

## Bhavana Muralidharan

Assistant Investigator (professor)  
DBT/Wellcome Trust India Alliance  
Intermediate fellow

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### Professional Appointments

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October 2019 onwards	<b>Assistant Investigator</b> and DBT/Wellcome Trust India Alliance <b>Intermediate Career fellow</b> , Institute for Stem Cell Science and Regenerative Medicine (inStem)
2017- 2019	<b>Postdoctoral fellow</b> , Mentor: Prof Adrian Isaacs, UK-Dementia Research Institute at UCL, London
2010- 2017	<b>Postdoctoral fellow</b> and Wellcome Tust/DBT India Alliance Early Career fellow, Mentor: Prof Shubha Tole, TIFR, Mumbai, India

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### Educational qualifications

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2009	PhD, Advisor: Dr Vasudevan Seshadri, National Centre for Cell Science, Pune, India
2004	M.Tech, Biotechnology, Distinction, Gold Medalist, GGSIP University, Delhi, India
2003	B.Tech, Biotechnology, First Class, Silver Medalist, GGSIP University, Delhi, India

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### Awards

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2022	<b>Japanese Neuroscience Society Travel Award</b> to attend JNS 2022, Okinawa, Japan
2021	<b>Har Gobind Khorana- Innovative Young Biotechnologist Award</b> from Department of Biotechnology, Ministry of Science and Technology, Government of India
2016	<b>IBRO/SFN</b> travel award to attend SFN 2016, USA
2004	Gold Medalist, M.Tech, Biotechnology
2003	Silver Medalist, B.Tech, Biotechnology

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### Research grants and fellowships

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2021-2024	Har Gobind Khorana- Innovative Young Biotechnologist Award cum grant from DBT
2021-2022	Start-up Research grant from DST-SERB
2020-2024	DBT/Wellcome Trust India Alliance Intermediate Career fellowship
2020	EMBO and DBT/Wellcome Trust India Alliance funding for organizing 2023 India   EMBO Lecture Course on “Modeling development and disease with human tissue organoids”
2011-2017	Wellcome Trust DBT India Alliance Early Career Fellowship
2004-2009	Council for Scientific and Industrial Research (CSIR) PhD Scholarship

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### Selected Talks and Posters

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07/2022	Shortlisted oral talk at the <b>Annual Meeting of the Japan Neuroscience Society</b> , Okinawa, Japan
03/2022	Virtual talk at the one-day symposium for brain awareness week organized by inStem
08/2021	Virtual talk at the <b>International Brain Research Organization</b> - Asia Pacific Regional Committee (IBRO APRC) School, Kathmandu, Nepal
01/2021	Virtual Talk at the <b>Project Encephalon</b> -international student run neuroscience interest group

- 12/2020 Science talk at the virtual “Life Science Across the Globe seminar series” organised by HHMI, Janelia research campus, USA
- 01/2020 Invited talk at No garland Neuroscience meeting, IISER Pune, India
- 12/2019 Invited talk at the Heidelberg University, Germany
- 11/2017 Invited talk at the Postdoctoral Association Seminar series, Institute of Neurology, UCL, London
- 11/2016 Poster presentation at the Society for Neuroscience Meeting, San Diego, USA
- 05/2016 Poster presentation at the International Society for Developmental Neurobiologists (ISDN) Meeting, Antibes, France
- 05/2014 Poster presentation at the Cortical development meeting, Chania, Greece
- 01/2012 Poster presentation at the International society for developmental neurobiologists (ISDN) Meeting, Mumbai, India

### Conferences/ Meetings as Organizer

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- 03/2022 Organizer of online one day symposium entitled "Brain Functions: From Basic Understanding to Translational Approaches" to commemorate Brain Awareness Week, featuring talks from neuroscientists across institutes in India
- 02/2022 Organizer of virtual Poster sessions at inStem Annual review of research
- 04/2021 Member of the core organising team for NeuroFemIndia conference, event by BiaswatchIndia, showcasing the work of women neuroscientists in India and to address the issue of better representation of scientists of all genders in Indian academia
- 02/2023 Co-organiser India/EMBO lecture course on “Modeling development and disease with human tissue organoids” at inStem February 2023

### Lab personnel

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Postdoctoral fellows	Dr Kruttika Phalnikar, Ms S K Dhanya
Graduate students	Leora D’Souza, Asha S Channakkar
Project Associates	Kishan Kalia, Aparajita Kumar

### Awards to lab members

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- 04/2022 DBT/Wellcome Trust India Alliance Early career fellowship and ICMR Postdoctoral fellowship to Dr Kruttika Phalnikar
- 03/2021 Award (full registration fee waiver) to Leora D’Souza to attend online Keystone eSymposia, USA on Precision Engineering of the Genome, Epigenome and Transcriptome

### Publications –2020 onwards as independent PI, \* Corresponding author

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1. D’Souza L, Kalia, K, Kumar, A, Phalnikar, K, **Muralidharan B\***. “Differential role of LSD1 in human vs murine corticogenesis putatively acting through novel human-specific targets” (2022), Manuscript under preparation, Article type: Research article
2. D’Souza L<sup>#</sup>, Chanakkar, A<sup>#</sup>, **Muralidharan B\***. “Chromatin remodelling complexes in cerebral cortex development and neurodevelopmental disorders” (2021), **Neurochemistry International**, 147, 105055, Article type: Review <https://doi.org/10.1016/j.neuint.2021.105055>
3. **Muralidharan B\***. “Human *in-vitro* disease models to aid pathway and target discovery for neurological disorders” (2020) in **Translational Biotechnology: A Journey from Laboratory to Clinics**, Yasha Hasija (editor), Elsevier press, pp. 81-106, Article type: book chapter

4. **Muralidharan B\***. "Understanding brain development – Indian researchers' past, present and growing contribution" (2020) **The International Journal of Developmental Biology**, 64: 123 – 132, Article type: Review/survey <http://www.ijdb.ehu.es/web/paper.php?doi=10.1387/ijdb.190204bm>

## **Publications – from Postdoc and PhD**

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5. Kinare V, Godbole G, Padmanabhan H, Khatri Z, Maheshwari U, **Muralidharan B**, Tole S. "An evolutionarily conserved Lhx2-Ldb1 interaction regulates the acquisition of hippocampal cell fate and regional identity" (2020) **Development**, October 19: 147 (20), dev187856, Article type: Research article
6. Wilson KM, **Muralidharan B**, Isaacs AM. "Relax, Don't RAN Translate It" (2019) **Neuron**, Dec 4;104(5):827-829, Article type: Preview article on Cheng et al., 2019, Neuron
7. Clayton EL, Milioto C, **Muralidharan B**, Norona FE, Edgar JR, Soriano A, Jafar-nejad P, Rigo F, Collinge J, Isaacs AM. "Frontotemporal dementia causative CHMP2B impairs neuronal endolysosomal trafficking- rescue by TMEM106B antisense oligonucleotides" (2018) **Brain**, Dec: 141(12):3428-3442, Article type: Research article
8. **Muralidharan B**, D'souza L, Tole S. "An efficient system for gene perturbation in embryonic hippocampal progenitors using ex vivo electroporation followed by in vitro dissociated cell culture" (2018) **Journal of Experimental Neuroscience**, 12: 1-9, Article type: Methods article
9. **Muralidharan B**, Keruzore M Pradhan S.J, Roy B, Shetty A.S, Kinare V, D'souza L, Maheshwari U Karmodiya K, Suresh A, Galande S, Bellefroid E, Tole, S. "Dmrt5, a novel neurogenic factor, reciprocally regulates Lhx2 to control the neuron-glia cell fate switch in the developing hippocampus (2017) **Journal of Neuroscience**, 37(46):11245-11254, Article type: Research article
10. **Muralidharan B**, Khatri Z, Maheshwari U, Gupta R, Roy B, Pradhan S.J, Karmodiya K, Padmanabhan H, Shetty A, C. H. Balaji, Kolthur-Seetharam U, Macklis J.D, Galande S, Tole S. "Lhx2 interacts with the NuRD complex and regulates cortical neuron subtype determinants *Fezf2* and *Sox11*" (2017) **Journal of Neuroscience**, 37(1): 194-203, Article type: Research article
11. Shetty AS, Godbole G, Maheshwari U, Padmanabhan H, Chaudhary R, **Muralidharan B**, Hou P-S, Monuki ES, Kuo H-C, V Rema, Tole S. "Lhx2 regulates a cortex-specific mechanism for barrel formation" (2013) **PNAS**, 110(50), E4913–E4921, Article type: Research article
12. Subramanian L, Sarkar A, Ashwin S, **Muralidharan B**, Hari P, Piper M, Monuki ES, Bach I, Gronostajski R, Richards R, and Tole, S. "Transcription factor Lhx2 is necessary and sufficient to suppress astrogliogenesis and promote neurogenesis in the developing hippocampus" (2011) **PNAS**, 108 (27) 10937-10938, Article type: Research article
13. Kulkarni S\*, **Muralidharan B\***, Panda A, Bakthavachalu B, Vindu A, Seshadri V. "Glucose Stimulated Translation regulation of insulin by the 5'UTR binding proteins" (2011) **JBC**, 286 (16), 14146-14156 \*equal first authors, Article type: Research article
14. Panda A, Kulkarni S, **Muralidharan B**, Bakthavachalu B, Seshadri V. "Novel splice variant of mouse insulin2 mRNA: Implications for insulin expression" (2010) **FEBS Letters**, 584, 1169-1173, Article type: Research article
15. **Muralidharan B**, Bakthavachalu B, Pathak A, Seshadri V. "A minimal element in 5' UTR of insulin mRNA mediates its translational regulation by glucose" (2007) **FEBS Letters**, 581, 4103-4108, Article type: Research article

## COVID-19 activities

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- 2020, June Webinar on “**Tackling COVID-2019- Diagnostics and treatments**” organized by Manav Rachna University, Faridabad, Haryana
- 2020, April-June Supervisory role at the **COVID-2019 Diagnostic Testing Centre** at inStem overseeing the RNA extraction team

## Scientific outreach

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- 11/2021 Talk on Nobel Prize in Medicine 2021 under **Sweden India Nobel memorial week** organised by Acharya Institutes, Bengaluru and Swedish Institute, Sweden
- 05/2021 Virtual Talk on “ Exploring the brain- its birth and function” - as part of **inStem-Science Setu** series initiative of the Department of Biotechnology, aimed at creating awareness and communicating the excitement and possibilities of science to young (largely undergrad) students.
- 03/2021 Organised weeklong podcasts from nine neuroscientists for the general public on different topics on mental health and brain research for the Dana Foundation- **International Brain awareness week**
- 09/2020 Virtual Talk on “ Exploring the brain- its birth and function” - as part of public lecture series on **The Human Body InsideOut** organised by the Bangalore Life Science Campus, NCBS, Bangalore, September, 2020
- 2020 Mentored postgraduate students as part of the **CSIR-Summer Research Training Program 2020**, partnered by the DBT/Wellcome Trust India Alliance, Royal Society of Chemistry and CSIR, India, July-August 2020
- 2020 Mentored disadvantaged youth to enable them to make professional career choices as part of the **Freedom Employability Academy’s mentorship program**, India
- 2018 Scientist volunteer at the public engagement event organized by **Alzheimer’s Research UK (ARUK)** for general public to understand ongoing research at UK-DRI, London, UK
- 2012-2017 Public outreach talks at several schools, colleges and general public scientific cafes in Mumbai to engage with students and public to share and discuss current scientific research

## Teaching experience

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- 2020-2021 Taught neurodevelopment as part of the Developmental biology course to Graduate students at NCBS/inStem
- 2011 and 2010 Taught Cloning and Molecular Biology as part of Research tools coursework for first year PhD/ MSc students at TIFR, Mumbai
- 2010 Assisted Prof. Shubha Tole in conducting scientific reading/ writing/ presentations sessions for graduate students, TIFR, Mumbai
- 2004 Assisted Prof. K.Kannan in conducting practicals for the course “Stem cell and its Applications” for 4<sup>th</sup> year, B.Tech, Biotechnology students,
- 2003 Contributed to the editing of Textbook of Biotechnology, Class XII, published by C.B.S.E. (Central Board of Secondary Education)

## Scientific community service

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Ad hoc Reviewer for eLife, FEBS Letters, European Journal of Neuroscience  
Reviewer for grant applications for DBT and DST

## Professional affiliations

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- 2022- to present Member of The International Society of Neurochemistry  
2021- to present Member of Indian Society for Developmental Biology  
2020- to present Member of the Japanese Neuroscience Society, Japan  
2019- to present Member of the Indian Academy of Neurosciences, India  
2016- to present Member of Society for Neuroscience, USA