

Krishnendu Roy

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Educational Qualifications

- Aug 2018-Present PhD in Life Sciences, IISER Pune, India
- August 2016-2018 MS (CGPA-9.5) in Life Sciences, IISER Pune, India
- June 2012-2015 B.Sc. (CGPA-8.8) in Biochemistry, Presidency University, Kolkata, India

Research Publications

1. Kraus F, **Roy K**, Pucadyil TJ, Ryan MT. Function and regulation of the divisome for mitochondrial fission. *Nature*. 2021 Feb;590(7844):57-66. doi: 10.1038/s41586-021-03214-x. Epub 2021 Feb 3. PMID: 33536648.
2. **Roy K**, Pucadyil TJ. Metal-Binding Propensity in the Mitochondrial Dynamin-Related Protein 1. *J Membr Biol*. 2022 Feb 26. doi: 10.1007/s00232-022-00221-5. Epub ahead of print. PMID: 35218392.
3. Kamerkar SC, **Roy K**, Bhattacharyya S, Pucadyil TJ. A Screen for Membrane Fission Catalysts Identifies the ATPase EHD1. *Biochemistry*. 2019 Jan 8;58(1):65-71. doi: 10.1021/acs.biochem.8b00925. Epub 2018 Nov 16. PMID: 30403133; PMCID: PMC6327249.
4. **Roy, K.** and Pucadyil, T.J., 2022. Is Drp1 sufficient to catalyze membrane fission? *Proceedings of the National Academy of Sciences*, 119(27), p.e2201709119.

Technical Skills

Molecular Biology: Cloning techniques, PCR, DNA isolation.

Cell Culture: Worked with different cell lines viz., HeLa, RAW 264.7, HEK293 and SH-SY5Y. Transfection and Stable expression using lentiviral and retroviral constructs. CRISPR-mediated gene knockouts.

Biochemistry: Protein expression and purification, Native PAGE, SDS-PAGE, Spectrophotometry (UV, VIS and fluorescence), Western Blotting, Immunoprecipitation, Mitochondria isolation from mammalian cells in culture, Seahorse analytics for measuring mitochondrial respiration.

Chromatographic techniques: Affinity, Size Exclusion, Hydrophobic Interaction and Ion-Exchange Chromatography.

Microscopy: Live cell imaging of bacterial and mammalian cell lines labeled with different fluorescent proteins imaged with Bright-field, Differential Interference Contrast (DIC), Epifluorescence (Olympus IX-71 and IX-83) and Confocal Microscopy (Zeiss LSM-710, Leica SP8).

Membrane Biology: Liposome preparation (by extrusion/sonication), Liposome pelleting assays, Fat Blots, Dot Blots, SUPER Template Assays, SMrT template assay

Model systems (C. elegans): Basic maintenance of strains, imaging under bright field and inverted epifluorescence microscopes. Genetic crosses for building strains.

Model systems (Zebrafish): Basic maintenance, Genetic crosses, morpholino treatments, building mutant strains.

Proteomics: Basic training to operate High Resolution Mass Spectrometry (HR-MS) on Sciex Triple TOF 6600. Mass Spectrometry sample preparation for proteomics (in solution, on-bead and in-gel digestion). Quantitative MS analyses by using Reductive Dimethylation (ReDiMe).

Lipidomics and Metabolomics: Basic training on X500 UPLC-QTOF (Sciex).

Computer proficiency and Bioinformatics: Microsoft Office (Power Point, Excel and Word), Snapgene, Graphpad Prism 9, ImageJ/Fiji, LSM-710, BLAST, DAVID, Gene Ontology (GO), Panther.

Achievements

2021 Senior Research Fellow, Council of Scientific and Industrial Research (CSIR), Govt. of India

2019 Junior Research Fellow, Council of Scientific and Industrial Research (CSIR), Govt. of India

2015/16 Qualified for JGEEBILS (Life Sciences)

2015/16 Qualified IIT-JAM (Biotechnology) (AIR 12/24)

2015 Qualified IIT-JAM (Life Sciences) (AIR 48)

2014 Summer Research Fellowship Programme (SPRF) jointly sponsored by IASc (Bangalore), INSA (New Delhi) and NASI (Allahabad)

2012 INSPIRE fellowship, Department of Science & Technology (DST)

Awards

2019 Academic Excellence Award, IISER Pune, India

2015 Ram Gopal Bhattacharyya Memorial Prize, 1st in B.Sc Chemistry & Biochemistry, Presidency University, Kolkata, India

Fellowships

2021-23 Senior Research Fellowship, Council of Scientific and Industrial Research (CSIR), Govt. of India

2019-21 Junior Research Fellowship, Council of Scientific and Industrial Research (CSIR), Govt. of India

2014 Summer Research Fellowship jointly sponsored by IASc (Bangalore), INSA (New Delhi) and NASI (Allahabad), India

2012-15 INSPIRE Scholarship of Department of Science & Technology (DST), Govt. of India

Conferences attended

Poster presentations:

- 2021 Cell Bio Virtual 2021, ASCB-EMBO Annual Meeting
- 2020 International Symposium on Cell Surface Macromolecules, Pune, India
- 2020 International Conference on Autophagy and Lysosomes (ICAL), Bangalore, India
- 2018 ICCB satellite meeting: Dynamics within and across the confined cellular space, Pune, India
- 2018 International Conference of Cell Biology (ICCB), Bangalore, India
- 2018 National Research Scholar's Meet (NRSM), ATREC, Mumbai, India
- 2016 1st Indian *C. elegans* Meeting, TIFR-DAE, India
- 2015 From Molecules to Systems, Kolkata, India

Invited talks:

- 2021 Cell Biology Online, Redox-dependent membrane fission catalyzed by alpha-synuclein
- 2020 International Conference on Autophagy and Lysosomes (ICAL), Bangalore, India, Redox-dependent membrane fission catalyzed by alpha-synuclein
- 2022 Birth and Fission of Cellular Compartments, Bilbao, Spain, Cardiolipin-dependent membrane fission by alpha-synuclein is required for normal mitochondrial respiratory functions

Workshops

- 2019 Training Programme in Reprogramming Human Somatic Cells to Induced Pluripotent Stem Cells, NCBS-ADBS, Bangalore, India
- 2018 Basic Training on Lipidomics and Metabolomics on X500R QTOF System, IISER Pune, India

Teaching Experiences

- 2019 Systems Biology to undergraduate students (4 credits)
- 2019 Introductory Biology to undergraduate students (4 credits)

Declaration

I hereby declare that all the information stated above is true and complete to the best of my knowledge and nothing has been concealed / distorted.

Krishnendu Roy