

# Thomas J. Pucadyil, Ph.D.

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### Educational Qualifications

2005 Ph.D., Centre for Cellular and Molecular Biology, Hyderabad, India.

1999 M.Sc. (Biochemistry), First Class, Maharaja Sayajirao University of Baroda, Vadodara, India.

1997 B.Sc. (Biochemistry), First Class, St. Xavier's College, Gujarat University, Ahmedabad, India.

### Professional Positions

- 2021-present, Professor, Indian Institute of Science Education and Research, Pune, India
- 2021-2024, Rahul Bajaj Chair Professorship, Indian Institute of Science Education and Research, Pune, India
- 2019-2022, Chair, Biology Department, Indian Institute of Science Education and Research, Pune, India
- 2016-2019, Associate Professor, Indian Institute of Science Education and Research, Pune, India
- 2010-2016, Assistant Professor, Indian Institute of Science Education and Research, Pune, India
- 2007-10, Leukemia & Lymphoma Society Postdoctoral Fellow, The Scripps Research Institute, La Jolla, U.S.A.
- 2005-10, Postdoctoral Fellow, The Scripps Research Institute, La Jolla, U.S.A.
- 2004-05, NBRC Postdoctoral Fellow, Centre for Cellular and Molecular Biology, Hyderabad, India

### Awards and Honors

2021 Rahul Bajaj Chair Professorship

2021 Fellow, Indian Academy of Sciences

2021 Fellow, Indian National Science Academy

2018 Shanti Swarup Bhatnagar Prize in Biological Sciences

2017 International Research Scholarship, Howard Hughes Medical Institute, U.S.A.

2017 DBT-Wellcome Trust India Alliance Senior Fellowship

2017 Member, Guha Research Conferences

2011 Associateship, Indian Academy of Sciences, Bangalore, India

2011 DBT-Wellcome Trust India Alliance Intermediate Fellowship

### Research Grants

2023-28 DBT-Wellcome Trust India Alliance Team Science Grant

2022-25 DST-SERB SUPRA

2017-23 Howard Hughes Medical Institute's International Research Scholar's Grant

2017-22 DBT-Wellcome Trust India Alliance Senior Fellowship (relinquished)

2016-19 DST SERB

2011-16 DBT-Wellcome Trust India Alliance Intermediate Fellowship

2007-10 Career Development Grant, Leukemia & Lymphoma Society, New York, U.S.A.

2004-05 Postdoctoral Research Fellowship, National Brain Research Centre, New Delhi, India.

### Patents

1. Jose, G., Pucadyil, T.J. (2024) Bifunctional photoactivable fluorescent lipid probes for proximity labelling-based identification of membrane-associated proteins (Patent No.: US 11,879,894 B2; Date of Patent: Jan. 23, 2024)

### Research Articles

1. Bhattacharyya, S., **Pucadyil, T.J.** (2024) Dynamics of membrane tubulation coupled with fission by a two-component module. *Proc. Natl. Acad. Sci. USA*. DOI: [10.1073/pnas.2402180121](https://doi.org/10.1073/pnas.2402180121).
2. Khurana, H., Baratam, K., Bhattacharyya, S., Srivastava, A., **Pucadyil, T.J.** (2023) Mechanistic analysis of a novel membrane-interacting variable loop in the pleckstrin-homology domain critical for dynamin function. *Proc. Natl. Acad. Sci. USA*. DOI: [10.1073/pnas.2215250120](https://doi.org/10.1073/pnas.2215250120).

3. Roy, K. and **Pucadyil, T.J.** (2022) Is Drp1 sufficient to catalyze membrane fission? *Proc. Natl. Acad. Sci. USA.* (Letter to Editor) DOI: [10.1073/pnas.2201709119](https://doi.org/10.1073/pnas.2201709119).
4. Roy, K., **Pucadyil, T.J.\*** (2022). Metal-binding propensity in the mitochondrial dynamin-related protein. *Journal of Membrane Biology* DOI: [10.1007/s00232-022-00221-5](https://doi.org/10.1007/s00232-022-00221-5).
5. Andhare D.S., Khurana H., **Pucadyil T.J.\*** (2022). Protein-protein interactions on membrane surfaces analysed using pull downs with supported bilayers on silica beads. *Journal of Membrane Biology* DOI: [10.1007/s00232-022-00222-4](https://doi.org/10.1007/s00232-022-00222-4).
6. Jose G.P., **Pucadyil T.J.\*** (2020). PLiMAP: Proximity-Based Labeling of Membrane-Associated Proteins. *Current Protocols in Protein Sciences* DOI: [10.1002/cpps.110](https://doi.org/10.1002/cpps.110).
7. Jose, G.P., Gopan, S., Bhattacharyya, S., **Pucadyil, T.J.\*** (2020). A facile, sensitive and quantitative membrane-binding assay for proteins. *Traffic* (selected for cover) DOI: [10.1111/tra.12719](https://doi.org/10.1111/tra.12719).
8. Kamerkar, S, Roy K, Bhattacharyya S, **Pucadyil, T.J.\*** (2019). A screen for membrane fission catalysts identifies the ATPase EHD1. *Biochemistry* DOI: [10.1021/acs.biochem.8b00925](https://doi.org/10.1021/acs.biochem.8b00925).
9. Kamerkar, S.C., Kraus, F., Sharpe, A., **Pucadyil, T.J.\***, Ryan, M.T.\* (2018). Dynamin-related protein 1 has membrane constricting and severing abilities sufficient for mitochondrial and peroxisomal fission. *Nature Communications* DOI: [10.1038/s41467-018-07543-w](https://doi.org/10.1038/s41467-018-07543-w)
10. Deo, R., Kushwah, M.S., Kamerkar, S.C., Kadam, N.Y., Dar, S., Babu, K., Srivastava, A., **Pucadyil, T.J.\*** (2018). ATP-dependent membrane remodeling links EHD1 functions to endocytic recycling. *Nature Communications* DOI: [10.1038/s41467-018-07586-z](https://doi.org/10.1038/s41467-018-07586-z)
11. Singh, P.K., Kapoor, A., Lomash, R.M., Kumar, K., Kamerkar, S.C., **Pucadyil, T.J.**, Mukhopadhyay, A. (2018). Salmonella SipA mimics a cognate SNARE for host Syntaxin8 to promote fusion with early endosomes. *Journal of Cell Biology* DOI: [10.1083/jcb.201802155](https://doi.org/10.1083/jcb.201802155)
12. Andhare, D., Holkar, S.S., **Pucadyil, T.J.\*** (2018). SMrT Assay for Real-Time Visualization and Analysis of Clathrin Assembly Reactions. *Methods in Molecular Biology* DOI: [10.1007/978-1-4939-8719-1\\_12](https://doi.org/10.1007/978-1-4939-8719-1_12).
13. Natesan, R., Sreeja, K.K., Roychoudhuri, A., Eckmann, D.M., Ayyaswamy, P.S., Baumgart, T., **Pucadyil, T.**, Patil, S.V., Weaver, V.M., Radhakrishnan, R. 2017. Excess area dependent scaling behavior of nano-sized membrane tethers. *Physical Biology* DOI: [10.1088/1478-3975/aa9905](https://doi.org/10.1088/1478-3975/aa9905).
14. Dar, S., **Pucadyil T.J.\*** (2017). The pleckstrin-homology domain of dynamin is dispensable for membrane constriction and fission. *Molecular Biology of the Cell* DOI: [10.1091/mbc.E16-09-0640](https://doi.org/10.1091/mbc.E16-09-0640).
15. Dar, S., Kamerkar, S.C., **Pucadyil, T.J.\*** (2017). Use of the supported membrane tube assay system for real-time analysis of membrane fission reactions. *Nature Protocols* DOI: [10.1038/nprot.2016.173](https://doi.org/10.1038/nprot.2016.173).
16. Jafurulla, M., Bandari, S., **Pucadyil, T.J.**, Chattopadhyay A. (2017). Sphingolipids modulate the function of human serotonin1A receptors: Insights from sphingolipid-deficient cells. *Biochim Biophys Acta. (Biomembranes)* DOI: [10.1016/j.bbamem.2016.10.016](https://doi.org/10.1016/j.bbamem.2016.10.016).
17. **Pucadyil T.J.\***, Holkar, S.S. (2016). Comparative analysis of adaptor-mediated clathrin assembly reveals general principles for adaptor clustering. *Molecular Biology of the Cell* (selected for cover) DOI: [10.1091/mbc.E16-06-0399](https://doi.org/10.1091/mbc.E16-06-0399).
18. Dar, S., Kamerkar, S.C., **Pucadyil, T.J.\*** (2015). A high-throughput platform for real-time analysis of membrane fission reactions reveals the mechanism of dynamin function. *Nature Cell Biology* DOI: [10.1038/ncb3254](https://doi.org/10.1038/ncb3254).
19. Holkar, S.S., Kamerkar, S.C., **Pucadyil, T.J.\*** (2015). Spatial control of epsin-induced clathrin assembly by membrane curvature. *Journal of Biological Chemistry* (selected for cover and as a papers of the week) DOI: [10.1074/jbc.M115.653394](https://doi.org/10.1074/jbc.M115.653394).
20. Shnyrova, A.V., Bashkirov, P.V., Akimov, S.A., **Pucadyil, T.J.**, Zimmerberg, J., Schmid, S.L., Frolov, V.A. (2013). Geometric catalysis of membrane fission driven by flexible dynamin rings. *Science* DOI: [10.1126/science.1233920](https://doi.org/10.1126/science.1233920).
21. Neumann, S., **Pucadyil, T.J.**, Schmid, S.L. (2013). Analyzing membrane remodeling and fission using supported bilayers with excess membrane reservoir. *Nature Protocols* DOI: [10.1038/nprot.2012.152](https://doi.org/10.1038/nprot.2012.152).
22. Liu, Y.W., Neumann, S., Ramachandran, R., Ferguson, S.M., **Pucadyil, T.J.**, Schmid, S.L. (2011). Differential curvature sensing and generating activities of dynamin isoforms provide opportunities for tissue-specific regulation. *Proc. Natl. Acad. Sci. U.S.A.* DOI: [10.1073/pnas.1102710108](https://doi.org/10.1073/pnas.1102710108).
23. **Pucadyil, T.J.\***, Schmid, S.L.\* (2010). Supported bilayers with excess membrane reservoir (SUPER): A template for reconstituting membrane budding and fission. *Biophysical Journal* (Featured article) DOI: [10.1016/j.bpj.2010.04.036](https://doi.org/10.1016/j.bpj.2010.04.036).
24. Sandeep, S., **Pucadyil, T.J.**, Paila, Y., Ganguly, S., Chattopadhyay, A. (2010). Chronic cholesterol depletion using statin impairs the function and dynamics of human serotonin1A receptors. *Biochemistry* DOI: [10.1021/bi100276b](https://doi.org/10.1021/bi100276b).
25. Ramachandran, R.\*, **Pucadyil, T.J.\***, Liu, Y.-W., Acharya, S., Leonard, M., Lukiyanchuk, V., Schmid, S.L. (2009). Membrane insertion of the pleckstrin homology domain variable loop 1 is Critical for Dynamin-catalyzed Vesicle Scission. *Molecular Biology of the Cell* \*equal contribution. (Cover page article) DOI: [10.1091/mbc.e09-08-0683](https://doi.org/10.1091/mbc.e09-08-0683).
26. Chappie, J.S., Acharya, S., Liu, Y.-W., Leonard, M., **Pucadyil, T.J.**, Schmid, S.L. (2009). An Intramolecular Signaling Element that Modulates Dynamin Function In Vitro and In Vivo. *Molecular Biology of the Cell* DOI: [10.1091/mbc.e09-04-0318](https://doi.org/10.1091/mbc.e09-04-0318).
27. **Pucadyil, T.J.**, Schmid, S.L. (2008). Real-time visualization of dynamin-catalyzed membrane fission and vesicle release. *Cell* (Cover page article) DOI: [10.1016/j.cell.2008.11.020](https://doi.org/10.1016/j.cell.2008.11.020).
28. Jafurulla, Md., **Pucadyil, T.J.**, Chattopadhyay, A. (2008). Effect of sphingomyelinase treatment on ligand binding activity of human serotonin1A receptors. *Biochim. Biophys. Acta (Biomembranes)* DOI: [10.1016/j.bbamem.2008.07.007](https://doi.org/10.1016/j.bbamem.2008.07.007).
29. Ganguly, S., **Pucadyil, T.J.**, Chattopadhyay, A. (2008). Actin Cytoskeleton Dependent Dynamics of the Human Serotonin1A Receptor Correlates with Receptor Signaling. *Biophysical Journal* DOI: [10.1529/biophysj.107.125732](https://doi.org/10.1529/biophysj.107.125732).
30. **Pucadyil, T.J.**, Mukherjee, S., Chattopadhyay, A. (2007). Organization and dynamics of cholesterol at low concentrations in membranes analyzed by fluorescence photobleaching and recovery. *Journal of Physical Chemistry B* DOI: [10.1021/jp066092h](https://doi.org/10.1021/jp066092h).
31. **Pucadyil, T.J.**, Chattopadhyay, A. (2007). Cholesterol depletion induces dynamic confinement of the G-protein coupled serotonin1A receptor in the plasma membrane of living cells. *Biochim. Biophys. Acta (Biomembranes)* DOI: [10.1016/j.bbamem.2007.01.002](https://doi.org/10.1016/j.bbamem.2007.01.002).
32. **Pucadyil, T.J.**, Chattopadhyay, A. (2007). The human serotonin1A receptor exhibits G-protein dependent cell surface dynamics. *Glycoconjugate Journal* DOI: [10.1007/s10719-006-9008-x](https://doi.org/10.1007/s10719-006-9008-x).

33. **Pucadyil, T.J.**, Chattopadhyay, A. (2006). Effect of cholesterol on lateral diffusion of fluorescent lipid probes in native hippocampal membranes. *Chemistry and Physics of Lipids* DOI: [10.1016/j.chemphyslip.2006.04.003](https://doi.org/10.1016/j.chemphyslip.2006.04.003).
34. **Pucadyil, T.J.**, Chattopadhyay, A. (2006). Confocal fluorescence recovery after photobleaching of green fluorescent protein in solution. *Journal of Fluorescence* DOI: [10.1007/s10895-005-0019-y](https://doi.org/10.1007/s10895-005-0019-y).
35. **Pucadyil, T.J.**, Jafurulla, Md., Chattopadhyay, A. (2006). Prolonged treatment with ligands affects ligand binding to the human serotonin1A receptor in Chinese Hamster Ovary cells. *Cellular and Molecular Neurobiology* DOI: [10.1007/s10571-006-9002-7](https://doi.org/10.1007/s10571-006-9002-7).
36. Chattopadhyay, A., Jafurulla, Md. and **Pucadyil, T.J.** (2006). Ligand binding and G-protein coupling of the serotonin1A receptor in cholesterol-enriched hippocampal membranes. *Bioscience Reports* DOI: [10.1007/s10540-006-9009-9](https://doi.org/10.1007/s10540-006-9009-9).
37. Mukherjee, S., Kalipatnapu, S., **Pucadyil, T.J.**, Chattopadhyay, A. (2006). Monitoring the organization and dynamics of bovine hippocampal membranes utilizing differentially localized fluorescent membrane probes. *Molecular Membrane Biology* DOI: [10.1080/09687860600803223](https://doi.org/10.1080/09687860600803223).
38. Tewary, P., Veena, K., **Pucadyil, T.J.**, Chattopadhyay, A., Madhubala, R. (2006). The sterol-binding antibiotic nystatin inhibits entry of non-opsonized *Leishmania donovani* into macrophages. *Biochem. Biophys. Res. Commun.* DOI: [10.1016/j.bbrc.2005.11.062](https://doi.org/10.1016/j.bbrc.2005.11.062).
39. **Pucadyil, T.J.**, Chattopadhyay, A. (2005). Cholesterol modulates the antagonist-binding function of the bovine hippocampal serotonin1A receptor. *Biochim. Biophys. Acta (Biomembranes)* DOI: [10.1016/j.bbamem.2005.06.005](https://doi.org/10.1016/j.bbamem.2005.06.005).
40. **Pucadyil, T.J.**, Shrivastava, S., Chattopadhyay, A. (2005). Membrane cholesterol oxidation inhibits ligand binding function of hippocampal serotonin1A receptors. *Biochem. Biophys. Res. Commun.* DOI: [10.1016/j.bbrc.2005.03.178](https://doi.org/10.1016/j.bbrc.2005.03.178).
41. Paila, Y.D., **Pucadyil, T.J.**, Chattopadhyay, A. (2005). The cholesterol-complexing agent digitonin modulates ligand binding of the bovine hippocampal serotonin1A receptor. *Molecular Membrane Biology* DOI: [10.1080/09687860500093453](https://doi.org/10.1080/09687860500093453).
42. **Pucadyil, T.J.**, Kalipatnapu, S., Harikumar, K.G., Rangaraj, N., Karnik, S.S., Chattopadhyay, A. (2004). G-Protein-dependent cell surface dynamics of the human serotonin1A receptor tagged to yellow fluorescent protein. *Biochemistry* DOI: [10.1021/bi0480887](https://doi.org/10.1021/bi0480887).
43. **Pucadyil, T.J.**, Chattopadhyay, A. (2004). Exploring detergent insolubility in bovine hippocampal membranes: a critical assessment of the requirement for cholesterol. *Biochim. Biophys. Acta (Biomembranes)* DOI: [10.1016/j.bbamem.2003.11.013](https://doi.org/10.1016/j.bbamem.2003.11.013).
44. **Pucadyil, T.J.**, Chattopadhyay, A. (2004). Cholesterol modulates ligand binding and G-protein coupling to serotonin1A receptors from bovine hippocampus. *Biochim. Biophys. Acta (Biomembranes)* DOI: [10.1016/j.bbamem.2004.03.010](https://doi.org/10.1016/j.bbamem.2004.03.010).
45. **Pucadyil, T.J.**, Shrivastava, S., Chattopadhyay, A. (2004). The sterol-binding antibiotic nystatin differentially modulates ligand binding of the bovine hippocampal serotonin1A receptor. *Biochem. Biophys. Res. Commun.* DOI: [10.1016/j.bbrc.2004.06.004](https://doi.org/10.1016/j.bbrc.2004.06.004).
46. **Pucadyil, T.J.**, Tewary, P., Madhubala, R., Chattopadhyay, A. (2004). Cholesterol is required for *Leishmania donovani* infection: implications in leishmaniasis. *Molecular Biochemical Parasitology* DOI: [10.1016/j.molbiopara.2003.10.002](https://doi.org/10.1016/j.molbiopara.2003.10.002).
47. Kalipatnapu, S.\*, **Pucadyil, T.J.\***, Harikumar, K.G., Chattopadhyay, A. (2004). Ligand binding characteristics of the human serotonin1A receptor heterologously expressed in CHO cells. *Bioscience Reports* (\*equal contribution) DOI: [10.1007/s10540-004-7191-1](https://doi.org/10.1007/s10540-004-7191-1).
48. Chattopadhyay, A., Jafurulla, Md., Kalipatnapu, S., **Pucadyil, T.J.**, Harikumar, K.G. (2004). Role of cholesterol in ligand binding and G-protein coupling of serotonin1A receptors solubilized from bovine hippocampus. *Biochem. Biophys. Res. Commun.* DOI: [10.1016/j.bbrc.2004.12.102](https://doi.org/10.1016/j.bbrc.2004.12.102).
49. Mukhopadhyay, K., Prasad, T., Saini, P., **Pucadyil, T.J.**, Chattopadhyay, A., Prasad, R. (2004). Membrane sphingolipid-ergosterol interactions are important determinants of multidrug resistance in *Candida albicans*. *Antimicrobial Agents and Chemotherapy* DOI: [10.1128/AAC.48.5.1778-1787.2004](https://doi.org/10.1128/AAC.48.5.1778-1787.2004).
50. Harikumar, K.G., **John, P.T.**, Chattopadhyay, A. (2000). Role of disulfide and sulfhydryl groups in agonist and antagonist binding in serotonin1A receptors from bovine hippocampus. *Cellular and Molecular Neurobiology* DOI: [10.1023/a:1007046707845](https://doi.org/10.1023/a:1007046707845).

#### Review Articles

1. Swaminathan, U., **Pucadyil, T.J.\*** (2024) Reconstituting membrane fission using a high content and throughput assay. *Biochemical Society Transactions* DOI: [10.1042/BST20231325](https://doi.org/10.1042/BST20231325).
2. Khurana, H., **Pucadyil, T.J.\*** (2023) 'Gearing' up for dynamin-catalyzed membrane fission. *Curr. Opin. Cell Biol.* DOI: [10.1016/j.ceb.2023.102204](https://doi.org/10.1016/j.ceb.2023.102204).
3. Krauss, F., Roy, K., **Pucadyil, T.J.\***, Ryan, M.J.\* (2021) Function and regulation of the divisome for mitochondrial fission. *Nature* DOI: [10.1038/s41586-021-03214-x](https://doi.org/10.1038/s41586-021-03214-x).
4. Bhattacharyya, S., **Pucadyil, T.J.\*** (2020) Cellular functions and intrinsic attributes of the ATP-binding Eps15 homology domain-containing proteins. *Protein Science* (selected for cover) DOI: [10.1002/pro.3860](https://doi.org/10.1002/pro.3860).
5. Bassereau, P., Jin, R., Baumgart, T., Deserno, M., Dimova, R., Frolov, V.A., Bashkirov, P.V., Grubmüller, H., Jahn, R., Risselada, H.J., Johannes, L., Kozlov, M.M., Lipowsky, T., **Pucadyil, T.J.**, Zeno, W.F., Stachowiak, J.C., Stamou, D., Breuer, A., Lauritsen, L., Simon, C., Sykes, C., Voth, G.A., Weikel, T.R. 2018. The 2018 biomembrane curvature and remodeling roadmap. *Journal of Physics D: Applied Physics* DOI: [10.1088/1361-6463/aacb98](https://doi.org/10.1088/1361-6463/aacb98).
6. **Pucadyil, T.J.** (2018) A novel fluorescence microscopic approach to quantitatively analyse protein-induced membrane remodeling. *Journal of Bioscience* 43:431-435.
7. **Pucadyil, T.J.**, Schmid, S.L. (2009). Conserved functions of Membrane Active GTPases in Coated Vesicle Formation. *Science* DOI: [10.1126/science.1171004](https://doi.org/10.1126/science.1171004).
8. Mettlen, M., **Pucadyil, T.J.**, Ramachandran, R., Schmid, S.L. (2009). Dissecting dynamin's role in clathrin-mediated endocytosis. *Biochemical Society Transactions* DOI: [10.1042/BST0371022](https://doi.org/10.1042/BST0371022).
9. **Pucadyil, T.J.**, Chattopadhyay, A. (2007). Cholesterol - a potential therapeutic target in leishmanial infection? *Trends in Parasitology* (cover page article) DOI: [10.1016/j.pt.2006.12.003](https://doi.org/10.1016/j.pt.2006.12.003).
10. **Pucadyil, T.J.**, Chattopadhyay, A. (2006). Role of cholesterol in the function and organization of G-protein coupled receptors. *Progress in Lipid Research* DOI: [10.1016/j.plipres.2006.02.002](https://doi.org/10.1016/j.plipres.2006.02.002).

11. **Pucadyil, T.J.**, Kalipatnapu, S., Chattopadhyay, A. (2005). Membrane organization and dynamics of the G-protein coupled serotonin1A receptor monitored using fluorescence-based approaches. *Journal of Fluorescence* DOI: [10.1007/s10895-005-2988-2](https://doi.org/10.1007/s10895-005-2988-2).
12. **Pucadyil, T.J.**, Kalipatnapu, S., Chattopadhyay, A. (2005). The serotonin1A receptor: a representative member of the serotonin receptor family. *Cellular and Molecular Neurobiology* DOI: [10.1007/s10571-005-3969-3](https://doi.org/10.1007/s10571-005-3969-3).

#### Editorials, Commentary and Opinion Pieces

1. Gopan, S., **Pucadyil, T.J.** (2024). The race to uncover fission factors for lysosomal organelles heats up. *Nature* DOI: [10.1038/d41586-024-00851-w](https://doi.org/10.1038/d41586-024-00851-w)
2. **Pucadyil, T.J.** (2023). Membrane contacts, lipid flux, and fission *Mol. Cell* doi: [10.1016/j.molcel.2023.02.030](https://doi.org/10.1016/j.molcel.2023.02.030).
3. Jain S., **Pucadyil, T.J.**, Kotak, S., Bhandari, R., Mallik, R. (2019) Impact of Young Investigators' Meetings on life sciences research in India. *Current Science* 116:357-360.

#### Book Chapters

1. **Pucadyil, T.J.** (2011). Dynamic remodeling of membranes catalyzed by dynamin in *Current Topics in Membranes* (ed. Chernomordik, L., Kozlov, M.) DOI: [10.1016/B978-0-12-385891-7.00002-7](https://doi.org/10.1016/B978-0-12-385891-7.00002-7).
2. Kalipatnapu, S., **Pucadyil, T.J.**, Chattopadhyay, A. (2007). Membrane organization and dynamics of the serotonin1A receptor monitored using fluorescence microscopic approaches in *Frontiers in Neurosciences*, (ed. Chattopadhyay, A.).

#### Invited Talks

- 2024 2<sup>nd</sup> RGCB Research Conference, Kumarakom, Membrane fission: mechanisms, regulation and physiological relevance
- 2024 Speak your Science (SyS), NCCS, Pune, Regulatory mechanisms in membrane fission and their relevance to physiology
- 2023 Society of Biological Chemists, BITS Goa, Regulatory mechanisms in membrane fission and their relevance to physiology
- 2023 BSBE Symposium, IIT Kanpur, Regulatory mechanisms in membrane fission and their relevance to physiology
- 2023 TIFR Hyderabad, Regulatory mechanisms in membrane fission and their relevance to physiology
- 2023 National Seminar on Recent Trends in Biology, Department of Zoology, S.P. Pune University, Pune, Membrane Fission Insights from Reconstituting Organelle Form and Chemistry
- 2023 Integrative Multiscale Modelling in Biomolecular and Soft Matter Systems, IISc, Bangalore, Regulatory mechanisms in membrane fission and their relevance to physiology
- 2023 Department of Biochemistry, Indian Institute of Science, Bangalore, Membrane Fission: Insights from Reconstituting Organelle Form and Chemistry
- 2023 Shiv Nadar University, Delhi, Mechanistic Analysis of Membrane Fission and Discovery of Novel Fission Proteins.
- 2023 Organellar Biology and Membrane trafficking meeting, National Brain Research Centre, Manesar, Membrane remodelling to maintain organelle homeostasis
- 2023 Biophysical Society Meeting on Membrane Fusion and Budding, Estes Park, Colorado, Mechanistic Analysis of Membrane Fission and Discovery of Novel Fission Proteins
- 2023 National Centre for Biological Sciences, Bangalore, Regulatory mechanisms in membrane fission and their relevance to physiology
- 2023 Indian Biophysics Society Meeting, National Centre for Biological Sciences, Bangalore: Mechanistic analysis of membrane fission and discovery of novel fission proteins
- 2023 45th All India Cell Biology Conference, Banaras Hindu University, Fission for the masses: High throughput screens for membrane fission catalysts
- 2023 Young Investigators Meeting, IIT-Gandhinagar: Reconstituting membrane biology and consolidating a career in science
- 2022 EMBO Conference, Bilbao, Spain, Fission for the Masses: High throughput Screens for Membrane Fission Proteins
- 2022 University of Nebraska, Department of Biochemistry and Molecular Biology, Insights into Mechanisms Regulating T-tubule Biogenesis from in vitro Reconstitution
- 2022 Biologically Speaking Webinar Series, Membrane Fission: Insights from Reconstituting Organelle Form and Chemistry
- 2022 Indian Association of Cultivation of Science, School of Biological Sciences, Membrane Fission: Insights from Reconstituting Organelle Form and Chemistry
- 2021 Complex Fluids 2021, India, Membrane Fission Insights from Reconstituting Organelle Form and Chemistry
- 2021 National Institute of Immunology, India, Protein-induced membrane remodeling: new insights from unbiased screens and in vitro reconstitution
- 2021 Regional Centre for Biotechnology Contemporary Webinar Series, India, Membrane Fission: Insights from Reconstituting Organelle Form and Chemistry
- 2021 IISER Kolkata, Department of Biological Sciences, Membrane Fission: Insights from Reconstituting Organelle Form and Chemistry
- 2021 Annual Biophysical Society Meeting, U.S.A., Membrane Fission: Insights from Reconstituting Organelle Form and Chemistry, Chair of the Session on Bioengineering, Biosurfaces, and Biomaterials
- 2021 20th International Congress of IUPAB, Foz do Iguacu, Brazil.
- 2020 ASCB-EMBO Annual Meeting, U.S.A., Membrane Fission: Insights from Reconstituting Organelle Form and Chemistry
- 2020 ICTP workshop on Signatures of Nonequilibrium Fluctuations in Life, Trieste, Italy.
- 2020 Spatial Organization of Biological Functions, Thematic meeting of the Biophysical Society, Bangalore, India.
- 2020 ICAL, Indian Institute of Science, Bangalore, India, Membrane Fission: Insights from Reconstituting Organelle Form and Chemistry
- 2019 M.S. University, Vadodara, India, Membrane Fission: Insights from Reconstituting Organelle Form and Chemistry
- 2019 InSTEM, Bangalore, India, Mitochondrial fission: Insights from Reconstitution of Mitochondrial Form and Chemistry

- 2019 I-BIOS, Indian Institute of Science, Bangalore, India, Membrane Fission: Insights from Reconstituting Organelle Form and Chemistry
- 2019 17th Chinese Biophysics Congress, Tianjin, China, Mitochondrial fission: Insights from Reconstitution of Mitochondrial Form and Chemistry
- 2019 Gordon Conference in Molecular Membrane Biology, New Hampshire, USA, ATP-Dependent Membrane Remodeling Links EHD1 Functions to Endocytic Recycling
- 2019 Quantitative aspects of membrane fusion and fission, Thematic meeting of the Biophysical Society, Padova, Italy, ATP-Dependent Membrane Remodeling Links EHD1 Functions to Endocytic Recycling
- 2018 Mechanobiology after 10 years – The promise of Mechanomedicine, Mechanobiology Institute, Singapore, Reconstitution of Membrane Fission
- 2018 Princeton University, U.S.A, Membrane Fission: Diverse Players, Convergent Mechanisms
- 2018 HHMI International Research Scholar's Review Meeting, Janellia Farms Research Campus, U.S.A, Membrane Fission: Diverse Players, Convergent Mechanisms
- 2018 Young Investigator's Meeting, Trivandrum, Kerala, Formation of Transport Carriers at the Endocytic Recycling Compartment
- 2018 HHMI International Research Scholar's Inaugural Meeting, Gulbenkian Institute, Lisbon, Membrane Fission: Diverse Players, Convergent Mechanisms
- 2018 Dynamics Within and Across the Confined Cellular Space - Satellite Meeting to the International Conference on Cell Biology, IISER Pune, Membrane fission by mitochondrial dynamins
- 2018 International Conference on Cell Biology, CCMB, Hyderabad, Mechanistic Insights into the Formation of Transport Carriers during Endocytic Recycling
- 2018 Frontiers in Modern Biology, IISER Kolkata, Kolkata, Mechanistic Insights into the Formation of Transport Carriers during Endocytic Recycling
- 2018 IISER-Weizmann Institute of Science Conference, IISER Pune, Pune, Formation of Transport Carriers at the Endocytic Recycling Compartment
- 2017 Guha Research Conference, Kukarakom, Kerala, Functional Diversity among Membrane Fission Catalysts
- 2017 Tata Institute of Fundamental Research, Mumbai, Department of Chemical Sciences Colloquium: Membrane Fission: Diverse Players, Convergent Mechanisms
- 2017 The India-EMBO Young Scientist Networking (YSN), CRG, Barcelona, A Screen for Membrane Fission Catalysts
- 2016 Indian Biophysical Society Annual Meeting, Bangalore, India, Membrane fission: Diverse players and mechanisms
- 2015 Cell Mechanics Meeting, Raman Research Institute, Bangalore, India, Membrane curvature controls epsin-induced clathrin assembly
- 2015 Mechanism of Dynamin-catalyzed Membrane Fission, IIT Bombay, Mumbai, India
- 2014 80th Annual Meeting of the Indian Academy of Sciences, IIT Chennai, Chennai, India, Membrane fission: Analyses using novel assay systems
- 2014 Discussion Meeting on Biological Membranes , Department of Chemical Engineering and Bioengineering Program, Indian Institute of Science, Bangalore, India, Kinetic Intermediates in Dynamin-catalyzed Membrane Fission
- 2014 Xth International Symposium on Biochemical Roles Of Eukaryotic Cell Surface Macromolecules, Kolkata, India, Reconstitution of Clathrin-coated Pits
- 2012 Indo-US Symposium on Structure, Dynamics and Mechanics of Biological Membranes, Indian Institute Of Science, Bangalore, India. Membrane Tether Dynamics Analyzed Using Force Spectroscopy
- 2012 Lipid-Protein Interactions in Membranes: Implications for Human Health and Disease, Biophysical Society Satellite Meeting, Centre For Cellular and Molecular Biology (CCMB), Hyderabad, India, Membrane Fission Catalyzed by the Dynamin Family of Proteins
- 2011 All India Cell Biology Conference and Symposium on Membrane Dynamics and Disease, National Institute of Science Education and Research (NISER), Bhubaneswar, India, A Reconstitution Approach to Understand Vesicular Transport
- 2011 Biophysics-Paschim Tata Institute of Fundamental Research (TIFR), Mumbai, India. Membrane Budding and Fission Phenomena Interrogated with Novel Supported Bilayer Systems
- 2011 IXth International Symposium on Biochemical Roles of Eukaryotic Cell Surface Macromolecules, Trivandrum, India, Dynamin-Catalyzed Dynamic Remodeling of Membranes
- 2010 Nankai University, Tianjin, China, Dynamic Remodeling of Membranes Catalyzed by Dynamin
- 2009 Centre For Cellular and Molecular Biology (CCMB), Hyderabad, India, Endocytosis: Novel Insights from A Reconstitution Approach
- 2009 National Centre For Biological Sciences (NCBS), Bangalore, India, Understanding the Mechanism and Regulation of a Minimal Membrane Fission Apparatus
- 2009 Indian Institute for Science Education and Research (IISER), Pune, India, Understanding Molecular Mechanisms of Vesicular Transport Using A Reconstitution Approach
- 2008 48th Annual Meeting of The American Society for Cell Biology (ASCB) San Francisco, U.S.A., Real-Time Visualization Establishes Dynamin as The Minimal Fission Apparatus
- 2008 Society of Fellows Fall Research Symposium, The Scripps Research Institute, La Jolla, CA, U.S.A. Real-time Visualization Establishes Dynamin as a Minimal Fission Apparatus
- 2007 51st Biophysical Society Meeting, Baltimore, U.S.A. Dynamin Induces the Generation of Local Membrane Curvature and Clustering of Phosphatidyl-4,5-inositolbisphosphate (PIP2) on Planar Supported Membranes
- 2007 Centre for Cellular and Molecular Biology, Hyderabad, India. Nucleotide-dependent Membrane Reorganization Induced by Dynamin

2005 Trends in Biochemical Sciences, M.S. University, Biochemistry Department, Vadodara, India.  
Membrane Cholesterol Modulates the Function and Organization of the Serotonin-1A Receptor

### Teaching

Advanced Biochemistry (Undergraduate course; 4 credits)  
Advanced Cell Biology (Undergraduate course; 4 credits)  
Literature review (Graduate course; 3 credits)  
Physical Biology – Concepts and Experiments (Graduate; 2 credits)

### Meetings and Workshops Organized

2024 2<sup>nd</sup> Organelle Biology and Membrane Trafficking, IISER Pune, India: Meeting Organizers – Nagaraj Balasubramanian and Thomas Pucadyil (<https://sites.google.com/view/obmt2024/home>)  
2022 EMBO Workshop, Birth and Fission of Cellular Compartments, Bilbao, Spain: Meeting Organizers - Vadim Frolov, Ana Shnyrova, Thomas Pucadyil, Felix Goni (<https://meetings.embo.org/event/20-cellular-compartments>)  
2020 12<sup>th</sup> International Symposium on Cell Surface Macromolecules, IISER Pune  
2018 Dynamics Within and Across the Confined Cellular Space - Satellite Meeting to the International Conference on Cell Biology, IISER Pune  
2016 13<sup>th</sup> SciComm Workshop (Wellcome Trust -DBT India Alliance) on 'Manuscript Writing', Hyderabad

### Society Memberships

Indian Society for Cell Biology  
Indian Biophysical Society  
Biophysical Society (U.S.A.)  
American Society for Cell Biology (ASCB)

### Professional Activities

- Research Council Member, Centre for Cellular and Molecular Biology, 2023-2026.
- Editorial Board Member, The Journal of Membrane Biology
- Editorial Board Member, Traffic
- Guest Editor, Current Opinions in Cell Biology – Membrane Trafficking Series for 2021
- Panel member, Wellcome Trust-DBT India Alliance Early Career Fellowship (2019-2021)
- Reviewed grants from Wellcome Trust-DBT India Alliance, ANR France, DST India, DBT India
- Reviewed manuscripts for Nature Cell Biology, PNAS, Nature Communications, J Cell Biology, J Cell Science, J Structural Biology, Biophysical Journal, BBA-Biomembranes, Physical Reviews X, Communications Biology, Soft Matter  
(For full listing of reviewing activities, please visit <https://publons.com/researcher/3510228/thomas-pucadyil/peer-review/>)

### Graduate Students

2024- Sejal Shivarkar  
2023- Aman Sharma  
2023- Raksha Bansali  
2020- Sannidhya De  
2019- Uma Swaminathan  
2019- Meghadeepa Sarkar  
2019- Keerti Singh  
2018- Shilpa Gopan  
2018-24 Krishnendu Roy: Regulation of mitochondrial quality control by membrane fission  
2018-24 Himani Khurana: A novel membrane anchor in the PH-domain is indispensable for dynamin functions (awarded the best thesis in Biology at IISER Pune).  
2018-24 Soumya Bhattacharyya: Membrane tubulation coupled with fission by a minimal two-component module  
2013-19 Devika Andhare: Numb is a membrane-active clathrin adaptor  
2014-18 Sukrut Kamerkar: Mechanism of Drp1-catalyzed membrane fission  
2013-18 Raunaq Deo: Mechanistic insights into formation of transport carriers during endocytic recycling  
2012-17 Manish Kushwah: Mechanism of EHD1-catalyzed membrane fission  
2011-16 Srishti Dar: Mechanistic analysis of dynamin-catalyzed membrane fission (awarded the best thesis in Biology at IISER Pune).  
2011-15 Sachin Holkar: Role of clathrin-associated sorting proteins (CLASP) in clathrin assembly on membranes

### Postdoctoral Associates

2020-22 Rakhee Lohia  
2019-22 Gregor Jose  
2019-20 Prasanna Iyer  
2019-20 Parul Sood