

## **Mary Ann Manavalan, PhD**

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### **PROFILE**

Motivated and passionate molecular biologist with microbiology and chemistry educational background. Competency in carrying out scientific protocols as well as analytical skills along with strong troubleshooting skills. Published two research papers in top peer reviewed scientific journals in 4 years. Capable of handling multiple research projects along with running a functioning research laboratory and mentoring students. Proactive team player with excellent communication skills.

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### **EDUCATION**

**Doctor of Philosophy in Cell Biology (Ph.D)** 2009-2014

The University of Texas Medical Branch Galveston, Texas

Thesis: "Mummy regulates axon guidance through Slit-Robo signalling pathway during development of the ventral nerve cord in *Drosophila melanogaster*."

**Master of Science (M.Sc)** 2007-2009

St. Joseph's College of Arts and Science, Bangalore

Major: Analytical Chemistry with honors

**Bachelor of Science (B.Sc)** 2004-2007

St. Joseph's College of Arts and Science, Bangalore

Major: Microbiology, Chemistry, Botany with honors

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### **WORK EXPERIENCE**

Freelance medical writer, Arete Communications UG August 2020-present

- Prepare and review original journal articles independently
  - Edit and proofread manuscripts for accuracy and clarity
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### **RESEARCH EXPERIENCE**

Graduate Researcher, Bhat Lab May 2012-Sept 2014

- Identified the role of Mummy in Slit-Robo signalling pathway to specify axon pathfinding during neurogenesis
- Role of Midline protein in regulating axon guidance within *Drosophila* ventral nerve cord
- Characterization of mutation in *vsx1*, *vsx2* genes and its effect on *Drosophila* central nervous system.
- Led the study of *pdm1* and *pdm2* in *Drosophila* adult brain development.

Graduate Researcher, Finnerty Lab Feb 2012- April 2012

- Regulation of Akt pathway at wound sites in burn vs. non-burn sites.
- Effects of therapeutic drugs Atenolol and Propranolol on wound healing in burn patients

Graduate Researcher, Resto Lab Dec 2011-Feb 2012

- Characterization of neuronal Nitric Oxide Synthase in metastatic Head and Neck tumor cells.

Graduate Research Assistant, Misquith Lab Jan 2008- May 2008

- Isolation and Characterization of a Plant Lectin from All Spice Plant.
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### **TEACHING EXPERIENCE**

**Research Mentor (UTMB)** Aug 2012-Aug 2013

- Mentored and trained high school student in molecular biology and genetic concepts and translated them to experiments.

**Teaching Assistant(UTMB)**

- Trained and assisted two undergraduate students in their summer research internship.
- Key role in formulation of the hypothesis, designing experiments and analysing results.
- Data was presented at conference and symposium at their respective undergraduate institutions.

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## POSTER AND PODIUM PRESENTATION

- Slit-Robo signaling regulates Nerve Cord Condensation during Embryogenesis in *Drosophila*. 2013 Neuroscience and Cell Biology Research Conference, UTMB. Abstract #4
- Mummy regulates Slit-Robo signaling to specify axon pathfinding during neurogenesis. 2011 Neuroscience and Cell Biology Research Conference, UTMB. Abstract # 2
- **Manavalan MA**, Gaziova I., Bhat K.M. Cross-talk between cellular identity specification and axon growth cone guidance in the developing *Drosophila* embryonic nerve cord. Poster Presented at 54<sup>th</sup> Annual *Drosophila* Research Conference, Washington,DC Poster#913B
- **Manavalan MA**, Jayasinghe R, Grewal R, Bhat KM. Mummy regulates Slit-Robo signaling to specify axon pathfinding during neurogenesis. Poster presented at 2012 Neuroscience and Cell Biology Research Conference, UTMB. Poster # 19

## PUBLICATIONS

- **Manavalan, M. A., Jayasinghe, V. R., Grewal, R., & Bhat, K. M.** (2017). The glycosylation pathway is required for the secretion of Slit and for the maintenance of the Slit receptor Robo on axons. *Science Signaling*, *10*(484), [eaam5841]. DOI: 10.1126/scisignal.aam5841
- **Manavalan, M. A., Gaziova, I., & Bhat, K.M.** (2013) The midline protein regulates axon guidance by blocking the reiteration of Neuroblast rows within *Drosophila* Ventral Nerve Cord. *Plos Genetics* *9*,e100490.

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## PROFESSIONAL SKILLS

**Genetics:** Generation of transgenic flylines over expressing *vsx2*, triple null *robo* mutants.

**Molecular Biology and Biochemistry:** DNA isolation, RNA isolation, plasmid and genomic DNA isolation, gene cloning from bacteria, PCR, RT-PCR, DNA sequence analysis, Western blotting, protein isolation, immuno precipitation, cytotoxicity assays.

**Chemistry:** Gas chromatography, Thin layer chromatography, Gel Filtration chromatography, Liquid chromatography, Affinity chromatography, Infra red spectroscopy.

**Immunohistochemistry:** Whole mount fly brain staining, Whole mount fly embryo staining.

**Microscopy:** Fluorescent and light microscopy, Confocal microscopy, sample preparation, staining and imaging.

**Models:** Cell culture maintenance and toxicity analysis, *Drosophila* maintenance and husbandry.

**Languages:** English, Malayalam

**Leadership Roles:** Cell Biology Representative to Graduate Student Organization (2010-14), Judge for Summer Undergraduate Research Program (2011-14), Treasurer Cell Biology Society (2012-14), Member American Society of Cell Biology (2012-14), Genetics Society of America (2012-14), UTMB Honor Pledge Committee (2012-14) President, Chemical Society, St. Joseph's College (2007-09).

**REFERENCES:** Available on request.

