

Madhavi Gorla, Ph.D

DST-INSPIRE Faculty

Center for Biotechnology

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Email: madhavigorla14@gmail.com**Education/Training***University of Pennsylvania, USA*

Postdoctoral fellow in Neuroscience (Sep 2015-Aug 2020)

University of Hyderabad, India

Ph.D. in Biochemistry (2010-2015)

S.V. University, India

M.Sc. in Biochemistry (2007-2009)

S.V. University, India

B.Sc. in Biochemistry (2004-2007)

Research Experience*Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA**Postdoctoral research fellow: Bashaw Lab, September 2015-present*

- Investigating conserved molecular mechanisms and regulation of axon guidance in the developing mouse spinal cord and in the *drosophila* embryonic nerve cord.

*University of Hyderabad, India**Graduate Researcher: Sepuri Lab, 2010-2015*

- Investigated the mechanism of tRNA mediated regulation of apoptosis.
- Investigated the mechanistic and functional details of tRNA import into mitochondria.

Awards and Fellowships

2020	DST-INSPIRE Faculty Fellowship
2018	Best Poster Presentation Award, CSHL Axon guidance Meet, New York, USA.
2012	Gold Medal in Master's program, SV University, Tirupati, India
2012	Best Poster Presentation Award in RNA Meet, IISC, Bangalore, India
2011-2014	Senior Research Fellowship, CSIR-India
2009-2011	Junior Research Fellowship, CSIR-India

Areas of interest:

My research interests involve understanding the mechanistic details of proteostasis and axon guidance in neuronal health and disease. I'm particularly interested in how protein aggregates are cleared by proteosomal and autophagy pathways. In addition, I would like to explore the novel functional links and associated mechanisms during neural circuit assembly. My work as a graduate student provided mechanistic insights into how tRNA negatively regulates Cytochrome C mediated apoptosis and also how tRNA imports into mitochondria, while my postdoctoral research work provided molecular details of how neurons find their correct way across the midline using mouse and fly genetics combined with advanced biochemical and imaging

methods. Currently, as a DST-INSPIRE Faculty fellow, I'm interested in understanding how protein aggregates are cleared in neurodegenerative disease and how neurons coordinate the signals to guide the axons in space and time by combining my expertise in cell biology and developmental neurobiology.

Publications:

1. Gorla, M., Santiago, C., Chaudhari K, Layman, AAK., Oliver, PM., and Bashaw, G.J. (2019) Functional conservation of axon guidance receptor sorting: Ndfip proteins negatively regulate mammalian Robo receptors and control midline guidance in the spinal cord. ***Cell Reports* 2019 Mar 19;26(12):3298-3312.e4.**
2. Gorla M, Sepuri NB. (2014) Perturbation of apoptosis upon binding of tRNA to the heme domain of cytochrome c. ***Apoptosis* 19, 259–268.**
3. Simonetti B[§], Paul B[§], Chaudhari K, Weeratunga S, Steinberg F, Gorla M, Heesom KJ, Bashaw GJ, Collins BM, Cullen PJ (2019) Molecular identification of a BAR domain-containing coat complex for endosomal recycling of transmembrane proteins. ***Nature Cell Biology*, 2019. 21(10): p. 1219-1233.**
4. Sepuri N. B, Gorla M, King M. P. (2012) Mitochondrial lysyl-tRNA synthetase independent import of tRNA lysine into yeast mitochondria. ***PLoS One* 7, e35321 doi: 10.1371/journal.pone.0035321.**
5. M. Saikia, R. Jobava, M. Parisien, A. Putnam, D. Krokowski, X.H. Gao, B.J. Guan, Y. Yuan, E. Jankowsky, Z. Feng, G.F. Hu, M. Pusztai-Carey, M. Gorla, N.B. Sepuri, T. Pan, M. Hatzoglou. (2014) Angiogenin-Cleaved tRNA Halves Interact with Cytochrome c, Protecting Cells from Apoptosis during Osmotic Stress. ***Mol. Cell Biol* 34, 2450–2463.**
6. Murari A, Thiriveedi VR, Mohammad F, Vengaldas V, Gorla M, Tammineni P, Krishnamoorthy T, Sepuri NB (2015) Human mitochondrial MIA40 (CHCHD4) is a component of the Fe-S cluster export machinery. ***Biochem J* 15, 471, 231-241.**
7. Mohammed F, Gorla M, Tammineni P, Sepuri NB. Reactive Oxygen Species generated by complex I inhibition signals the recruitment of STAT3 to mitochondria. ***FEBS letters* 2020 Jan 25. doi: 10.1002/1873-3468.13741.**
8. Gorla M and Bashaw GJ. Molecular mechanisms regulating axon responsiveness at the midline. ***Developmental Biology* 2020.**
9. Chaudhari K, Gorla M, Chang C, Kania A and Bashaw GJ. Robo recruitment of the WAVE regulatory complex plays an essential and conserved role in midline repulsion. ***eLife* 2021;10:e64474doi: 10.7554/eLife.64474**