

## **Bama Charan Mondal, Ph.D.**

Associate Professor and

DBT/Wellcome Trust India Alliance Intermediate Fellow

School of Life Sciences, Jawaharlal Nehru University, New Delhi, India

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### **Research Interest**

- Underlying mechanisms of myeloid blood cell development using the *Drosophila* (fruit fly) model system.
- How do stem and progenitor cells maintain their lifelong state and differentiate when necessary?
- How do phagocytic tissue macrophages become versatile and heterogeneous?

### **Education**

2002-2007: Ph. D. Biophysics, Molecular Biology & Genetics, University of Calcutta, India

1999-2001: M. Sc Biochemistry, University of Calcutta, India

1996-1999: B. Sc Chemistry (Honors) with Physics and Mathematics, University of Calcutta, India

### **Positions**

2025- till date: Associate Professor & DBT/Wellcome Trust India Alliance Intermediate Fellow, SLS, JNU, New Delhi

2021- 2025: Assistant Professor & DBT/Wellcome Trust India Alliance Intermediate Fellow, BHU, Varanasi

February – December 2020: Assistant Professor & Ramalingaswami Fellow, BHU, Varanasi, India

April 2018 - February 2020: Ramalingaswami Fellow, CDFD, Hyderabad, India

September 2019 - January 2020: Scientist In-charge, Lab. of DNA Fingerprinting Service, CDFD, Hyderabad

2013- February 2018: Staff Research Associate, University of California, Los Angeles, USA

2007-2013: Postdoctoral Scholar- Employee, University of California, Los Angeles, USA

2004-2007: Senior Research Fellow, University of Calcutta, India

2001-2004: Junior Research Fellow, University of Calcutta, India

### **Awards and Fellowships**

2020: DBT/Wellcome Trust India Alliance Intermediate Fellowship

2018: Ramanujan Fellowship, Department of Science & Technology, India (renounced)

2017: Ramalingaswami Re-entry Fellowship, Department of Biotechnology, India

2017: Recognition from the Chancellor of the University of California, Los Angeles (UCLA) for 10 years of service

2013: Travel award for attending Young Investigator Meeting (YIM) 2013 from IndiaBioscience, NCBS, Bangalore

2004: Senior Research Fellowship, Indian Council of Medical Research.

2001: Junior Research Fellowship, Department of Science and Technology, India.

2001: National Eligibility Test for Lectureship from the Joint CSIR-UGC.

2001: Qualified GATE with 94.2 percentile, all India rank 0110, Conducted by IIT, Kanpur

## Publications

### Research Articles:

1. Maurya D, **Mondal BC\***. Protocol to study DNA strand breaks during development and apoptosis using in situ nick translation in *Drosophila*. **STAR Protocols**. 2025 June 19; 6(3): 103921. <https://doi.org/10.1101/j.xpro.2025.103921>
2. Maurya D, **Mondal BC\***. Larval hematopoietic organs of multiple *Drosophila* species show effector caspase activity and DNA damage response. **microPublication Biology**. 2024 December 18. PMID: 39758584 10.17912/micropub.biology.001392
3. Thakurta B, Hazra S, Samanta A, Nasir A, Singh AK, Maurya D, **Mondal BC**, Giri A, Pal BN, Pal M. One-Step Room Temperature Synthesis of Printable Carbon Quantum Dots Ink for Visual Encryption and High-Performance Photodetector. **Advanced Optical Materials**. 2024 October 09; 12(36), 2401886 <https://doi.org/10.1002/adom.202401886>
4. Goins L, Girard JR, **Mondal BC**, Buran, Su C, Tang R, Biswas T, Banerjee U. Wnt signaling couples G2 phase control with differentiation during hematopoiesis in *Drosophila*. **Developmental Cell**. 2024 Sep 23;59(18):2477-2496.e5. <https://doi.org/10.1016/j.devcel.2024.05.023> PMID: 38866012
5. Maurya D, Rai G, Mandal D, **Mondal BC\***. Transient caspase-mediated activation of Caspase-Activated DNase causes DNA damage required for phagocytic macrophage differentiation. **Cell Reports**. 2024 May 28; 43(5): 114251. <https://doi.org/10.1016/j.celrep.2024.114251> PMID: 38761374

**Commentary Preview:** Alsowaida, D. & Megeney, L. A. *Destruction as a creative process: CAD-induced DNA strand breaks promote macrophage differentiation*. **Cell Reports** 43, 114816 (2024). <https://doi.org/10.1016/j.celrep.2024.114816>

6. Evans CJ, Olson JM, **Mondal BC**, Banerjee U. A functional genomics screen identifying blood cell development genes in *Drosophila* by undergraduates participating in a course-based research experience. **G3: Genes | Genomes | Genetics**. 2021 Jan 18;11(1):jkaa028. doi: 10.1093/g3journal/jkaa028.
7. **Mondal BC**, Shim J, Evans CJ, Banerjee U. Pvr expression regulators in equilibrium signal control and maintenance of *Drosophila* blood progenitors. **eLife**. 2014 Sep 8;3:e03626. doi: 10.7554/eLife.03626. PMID: 25201876
8. Shim J#, Mukherjee T#, **Mondal BC**, Liu T, Young GC, Wijewarnasuriya DP, Banerjee U. Olfactory control of blood progenitor maintenance. **Cell**. 2013 Nov 21;155(5):1141-53. (#equal contribution) doi: 10.1016/j.cell.2013.10.032. PMID: 24267893
  - *Highlighted as Cover Article and Featured Article, Highlighted in Preview (Cell 155 (5): 981-982, 2013),*
  - *Introduced in Nature News*
9. **Mondal BC**#, Mukherjee T#, Mandal L#, Evans CJ, Sinenko SA, Martinez-Agosto JA, Banerjee U. Interaction between Differentiating Cell- and Niche-Derived Signals in Hematopoietic Progenitor Maintenance. **Cell**. 2011 Dec 23;147(7):1589-600. (#equal contribution) doi: 10.1016/j.cell.2011.11.041. PMID: 22196733
  - *Comment in Nature Review Molecular Cell Biology*
10. **Mondal BC**, Mukhopadhyay A, Chaudhuri U, Ganguli B, Dasgupta UB. Methylation Status of Promoter Associated CpG Islands in Primary Acute Myeloid Leukemia. **Acta Haematologica**. 2008;120(4):207-10. doi: 10.1159/000193222. Epub 2009 Jan 20. PMID: 19153475

11. Chakraborty SS, **Mondal BC**, Das S, Das K, Dasgupta UB. Haplotype analysis at the FRAXA locus in an Indian population. *American Journal of Medical Genetics Part A*. 2008 Aug 1;146A(15):1980-5.  
doi: 10.1002/ajmg.a.32108. PMID: 18627041
12. Majumdar S, **Mondal BC**, Dey S, Ghosh M, Mukhopadhyay A, Chandra S, Dasgupta UB. Association of Cytochrome P450, Glutathione S-transferase and N-acetyl transferase2 gene polymorphisms with incidence of Acute Myeloid Leukemia. *European Journal of Cancer Prevention*. 2008 Apr;17(2):125-32.  
doi: 10.1097/CEJ.0b013e3282b6fd68. PMID: 18287869
13. **Mondal BC**, Bandyopadhyay A, Majumdar S, Mukhopadhyay A, Chandra S, Chaudhuri U, Chakrabarti P, Bhattacharyya S, Dasgupta UB. Molecular profiling of chronic myeloid leukemia in eastern India. *American Journal of Hematology*. 2006 Nov;81(11):845-9. doi: 10.1002/ajh.20682. PMID: 16888785
14. **Mondal BC**, Majumdar S, Dasgupta UB, Chaudhuri U, Chakrabarti P, Bhattacharyya S. e19a2 BCR-ABL fusion transcript in typical chronic myeloid leukemia: a report of two cases. *Journal of Clinical Pathology*. 2006 Oct;59(10):1102-3. doi: 10.1136/jcp.2005.029595. PMID: 17021137
15. Bandyopadhyay S, **Mondal BC**, Sarkar P, Das MK, Chandra S, Dasgupta UB. Two beta-globin cluster linked polymorphic loci in thalassemia patients of variable levels of fetal hemoglobin. *European Journal of Haematology*. 2005 Jul;75(1):47-53. doi: 10.1111/j.1600-0609.2005.00416.x. PMID: 15946310
16. **Mondal BC**, Paria N, Majumdar S, Chandra S, Mukhopadhyay A, Chaudhuri, U, Dasgupta UB. Glutathione -S transferase M1 and T1 null genotype frequency in chronic myeloid leukaemia. *European Journal of Cancer Prevention*. 2005 Jun;14(3):281-4. doi: 10.1097/00008469-200506000-00014. PMID: 15901999
17. Bandyopadhyay A, Bandyopadhyay S, Basak J, **Mondal BC**, Sarkar AA, Majumdar S, Das MK, Chandra S, Mukhopadhyay A, Sanghamita M, Ghosh K, Dasgupta UB. Profile of  $\beta$ -thalassemia in Eastern India and its prenatal diagnosis. *Prenatal Diagnosis*. 2004;24(12):992-6. doi: 10.1002/pd.1049. PMID: 15614841
18. Rai G, Maurya D, Mandal D, **Mondal BC\***. COP9 signalosome regulates EGFR and Notch signaling during myeloid-type progenitor cell fate decisions in *Drosophila* (*under review*)
19. Mandal D, Rai G, Maurya D, Barman J, **Mondal BC\***. Neddylation determines the fate of myeloid-type progenitors by regulating Yorkie signaling in *Drosophila* (*under review*)

### Preprint manuscripts:

20. Jaiswal P, **Mondal BC\***. GADD45 regulates the fate decision of myeloid-type blood progenitor cells in *Drosophila*. *bioRxiv* 18 Dec 2025, 1-38. <https://doi.org/10.64898/2025.12.16.694615>
21. Maurya D, Rai G, Mandal D, **Mondal BC\***. Macrophage differentiation requires DNA damage caused by Caspase-Activated DNase. *bioRxiv*, CSH Press, 17 October 2023, 1-67.  
<https://www.biorxiv.org/content/10.1101/2023.10.16.562503v1.full>
22. Goins L, Girard JR, **Mondal BC**, Buran, Su C, Tang R, Biswas T, Banerjee U. Wnt signaling couples G2 phase control with differentiation during hematopoiesis *bioRxiv* 01 July 2023, 1-57  
doi: <https://doi.org/10.1101/2023.06.29.547151> or SSRN <http://dx.doi.org/10.2139/ssrn.4522056> 3

### Book chapters:

1. Mandal D & Mandal BC\* (2024). FLP/FRT mediated somatic recombination to generate somatic clones for studying gene function. (eds: S.C. Lakhotia & H.A. Ranganath) **Indian Academy of Sciences**, Bengaluru, India, 309-316
2. Jaiswal P, Mandal D, Biswas J, Rai G, Lakhotia SC, and Mandal BC\* (2024). Study of immune response in *Drosophila melanogaster* (eds: S.C. Lakhotia & H.A. Ranganath), **Indian Academy of Sciences**, Bengaluru, India, 375-382
3. Maurya D, Mandal BC\* (2024). The creation via destruction: Caspase-activated DNase causes DNA strand breaks to regulate macrophage differentiation. ISCB Newsletter. 48 (1): 29-33.

## Research projects:

### Ongoing:

- Project title: Centre for Training Teachers in using *Drosophila melanogaster* for Biology Laboratories (Co-investigator)  
Funded Agency: DBT; Years sanctioned: 2023-2028
- Project title: Deciphering the role of DNA damage response pathways in the myeloid-type progenitor cells differentiation using *Drosophila*  
Funded Agency: DBT/Wellcome Trust India Alliance (Intermediate Fellowship)  
Years sanctioned: 2021-June 2026

### Completed:

- Project title: Identifying the signals that regulate differentiation of the hematopoietic stem-like progenitor cell using *Drosophila*  
Funded Agency: Institute of Eminence Scheme (IoE-BHU Seed Grant)  
Years sanctioned: 2020-2024
- Project title: Understanding the role of NEDD8 as a post-translational modification in the cell cycle control of *Drosophila* myeloid-type blood progenitor cells  
Funded Agency: UGC (BSR Start-up Grant)  
Years sanctioned: 2021-2023
- Project title: The Role of COP9 Signalosome and DNA Damage Response Pathways in Hematopoiesis  
Funded Agency: DBT (DBT-Ramalingaswami Fellowship)  
Years sanctioned: 2018-2020

### Submitted:

- Project title: Understanding the role of mitochondrial dynamics during macrophage differentiation in *Drosophila*  
Year of Submission: July 2025 (*Recommended on 18 December 2025*)  
Years sanctioned: 2026-2029  
Funded Agency: ANRF

## Teaching

### School of Life Sciences, Jawaharlal Nehru University

LS428A: Developmental Biology: 2026 - onwards

LS431A: Developmental Biology practical: 2026 - onwards

### Department of Zoology, Banaras Hindu University

#### **Theory classes:**

Developmental Biology (B.Sc.): 2020-2025

Developmental Biology (M.Sc.): 2022.

Systematics (B.Sc.) 2020-2025.

Agriculture Entomology (M.Sc.): 2022-2025.

Cell Biology (B.Sc.): 2022.

Stem cell biology (M.Sc.): 2021-2025.

Signal Transduction (M.Sc.) 2021-2025.

Economics Zoology (B.Sc.): 2023-2025.

#### **Practical classes:**

Cell Biology (B.Sc. & M.Sc.) 2020-2025.

Genetics and Cytogenetics (M.Sc.) 2021-2025.

Microscopy (M.Sc.) 2022-2025.

Economics Zoology (B.Sc.) 2023-2025.

Developmental Biology (B.Sc. & M.Sc.) 2020-2025.

Systematics (B.Sc.) 2020 -2024.

Animal Diversity (B.Sc.) 2021-2024.

### Organized Workshops/Conferences

- Organized “*The seventh 7-day hands-on Workshop for College Teachers on using Drosophila melanogaster for Biology Laboratory Classes*” from 18 to 24 January 2026 at the Department of Zoology, BHU.
- Organized “*The sixth 7-day hands-on Workshop for College Teachers on using Drosophila melanogaster for Biology Laboratory Classes*” from 3-9 September 2025 at NCBS, Bengaluru, as co-organizer.
- Organized “*The fifth 7-day hands-on Workshop for College Teachers on using Drosophila melanogaster for Biology Laboratory Classes*” from 23 February to 01 March 2025 at the Department of Zoology, BHU.
- Organized “*The fourth 7-day hands-on Workshop for College Teachers on using Drosophila melanogaster for Biology Laboratory Classes*” from 24 December to 31 December 2024 at the Department of Biology, IISER Pune, as Co-organizer.
- Organized “*The third 7-day hands-on Workshop for College Teachers on using Drosophila melanogaster for Biology Laboratory Classes*” from 21 September to 26 September 2024 at the Department of Zoology, BHU.
- Organized “*The Second 7-day hands-on Workshop for College Teachers on using Drosophila melanogaster for Biology Laboratory Classes*” from 29 May to 4 June 2024 at NCBS, Bengaluru, as co-organizer.
- Organized a “7-day hands-on Workshop for College Teachers on using Drosophila melanogaster for Biology Laboratory Classes” from 29 January to 4 February 2024 at the Department of Zoology, BHU.
- Organized “*XLV All India Cell Biology Conference & International Symposium on Biology of Development and Disease*” from 20-22 January 2023 as Joint Treasurer
- Organized a Centre for DNA Fingerprinting and Diagnostics (CDFD) and Promega India a hands-on national workshop on Forensic DNA Fingerprinting entitled “*Forensic DNA Profiling Forum*” from 4-7 November 2019 at CDFD Hyderabad as a Co-organizer.
- I have participated actively in assisting clinical genetics certificate courses for physicians during my doctoral research at the University of Calcutta.

## **Presentations**

### **Talks**

- Invited talk at the Mini Symposium on “Trends in Developmental Biology” in the School of Life Sciences, JNU, 30 December 2025.
- Invited talk at the Department of Biology, IISER Pune, 28 December 2024.
- Invited talk at the New Directions in Blood Cell Biology Meeting in InStem, Bengaluru, 22-26 September 2024
- Invited talk at the 3<sup>rd</sup> International Conference of Non-Lethal Roles of Cell Death Proteins in Ottawa, Canada, 9-12 September 2024.
- Invited talk at the Indian Conference on MedTech Innovation 2024 (ICMI 2024), by IIT-Jodhpur, AIIMS-Jodhpur, and JCKIF, in Jodhpur, 22-24 February 2024
- Invited talk at the Fly blood cell symposium in Strasbourg, France, 23-25 September 2022
- Invited talk at the 11th Ramalingaswami Conclave (online), 14-17 December 2020
- Invited talk at the International Symposium on Frontiers in Development & Molecular Medicine: Models to Insights, March 1-3, 2019, Kolkata
- Ten invited job talks in India at various research institutes, IITs, and IISERs from 2013 to 2019.
- CME Meeting on Hemato-Oncology, 6 June 2007, Kolkata.
- XXXII Annual Conference of Indian Society of Human Genetics and International Symposium on “Deconstructing Human Diseases: The Genomic Advantage” 14-16 February 2007, Kolkata.

### **Posters**

- Presentation at the India Alliance Conclave in Hyderabad, 28-30 August 2024
- International conference on 'Genome Architecture and Cell Fate Regulation.' 3-6 December 2018
- Regional Young Investigator Meeting, 18-19 August 2018, Hyderabad
- 55<sup>th</sup> Annual Drosophila Research Conference, 26-30 March 2014, San Diego, CA.
- Young Investigator Meeting, February 2013, Jodhpur, India.
- International Conference on “CHROMOSOMESTONEURONS,” 12-14 January 2007, Kolkata.
- International Symposium on Human Genomics & Public Health and XXXI Annual Conference of Indian Society of Human Genetics, 27 Feb- 1 March 2006, New Delhi.
- International Symposium on Diet in Causation & Prevention of Cancer and XXX Annual Conference of Environmental Mutagen Society of India, 17-19 March 2005, Lucknow.
- International Seminar on the Frontiers of Basic and Applied Molecular Biology, 9-12 January 2003, Kolkata

### **Chairperson**

- The New Directions in Blood Cell Biology in InStem, Bengaluru, Session-IV, Cellular and humoral immunity on 25 September 2024

### **Participate**

- 7<sup>th</sup> Indian Drosophila Research Conference (InDRC), 11-13 December 2025.
- India Alliance Annual Conclave, 25-28 October 2021.
- 5<sup>th</sup> Indian Drosophila Research Conference (InDRC), 13-17 December 2021.
- 5<sup>th</sup> Asia Pacific Drosophila Research Conference (APDRC5) and Indian Drosophila Research Conference, Pune, 06-10 January 2020.

### **Administrative responsibilities:**

- Member of DBT-Stem Cell and Biomedical Engineering Technical Expert Committee: 2021–2025

#### **Membership of learned societies:**

- Life Member of the Indian Society of Cell Biology (ISCB)

#### **Personnel trained:**

#### **Number of researchers pursuing Ph.D.: 5**

Name	Registration	
1. Debleena, NET CSIR	2021	BHU
2. Deepak Maurya, NET CSIR	2022	BHU
3. Gayatri Rai, GATE, CAS fellow	2022	BHU
4. Deepali Tiwari, NET UGC	2022	BHU
5. Priyasi Jaiswal, UGC NET LS	2023	BHU

#### **Project Assistant or Fellow trained:**

Name	Year	Sponsored project
1. Patiti Rout	2019-2020	DBT-Ramalingaswami Fellowship grant
2. Jiban Barman	2018-2020	UGC-JRF
3. Sateesh Patel	October 2021-2025	DBT/Wellcome Trust India Alliance

#### **M.Sc. Dissertation/Internships/Summer Trainees**

Name	Year	From	Types
1. Ashokkumar Vaghela	2019	Sardar Patel University, Gujarat	PG Dissertation
2. Dipannita Ghosh	2019	IISER, Mohali	Academics' Summer Fellow
3. Aaradhana Yadav	2021	Dept. of Zoology, BHU	PG Dissertation
4. Piyali Mondal	2021	Dept. of Zoology, BHU	PG Dissertation
5. Anwesha Pal	2022	Dept. of Zoology, Bethune College, CU	Academics' Summer Fellow
6. Archisha Prakash	2022	Dept. of Zoology, BHU	PG Dissertation
7. Mohith Vijayan Nair	2022	Dept. of Zoology, BHU	PG Dissertation
8. Sandhya Pal	2022	Dept. of Zoology, BHU	PG Dissertation
9. Ansul Nama	2023	Dept. of Zoology, BHU	PG Dissertation
10. Himani Yadav	2023	Dept. of Zoology, BHU	PG Dissertation
11. Rubeena Parveen	2023	Dept. of Zoology, BHU	PG Dissertation
12. Vikesh Kumar	2023	Dept. of Zoology, BHU	PG Dissertation
13. Jukta Biswas	2023	Dept. of Microbiology, Central Univ. of Haryana	PG Dissertation
14. Megna Shukla	2024	Dept. of Zoology, BHU	PG Dissertation
15. Ananya Mondal	2024	Dept. of Zoology, BHU	PG Dissertation
16. Rohit Kumar	2024	Dept. of Zoology, BHU	PG Dissertation
17. Pradumna V	2024	Dept. Mol. Biology, Kannur Univ., Kerala	Academics' Summer Fellow
18. Swasti Saxena	2024	Dept. of Zoology, MS Univ. of Baroda	Academics' Summer Fellow

19. Sheetal Kaur	2024	Dept. of Zoology, Central Univ. of Panjab	PG Dissertation
20. Samriti Rathore	2024	Dept. of Zoology, Kalinga University	Research Internship
21. Chhaya Devi	2025	Dept. of Zoology, BHU	PG Dissertation
22. Sukanya Behara	2025	Dept. of Zoology, BHU	PG Dissertation
23. Parmanand Kumar	2025	Dept. of Zoology, BHU	PG Dissertation
24. Saptarshi Mishra	2025	Dept. of Zoology, BHU	PG Dissertation
25. Mahejbeen Parveen	2025	Dept. of Biotechnology, MGKVU	PG Dissertation
26. Jayashree Chakraborty	2026	Dept. of Zoology, BHU	PG Dissertation
27. Kumari Puja Patel	2026	Dept. of Zoology, BHU	PG Dissertation
28. Pellar Taipodia	2026	Dept. of Zoology, BHU	PG Dissertation
29. Toter Romin	2026	Dept. of Zoology, BHU	PG Dissertation
30. Ritesh Sahu	2026	Dept. of Zoology, BHU	PG Dissertation