

Dr. Dipanjana Ghosh

DST INSPIRE Faculty

SoBEBT, RGPV, Bhopal

Former DST Women Scientist-A, IISER Bhopal

(PhD in Biological Sciences, National University of Singapore)

Bhopal, Madhya Pradesh

India

h-index: 9 (<https://scholar.google.com/citations?user=mzjRxwcAAAAJ&hl=en>)

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Completed & Ongoing Projects as Principal Investigator

Sl. No	Title of the project	Funding Agency	Host Institute	Parent Institute	Duration From- To	Total approved cost	Status
1	A molecular Pharmacology approach towards designing combination therapy for colon cancer metastasis	DST (Department of Science & Technology)	Indian Institute of Science Education and Research (IISER) Bhopal	-	December 2017- March 2021	INR 26,80,000.00	Completed
2	Investigating the functional relevance of Proteolipid Protein 2 (PLP2) interactome in PLP2 mediated collective migration of colorectal cancer (CRC) epithelium	SERB (Science & Engineering Research Board)	Indian Institute of Science Education and Research (IISER) Bhopal	People's University, Bhopal	December 2021-May 2023	INR 18,30,000.00	Completed
3	Unravelling the role of colorectal cancer derived exosomal pool of Proteolipid protein 2 (PLP2) for initiating metastasis at a distant site	DST	Rajiv Gandhi Proudyogiki Vishwavidyalaya	-	May 2023-May 2028	INR 1,100,000	Ongoing

Academic and Research Experience

- **DST INSPIRE Faculty** (May 2023- Present)
School of Biomolecular Engineering & Biotechnology
Rajiv Gandhi Proudyogiki Viswavidyalaya
Bhopal, India
Responsibilities: Teaching, Research & Administration
- **Associate Professor & Scientist** (December 2021- May 2023)
Department of Biotechnology & Microbiology

Center for Scientific Research and Development
 Adjunct faculty: School of Pharmacy & Research
 People's University, Bhopal
 India
 Responsibilities: Teaching, Research & Administration

- **DST Woman Scientist A** (December 2017- June 14th, 2021)
 Department of Biological Sciences
 Indian Institute of Science Education and Research (IISER) Bhopal
 Bhopal, Madhya Pradesh
 India
 Responsibilities: Independent and collaborative research activities, lab management
Research focus: Exosome mediated metastatic signals for colorectal cancer
- **Associate Professor** (August 2016- November 2017)
 School of Pharmacy & Research
 People's University, Bhopal
 India
 Responsibilities: Teaching, Research & Administration
- **Postdoctoral Research Fellow** (November 2012-March 2016)
 Department of Biological Sciences
 National University of Singapore, Singapore
 Responsibilities: Independent and collaborative research activities, lab management
Research focus: Developmental studies in the roots of model plants using proteomics and molecular biology approaches.
- **PhD** (August 2008-November 2012)
 Department of Biological Sciences
 National University of Singapore, Singapore
 Responsibilities: Independent and collaborative research activities, lab management
Research focus: Oncoproteomics of human colorectal cancer cells
- **Part time teaching assistant** (January 2009-July 2011)
 Department of Biological Sciences
 National University of Singapore, Singapore
 Responsibilities: Teaching undergraduate modules as a part of PhD program

Education

SI No.	University/ Institution	Degree Awarded	Year of Award	Field of Study
1	National University of Singapore	Post-doctoral Research Fellow in Biological Sciences	November 2012-March 2016	Biological Sciences: Root cap regeneration: Proteomics approach
2	National University of Singapore	PhD in Biological Sciences	January 2013	Biological Sciences: Oncoproteomics
3	Jadavpur University, Kolkata	Master of Pharmacy (Pharmacology)	July 2008	Molecular Pharmacology
4	Jadavpur University, Kolkata	Bachelor of Pharmacy	July 2006	Pharmaceutical Technology

Awards/Honors:

(In chronological order for each category under International, National and State awarding bodies)

Category of the Awarding Body	Name of the Awarding Body	Name of Awards/Fellowship	Year awarded
International	The Asia Oceania Human Proteome Organisation (AOHUPO)	Young scientist travel award on AOHUPO 6 th congress held in Beijing, China.	May 2012
	Singapore Society for Mass Spectrometry (SSMS), Singapore	Best poster presenter award on 2nd SSMS conference held in Singapore	November, 2009
	National University of Singapore (NUS), Singapore	NUS PhD Research Scholarship during 4 years PhD tenure	July 2008- July 2012
National	DBT (Department of Biotechnology), Govt. of India	Conference grant for organising national seminar on “Recent Advances in Cancer cell Biology & Therapeutics” at People’s University, Bhopal.	July 2022
	SERB (Science & Engineering Research Board), Govt. of India	Teachers’ associateship for research excellence (TARE); Fellowship & Research Grant of total INR 18,30,000/-	December 2021- December 2024
	DST (Department of Science & Technology), Govt. of India	DST Women Scientist A (Post-doctoral) fellowship and Research Grant of INR 26,80,000/-	December 2017- December 2020
	UGC (University Grant Commission)	GATE (Graduate Aptitude Test in Engineering) scholarship of INR 5000/- per month during the period of Master’s studies	July 2006-June 2008
State	MPCST (M.P. Council of Science & Technology)	Fellowship for Training of Young Scientist	September 2017- December 2017

Association to Professional bodies

Membership of editorial boards:

- Associate guest editor on the Frontiers Board: Hosting a research topic “How plants deal with stress: exploration through proteome investigation” for a special

issue in the journal *Frontiers in Plant Science*.
<http://journal.frontiersin.org/researchtopic/3958/how-plants-deal-with-stress-exploration-through-proteome-investigation>

Service as a reviewer

International journals

- PROTEOMICS
 - *Frontiers in Plant Science*
 - *Journal of Plant Physiology*
 - *Plant Molecular Biology Reporter*
 - *Plant Science*
 - *Scientific Reports*
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List of publications

Research Papers

1. PLP2 drives collective cell migration via ZO-1-mediated cytoskeletal remodeling at the leading edge in human colorectal cancer cells (2021) **Ghosh D***, Dutta A, Kasyap A, Upmanyu N, Datta S*. *J Cell Sci* **134** (18): jcs253468. (*co-corresponding author) *Indexed in SCI; IF 5.285*
2. Proteolipid Protein 2: A Potential driver of collective cell migration in progressive colon cancer epithelium (2021) **Ghosh D** and Datta S. *The FASEB Journal*, **35**: <https://doi.org/10.1096/fasebj.2021.35.S1.05072> *Indexed in SCI; IF 4.966*
3. Binding with heat shock cognate protein HSC70 fine-tunes the Golgi association of the small GTPase ARL5B (2021) Jaimon E, Tripathi A, Khurana A, **Ghosh D**, Sugatha J, Datta S. *Journal of Biological Chemistry* (Article in press) 101422. doi:<https://doi.org/10.1016/j.jbc.2021.101422> *Indexed in SCI; IF 5.157*
4. Cargo secretion through ceramide dependent route: variable preference in different stages of colon cancer (2021) **Ghosh D***, Datta S, Lim T K, Lin Q. *Journal of Proteomics*, (Manuscript under preparation). (corresponding author) *Indexed in SCI; IF 3.6*
5. iTRAQ based quantitative proteomics approach validated the role of calcyclin binding protein (CacyBP) in promoting colorectal cancer metastasis (2013) **Ghosh D**, Li Z, Tan X F, Lim T K, Mao Y, and Lin Q. *Mol Cell Proteomics* **12** 1865-1880 *Indexed in SCI; IF: 6.540*
6. Identification of key players for colorectal cancer metastasis by iTRAQ quantitative proteomics profiling of isogenic SW480 and SW620 cell lines (2011) **Ghosh D**, Yu H, Tan X F, Lim T K, Zubaidah R M, Tan H T, Chung M C M and Lin Q. *J Proteome Res* **10** 4373-4387 *Indexed in SCI; IF: 4.268*

7. A Quantitative Chemical Proteomics approach to profile the specific cellular targets of Andrographolide, a promising anticancer agent that suppresses tumor metastasis (2014) Wang J, Tan X F, Nguyen V S, Yang P, Zhou J, Gao M, Li Z, Lim T K, He Y, Ong C S, Lay Y, Zhang J, Zhu G, Lai S L, **Ghosh D**, Mok Y K, Shen H M and Lin Q. *Mol Cell Proteomics* **13** 876-86 *Indexed in SCI; IF: 6.540*
8. A Quantitative analysis of stem cell homeostasis in the Arabidopsis columella root cap (2015) Hong J H, Chu H, Zhang C, **Ghosh D**, Gong X and Xu J. *Front. Plant Sci* **6** 206 *Indexed in SCI; IF: 4.298*
9. α -Actinin4 nuclear translocation mediates gonadotropin-releasing hormone stimulation of follicle-stimulating hormone β -subunit gene transcription in L β T2 cells (2012) Yu H, Li Z, **Ghosh D**, Lim TK, He Y, Lin Q. *FEBS Lett.* **586** 1466-71 *Indexed in SCI; IF: 2.99*

Review Articles

1. Abiotic stress responses in plant roots: a proteomics perspective (2014) **Ghosh D*** and Xu J* *Front. Plant Sci* 5, 6 (*co-corresponding author) *Indexed in Scopus; Cited by: 183; IF: 4.298*
2. Nutraceuticals from Marine Bionetworks (2019) Tiwari A, Pritam S, Mishra K, Khan M, Upmanyu N, **Ghosh D***. *Current Nutrition & Food Science*, **15** (4), 338-344. DOI: 10.2174/1573401314666180109153825. (*corresponding author)

Editorial Articles

1. Editorial: How Plants Deal with Stress: Exploration through Proteome Investigation (2017) Ghosh D*, Lin Q, Xu J and Hellmann H A. *Frontiers in plant science* 8, 1176 (corresponding author) *Indexed in Scopus; IF: 4.298*

Interview as Lead-author

<https://journals.biologists.com/jcs/article/134/18/jcs259325/272335/First> person-Dipanjana-Ghosh

Books & Book Chapters

➤ **Publications as Book Chapter**

Serial No.	Title of the Book Chapter	Title of the Book	Authors	Publisher	Year of publication	ISBN
1	Chapter 1 - Cell and organ drug targeting	Nanomaterials for Drug Delivery and Therapy	Dipanjana Ghosh* , Neeraj Upmanyu, Tripti Shukla, Tarani P. Shrivastava	Elsevier	2019	978-0-12-816505-8

Serial No.	Title of the Book Chapter	Title of the Book	Authors	Publisher	Year of publication	ISBN
2	Chapter 1 - Lipid nanocarriers	Lipid Nanocarriers for Drug Targeting	Tripti Shukla, Neeraj Upmanyu, Sharad Prakash Pandey, Dipanjana Ghosh	Elsevier	2018	978-0-12-813687-4
3	Chapter 7 – Nanoformulation-Based Approaches for Chemoprevention	Natural Products and Nano-Formulations in Cancer Chemoprevention	Dipanjana Ghosh , Wean Sin Cheow, Rohit Saluja	Taylor & Francis	2023	978-1-00-336896-0

➤ Publications as Books

Serial No.	Title of Books	Editor/ Author(s)	Publisher	Year of publication	ISBN
1	Plant, Stress and Proteins	Dipanjana Ghosh , Qingsong Lin, Jian Xu and Hanjo A. Hellmann (Editor)	Frontiers	2017	978-2-88945-267-5
2	Drug Targeting: Targeted drug delivery to cells and organs	Dipanjana Ghosh (Author)	LAP LAMBERT Academic Publishing	2018	978-613-5-97092-0

Articles in News magazine:

Proteomics and colorectal cancer metastasis- Bird's-eye view on current scenario and our contribution (2012) **Ghosh D.** *Asia Pacific Biotech news* **16** 8

Conference presentations

Oral presentations:

1. iTRAQ based shotgun proteomics approach identifies major players for colorectal cancer metastasis (2010) Ghosh D, Lim T K and Lin Q **The 15th Biological Sciences Graduate congress** 126. Kuala Lumpur, **Malaysia**.
2. Differential proteomics study of isogenic human colorectal cancer cell lines identifies potential protein targets for metastasis (2011) Ghosh D, Lim T K and Lin Q **The 16th Biological Sciences Graduate congress** 27. **Singapore**.

3. Pharmacological and Biochemical studies on *Telescopium telescopium*-comparative evaluation of tissue extract and blue secretion (2008) Ghosh D, Manna A, Roy A, Samanta S, Sen T ***Eastern Regional Conference of Indian Pharmacological Society***. Ranchi, India.
4. Negative regulation of Protein Synthesis and Cell Cycle as Targets for Restraining Metastasis: A Bioinformatics Approach (2017) Ghosh D. **32nd M.P. Young Scientist Congress**. 163 Bhopal, India.

Poster presentations:

1. Proteolipid Protein 2: A Potential Driver of Collective Cell Migration in Progressive Colon Cancer Epithelium (2021) Ghosh D, Datta S. **Experimental Biology 2021 virtual**, organized by **American Society for Biochemistry and Molecular Biology (ASBMB)**.
2. iTRAQTM proteomics study identifies novel candidate biomarker for colorectal cancer metastasis (2012) Ghosh D, Han Y, Lim T K, Lin Q **AOHUPO 6th Congress** 82. Beijing, **China**.
3. Differential protein expression profiling of isogenic human colorectal cancer cell lines by iTRAQ two dimensional LC MS/ MS identifies potential protein targets for metastasis (2011) Ghosh D, Tan X F, Lim T K, Zubaidah R M, Lin Q **Human Proteome Organisation 10th Annual Congress (HUPO)** 475- 476. Geneva, **Switzerland**.
4. iTRAQ based shotgun proteomics study identified calcyclin binding protein as a potential key player in colorectal cancer metastasis (2010) Ghosh D, Tan X F, Lim T K, Zubaidah R M, Lin Q **6th International Conference on Structural Biology and Functional Genomics** 56. **Singapore**.
5. iTRAQ proteomics analysis of human colorectal cancer cells identifies proteins associated with tumor progression and metastasis (2009) Ghosh D, Zubaidah R M, Lim T K, Lin Q **The 14th Biological Sciences Graduate Congress** 187. Bangkok, **Thailand**.
6. iTRAQ proteomics analysis of human colorectal cancer cells identifies proteins associated with tumor progression and metastasis (2009) Ghosh D, Zubaidah R M, Lim T K, Lin Q **2nd Annual Symposium of SSMS conference**. **Singapore**.
7. Phosphopeptide enrichment by hydroxyl acid modified metal oxide chromatography (2008) Ghosh D, Lim T K, Lin Q **Joint 5th Structural Biology and Functional Genomics and 1st Biological Physics International Conference** 136. **Singapore**.

As invited speaker:

1. **Bio-nanomaterials (Exosomes) as metastatic signal carrier**, 2nd International conference on "ENERGY, FUNCTIONAL MATERIALS AND NANOTECHNOLOGY (ICEFN-2019)" & "SUSTAINABLE ENVIRONMENT

MANAGEMENT (SEM-2019)" from 24-26th, May, 2019, Kumayun University Nainital.

2. **Hydroxychloroquine in the treatment of COVID-19: A molecular Biology insight through intracellular trafficking.** Webinar organised by Guru Nanak Institute of Pharmaceutical Science and Technology, Kolkata on 29th May 2020.
3. **High-throughput quantitative proteomics for investigating potential biomarkers for colorectal cancer metastasis & the application thereof.** AICTE SPONSORED National Conference on "Biomarkers As Targeted Herbal Drug Discovery" from 14-15th October 2022, Truba Institute of Pharmacy, Bhopal.

As Organizers:

- Organized a **MPCST Sponsored National Seminar** on "Challenges towards implementing CPCSEA Guidelines in Pharmacy Institutions" on 01st October 2016 as **Scientific Committee member**. People's University, Bhopal, India.
- Organized a **DBT Sponsored National Seminar** on "Recent Advances in Cancer Cell Biology & Therapeutics" 10th December 2022 as Joint secretary & Scientific committee member. People's University, Bhopal, India.

Key Skills

Research Expertise:

- **Proteomics techniques** (iTRAQ, 2D gel electrophoresis, iCAT, 2D-DIGE, co-immunoprecipitation etc.)
- **Cell Biology:** Migration and invasion assay, live and fixed cell imaging
- **LC- MS/MS** (Liquid chromatography- Tandem mass spectroscopy)
- **Western Blot** analysis
- **Mammalian cell culture** (Cell-based assays, microscopy etc.)
- **Molecular biology techniques** (Cloning, RTPCR, transformation and transfection, knockdown and over-expression in mammalian cells etc.)
- **Confocal microscopy and immunofluorescence analysis**
- Enzyme assays and enzyme kinetics
- Different pharmacological screening methods (neuropharmacological, behavioral, anti-inflammatory, anti-ulcer, antioxidant in animal models)
- **Developmental genetics** and proteomics studies in model plants

Communication Skills:

- Good inter personal skills.
- Fluent in English, Hindi and Bengali

List of Referees

1. Dr. Lin Qingsong (PhD Supervisor)
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