).**
4. Tyagi K, Jain P, Mandal S, **Roy A***. Deciphering the transcriptional alterations in high grade serous ovarian cancer upon catalytic inactivation of protein kinase D. Int J Biol Macromol. 2025 June, Volume 319, Part 1, 145234, doi: https://doi.org/10.1016/j.ijbiomac.2025.145234. PMID: 40057070 (**2025 IF: 8.5,** 5 yr IF: 8.7JCR: Q1**).**

5. Tyagi K, **Roy A**[*], Mandal S. Protein kinase C iota promotes glycolysis via PI3K/AKT/mTOR signalling in high grade serous ovarian cancer. Mol Biol Rep. 2024 Sep 14;51(1):983. doi: 10.1007/s11033-024-09918-3. PMID: 39276277 (**2025 IF: 2.8,** 5 yr IF: 3.01, JCR: Q3**).**
6. Das S, Sen B, Sarkar S, Das I, Sepay N, Paul S, Mandal S, **Roy A**, Malecka M, Abbas JS, Gangavarapu RR, Vijaykumar B, Ali, IS. Design, Synthesis, and Characterization of Polyoxotungstate-Decorated Ionic Liquid–Based Hybrid Material, $[BmIm]_4[SiW_{12}O_{40}]$ toward Rapid Adsorption of Dye and Antibacterial Activities. Inorg Chem. September 2024. 63(39):18448-18467 https://doi.org/10.1021/acs.inorgchem.4c01765. PMID: 39284795 (**2025 IF: 4.7,** 5 yr IF: 4.66, JCR: Q1**).**
7. Sachdeva A, **Roy A**[*], Gupta MK, Mandal S. Pharmacological inhibition of protein kinase D2/Aurora kinase A signalling axis suppresses G2/M cell cycle progression and proliferation of epithelial ovarian cancer cells. Pathol Res Pract. June 12;260:155390. doi: 10.1016/j.prp.2024.155390. PMID: 38878668 (**2025 IF: 3.2.** 5 yr IF: 3.53, JCR: Q2**).**
8. Sachdeva A, **Roy A**[*], Mandal S. Protein kinase D2-Aurora kinase A-ERK1/2 signalling axis drives neuroendocrine differentiation of epithelial ovarian cancer. Mol Cell Biochem. 480(1):535-547, 10.1007/s11010-024-04986-2, April 2024, PMID: 38557789 (**2025 IF: 3.7,** 5 yr IF: 4.22, JCR: Q2**).**
9. Barua M, Bandyopadhyay S, Wasai A, Ghosh M, Roy I, Ghosh P, Koner S, Rizzoli C, **Roy A**[*]**,** Saha S, Mandal S. A trinuclear Zn (II) schiff base dicyanamide complex attenuates bacterial biofilm formation by ROS generation and membrane damage and exhibits anticancer activity. Microb Pathog. https://doi.org/10.1016/j.micpath.2024.106548, January 2024, 188. PMID: 38262493 (**2025 IF: 3.5,** 5 yr IF: 3.81, JCR: Q2**).**
10. Tyagi K, **Roy A**[*], Mandal S. Pharmacological inhibition of protein kinase D suppresses epithelial ovarian cancer via MAPK/ERK1/2/Runx2 signalling axis. Cell Signal. 2023 Oct:110:110849. https://doi.org/10.1016/j.cellsig.2023.110849, August 2023, PMID: 37562720 (**2025 IF: 3.7,** 5 yr IF: 4.2, JCR: Q1**).**
11. Biswas S, Wasai A, Ghosh M, Rizzoli C, **Roy A**[*], Saha S, Mandal S. A mononuclear N,N,N,O donor Schiff base Cu (II) complex inhibits bacterial biofilm formation and promotes apoptosis and cell cycle arrest in prostate cancer cells. J Inorg Biochem. 247:112314. https://doi.org/10.1016/j.jinorgbio.2023.112314, July 2023, PMID: 37478779 (**2025 IF: 3.2,** 5 yr IF: 4.16, JCR: Q1).
12. **Roy A**[*], Chauhan S, Bhattacharya S, Jakhmola V, Tyagi K, Sachdeva A, Wasai A, Mandal S. Runt-related transcription factors in human carcinogenesis: a friend or foe? J Cancer Res Clin Oncol. 2023 Sep;149(11):9409-9423. https://doi.org/10.1007/s00432-023-04769-0, PMID: 37081242 (**2025 IF: 2.8,** 5 yr IF: 3.1, JCR: Q2).
13. **Roy A**, Prasad S, Chen Y, Chao Y, Liu Y, Zhao J, Wang QJ. Protein kinase D2 and 3 promote prostate cancer cell bone metastasis by positively regulating Runx2 in a MEK/ERK1/2-dependent manner. Am J Pathol. 2023 Feb 3; 193(5):624-637, S0002-9440(23)00036-6.doi: 10.1016/j.ajpath.2023.01.004. PMID: 36740185 (**IF 3.6,** 5 yr IF: 6.0, JCR: Q1**).**
14. Chen L, Zhao J, Chao Y, **Roy A**, Guo W, Qian J, Xu W, Domsic RT, Lafyatis R, Lu B, Deng F, Wang QJ. Loss of Protein Kinase D2 Activity Protects Against Bleomycin-Induced Dermal Fibrosis in Mice. Lab Invest. 2023 Feb;103(2):100018. doi: 10.1016/j.labinv.2022.100018. Epub 2023 Jan 10. PMID: 37039152 **(2025 IF: 4.2, 5 yr IF: 5.0, JCR: Q1).**
15. Mandal S, Bandyopadhyay S, Tyagi K, **Roy A**[*]. Human microbial dysbiosis as driver of gynecological malignancies. Biochimie. 2022 Feb 14;197:86-95. doi: 10.1016/j.biochi.2022.02.005. PMID: 35176353 (**2025 IF: 3.33**, 5 yr IF: 3.4, JCR: Q2**).**
16. Mandal S, Bandyopadhyay S, Tyagi K, **Roy A**[*]. Recent advances in understanding the molecular role of phosphoinositide-specific phospholipase C gamma 1 as an emerging onco-driver and novel therapeutic target in human carcinogenesis. Biochim Biophys Acta Rev Cancer. 2021 Aug 21; 1876(2): 188619. https://doi.org/10.1016/j.bbcan.2021.188619. PMID: 34454048 (**2025 IF: 8.3,** 5 yr IF: 12.5, JCR: Q1**).**
17. Tyagi K, Mandal S, **Roy A**[*]**.** Recent advancements in therapeutic targeting of the Warburg effect in refractory ovarian cancer: A promise towards disease remission. Biochim Biophys Acta Rev Cancer. 2021 May 7;1876(1):188563. doi:10.1016/j.bbcan.2021.188563. PMID: 33971276 (**2025 IF: 8.3,** 5 yr IF: 12.5, JCR: Q1**)**
18. Tyagi K, **Roy A**[*]**.** Evaluating the current status of protein kinase C (PKC)-protein kinase D (PKD) signalling axis as a novel therapeutic target in ovarian cancer. Biochim Biophys Acta Rev Cancer. 2020

Dec 28;1875(1):188496. doi: 10.1016/j.bbcan.2020.188496. PMID: 33383102 (**2025 IF: 8.3,** 5 yr IF: 12.5, JCR: Q1**).**

19. **Roy A**[*], Narayan G. Oncogenic potential of nucleoporins in non-hematological cancers: recent update beyond chromosome translocation and gene fusion. J Cancer Res Clin Onco. 2019 Oct 25. 145(12), 2901-2910. PMID: 31654122 (**2025 IF**: **2.8,** 5 yr IF: 4.32, JCR: Q2**).**
20. **Roy A**, Veroli MV, Prasad S, Wang QJ. Protein Kinase D2 Modulates Cell Cycle by Stabilizing Aurora A Kinase at Centrosomes. Mol Cancer Res. 2018 Nov;16(11):1785-1797. doi: 10.1158/1541-7786.MCR-18-0641. Epub 2018 Jul 17. PMCID: PMC9923726 (**IF: 4.7,** 5 yr IF: 4.5, JCR: Q1).
21. Ye J, Das S, **Roy A**, Wei W, Huang H, Lorenz-Guertin JM, Xu Q, Jacob TC, Wang B, Sun D, Wang QJ. Ischemic Injury-Induced CaMKIIδ and CaMKIIγ Confer Neuroprotection Through the NF-κB Signaling Pathway. Mol Neorobiol. 2019 Mar;56(3):2123-2136. doi: 10.1007/s12035-018-1198-2. Epub 2018 Jul 11. PMID: 29992531 (**2025 IF: 4.3,** 5 yr IF: 4.8, JCR: Q1).
22. **Roy A**, Ye J, Deng F, Wang QJ. Protein kinase D signaling in cancer: A friend or foe?. Biochim Biophys Acta Rev Cancer. 2017 Aug;1868(1):283-294. doi: 10.1016/j.bbcan.2017.05.008. Epub 2017 May 31. PMID: 28577984 (**2025 IF: 8.3,** 5 yr IF: 11.6, JCR: Q1).
23. **Roy A**, Wang QJ. Protein Kinase D: A Potential Therapeutic Target in Prostate Cancer. Mol Cell Pharmacol. 2017; 9(1):1-4. PMCID: PMC8580385 (IF: **1.5**).
24. **Roy A**, Hashmi S, Li Z, Dement AD, Cho KH, Kim JH. The glucose metabolite methylglyoxal inhibits expression of the glucose transporter genes by inactivating the cell surface glucose sensors Rgt2 and Snf3 in yeast. Mol Biol Cell. 2016 Mar 1;27(5):862-71. doi: 10.1091/mbc.E15-11-0789. PMID: 26764094 (**2025 IF: 2.9.** 5 yr IF: 3.612, JCR: Q1).
25. Kim YB, Shin YJ, **Roy A**, Kim JH. The Role of the Pleckstrin Homology Domain-containing Protein CKIP-1 in Activation of p21-activated Kinase 1 (PAK1). J Biol Chem. 2015 Aug 21;290(34):21076-85. doi: 10.1074/jbc.M115.675124. Epub 2015 Jul 9. PMID: 26160174 (**2025 IF: 3.9,** 5 yr IF: 4.3, JCR: Q2).
26. **Roy A**, Dement AD, Cho KH, Kim JH. Assessing glucose uptake through the yeast hexose transporter 1 (Hxt1). *PLoS One*. 2015 Mar 27;10(3):e0121985. doi: 10.1371/journal.pone.0121985. eCollection 2015. PMID: 25816250 (**2025 IF: 2.6,** 5 yr IF: 3.2, JCR: Q1).
27. **Roy A**, Kim YB, Cho KH, Kim JH. Glucose starvation-induced turnover of the yeast glucose transporter Hxt1. Biochim Biophys Acta. 2014 Sep;1840(9):2878-85. doi: 10.1016/j.bbagen.2014.05.004. Epub 2014 May 9. PMID: 24821015 (**2025 IF: 2.2,** 5 yr IF: 2.8, JCR: Q2).
28. **Roy A**, Jouandot D 2nd, Cho KH, Kim JH. Understanding the mechanism of glucose-induced relief of Rgt1-mediated repression in yeast. *FEBS Open Bio*. 2014 Jan 3;4:105-11. doi: 10.1016/j.fob.2013.12.004. eCollection 2014. PMID: 24490134 (**2025 IF: 2.3,** 5 yr IF: 2.4, JCR: Q2).
29. Shin YJ, Kim EH, **Roy A**, Kim JH. Evidence for a novel mechanism of the PAK1 interaction with the Rho-GTPases Cdc42 and Rac. *PLoS One*. 2013 Aug 1;8(8):e71495. doi: 10.1371/journal.pone.0071495. Print 2013. PMID: 23936510 (**2025 IF: 2.6,** 5 yr IF: 3.2, JCR: Q1).
30. Kim JH, **Roy A**, Jouandot D 2nd, Cho KH. The glucose signaling network in yeast. Biochim Biophys Acta. 2013 Nov;1830(11):5204-10. doi: 10.1016/j.bbagen.2013.07.025. Epub 2013 Aug 2. PMID: 23911748 (**2025 IF: 2.2,** 5 yr IF: 2.8, JCR: Q2).
31. **Roy A**, Shin YJ, Cho KH, Kim JH. Mth1 regulates the interaction between the Rgt1 repressor and the Ssn6-Tup1 corepressor complex by modulating PKA-dependent phosphorylation of Rgt1. Mol Biol Cell. 2013 May;24(9):1493-503. doi: 10.1091/mbc.E13-01-0047. Epub 2013 Mar 6. PMID: 23468525 (**2025 IF: 2.9.** 5 yr IF: 3.612, JCR: Q1).
32. **Roy A**, Shin YJ, Kim JH. Construction of yeast strains useful for screening drugs that inhibit glucose uptake and glycolysis. Anal Biochem. 2013 May 1;436(1):53-4. doi: 10.1016/j.ab.2013.01.013. Epub 2013 Jan 26. PMID: 23357239 (**2025 IF: 2.5.** 5 yr IF: 2.7, JCR: Q2).
33. Jouandot D 2nd, **Roy A**, Kim JH. Functional dissection of the glucose signaling pathways that regulate the yeast glucose transporter gene (HXT) repressor Rgt1. J Cell Biochem. 2011 Nov;112(11):3268-75. doi: 10.1002/jcb.23253. PMID: 2174878 (**2025 IF: 2.8.** 5 yr IF: 2.6, JCR: Q2).

***** *Marks corresponding author*

Conference Papers:

1. Zheng W, **Roy A** & Wang QJ. Protein Kinase D2 Promotes Neuroendocrine Phenotypes of Prostate Cancer by Regulating Aurora A Kinase and N-myc Complex. J Pharmacol Exp Ther. 2025 March, 392(3), Supplement 100571, DOI: 10.1016/j.jpet.2024.100571 (**2025 IF: 3.8,** 5 yr IF: 3.5, JCR: Q1**).**

Manuscripts under submission/revision:

1. Roy A, Singh A, Agarwal P & Wasai A. Leveraging crosstalk between Laminin α5, extracellular matrix and tumor microenvironment in gynecological cancers: Recent updates of a roadmap for improved therapeutic interventions. Submitted to: Cancer and Metastasis Reviews (Manuscript ID: 121fc1ef-ff11-42ab-b78e-4a3c38c81662) (Impact factor: 8.7).

Book Chapters:

1. "Targeting Tumor Microenvironment Through Nanotheranostics", Dehsal B, Kapoor S, **Roy A** (chapter 7), Nanomedicine for Cancer Diagnosis and Therapy, Page: VII, 249, DOI: 10.1007/978-981-15-7564-8, eBook ISBN: 978-981-15-7564-8, Springer Nature publication 2021.
2. "Advances in the molecular level understanding of G-protein coupled receptor", **Roy A,** Phospholipases in Physiology and Pathology, Elsevier, New York, 2023 (in press). Prog Mol Biol Transl Sci, 2023;196:1-13. doi: 10.1016/bs.pmbts.2022.07.013. Epub 2022 Aug 30.
3. "Phospholipases in human cancers: a new therapeutic target" (volume 3), Wasai A, **Roy A,** Phospholipases in Physiology and Pathology, Elsevier, New York, ISBN: 9780323956871, 2023 (in press).
4. "Ganoderma, a pharmacological mushroom with remarkable potency in human gut microflora dysbiosis", Mandal S, **Roy A,** CRC Press, India 2024, ISBN: 9781003354789.

RESEARCH MENTORSHIP & SUPERVISION:

Ph.D. Student Guidance:

Degree Awarded: 02

- **Ms. Komal Tyagi (Primary Guide) |** *Thesis Title:* Role of protein kinase D and phosphoinositide 3-kinase signaling axis in pathogenesis of ovarian cancer. **Degree Awarded (Sept 2025)**.
- **Ms. Abha Sachdeva (Primary Guide):** *Thesis Title:* Study of protein kinase D-Aurora kinase A signaling axis in Neuroendocrine differentiated epithelial ovarian cancer cells. **Degree Awarded (April 2026)**.

Ongoing: 03

- Mr. Abdul Wasai **(Primary Guide) |** *Thesis title*: Therapeutic potential of mononuclear Zn II Schiff-based azido compound(s) in prostate adenocarcinoma
- Ms. Aditi Singh **(Primary Guide) |** *Thesis title*: Role of Protein kinase D-Laminin α5 signalling axis as a targetable driver in epithelial ovarian cancer
- Ms. Ekta Rana **(Primary Guide) |** *Thesis title*: Therapeutic potential of 2-Hydroxyphenyl-N-methylnitrousamide compound(s) in epithelial ovarian cancer
- Ms. Shriya Mattoo **(Co-Guide) |** *Thesis title*: Targeted peptide- based liposomal delivery of Hsp90-suppressing miRNA mimics/ antagomiRs as potential therapeutics for breast cancer
- Ms. Muskaan Arora **(Co-Guide) |** *Thesis title*: Screening and biological evaluation of benzyl thiocyanate derivatives for identifying potential therapeutics for breast cancer

UG Dissertation Guidance:

- Ms. R Shweta (B.Sc. (Hons) Biochemistry, 2023. Thesis title: "Drug Repurposing for COVID-19 (XBB.1.5 COVID Variant", **Submitted)**
- Ms. Kusum Dhankad (B.Sc. (Hons.) Biochemistry, 2024, Thesis title: "Clinical Trials", **Submitted**)
- Ms. Leesha Agarwal B.Sc. (Hons/Hons. With research) Biochemistry, 2025, Thesis title: "CAR-T cell therapy and gene therapy for conditions like thalassemia and sickle cell disease", **Submitted**) Mr. Anmol Bhandari (B.Sc. (Hons. /Hons. With Research) Biochemistry 2026, Thesis title: "Elucidating the role of Laminin γ2 (LAMC2) in pathophysiology of epithelial ovarian cancer", **Submitted**)
- Ms. Shreyvani Nigam (B.Sc. (Hons. /Hons. With Research) Medical Microbiology & Immunology 2026, Thesis title: "Evaluating the role of Protein kinase C iota (PKCι)/Laminin α5 (LAMA5) signalling axis in the pathophysiology of epithelial ovarian cancer", **Submitted**).
- Ms. Riya Parashar, (B.Sc. (Hons. /Hons. With Research) Biochemistry 2027, Thesis title: "Extracellular matrix remodelling and its crosstalk with tumor microenvironment in epithelial ovarian cancer: A roadmap towards novel therapeutic interventions", **Ongoing**)

PG Dissertation Guidance:

- Ms. Sunbul Ahmed (M.Sc. Molecular Medicine, 2024, Thesis title: "Deciphering chemoresistance mechanisms in ovarian cancer", **Submitted**)
- Ms. Aditi Raj (M.Sc. Clinical Embryology, 2025, Thesis title: "To study the implantation capability of grade B embryo in comparison to grade A embryo", **Submitted**)
- Ms. Akansha Negi (M.Sc. Clinical Embryology, 2026, Thesis title: "A prospective study to compare the effectiveness of laser-assisted blastocyst collapse before vitrification area", **Submitted**)
- Mr. Arshad Mohammed F (M.Sc. (Stem Cell and Regenerative Biology)), 2026, Thesis title: "Stem cell therapy in BMT patients", **Ongoing**)

ACADEMIC LEADERSHIP & ADMINISTRATIVE RESPONSIBILITIES:

- **Program Leader**, B.Sc. (Hons.) Biochemistry, 2021-2024 Batch
- **Program Leader**, M.Sc. (Biochemistry, Molecular Medicine, Stem Cell & Regenerative Biology and Molecular Cancer Biology) 2025-2027 batches
- **Member**, Institutional Board of Studies
- **Member**, Institutional Area Advisory Board
- **Member**, Institutional Internal Quality Assurance Cell Criteria IV
- **Member**, Institutional Research Advisory Committee
- **Member**, Institutional Teaching–Learning Assessment Review Board
- **Member**, Institutional Admission Interview Board
- **Coordinator**, Institutional Website
- **Faculty-in-Charge,** Institutional Student Admission Board
- **Member,** University Anti-Ragging Squad
- **Member,** Institutional Alumni Relations Committee

PROFESSIONAL SERVICES:

Editorial and Peer Review Activities:

Reviewer for:

- FEBS Open Bio
- Trends in Cell Biology
- Trends in Microbiology
- Trends in Molecular Medicine
- Reviews in Oncology/Hematology
- BMC Complementary Medicine and Therapies
- Seminars in Cancer Biology
- Biochemical & Biophysical Research Communications

Conference Organisation:

- Organising Committee Member, 41st Annual Conference of the Indian Association for Cancer Research, 2022
- Organising Committee Member, EMBO Lecture Course: Tumour Metabolism, 2023

RESEARCH & TEACHING INFRASTRUCTURE DEVELOPMENT:

- Established a dedicated molecular oncology laboratory.
- Developed capabilities in cell culture, molecular biology, cancer therapeutics, and translational oncology.
- Created research infrastructure supporting funded projects in ovarian and prostate cancer.
- Actively participated in as member of the coordination committee developing B.Sc. Medical Laboratory Technology (MLS) and M.Sc. Biochemistry courses.

TEACHING PORTFOLIO & COURSE EXPERIENCE:

- ***Faculty, Amity University Noida:***
  - ***Undergraduate courses taught (B.Sc. Biochemistry (Hons/Hons with Research) program)***
    - Genetics and Inheritance (2019-2021)
    - Fundamentals of Molecular Biology (2019-2021)
    - Cell, Molecular Biology & Genetic Engineering (2019-present)
    - Molecular Biology, Bioinstrumentations and Biotechniques (2019-present)
    - Molecular & Clinical Diagnostics (2021-present)
    - Medical Microbiology & Diseases (2021-present)
  - ***Undergraduate courses taught (B.Sc. Medical Laboratory Technology program)***
    - Molecular & Clinical Diagnostics (2023-present)
    - Advanced Clinical Microbiology (2025-present)
  - ***Undergraduate courses taught (B.Sc. Biomedical Science (Hons with Research) program)***
    - Biology & Chemistry of Cell (2024-present)
    - Fundamentals of Microbiology (2024-present)
  - ***Postgraduate courses taught (M.Sc. Molecular Medicine & M.Sc. Stem Cell & Cancer Biology program)***
    - Medical Genetics and Cytogenetics (2019-present)

- Genome Engineering & Editing (2019-present)
- Animal Cell Culture & Cell Engineering (2019-present)
- Biomarkers & Molecular Diagnostics (2019-present)
- Microbiology in Human Health (2019-present)
- Instrumentation in Biomedicine (2019-present)
- Molecular Diagnostics & Targeted Therapy (2019-present)
- Cellular & Molecular Basis of Diseases (2019-present)

- ***Postgraduate courses taught (M.Sc. Biochemistry program)***
  - Medical Genetics and Cytogenetics (2024-present)
  - Molecular Biology & Genetics (2024-present)
  - Cellular Metabolism & Bioenergetics (2024-present)
  - Instrumentation in Biomedicine (2024-present)
  - Proteins & Enzymes (2024-present)
  - Molecular Basis of Diseases (2024-present)
  - Understanding of Basics of Research Methodology (2025-present)
- ***Ph.D. courses taught***
  - Trends in Molecular Oncology (2023-present)
  - Advances in Molecular Medicine (2023-present)

- ***Ramalingaswami Fellow, Banaras Hindu University:***
  - ***Integrated M.Phil./Ph.D. program***
    - Advances in Biochemistry (2019)

- ***Teaching Assistant, University of Southern Mississippi:***
  - Anatomy and Physiology laboratory, Department of Biological Sciences (BSC 250 and BSC 251, University of Southern Mississippi, USA (January 2009-May 2009),

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INVITED TALKS & RECOGNITIONS:

- **Invited Judge**, International Conference on Molecular and Translational Research in MASLD, 2025
- **Invited Speaker**, Banaras Hindu University, 2018
- **Judge**, Biomedical Student Association Symposium, University of Pittsburgh, 2017

AWARDS & HONORS:

- **Young S&T Leader**, ESTIC-2025, Government of India
- **DBT-Ramalingaswami Re-entry Fellowship**, 2019, Government of India
- **Former Fellow**, Royal Society of Biology, UK

PROFESSIONAL MEMBERSHIPS:

- **Indian Society of Human Genetics** (ISHG ID: L/1973/2019), Life member.
- **Indian Society of Cell Biology** (ISCB ID: 2019014), Life member.
- **Indian Association for Cancer Research** (ID: LM-1046), Life member.
- **American Society of Cell Biology** (ASCB ID: 123552), Postdoctoral member, January 2018-December 2018.
- **American Association for the Advancement of Science** (AAAS ID: 60001970), Postdoctoral member, January 2018-December 2018.
- Former Fellow, **Royal Society of Biology**, UK (ID: P0142521).

PROFESSIONAL CERTIFICATIONS OBTAINED:

- Obtained participation certificate as young S&T leader in **Emerging Science, Technology & Innovation Conclave (ESTIC-2025), Govt. of India**

- Obtained Faculty Development Program certificate on "**Medical device, Pharmacovigilance & Clinical Trial Regulations for Pharma & Biotech Industries**" (2-6th June 2025, Amity University Noida

- Obtained Professional Development Program certificate on "**Faculty Orientation Program on Amity Academic Structures & Systems**" (26-29th November 2019 Amity University Noida

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KEY PROFESSIONAL REFERENCES:

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