

## Author -

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## Education

**Ph.D, Molecular Virology** **Oct 2018 - present**

Institute of Animal Reproduction and Food Sciences, Polish Academy of Sciences, Olsztyn, Poland

**Master of Science, Medical Microbiology** **Sep 2011 - Jun 2014**

Pondicherry Institute of Medical Sciences (PIMS), Puducherry, India

**Bachelor of Science, Microbiology** **Aug 2007 - Feb 2011**

Vellore Institute of Technology, Tamil Nadu, India

## Research Interests

Infectious diseases and Host-Pathogen interactions, with particular interest in Viral Pathogenesis

## Research Experience

**Doctoral Fellow** **Oct 2018 - present**

Mentor: Dr. Magdalena Weidner-Glunde, Institute of Animal Reproduction and Food Sciences, Polish Academy of Sciences, Olsztyn, Poland

Project title: Investigating the molecular mechanisms of HCMV latency establishment with a focus on IE1x4

**Project Junior Research Fellow** **Aug 2015 - Aug 2018**

Mentor: Dr. Raghunand Tirumalai, Centre for Cellular and Molecular Biology, Hyderabad, India

Projects involved in:

1. Understanding the physiological role of the Rv3738c (PPE66)-Rv3739c (PPE67) gene pair in *Mycobacterium tuberculosis* pathogenesis
2. Investigating the Ca<sup>2+</sup> dependent role of *Mycobacterium tuberculosis* PE\_PGRS61 (Rv3653) in macrophage entry
3. Characterizing the Ca<sup>2+</sup> binding properties of DesA1, a  $\beta\gamma$ - crystallin in *Mycobacterium tuberculosis*
4. Functional characterization of the desaturase and  $\beta\gamma$ - crystallin domains of DesA1 in *Mycobacterium tuberculosis*

**M. Sc Project** **Sep 2012 - Jun 2014**

Mentor: Dr. Reba Kanungo, Department of Clinical Microbiology, PIMS, India

Project title: Prevalence of *Haemophilus influenzae* colonizing the upper respiratory tract of healthy school children.

The objective of this study was to determine the prevalence and antibiotic resistance pattern of *Haemophilus influenzae* (*H. influenzae*) among 500 healthy children from 4 local schools in and around Kalapet, Puducherry,

India. *H. influenzae* were identified by their requirement for X & V factors; antibiotic susceptibility was assessed using the Kirby Bauer disk diffusion method. The study provided important data on the presence of *H. influenzae* carriage among a test population of unvaccinated healthy children. Monitoring the carriage of this pathogen across ages offers an early warning system for public health professionals interested in resurgence of invasive disease.

## Internships

**M. Sc student, Department of Clinical Microbiology, PIMS**

**Aug 2012 – Jun 2014**

- Bi-monthly lab rotations in Bacteriology, Mycobacteriology, Mycology, Serology, Media preparation, Surveillance and Quality Control
- Processing of clinical samples – blood, CSF, sputum, throat swab, wound swab, tissue, feces, rectal swabs and urine for infectious agents
- Processing of serological samples for ANA, ASO, CRP, RPR, WIDAL, cold agglutination, Weil-Felix test, Paul Bunnell test and for infectious viral agents by rapid tests (immunoprecipitation, immunochromatography), Western blot and ELISA

**Trainee, Sangenomics Research Labs, Bangalore, India**

**Sep 2010 – Feb 2011**

- Underwent training in Fermentation technology and Pharmaceutical microbiology
- Completed two short-term projects – 1. To determine the various wine fermenting yeasts present on grape skin. 2) Isolation of antibiotic producing *Actinomycetes sp* from soil

**Intern – Diagnostic Microbiology Laboratory, HAL Hospital, Bangalore, India**

**Nov 2009 – Dec 2009**

- Duties included media preparation, staining and examination of blood smears for malarial parasites and antibiotic susceptibility testing

## Achievements

- Qualified ICMR – Junior Research Fellowship (2015).
- University first rank during M. Sc Medical Microbiology.

## Technical Expertise

### Microbiology

- Culture and maintenance of bacteria and fungi
- Isolation, characterization and identification of bacteria and fungi from clinical samples
- Antibiotic assays (MIC, MBC)
- Media preparation
- Antigen preparation
- Biosafety Level 2 containment laboratory work practices

### Mycobacteriology

- Culture and maintenance of pathogenic and non-pathogenic *Mycobacteria*
- Isolation, characterization and identification of *Mycobacteria sp* from clinical samples
- Mycobacterial-Protein Fragment Complementation (M-PFC)
- Sub-cellular fractionation of mycobacteria – isolation of cell membrane, cell wall and cytoplasmic fractions
- Infection of THP-1 macrophages with *M.smegmatis*

### Cell Culture

- Maintenance of mammalian cell lines
- Culture and maintenance of the THP-1 monocyte cell line

### Microscopy

- Fluorescence Microscopy

### Molecular Biology

- Plasmid DNA isolation
- PCR based gene cloning and protein expression
- Electrophoresis (Agarose, SDS-PAGE)
- Site Directed Mutagenesis

### Immunology

- ELISA

- Co-Immunoprecipitation

- Western blotting

### Protein Chemistry

- Large scale purification of proteins by chromatography (Affinity, Gel filtration, Ion exchange)
- Protein refolding

### Biophysics

- Isothermal Titration Calorimetry (ITC)
- Circular Dichroism (CD)
- Fluorescence Spectrometry

## Publications

- V. C. Yeruva, **M. Savanagouder**, R. Khandelwal, A. Kulkarni, Y. Sharma, and T. R. Raghunand (2016) The *Mycobacterium tuberculosis* desaturase DesA1 (Rv0824c) is a Ca<sup>2+</sup>-binding protein. *Biochem Biophysics Res Commun* <http://dx.doi.org/10.1016/j.bbrc.2016.10.014>

### Abstract (presenting author underlined)

- R. Kanungo, **M. Savanagouder**. Antibiotic resistant non-capsulated *Haemophilus influenzae* among throat colonizers: a possible reservoir for invasive infections. The Interscience Conference on Antimicrobial Agents and Chemotherapy [Internet]. 2014; POC-009

### Presentations (Presenting author underlined)

- V. C. Yeruva, **M. Savanagouder**, R. Khandelwal, A. Kulkarni, Y. Sharma, and T. R. Raghunand (2016) The *Mycobacterium tuberculosis* desaturase DesA1 (Rv0824c) is a Ca<sup>2+</sup>-binding protein. **Poster Presentation** at the 85<sup>th</sup> Annual Meeting of the Society of Biological Chemists (India), CSIR - Central Food Technology Research Institute, Mysore, India
- **Savanagouder M**, Joseph NM, Kanungo R. (2013) Prevalence of *Haemophilus influenzae* colonizing the upper respiratory tract of healthy school children. **Platform Presentation** at the Scientific Society of Pondicherry Institute of Medical Sciences, Puducherry, India
- **Savanagouder M**, Joseph NM, Kanungo R. (2013) Prevalence of *Haemophilus influenzae* colonizing the upper respiratory tract of healthy school children. **Poster Presentation** at the XXXVII National Conference of Indian Association of Medical Microbiologists, Hyderabad, India
- **Savanagouder M**, Paul E, Kanungo R. (2013) A case report: UTI caused by *Aeromonas sobria* by *sobria*. **Poster Presentation** at the State level conference on Current updates in Microbiology, Chennai, India

### Conferences/Workshops Attended

- CME on "TB-HIV co-infection: An Update", organized by the Department of Clinical Microbiology, PIMS and Indian Association of Medical Microbiologists - Puducherry chapter, held at PIMS, Puducherry, India (2013)

- Workshop on “Basics of PCR – A hands on Training”, conducted by the Department of Clinical Microbiology in association with Helini Biomolecules, PIMS, Puducherry, India (2012)
- International conference on “Mechanisms of Microbial Pathogenesis”, organized by Sir Dorabji Tata Centre for Research in Tropical Diseases and Department of Microbiology & Cell Biology, Indian Institute of Science, held at Indian Institute of Science, Bangalore, India (2010)

### References

Dr. Magdalena Weidner-Glunde

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Olsztyn 10-243, Poland

E-mail: m.weidner-glunde@pan.olsztyn.pl

Dr. Raghunand R. Tirumalai

Senior Scientist and Project Leader

CSIR – Centre for Cellular and Molecular Biology (CCMB)

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