

DR. SARASWATHI RAMACHANDRAN

Goose Creek, SC

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PROFESSIONAL CERTIFICATION

South Carolina Teacher Certificate for Secondary Biology, Chemistry, Middle School Science, (#270951).

North Carolina Teacher Certificate for Secondary Biology, Chemistry, Middle School Science, (#1221884).

EDUCATION

Doctor of Philosophy (PhD), Life Sciences 2009
Indian Institute of Science (IISc), Bangalore, India

Master of Science (MS) Life Sciences 2004
Indian Institute of Science (IISc), Bangalore, India

Bachelor of Science (BSc) Majors: Genetics, Microbiology and Chemistry 2001
Osmania University, Hyderabad, India

RECENT POSITIONS

Part-time Adult Education Science Instructor : Fishburne Educational Centre (August 2018 to present)

Part-time Science instructor: Virtual SC (August 2018 to present)

Freelance Writer: July 2018 to present

Science teacher: Charleston County School District, Military Magnet Academy (2014 to July 2018)

Postdoctoral Researcher (and lab manager): Claflin University, 400 N Magnolia St, Orangeburg, SC,
2011- 2014

Postdoctoral Researcher: Medical University of South Carolina, Charleston, SC, 2011

Postdoctoral Researcher: Karolinska Institutet, Stockholm, Sweden, 2010

WRITING EXPERIENCE

Written extensively in the context of the PhD thesis, the graduate and post graduate research programs, contributing to the publication of several research manuscripts. Written academically, also in the educational setting for lesson plans, unit work samples, long range planning and other academic documents.

Ghostwritten articles for a real estate blog

Built, launched and maintained 2 writing websites: www.peerlessreviews.com and www.kanmaniwrites.com

TEACHING EXPERIENCE

Adult Education (Science) and Virtual SC instructor (Science)

Current position: mentoring and instructing students towards completion of their High School diploma or GED certification

Middle School Science teacher: taught science to 6th grade, 7th grade and currently 8th grade science students along with a high school Earth Science course.

Mentoring students at experimental research at Claflin University

Teaching undergraduate students basic and advanced methodologies in molecular biology research in the context of the directed evolution project in the lab under the guidance of the research supervisor. Teaching assistance for the experimental Biochemistry course taught by the supervisor. Prepared and gave lecture, graded assignments and exam papers and answered questions for students outside class.

MAJOR RESEARCH PROJECTS

Biofuels

Established the functional system for generation of thermostable enzymes used in Biofuel generation, using directed evolution, for β -glucosidase BglA gene isolated from a thermophilic organism, *Paenibacillus polymyxa*. **Laid** the groundwork for the directed evolution for another biofuel cellulase protein Cel5G. **Analysed** cold-active mutants for yet another gene β -galactosidase BgaB, advancing research in the project.

Role of exosomes in oral cancer cells

Extracted, purified and characterized exosomes. Identified putative exosome markers. **Published** review on literature of exosome biology. **Edited** and revamped article that ultimately got published in the international journal JBC.

Regulation of the human GLI1 transcript by a natural antisense transcript

Established experimentally the presence of a noncoding GLI1 antisense transcript in RMS13 cell-line. **Delineated** quantitatively that the antisense transcript is produced at 30 times lesser amounts than the GLI1 sense transcript. **Established** the region of overlap between the two transcripts using RACE analysis and sequencing. **Discovered** the functional effects of the antisense transcript on the on the human GLI1 in cell-line system.

Analysis of the DNA binding Protein from Starved cells: MsDps

Deciphered the structural organization and DNA binding motif of the mycobacterial MsDps1 protein. **Discovered** a new homologous protein in *Mycobacterium smegmatis*, MsDps2. **Delineated** functional biological role of MsDps2 in bacterial nucleoid, a novel model for bacterial nucleus.

Major Presentations

Poster ' 'Dps: DNA-Binding protein from Starved cells' ', 3rd Cell Stress Society International Congress on Stress Responses in Biology and Medicine, 2007, Budapest, Hungary.

Languages

English (fluent) Tamil (spoken) Swedish (basic)
Hindi (fluent) Telugu (spoken)

Professional development

Graduate Level Courses (Education)

- Classroom Management
- Reading Methods: Secondary Science
- Curriculum constructs and assessment: secondary Science
- School-based and district-level professional development courses related to the APS standards, classroom management and instructional strategies.

Awards

National Integrated PhD Research Scholarship. One of only 8 students selected nationwide in India (2001-2009).

CSIR-JRF Fellowship, National competitive research grant (2004).

Special prize for Overall Excellence in Academics, Bachelors' program (2001).

Other Interests: *Scientific writing:*

Developed a website to offer writing services: www.peerlessreviews.com

Event Organizer: ACT – X Tenth Asian Conference on Transcription, January 2008, Indian Institute of Science, Bangalore, India.

Publications

Victoria E. Villegas,^{1, 2, 5} Mohammed Ferdous-Ur Rahman,^{1, 5} Maite G. Fernandez-Barrena,^{3, 4} Yumei Diao,^{1, 4} Eleni Liapi,¹ Enikő Sonkoly,⁴ Mona Stähle,⁴ Andor Pivarcsi,⁴ Laura Annaratone,⁵ Anna Sapino,⁵ Sandra Ramirez Clavijo,² Thomas R. Bürglin,¹ Takashi Shimokawa,^{1, †}

Saraswathi Ramachandran,^{1, †} Philipp Kapranov,⁶ Martin E. Fernandez-Zapico,³ and Peter G. Zaphiropoulos corresponding author¹: Identification of novel non-coding RNA-based negative feedback regulating the expression of the oncogenic transcription factor GLI1. *Mol Oncol.* 2014 Jul; 8(5): 912–926.

Saraswathi, R. and Viswanathan Palanisamy. Horizontal Transfer of RNAs: Exosomes as mediators of intercellular communication. *Wiley Interdiscip Rev RNA.* 2012 Mar-Apr; 3(2):286-93.

Chawdhury, R. P., **Saraswathi, R.** and Chatterji, D. IUBMB- Life. Mycobacterial stress regulation: the Dps 'Twin sister' defense mechanism and structure-function relationship. *IUBMB Life.* 2010 Jan; 62(1):67-77.

Saraswathi R[#], Pait Chowdhury R[#], Williams SM, Ghatak P, Chatterji D. The Mycobacterial MsDps2 Protein Is a Nucleoid-Forming DNA Binding Protein Regulated by Sigma Factors σ^A and σ^B . PLoS One. 2009 Nov 30;4 (11):e8017.

Roy S, **Saraswathi R**, Chatterji D, Vijayan M. Structural studies on the second *Mycobacterium smegmatis* Dps: invariant and variable features of structure, assembly and function. J Mol Biol. 2008 Jan 25; 375(4):948-59.

Roy S, **Saraswathi R**, Gupta S, Sekar K, Chatterji D, Vijayan M. Role of N and C-terminal tails in DNA binding and assembly in Dps: structural studies of *Mycobacterium smegmatis* Dps deletion mutants. J Mol Biol. 2007 Jul 20; 370(4):752-67.

Professional memberships

Member of the Palmetto State Teachers Association

References

Ms. Roberta Smith, Assistant Principal, Charleston County School District
Email: roberta_smith@charleston.k12.sc.us

Ms. Amber Pedigo, Resource Teacher, Military Magnet Academy
Email: amber_pedigo@charleston.k12.sc.us
Phone: (843) 745-7102, 11131

Ms. Sheila Davis : Guidance Counselor, Military Magnet Academy
Email: sheila_davis@charleston.k12.sc.us
Phone: [843.745.8595](tel:843.745.8595)