

Ravi Manjithaya, Ph.D.

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Brief Bio

Ravi Manjithaya received his Ph.D. in Post-transcriptional Gene Regulation from Indian Institute of Science (Advisor: Prof. Rajan Dighe). He completed postdoctoral training in autophagy-related pathways at University of California, San Diego (Mentor: Prof. Suresh Subramani) before joining JNCASR in 2011. He was a Wellcome Trust-DBT Intermediate Fellow (2011-2016). His lab studies mechanisms governing autophagy and related pathways in health and disease. Awards include the CDRI Award 2020 for Excellence in Drug Research (Life Sciences) and the S Ramachandran–National Bioscience Award for Career Development (DBT, India).

Education

- Ph.D., Molecular Biology, Indian Institute of Science, 1998–2004
- M.Sc., Microbiology, University of Pune, 1996–1998

Appointments

- Associate Professor, MBGU, JNCASR, 2017–present
- Associate Faculty, Neuroscience Unit, JNCASR, 2016–present
- Faculty Fellow (Assistant Professor), MBGU, JNCASR, 2011–2017
- Assistant Specialist I, Suresh Subramani Lab, UC San Diego, 2009–2011
- Postdoctoral Research Scholar, Subramani Lab, UC San Diego, 2004–2009

Current Positions (Active)

- Chair, Neuroscience Unit, JNCASR, 2022–present
- Professor, JNCASR, 2023–present
- Chair, Molecular Biology and Genetics Unit, JNCASR, 2024–present

Selected Awards and Memberships

- S Ramachandran-National Bioscience Award for Career Development (DBT, India)
- CDRI Awards 2020 for Excellence in Drug Research, Life Sciences
- Sir C.V. Raman Young Scientist State Award, Life Sciences, 2019
- Wellcome Trust-DBT India Alliance Intermediate Fellow, 2011–2016
- Member, American Society of Cell Biology
- Elected Member, Guha Research Conference

Research Publications (2004–2025)

2025

1. Kumari R, Nath T, Pflaum J, et al., Manjithaya R. *The autophagy-specific exocyst subcomplex contributes to phagophore assembly site integrity by promoting phagophore expansion*. PNAS. 2025;122(41):e2426476122. <https://doi.org/10.1073/pnas.2426476122>
2. Myosin Va steadies autophagosomes to make them fusion competent. Akshaya Nambiar, René Martin, Kamakshi Tomar, Hans-Joachim Knölker, Sandhya P. Koushika, K. Subramaniam, Ravi Manjithaya (accepted in EMBO J, 2025)

2024

1. Mallika Bhat, Akshaya Nambiar, Lakshmi Edakkandiyil, Irine Maria Abraham, Ritoprova Sen, Mamta Negi, and Ravi Manjithaya. *A genetically-encoded fluorescence-based reporter to spatiotemporally investigate mannose-6-phosphate pathway*. Mol Biol Cell. 2024;35(8). doi:10.1091/mbc.E23-09-0344
2. Akshaya Nambiar and Ravi Manjithaya. *Driving autophagy – the role of molecular motors*. J Cell Sci. 2024;137(3):jcs260481.

2022

1. Chakravorty A, Sharma A, Vasu S*, Manjithaya R*. *Glutamatergic synapse dysfunction in Drosophila neuromuscular junctions can be rescued by proteostasis modulation*. Front Mol Neurosci. Accepted April 2022.
2. Jetto CT, Nambiar A, Manjithaya R*. *Mitophagy and neurodegeneration: Between the knowns and unknowns*. Front Cell Dev Biol. 2022;10:837337. <https://doi.org/10.3389/fcell.2022.837337>
3. Verma V, Kumar MJV, Sharma K, Rajaram S, Muddashetty R, Manjithaya R, Clement JP*. *Pharmacological intervention in young adolescents rescues synaptic physiology and behavioural deficits in Syngap1+/- mice*. Exp Brain Res. 2022;240:289-309. <https://doi.org/10.1007/s00221-021-06254-x>

2021

1. Barve G, Manjithaya R. *Cross-talk between autophagy and sporulation in Saccharomyces cerevisiae*. Yeast. 2021;38:401-413. <https://doi.org/10.1002/yea.3556>
2. Suresh SN, Jayaprakash Rao M, Manjithaya R*. *XCT 790 is a pharmacological aggregate inducer in a yeast model of proteotoxicity*. Cell Biol Int. 2021;45:654-661. <https://doi.org/10.1002/cbin.11518>
3. Klionsky DJ, et al. *Guidelines for the use and interpretation of assays for monitoring autophagy (4th edition)*. Autophagy. 2021;17:1-382.
4. Kumar MJV, Shah D, Giridharan M, Yadav N, Manjithaya R*, Clement JP*. *Spatiotemporal analysis of soluble aggregates and autophagy markers in the R6/2 mouse model*. Sci Rep. 2021;11:96.

2020

1. Chalapathi D, Padmanabhan S, Manjithaya R*, Narayana C*. *Surface-Enhanced Raman Spectroscopy as a Tool for Distinguishing Extracellular Vesicles under Autophagic Conditions: A Marker for Disease Diagnostics*. J Phys Chem B. 2020;124:10952-10960.
2. Mahendran TS, Suresh SN, Garimella L, Manjithaya R*. *Soluble 4R0N Tau Abrogates Endocytic Vesicular Dynamics*. Front Aging Neurosci. 2020;12:537712.
3. Singh A, Karmakar S, Abraham IM, Rambabu D, Dave D, Manjithaya R, Maji TK. *Unraveling the Effect on Luminescent Properties by Postsynthetic Covalent and Noncovalent Grafting of GFP Chromophore Analogues in Nanoscale MOF-808*. Inorg Chem. 2020;59:8251-8258.
4. Ranjitha HB, Ammanathan V, et al., Manjithaya R. *Foot-and-mouth disease virus induces PERK mediated autophagy to suppress antiviral interferon response*. J Cell Sci. 2020;134:jcs240622.
5. Sarkar P, Samaddar S, Ammanathan V, et al., Manjithaya R. *Vancomycin Derivative Inactivates Carbapenem-Resistant Acinetobacter baumannii and Induces Autophagy*. ACS Chem Biol. 2020;15:884-889.
6. Ammanathan V, Vats S, Abraham IM, Manjithaya R*. *Xenophagy in cancer*. Semin Cancer Biol. 2020;S1044-579X(20)30048-1.
7. Suresh SN, Chakravorty A, Giridharan M, Garimella L, Manjithaya R*. *Pharmacological Tools to Modulate Autophagy in Neurodegenerative Diseases*. J Mol Biol. 2020;432:2822-2842.
8. Agrawal P, Manjithaya R*, Surolia N*. *Autophagy-related protein PfATG18 participates in food vacuole dynamics and autophagy-like pathway in Plasmodium falciparum*. Mol Microbiol. 2020;113:766-782.

2019

1. Chakravorty A, Jetto CT, Manjithaya R*. *Dysfunctional Mitochondria and Mitophagy as Drivers of Alzheimer's Disease Pathogenesis*. Front Aging Neurosci. 2019;11:311.
2. Das Saha N, Sasmal R, Meethal SK, Vats S, Gopinathan PV, Jash O, Manjithaya R, et al. *Multichannel DNA sensor-array fingerprints cell states and identifies pharmacological effectors of catabolic processes*. ACS Sens. 2019;4:3124-3132.
3. Ammanathan V, Mishra P, Chavalmane A, et al., Manjithaya R*. *Restriction of intracellular Salmonella replication by restoring TFEB mediated xenophagy*. Autophagy. 2019;19:1-14.
4. SN Suresh, Pandurangi J, Murumalla R, et al., Manjithaya R*. *Small molecule modulator of aggrephagy regulates neuroinflammation to curb pathogenesis of neurodegeneration*. EBioMedicine. 2019.
5. Suresh SN, Manjithaya R*. *A small molecule autophagy inducer exerts cytoprotection against alpha-synuclein toxicity*. Eur J Pharmacol. 2019;862:172635.
6. Vats S, Manjithaya R*. *A reversible autophagy inhibitor blocks autophagosome-lysosome fusion by preventing Stx17 loading onto autophagosomes*. Mol Biol Cell. 2019;30:2283-2295.
7. Sikder S, Kumari S, et al., Manjithaya R, Kundu TK*. *Nonhistone human chromatin protein PC4 is critical for genomic integrity and negatively regulates autophagy*. FEBS J. 2019.
8. Singh S, Kumari R, et al., Manjithaya R*. *Exocyst Subcomplex Functions in Autophagosome Biogenesis by Regulating Atg9 Trafficking*. J Mol Biol. 2019;431:2821-2834.

Before 2018

1. Padmanabhan S, Biswal MR, Manjithaya R, Prakash MK*. Exploring the context of diacidic motif DE as a signal for unconventional protein secretion in eukaryotic proteins. *Wellcome Open Res.* 2018 Nov 19;3:148.
2. Shiny Joy, Lavanya Thirunavukkarasu, Palak Agrawal, Anjali Singh, BKC Sagar, Ravi Manjithaya*, Namita Surolia*. Basal and starvation-induced autophagy mediates parasite survival during intraerythrocytic stages of *Plasmodium falciparum*. *Cell Death Discov.* 2018 Oct 3;5:43.
3. Gaurav Barve, Priyadarshini Sanyal, Ravi Manjithaya*. Septin localization and function during autophagy. *Curr Genet.* 2018 Oct;64(5):1037-1041.
4. S. N. Suresh, Aravinda K. Chavalmame, Malini Pillai, et al., Ravi Manjithaya*. Modulation of Autophagy by a Small Molecule Inverse Agonist of ERR Is Neuroprotective. *Front Mol Neurosci.* 2018 Apr 9;11:109.
5. Gaurav Barve, Shreyas Sridhar, et al., Ravi Manjithaya*. Septins are involved at the early stages of macroautophagy in *S. cerevisiae*. *J Cell Sci.* 2018 Feb 22;131(4).
6. S. N. Suresh, Aravinda K. Chavalmame, et al., Ravi Manjithaya*. A novel autophagy modulator 6-Bio ameliorates SNCA/-synuclein toxicity. *Autophagy.* 2017 Jul 3;13(7):1221-1234.
7. Piyush Mishra, Adrian N. Dauphinee, et al., Ravi Manjithaya*. Discovery of pan autophagy inhibitors through a high-throughput screen highlights macroautophagy as an evolutionarily conserved process across three eukaryotic kingdoms. *Autophagy.* 2017 Sep 2;13(9):1556-1572.
8. Piyush Mishra, Shashank Rai, Ravi Manjithaya*. A dual luciferase based novel high-throughput assay to monitor autophagy in real time in yeast *S. cerevisiae*. *Biochemistry and Biophysics Reports.* 2017 Jul 20;11:138-146.
9. Chelur K. Rasmi, Sreedevi Padmanabhan, et al. Integrated light-sheet imaging and flow-based enquiry (iLIFE) system for 3D in-vivo imaging of multicellular organism. *Appl Phys Lett.* 2017;111:243702.
10. Rajasekhar K, Suresh SN, Manjithaya R*, Govindaraju T*. Rationally designed peptidomimetic modulators of A toxicity in Alzheimer's disease. *Sci Rep.* 2015 Jan 30;5:8139.
11. Dilipkumar S, Manjithaya R, Mondal PP. Multispectral Bayesian reconstruction technique for realtime two-color fluorescence microscopy. *RSC Adv.* 2015 Jan 5;5:13175-13183.
12. Rajasekhar K, Narayanaswamy N, Mishra P, Suresh SN, Manjithaya R, Govindaraju T. Synthesis of Hybrid Cyclic Peptoids and Identification of Autophagy Enhancer. *ChemPlusChem.* 2014;79:25–30.
13. Manjithaya R, Jain S, Farré JC, Subramani S. Involvement of a yeast MAP kinase cascade in pexophagy, but not in non-selective or other selective autophagy pathways. *J Cell Biol.* 2010 Apr 19;189(2):303-10.
14. Manjithaya R, Anjard C, Loomis W, Subramani S. Unconventional secretion of *Pichia pastoris* Acb1 is dependent on GRASP protein, peroxisomal functions, and autophagosome formation. *J Cell Biol.* 2010 Feb 22;188(4):537-46.
15. Farré JC, Mathewson RD, Manjithaya R, Subramani S. Roles of *Pichia pastoris* Uvrag in vacuolar protein sorting and the PI3-kinase complex in phagophore elongation in autophagy pathways. *Autophagy.* 2010 Jan;6(1):86-99.

16. Farré JC, Manjithaya R, Mathewson RD, Subramani S. PpAtg30 tags peroxisomes for turnover by selective autophagy. *Dev Cell*. 2008 Mar;14(3):365-76.
17. Nazarko TY, Polupanov AS, Manjithaya RR, Subramani S, Sibirny AA. Requirement of sterol glucoside for pexophagy in yeast is dependent on species and nature of peroxisome inducers. *Mol Biol Cell*. 2007 Jan;18(1):106-18.
18. Manjithaya RR, Dighe RR. The 3' untranslated region of bovine FSH mRNA downregulates reporter expression: involvement of AU-rich elements and transactors. *Biol Reprod*. 2004 Oct;71(4):1158-66.

Reviews and Invited Reviews

1. Barve G, Manjithaya R*. Cross-talk between autophagy and sporulation in *S. cerevisiae*. *Yeast*. 2021 Feb 19. doi:10.1002/yea.3556
2. Padmanabhan S, Manjithaya R*. Facets of autophagy based unconventional protein secretion—The road less travelled. *Front Mol Biosci*. 2020 Dec 9;7:586483.
3. Ammanathan V, Vats S, Abraham IM, Manjithaya R*. Xenophagy in cancer. *Semin Cancer Biol*. 2020 Feb 29.
4. Suresh SN, Chakravorty A, Giridharan M, Garimella L, Manjithaya R*. Pharmacological Tools to Modulate Autophagy in Neurodegenerative Diseases. *J Mol Biol*. 2020 Apr 3;432(8):2822-2842.
5. Chakravorty A, Jetto CT, Manjithaya R*. Dysfunctional Mitochondria and Mitophagy as Drivers of Alzheimer's Disease Pathogenesis. *Front Aging Neurosci*. 2019 Nov 20;11:311.
6. Piyush Mishra, Veena Ammanathan, Manjithaya R*. Chemical biology strategies to study autophagy. *Front Cell Dev Biol*. 2018 Nov 27;6:160.
7. Suresh SN, Vijaya Verma, Shruthi Sateesh, James P Clement, Manjithaya R*. Neurodegenerative diseases: model organisms, pathology and autophagy. *J Genet*. 2018 Jul;97(3):679-701.
8. Shikha Satendra Singh, Somya Vats, et al., Manjithaya R*, Alan Prem Kumar*. Dual role of autophagy in hallmarks of cancer. *Oncogene*. 2017 Mar;37(9):1142-1158.
9. Sarika Chinchwadkar, Sreedevi Padmanabhan, et al., Ravi Manjithaya*. Multifaceted housekeeping functions of autophagy. *J Indian Inst Sci*. 2017 Mar;97(1):79-94.
10. Rai S, Manjithaya R*. Fluorescence microscopy: A tool to study autophagy. *AIP Adv*. 2015;5:084804.
11. Manjithaya R, Subramani S. Autophagy: a new role in unconventional protein secretion. *Trends Cell Biol*. 2011 Feb;21(2):67-73.
12. Manjithaya R, Subramani S. Role of autophagy in unconventional protein secretion. *Autophagy*. 2010 Jul;6(5):650-1.
13. Manjithaya R, Nazarko TY, Farré JC, Subramani S. Molecular mechanism and physiological role of pexophagy. *FEBS Lett*. 2010 Apr 2;584(7):1367-73.

Book Chapter

1. Singh S, Manjithaya R*. Role of the Golgi Complex and Autophagosome Biogenesis in Unconventional Protein Secretion. In: Hayat MA. *Autophagy: Cancer, Other Pathologies, Inflammation, Immunity, Infection, and Aging*. Elsevier; 2013. pp. 105-114.

Editorial Roles

- Review Editor for the journal *Frontiers in Nanobiotechnology*.

Patents and Intellectual Property

1. Chelliah JP, Manjithaya R, et al. *Soluble analogues of 6bio thereof and implementation thereof*. U.S. Patent Application 18/557,822, filed July 11, 2024.
2. Chelliah JP, Manjithaya R, et al. *Indirubin compounds and methods thereof*. U.S. Patent Application 18/557,800, filed July 11, 2024.
3. Saiyed T, Manjithaya R, et al. *Methods and compositions for managing neuroinflammation and neurodegeneration*. U.S. Patent 11,324,747, issued May 10, 2022.
4. Manjithaya R, Mishra P. *Assay to monitor autophagy, a method and kit thereof*. WO 2014049580A3, filed 2013-09-30, published 2014-09-25.
5. Manjithaya R, Mishra P, et al. *Method for modulating autophagy and applications thereof*. WO2017098467A1, filed 2016-12-09, published 2017-06-15.