

DR. ANIRUDDHA BANERJI

Designation: Associate Professor

Postgraduate & Research Department of Biotechnology,
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QUALIFICATIONS

- B. Sc (Zoology Hons.), (1st class 1st) in 1998 from Presidency College, University of Calcutta.
- M. Sc. (Zoology), (1st class 1st, Gold Medallist) in 2000 from University of Calcutta.
- Ph. D. (Life Sciences) awarded in 2007 by Jadavpur University. Research pursued at Chittaranjan National Cancer Institute, Kolkata.
- Qualified NET (CSIR-JRF), (2000)

AREAS OF INTEREST

Primary area of research interest: Cancer Biology

- Study of cell surface receptors and their roles in tumour biology.
- Study of cellular signalling pathways which are dysregulated to promote tumour metastasis.
- Study of matrix metalloproteinases (MMPs) and their roles in tumour metastasis.
- Study of anti-tumorigenic and anti-invasive effects of natural compounds.

Additional areas of research and academic interest include Wildlife Biology, Evolutionary Biology, Animal Behaviour and Ecology, Genetics and Genetic Analysis, Comparative Anatomy, Environmental Biology

HONOURS AND AWARDS

- Aparajita Memorial Medal, awarded by Presidency College, Kolkata for 1st place in B. Sc Zoology (Hons.), 1998.
- A.K. Bhowmick Memorial Medal, awarded by The Zoological Society, Kolkata for 1st place in B. Sc Zoology (Hons.) 1998, University of Calcutta.
- Medal from Calcutta University, for 1st place in M. Sc Zoology 2000, University of Calcutta.
- Adjudged Best Young Scientist in Molecular Biology and Genetics, at National Seminar on Dimensions in Zoological Research in Human Welfare, organized by Dept. of Zoology, University of Calcutta and The Zoological Society, Kolkata in collaboration with Zoological Survey of India, 2007.
- Award for Best Oral Presentation, at Symposium on Recent Trends in Cancer Research & Treatment, organized by Chittaranjan National Cancer Institute (Golden Jubilee Celebration), 2007.
- Included in India Cancer Researcher Database (ICRD), supported by the Department of Biotechnology, Government of India, 2011 onwards.
- Elected as Member of the Executive Committee, Zoological Society, Kolkata, 2015–2019.
- Elected as Member of the Sectional Committee of the Section of New Biology, Indian Science Congress, 2019-2020 and 2020-21.
- Ganatantra Divas Puraskar for Inspiring Contribution to Life Sciences, awarded by International Multidisciplinary Research Foundation (IMRF), India, January 2025.

LIST OF PUBLICATIONS

Journals

- 1) **A. Banerji**. Membrane type matrix metalloproteinases – importance in tumour biology. *Science and Culture* (2004) vol. 70 pp. 105-107. (UGC-Approved Journal)
- 2) A. Mitra, J. Chakrabarti, **A. Banerji**, A. Chatterjee. Binding of $\alpha 2$ monoclonal antibody to human cervical tumor cell (SiHa) surface $\alpha 2\beta 1$ integrin modulates MMP-2 activity. *Gynecologic Oncology* (2004) vol. 94(1) pp. 33-39. (UGC-Approved Journal)

- 3) **A. Banerji**, J. Chakrabarti, A. Mitra, A. Chatterjee. Effect of curcumin on gelatinase A (MMP-2) activity in B16F10 melanoma cells. *Cancer Letters* (2004) vol. 211(2) pp. 235-242. (UGC-Approved Journal)
- 4) **A. Banerji**, J. Chakrabarti, A. Mitra, A. Chatterjee. Cell membrane-associated MT1-MMP-dependant activation of pro-MMP-2 in A375 melanoma cells. *Journal of Environmental Pathology, Toxicology and Oncology* (2005) vol. 24(1) pp. 3-17. (UGC-Approved Journal)
- 5) A. Mitra, J. Chakrabarti, **A. Banerji**, S. Das, A. Chatterjee. Culture of human cervical cancer cells, SiHa in the presence of fibronectin activates MMP-2. *Journal of Cancer Research and Clinical Oncology* (2006) vol. 132(8) pp. 505-513. (UGC-Approved Journal)
- 6) A. Mitra, J. Chakrabarti, **A. Banerji**, A. Chatterjee. Cell membrane-associated MT1-MMP dependent activation of MMP-2 in SiHa (human cervical cancer) cells. *Journal of Environmental Pathology, Toxicology and Oncology* (2006) vol. 25(4) pp. 655-666. (UGC-Approved Journal)
- 7) J. Chakrabarti, A. Mitra, **A. Banerji**, A. Chatterjee. Culture of human fibrosarcoma HT-1080 cells in presence of fibronectin activates MMP-2. *Journal of Environmental Pathology, Toxicology and Oncology* (2006) vol. 25(4) pp. 667-677. (UGC-Approved Journal)
- 8) A. Mitra, J. Chakrabarti, **A. Banerji**, A. Chatterjee, B.R. Das. Curcumin, a potential inhibitor of MMP-2 in human laryngeal squamous carcinoma cells HEp2. *Journal of Environmental Pathology, Toxicology and Oncology* (2006) vol. 25(4) pp. 679-690. (UGC-Approved Journal)
- 9) S. Das, **A. Banerji**, E. Frei, A. Chatterjee. Rapid expression and activation of MMP-2 and MMP-9 upon exposure of human breast cancer cells (MCF-7) to fibronectin in serum free medium. *Life Sciences* (2008) vol. 82(9-10) pp. 467-476. (UGC-Approved Journal)
- 10) **A. Banerji**, S. Das, A. Chatterjee. Culture of human A375 melanoma cells in the presence of fibronectin causes expression of MMP-9 and activation of MMP-2 in culture supernatants. *Journal of Environmental Pathology, Toxicology and Oncology* (2008) vol. 27(2) pp. 135-145. (UGC-Approved Journal)
- 11) S. Moulik, T. Sen, A. Dutta, **A. Banerji**, C. Ghosh, S. Das, A. Chatterjee. Phosphatidylinositol 3-Kinase and NF- κ B Involved in Epidermal Growth Factor-Induced Matrix Metalloproteinase-9 Expression. *Journal of Cancer Molecules* (2008) vol. 4(2) pp. 55-60. (UGC-Approved Journal)

- 12) T. Sen, S. Moulik, A. Dutta, P.R. Choudhury, **A. Banerji**, S. Das, M. Roy, A. Chatterjee. Multifunctional effect of epigallocatechin-3-gallate (EGCG) in downregulation of gelatinase-A (MMP-2) in human breast cancer cell line MCF-7. *Life Sciences* (2009) vol. 84(7-8) pp. 194-204. (UGC-Approved Journal)
- 13) A. Dutta, T. Sen, **A. Banerji**, S. Das, A. Chatterjee. Studies on Multifunctional Effect of All-Trans Retinoic Acid (ATRA) on Matrix Metalloproteinase-2 (MMP-2) and Its Regulatory Molecules in Human Breast Cancer Cells (MCF-7). *Journal of Oncology* (2009) vol. 2009 Article ID 627840, 13 pages. (UGC-Approved Journal)
- 14) G. Maity, S. Fahreen, **A. Banerji**, P. Roy Choudhury, T. Sen, A. Dutta, A. Chatterjee. Fibronectin-integrin mediated signaling in human cervical cancer cells (SiHa). *Molecular and Cellular Biochemistry* (2010) vol. 336(1-2) pp. 65-74. (UGC-Approved Journal)
- 15) **A. Banerji**. The gelatinases and their role in tumour invasion. *International Journal of Biology, Pharmacy and Allied Sciences* (2012) vol. 1(7) pp. 1003-1011. (UGC-Approved Journal)
- 16) S. Das, I. Guha, A. Chatterjee, **A. Banerji**. Anti-cancer Potential of All-trans Retinoic Acid (ATRA): A Review. *Proceedings of the Zoological Society* (2013) vol. 66(1) pp. 1-7. (UGC-Approved Journal)
- 17) **A. Banerji**, A. Majumder, A. Chatterjee. Stem Cells and Cancer: the Cancer Stem Cell (CSC) Model. *Journal of Tumor* (2015) vol. 3(3) pp. 349-355. (UGC-Approved Journal)
- 18) **A. Banerji**, A. Majumder. All-Trans Retinoic Acid Downregulates Epidermal Growth Factor Receptor Mediated Regulation of Matrix Metalloproteinase-2 in B16F10 Murine Melanoma Cells. *Annual Research & Review in Biology* (2016) vol. 10(5) pp. 1-8. (UGC-Approved Journal)
- 19) A. Majumder, **A. Banerji**. Epidermal Growth Factor Receptor Regulates Matrix Metalloproteinase-2 Activity in MDA-MB-231 Human Breast Cancer Cells. *British Biotechnology Journal* (2016) vol. 16(1) pp. 1-9. (UGC-Approved Journal)
- 20) **A. Banerji**. Man and his ancestors – the legacy and fate of Neanderthal Man. *Current Science* (2018) vol. 114(7) pp. 1394-1396. (UGC-Approved Journal)
- 21) A. Majumder, S. Ray, **A. Banerji**. Epidermal growth factor receptor-mediated regulation of matrix metalloproteinase-2 and matrix metalloproteinase-9 in MCF-7 breast cancer cells.

Molecular and Cellular Biochemistry (2019) vol. 452(1-2) pp. 111–121. (UGC-Approved Journal)

22) I. Chakraborty, A. Roy, **A. Banerji**. Therapeutic Potential of Phosphatidylinositol 3' Kinase (PI3K) Inhibitors in Cervical Cancer. *Science and Culture* (2021) vol. 87(1-2) pp. 57-61. (UGC-Approved Journal)

23) A. Roy, I. Chakraborty, **A. Banerji**. Natural Compounds as Potential Regulators of the Phosphatidylinositol 3' Kinase (PI3K) Pathway in Breast Cancer. *South Asian Journal of Experimental Biology* (2021) vol. 11(5) pp. 524-538. (UGC-Approved Journal)

24) P. Ghoshal, **A. Banerji**. Looking at COVID-19 Pandemic Through the Lens of Epidemiological Transition Theory. *Science and Culture* (2023) vol. 89(1-2) pp. 27-32. (UGC-Approved Journal)

25) S. Sen, A. Biswas, **A. Banerji**. Analysis of Avian Diversity at Chintamani Kar Bird Sanctuary: An Urban Forest Perspective. *Uttar Pradesh Journal of Zoology* (2023) vol. 44(12) pp. 7-15. (UGC-Approved Journal)

26) I. Chakraborty, A. Roy, **A. Banerji**. The Role of All-trans Retinoic Acid (ATRA) As A Potential Downregulator of Integrin $\alpha 5\beta 1$ Mediated Signalling in Melanomas. *South Asian Journal of Experimental Biology* (2024) vol. 14(6) pp. 282-293. (UGC-Approved Journal)

27) A. Roy, **A. Banerji**. Comparative Study of Curcumin, All-Trans Retinoic Acid and Resveratrol: Therapeutic Targeting of Breast Cancer Signalling. *Annual Research & Review in Biology* (2025) vol. 40(4) pp. 154-164 (Erstwhile UGC Approved Journal)

Book Chapters

1) A. Mitra, J. Chakrabarti, **A. Banerji**, S. Das, A. Chatterjee. Tumor Cell Surface Integrins and Metallomatrix Proteinases (MMPs) Cross-talk: A Potential Area for Developing Anti-Metastatic Drugs. *Current Trends in Pharmacology*, Ed. A. Ray, K. Gulati, Pub: I.K. International Publishing House Pvt. Ltd., New Delhi (2007) pp. 437-441. ISBN: 81-88237-77-9.

2) S. Das, **A. Banerji**, E. Frei, A. Chatterjee. Culture of human breast cancer cells (MCF-7) in presence of fibronectin in serum free medium activates MMP-2 and MMP-9. *Proceedings of the 4th International Conference on Tumor Microenvironment: progression, therapy and prevention*,

Ed. I.P. Witz, Pub: Medimond International Proceedings, Bologna, Italy (2007) pp. 117-127. ISBN: 978-88-7587-346-2.

3) **A. Banerji**, J. Chakrabarti, A. Mitra, A. Chatterjee. Cell Surface Activation of MMP-2. *Zoological Research in Human Welfare*, Ed. Ramakrishna, R.N. Chatterjee, Pub: Zoological Survey of India, Kolkata, (2008) pp. 235-244. ISBN: 978-81-8171-201-1.

4) **A. Banerji**. Endocrine Disrupting Compounds (EDCs): The Risks for Aquatic Fauna. *Current Strategies in Biotechnology and Bioresource Technology Vol. 2*, Ed. A. Alam, Pub: Book Publisher International (2020) pp.149-155. Print ISBN: 978-93-89816-88-4, eBook ISBN: 978-93-89816-89-1.

5) **A. Banerji**, K.K. Ganguly, A. Chatterjee. All-trans Retinoic Acid (ATRA), a Potential Inhibitor of Matrix Metalloproteinase-2 (MMP-2) and Tumour Invasion in Melanomas. *Current Strategies in Biotechnology and Bioresource Technology Vol. 2*, Ed. A. Alam, Pub: Book Publisher International (2020) pp.156-168. Print ISBN: 978-93-89816-88-4, eBook ISBN: 978-93-89816-89-1.

6) **A. Banerji**, P. Ghoshal. Agricultural Production and Climate Change: The Scope for Innovation in the Post-COVID 19 Scenario. *Current Strategies in Biotechnology and Bioresource Technology Vol. 2*, Ed. A. Alam, Pub: Book Publisher International (2020) pp.169-176. Print ISBN: 978-93-89816-88-4, eBook ISBN: 978-93-89816-89-1.

7) A. Majumder, S. Ray, **A. Banerji**. Phosphatidylinositol 3' Kinase (PI3K), A Crucial Regulator of Epidermal Growth Factor Receptor (EGFR) Modulated MMP-2, MMP-9 and MT1-MMP Expression in Breast Cancer Cells. *Recent Progress in Microbiology and Biotechnology Vol. 2*, Ed. E.A. Makky, Pub: Book Publisher International (2020) pp. 165-174. Print ISBN: 978-93-90206-62-9, eBook ISBN: 978-93-90206-59-9.

8) P. Ghoshal, **A. Banerji**. Studies on Some Issues Specific to Demography during COVID-19 Pandemic. *Issues and Development in Health Research Vol. 3*, Ed. D.C. Sharma, Pub: Book Publisher International (2021) pp. 1-9. Print ISBN: 978-93-91595-14-2, eBook ISBN: 978-93-91595-16-6.

9) A. Roy, I. Chakraborty, **A. Banerji**. Determination of Phytochemicals as Potential Inhibitors of Matrix Metalloproteinases (MMPs) with Special Reference to Breast Cancer. *Issues and*

Development in Health Research Vol. 5 (2021), Ed. W.M. Oo, Pub: Book Publisher International (2021) pp. 73-81. Print ISBN: 978-93-91882-30-3, eBook ISBN: 978-93-91882-32-7.

10) P. Ghoshal, **A. Banerji**. Agriculture in COVID-19 Pandemic: The Indian Perspective. *New Innovations in Economics, Business and Management Vol. 8*, Ed. M.D. Guillamon, Pub: Book Publisher International (2022) pp. 77-86; Print ISBN: 978-93-5547-510-7, eBook ISBN: 978-93-5547-518-3.

11) P. Ghoshal, **A. Banerji**. Forest Cover and Its Management: A Study in Indian Perspective. *Novel Perspectives of Geography, Environment and Earth Sciences Vol. 9*, Ed. H.L. Shrestha, Pub: Book Publisher International (2023) pp. 28-43; Print ISBN: 978-81-19491-52-0, eBook ISBN: 978-81-19491-53-7.

12) A. Roy, **A. Banerji**. Endogenous Regulators of Matrix Metalloproteinase Expression and Activity in Breast Cancers. *Novel Research Aspects in Medicine and Medical Science Vol. 5*, Ed. R.W. Sawadago, Pub: Book Publisher International (2023) pp. 37-49; Print ISBN: 978-81-19761-32-6, eBook ISBN: 978-81-19761-68-5.

13) I. Chakraborty, **A. Banerji**. Signalling Cascades in Melanoma: Understanding the Potential of Phytochemicals as Inhibitors. *Research Perspectives of Microbiology and Biotechnology Vol. 1*, Ed. E. Magiorkinis, Pub: Book Publisher International (2024) pp. 19-31; Print ISBN: 978-81-971580-1-8, eBook ISBN: 978-81-971580-3-2.

14) A. Roy, **A. Banerji**. Natural Compounds as Promising Modulators of Breast Cancer Signalling: The Significant Role of Tea Polyphenols. *Medical Science: Trends and Innovations Vol. 5*, Ed. M. Refaat, Pub: Book Publisher International (2025) pp. 88-103; Print ISBN: 978-93-49238-11-4, eBook ISBN: 978-93-49238-23-7

Other Publications

1) **A. Banerji**, P. Ghoshal. Climate Change and Agriculture: Implications on Sustainable Development. *Goethals News* (2011) vol. XIV (1-2).

2) **A. Banerji**. Could Dinosaurs Walk the Earth Again? *Pebbles* (2014) vol. 6.

3) **A. Banerji**. The Collagenases: Key Molecules In Tissue Remodelling. *Aviskaar: A Xaverian Journal of Research* (2017) vol. IX.

- 4) **A. Banerji.** Tigers and Conservation in India: Literary Attempts at Creating Awareness. *MAGIS – Xavierian Journal of Education* (2020) vol. IX.
- 5) **A. Banerji.** Habitat Conservation – The Necessity of Awareness. *MAGIS – Xavierian Journal of Education* (2021) vol. X.
- 6) **A. Banerji,** P Ghoshal. The COVID-19 Pandemic: Some Perspectives of Demographic and Epidemiological Transition. *MAGIS – Xavierian Journal of Education* (2022) vol. XI.
- 7) **A. Banerji,** P Ghoshal. Some Issues of Forest Management and Sustainable Development with Specific Reference to India. *MAGIS – Xavierian Journal of Education* (2023) vol. XII.

PLENARY/ INVITED TALKS/ PAPERS PRESENTED AT CONFERENCES

- 1) Presented paper “Modulation of gelatinase A/ matrix metalloproteinase-2 activity by curcumin” at *Annual Meeting of Immunology Study Group, West Bengal*, organized at Chittaranjan National Cancer Institute, Kolkata, Jan 16th, 2004.
- 2) Presented paper “Effect of curcumin on MMP-2 activity in B16F10 cells” at the *Scientific Seminar for the selection of Sudev Bhushan Ghosh Young Scientist Award (2005-06)*, organized by The Zoological Society, Kolkata, July 21st, 2006.
- 3) Presented paper “The role of cell surface integrins (fibronectin receptor) in regulation of expression and activity of matrix metalloproteinases (MMPs)” at *International Conference on Frontier Researches in Integrative Physiology* organized by Dept. of Physiology, University of Calcutta, Jan 8th–10th, 2007.
- 4) Presented paper “Integrin–Matrix Metalloproteinases (MMPs) Cross Talk” at *26th Annual Convention of Indian Association for Cancer Research and International Symposium on Translational Research in Cancer* organized by Institute of Life Sciences, Bhubaneswar and Imgenex India Pvt. Ltd., Bhubaneswar, Jan 17th–19th, 2007.
- 5) Presented paper “Cell membrane associated activation of MMP-2 and its role in tumour biology” at *National Seminar on Dimensions in Zoological Research in Human Welfare* organized by Dept. of Zoology, University of Calcutta and The Zoological Society, Kolkata in collaboration with Zoological Survey of India, Mar 23rd–25th, 2007.

- 6) Presented paper “Effect of curcumin on MMP-2 activity in B16F10 murine melanoma and HEp2 human laryngeal cancer cells” at *Symposium on Recent Trends in Cancer Research & Treatment*, organized by Chittaranjan National Cancer Institute Golden Jubilee celebration, Nov 1st–3rd, 2007.
- 7) Presented paper “Climate Change and Agriculture: Implications on Food Security” at *1st St. Xavier’s Global Earth Summit* organized by Dept. of Environmental Studies, St. Xavier’s College (Autonomous), Kolkata, Mar 11th–12th, 2011.
- 8) Presented paper “Anti-tumorigenic Potential of Curcumin and ATRA” at D.S.T. (Govt. of India) sponsored *Sir J.C. Bose Memorial National Symposium on Modern Trends in Animal Science Research and Challenges of the Day*, organized by Presidency University, Kolkata, Mar 23rd–25th, 2011.
- 9) Presented paper “Role of $\alpha 5\beta 1$ integrin (fibronectin receptor) in modulation of MMP-9 and MMP-2 activity in A375 melanoma cells” at *99th Indian Science Congress (Section: New Biology)* organized by The Indian Science Congress Association at Bhubaneswar, Jan 3rd–7th, 2012.
- 10) Delivered invited lecture “Role of cell surface receptors in modulation of MMP activity in human cancer cells” at *102nd Indian Science Congress (Section: New Biology)* organized by The Indian Science Congress Association at Mumbai, Jan 3rd–7th, 2015.
- 11) Delivered invited lecture “Effect of All-Trans Retinoic Acid (ATRA) on Receptor Mediated Modulation of Matrix Metalloproteinase-2 (MMP-2) in Murine Melanoma Cells” at *106th Indian Science Congress (Section: New Biology)* organized by The Indian Science Congress Association at Jalandhar, Punjab, Jan 3rd–7th, 2019.
- 12) Delivered invited lecture “Epidermal Growth Factor Receptor (EGFR): A Potent Regulator of Matrix Metalloproteinases (MMPs) and Tumour Invasion in Breast Cancer” at *107th Indian Science Congress (Section: New Biology)* organized by The Indian Science Congress Association at Bengaluru, Karnataka, Jan 3rd–7th, 2020.
- 13) Delivered invited lecture “Improving Cancer Therapeutics: The Potential of Curcumin and ATRA” at *International Conference on Chemistry for Human Development (ICCHD-2020)* organized by Professor Asima Chatterjee Foundation, Kolkata, University of Calcutta and Heritage Institute of Technology at Kolkata, Jan 9th–11th, 2020.

14) Delivered plenary lecture “Exploring the potential of some natural phytochemicals for targeting epidermal growth factor receptor (EGFR) in breast cancers” at International Conference on Chemistry for Human Development (ICCHD-2025) organized by University of Calcutta, Biswa Bangla Biswabidyalay, Professor Asima Chatterjee Foundation Kolkata and Luminescent Organic Consortium of India, Jan 4th–6th 2025.

15) Delivered plenary lecture “All-trans Retinoic Acid (ATRA): A Potent Inhibitor of Matrix Metalloproteinases and Cellular Signalling Cascades in Cervical Cancer Cells” at International Conference on Chemistry for Human Development (ICCHD-2026) organized by University of Calcutta, Biswa Bangla Biswabidyalay and Professor Asima Chatterjee Foundation Kolkata, Jan 10th–11th 2026.

POSTERS PRESENTED AT CONFERENCES (BY RESEARCH SCHOLARS/ SUMMER TRAINEES)

1) A. Majumder, A. Chatterjee, **A. Banerji**. “Effect of ATRA on EGFR mediated MMP regulation in B16F10 murine melanoma cells” at *102nd Indian Science Congress (Section: New Biology)*, organized by The Indian Science Congress Association at Mumbai, Jan 2015.

2) A. Agarwal, R. Shrivastav, M. Sarkar, A. Majumder, **A. Banerji**. “Matrix Metalloproteinases (MMPs) and their Roles in Breast Cancer” at *6th International Conference on Stem Cells and Cancer: Proliferation, Differentiation & Apoptosis*, Pune, Oct 2015.

3) A. Majumder, A. Chatterjee, **A. Banerji**. “EGFR Mediated Regulation Of MMP-2 Expression And Activity In Human Breast Cancer” at *Current Innovation in Biotechnology for Human Welfare*, organized by Guru Nanak Institute Of Pharmaceutical Science & Technology, Kolkata, Nov 2015.

4) A. Majumder, A. Chatterjee, **A. Banerji**. “Regulation of MMP-2 expression by EGFR in human breast cancer cells” at *103rd Indian Science Congress (Section: New Biology)*, organized by The Indian Science Congress Association at Mysuru, Jan 2016.

5) A. Majumder, S. Ray, **A. Banerji**. “EGFR mediated regulation of MMP-2 and MMP-9 in human breast cancer” at *36th Annual Conference of Indian Association for Cancer Research*, Thrissur, Feb 2017.

- 6) S. Ghosh, M. Ghosh, A. Majumder, **A. Banerji**. “Effect of All-Trans Retinoic Acid (ATRA) on Integrin $\alpha 5\beta 1$ Mediated Modulation of Matrix Metalloproteinase-2 (MMP-2) in Murine Melanomas” at *Frontiers in Modern Biology 2018*, organized by Indian Institute of Science Education and Research (IISER)-Kolkata, Jan 2018.
- 7) A. Majumder, **A. Banerji**. “EGFR mediated regulation of MMP-2 and MMP-9 expression and activity in MDA-MB-453 human breast cancer cells” at *An Interdisciplinary Approach to Biological Sciences*, organized by Indian Association for the Cultivation of Science, Kolkata, Feb 2018.
- 8) A. Majumder, S. Ray, **A. Banerji**. “Targeting epidermal growth factor receptor (EGFR)-EGF interactions in breast cancer” at *INTZOOCON 2018*, organized by Dept. of Zoology, University of Calcutta, Feb 2018.
- 9) P. Bandyopadhyay, A. Banerjee, S. Sen, A. Majumder, **A. Banerji**. “Focal Adhesion Kinase (FAK): A Possible Therapeutic Target For Breast Cancer” at *Frontiers in Biotechnology, Chapter IV* organized by Dept. of Biotechnology, St. Xavier’s College (Autonomous), Kolkata, Nov 2019. **Awarded 2nd prize for poster presentation.**
- 10) S. Sen, A. Biswas, **A. Banerji**. “Analysis of Avian Diversity: An Urban Forest Perspective” at *International Symposium on Environment and Climate Crises* organized by Dept. of Environmental Studies, St. Xavier’s College (Autonomous), Kolkata, *The Blue Patch and The Biome*, Dec 2019.
- 11) A. Roy, **A. Banerji**. “Regulation of Focal Adhesion Kinase and Phosphatidylinositol 3’Kinase Pathways in Breast Cancer: The Role of Natural Products” at *41st Annual International Conference of Indian Association for Cancer Research (IACR-2022)* organized by Amity University, Noida, March 2022.
- 12) A. Roy, **A. Banerji**. “Phytochemicals as potential Matrix Metalloproteinase (MMP) inhibitors in breast cancers” at *International Conference (Online) on Biomolecules to Biome*, organized by Dept. of Life Sciences, Presidency University, Kolkata, Aug 2022.
- 13) I. Chakraborty, **A. Banerji**. “All-trans retinoic acid (ATRA) as an inhibitor of cell signalling in melanomas” at *International Conference (Online) on Biomolecules to Biome*, organized by Dept. of Life Sciences, Presidency University, Kolkata, Aug 2022.

- 14) A. Roy, **A. Banerji**. “Targeting EGFR-Mediated MMP-2 and MMP-9 Expression in Metastatic Breast Cancer Cells by Curcumin and ATRA” at *42nd Annual Conference of Indian Association for Cancer Research (IACR-2023)* (International Conference) organized by Advanced Centre for Treatment, Research and Education in Cancer, Mumbai, Jan 2023.
- 15) I. Chakraborty, **A. Banerji**. “All-trans Retinoic Acid (ATRA) as an Inhibitor of Integrin $\alpha 5\beta 1$ Mediated Signalling in the Murine Melanoma Cell Line B16F10” at *42nd Annual Conference of Indian Association for Cancer Research (IACR-2023)* (International Conference) organized by Advanced Centre for Treatment, Research and Education in Cancer, Mumbai, Jan 2023.
- 16) A. Roy, **A. Banerji**. “Curcumin and All-trans Retinoic Acid (ATRA) As Inhibitors of Matrix Metalloproteinase Expression and Activity in Breast Cancer Cells” at *Bio Colloq: One Day Conference on Inter-Disciplinary Biological Sciences*, organized by Ramakrishna Mission Vivekananda Centenary College (Autonomous), Rahara & Academy of Biodiversity Conservation, Jan 2024. **Awarded 1st prize for poster presentation.**
- 17) I. Chakraborty, **A. Banerji**. “Potential of All-trans Retinoic Acid (ATRA) For Inhibiting Cellular Signalling Pathways in Melanoma Cells” at *Bio Colloq: One Day Conference on Inter-Disciplinary Biological Sciences*, organized by Ramakrishna Mission Vivekananda Centenary College (Autonomous), Rahara & Academy of Biodiversity Conservation, Jan 2024.
- 18) A. Roy, **A. Banerji**. “Synergistic Treatment with Curcumin and All-trans Retinoic Acid: Effects on Matrix Metalloproteinases (MMPs) in Metastatic Breast Cancer Cells” at *8th World Cancer Congress-2024*, organized at JNU Convention Centre, New Delhi, March 2024. (Oral Presentation)
- 19) I. Chakraborty, **A. Banerji**. “The Role of All-trans Retinoic Acid (ATRA) as a Potential Inhibitor of Signalling Pathways in Cervical Cancers” at *8th World Cancer Congress-2024*, organized at JNU Convention Centre, New Delhi, March 2024.
- 20) I. Chakraborty, **A. Banerji**. “Targeting Signalling Pathways in Cervical Cancers by All-trans Retinoic Acid (ATRA)” at *7th Regional Science & Technology Congress, 2025*, organized by Presidency University with Department of Science and Technology and Biotechnology, Government of West Bengal, Kolkata, Jan 2025. (Oral Presentation)

21) A. Roy, **A. Banerji**. “Synergistic Treatment with Curcumin and All-trans Retinoic Acid (ATRA) as Promising Modulator of Signaling Pathways in Breast Cancer” at *9th World Cancer Congress-2026*, organized at JNU Convention Centre, New Delhi, March 2026. (Oral Presentation)

SEMINARS/ CONFERENCES ATTENDED

- 1) Seminar on Fluorescence Microscopy, organized at Chittaranjan National Cancer Institute, Kolkata, Nov 7th, 2003.
- 2) International Symposium on Complex Diseases: Approaches to Gene Identification and Therapeutic Management (HGM 2008 Satellite Symposium at Kolkata), organized at Saha Institute of Nuclear Physics, Kolkata, Sept 25th–26th, 2008.
- 3) National Seminar on Modern Biology in Health and Disease, organized by Dept. of Biophysics, Molecular Biology and Bioinformatics, University of Calcutta, Nov 20th, 2008.
- 4) National Conference on Future of Food Biotechnology in India, organized by National Institute of Technology, Durgapur, Jan 8th–9th, 2009.
- 5) National Conference on Environmental Issues and Food Security in India: Let’s voice together towards a sustainable future, organized by Foundation for Science & Environment, Kolkata, Aug 10th, 2014.
- 6) National Seminar on Current Innovation in Biotechnology for Human Welfare, organized by Guru Nanak Institute of Pharmaceutical Science and Technology, Nov 7th, 2015.
- 7) National Level Young Scientists’ Meet–2016, organized by The Zoological Society, Kolkata and Dept. Of Zoology, University of Calcutta, Feb 5th– 6th, 2016.
- 8) Sparsha, an interactive forum for the Educators of today and tomorrow, organized by The Zoological Society, Kolkata and Ramakrishna Mission Vivekananda Centenary College, Rahara, Jan 13th, 2019.
- 9) International Symposium on Environment and Climate Crises organized by Dept. of Environmental Studies, St. Xavier’s College (Autonomous), Kolkata, *The Blue Patch and The Biome*, Dec 20th 2019.

WORKSHOPS ATTENDED

- 1) Participated in “National Workshop on HPLC & Its Applications”, organized by Chittaranjan National Cancer Institute, Kolkata, Sept 20th – 22nd, 2003.
- 2) Participated in “Workshop on Advanced Methods In Field Biology And Statistical Application In Life Science Research”, organized by The Zoological Society, Kolkata and Dept. of Zoology, University of Calcutta, Oct 10th–21st, 2014.
- 3) Participated in Workshop (Online) in “Drug Discovery Technology”, organized by BDG Life Sciences (OPC) Pvt. Ltd., June 26th – 30th, 2021.
- 4) Participated in Workshop (Online) in “Molecular Modeling: Simulations, Docking & Homology Modeling”, organized by BDG Life Sciences (OPC) Pvt. Ltd., July 2nd – 11th, 2021.
- 5) Participated in Workshop (Online) on “Molecular Docking: Study to predict interaction energy between molecules”, organized by BDG Life Sciences (OPC) Pvt. Ltd., July 26th – 31st, 2021.
- 6) Participated in One Week National Level Online Faculty Development Program on “Digital Pedagogy: ICT & AI assisted teaching in-line with OBE and NEP”, organized by St. James College of Nursing and St. James College of Pharmaceutical Sciences, Chalakudy in association with The Kerala State Higher Education Council, May 29th – June 5th, 2024.
- 7) Participated in Faculty Development Program/ Training Program (Online) on “R Programming For Budding Data Analysts” organized by Research Foundation of India & RFI-CARE, June 9th – 18th, 2024.

AS RESOURCE PERSON

- 1) Co-chaired session on Environmental Biotechnology & Microbiology at National Conference on Environmental Issues and Food Security in India: Let’s voice together towards a sustainable future organized by Foundation for Science & Environment, Kolkata, Aug 10th, 2014.
- 2) Delivered a lecture on “Animal Handling” for Educational Multimedia Research Centre (An University Grants Commission Project), St. Xavier’s College (Autonomous), Kolkata in 2014.

- 3) Delivered a series of lectures on Developmental Biology and Animal Physiology at Research Career Counselling and Preparatory Camp for Research Eligibility Tests, organized by The Zoological Society, Kolkata at the Dept. of Zoology, University of Calcutta, Oct–Dec 2014.
- 4) Delivered a lecture (as resource person) on “Conservation and Environmental Awareness” in Foundation Course “A Multi Disciplinary View of Education” organized by Department of Education, St. Xavier’s College (Autonomous), Kolkata on March 11th, 2020.
- 5) Invited reviewer for several international journals.

ORIENTATION/ REFRESHER/ SHORT TERM COURSES ATTENDED

- 1) Participated in the UGC-sponsored Orientation Programme (OP-84), organized at Academic Staff College, University of Calcutta, July 5th–31st, 2010.
- 2) Participated in the UGC-sponsored Refresher Course in Life Sciences, organized at Dept. of Physiology, University of Calcutta, Nov 21st–Dec 12th, 2011.
- 3) Participated in the UGC-sponsored Refresher Course in Life Sciences, organized at Dept. of Physiology, University of Calcutta, Mar 27th–Apr 20th, 2015.
- 4) Participated in the UGC-sponsored Short Term Course on “Workshop on MOOCs & E-Learning: Issues, Prospects, Problems”, organized by HRDC, Jadavpur University, Jan 15th-21st, 2019.
- 5) Participated in the UGC-sponsored Short Term Course on “Language and Linguistics”, organized by HRDC, Jadavpur University, Feb 19th-25th, 2020.

RESEARCH PROJECTS

- 1) Project Title: **Anti-cancer potential of ATRA in a murine melanoma model.**
Role: Principal Investigator
Granting Agency: University Grants Commission (UGC) Major Research Project
Period of Sanction: 2010–2013.

2) Project Title: **Epidermal Growth Factor Receptor (EGFR) A Potential Regulator Of Matrix Metalloproteinases (MMP)**

Role: Principal Investigator

Granting Agency: Govt. of West Bengal, Department of Science and Technology

Period of Sanction: 2014-2017.

RESEARCH SUPERVISION

Doctoral Guidance

Ph. D Awarded



Dr. Aheli Majumder

Awarded Ph. D from University of Calcutta (Department of Zoology), 2022.

Title of Thesis: Regulation Of Matrix Metalloproteinase (MMP) Expression And Activity In Breast Cancer Cells By Epidermal Growth Factor Receptor (EGFR)



Dr. Anirban Roy

Awarded Ph. D from St. Xavier's College (Autonomous), Kolkata (Department of Biotechnology), under University of Calcutta, 2026.

Title of Thesis: Anti-Tumorigenic Potential Of Some Natural Products In Breast Cancer

Current Research Scholars



Ms. Indira Chakraborty

Registered for Ph. D under Department of Biotechnology, St. Xavier's College (Autonomous), Kolkata.

Area of Research: Cancer Biology

Ph. D thesis submitted.

Internship Guidance

Provided guidance to 19 students from the following institutes for M. Sc dissertations and summer internships:

- 1) Postgraduate and Research Department of Biotechnology, St. Xavier's College (Autonomous), Kolkata
- 2) Department of Biochemistry, University of Calcutta
- 3) Department of Zoology, Ramakrishna Mission Vivekananda Centenary College, Rahara

ADMINISTRATIVE DUTIES PERFORMED

- 1) Head of the Department of Biotechnology, St. Xavier's College (Autonomous), Kolkata from July 2018 – December 2020.
- 2) Secretary, Ethical Committee for Animal Research, St. Xavier's College (Autonomous), Kolkata till 2023.
- 3) Member, Remedial and Tutorial Care Committee, St. Xavier's College (Autonomous), Kolkata.

CO-CURRICULAR DUTIES PERFORMED

- 1) Member of Stage & Ground Committee/ Reception Committee/ Security Committee for organization of Convocation & Valedictory, St. Xavier's College (Autonomous), Kolkata till 2020.
- 2) Convenor of the National Seminar "Frontiers in Biotechnology" organized by the Postgraduate and Research Department of Biotechnology, St. Xavier's College (Autonomous), Kolkata in 2016, 2017, 2018 and 2019.
- 3) Professor-in-Charge of Chiasma, departmental magazine of the Postgraduate and Research Department of Biotechnology, St. Xavier's College (Autonomous), Kolkata for 2010, 2011, 2024 and 2025.

MEMBERSHIP OF SCIENTIFIC SOCIETIES

- 1) Life Member, Indian Science Congress Association
- 2) Life Member, Zoological Society, Kolkata
- 3) Life Member, Indian Association for Cancer Research
- 4) Member, Indian Statistical Institute.