

CURRICULUM VITAE

DR. PENDRU RAGHUNATH, Ph.D., FAGE

Associate Professor
Dept of Microbiology
College of Medicine
Texila American University
Guyana, South America
Contact Number +5926953789



E-mail: pendru.r@tau.edu.gy
raghunathreddyp@gmail.com

Educational Qualifications

- ❖ **Postdoctoral Fellow, 2010-2012.** Clinical Vaccine R&D center, Chonnam National University, Republic of Korea
- ❖ **Ph.D., (Medical Microbiology), 2004 – 2008.** Manipal University, Manipal, India..
- ❖ **M.Sc., (Medical Microbiology), 1999-2002.** Manipal Academy of Higher Education (MAHE), Manipal University, Manipal, India.

Teaching Experience

Current Position: Associate Professor of Microbiology

June 2018 – Till date

Working as an Associate Professor of Microbiology in College of Medicine, Texila American University, Georgetown, Guyana, South America. Responsibilities included teaching Medical Microbiology and Immunology for undergraduate medical students of the college.

Associate Professor of Microbiology

October 2017 – May 2018

Worked as an Associate Professor of Microbiology in the Dr. VRK Women's Medical College, Hyderabad, India.

Associate Professor of Microbiology, Head-Division of Paraclinical Sciences

September 2015 – September 2017

Worked as an Associate Professor of Microbiology in College of Medicine, Texila American University, Georgetown, Guyana, South America. Responsibilities included teaching Medical Microbiology and Immunology for undergraduate medical students of the college. As a head of the department, looked after other administrative duties such as coordination of departmental faculty, organisation of teaching, research and associated activities

Assistant Professor

June 2012 – August 2015

Worked as an Assistant Professor of Microbiology in the Dr. VRK Women's Medical College, Hyderabad, India.

Assistant Professor

September 2008 – June 2010

Worked as a Assistant Professor of Microbiology in Shadan Institute of Medical Sciences (SIMS), Hyderabad, India.

Assistant Professor

January 2003 – August 2004

Assistant Professor (part time) in the DDR paramedical School, Nellore, India, teaching microbiology for MLT (medical laboratory technician) course.

Tutor

January 2003 – August 2004

Worked as a Tutor in Narayana Medical College, Nellore, India.

Research Experience

Postdoctoral Fellow

June 2010 to February 2012

Worked as a Postdoctoral Fellow in the project titled “Research for molecular pathogenesis of *Vibrio vulnificus* infection and vaccine development” at Clinical Vaccine R&D center, Chonnam National University Hwasun Hospital, Chonnam National University, Hwasun, Republic of Korea.

ICMR-JRF

September 2004 – August 2006

Junior Research Fellowship (JRF) awarded by Indian Council of Medical Research, New Delhi for doctoral research work based on all India level competitive examination

With this fellowship, undertaken a research project entitled “**Virulence genes of seafood associated *Vibrio parahaemolyticus***”. The work includes detection and enumeration of total and pathogenic *V. parahaemolyticus* in seafood using molecular techniques such as colony hybridization and PCR. A new enrichment broth containing sodium taurocholate (ST broth) has been formulated in this study, for improved isolation and detection of pathogenic *V. parahaemolyticus*. An alkaline phosphatase - labelled oligonucleotide probes were developed for detection

and enumeration of *trh*⁺ *V. parahaemolyticus* and total *Vibrios*. Pandemic genotypic markers were characterized in pathogenic *V. parahaemolyticus*. Further, application of three molecular typing methods *viz.*, RAPD, ERIC-PCR and PFGE in detection of pandemic strains was evaluated in this study. **Monoclonal and polyclonal antibodies** were developed against two important virulence proteins TDH and TRH and these antibodies were evaluated for detection of pathogenic *V. parahaemolyticus*

ICMR-SRF

September 2006 – August 2008

Continued the research project entitled “**Virulence genes of seafood associated *Vibrio parahaemolyticus***”. Apart from this project, I also involved in various other research projects during the same period.

Inter-relation between bacteria and phytoplankton blooms (Indo-Swedish project).

Cloning and expression of an outer membrane protein OmpW of *Aeromonas hydrophila* and study of its distribution in *Aeromonas* spp.

Typing of clinical and environmental strains of *Aeromonas* spp. using molecular methods.

Training in Medical Education

- ❖ Attended 3 days workshop on Revised Basic Course workshop in Medical Education Technology conducted by Gandhi Medical College, Regional Centre in Medical Education Technologies at Dr. VRK Women’s Medical College, Hyderabad from 5-12-2017 to 7-12-2017
- ❖ Attended 8th Annual Conference on Medical Education (METCON-2018) conducted at Shadan Institute of Medical Sciences, Hyderabad on 5th January 2018

Honours and awards

- ❖ Junior Research Fellowship (JRF) awarded by Indian Council of Medical Research, New Delhi for doctoral research work based on all India level competitive examination
- ❖ Doctoral degree awarded by the Manipal University for the research work done on “**Virulence genes of seafood associated *Vibrio parahaemolyticus***” in July 2008
- ❖ Association of Microbiologists of India (AMI) Young Scientist Award for the year 2008 in Dairy and Food Microbiology
- ❖ Member of the Pillay Aquaculture Award (Triennial group award) for the year 2007 received by Dr. Indrani Karunasagar, Professor and Head, Dept of Microbiology, College of Fisheries, Mangalore
- ❖ Fellow of academy of general education, Manipal University
- ❖ Name included in Marquis Who's who in the world 2013 (30th Pearl Anniversary edition' VIP number: 36508395)
- ❖ The Outstanding Presentation Award given at the 2010-2011 RIP Seminars of the Clinical Vaccine R&D Center on September 01, 2011

Publications

1. Subbannaya, K., **Raghunath, P.**, Arjuna Rao, V., and Nayak B. S., 2002. Fishmeal extract agar- A new antibiotic sensitivity test medium. *Indian Journal of Experimental Biology* **40**, 960-962
2. **Raghunath, P.**, Pradeep, B., Karunasagar, I., and Karunasagar, I., 2007. Rapid detection and enumeration of *trh*-carrying *Vibrio parahaemolyticus* with the alkaline phosphatase-labeled oligonucleotide probe. *Environmental Microbiology* **9**, 266-270.
3. **Raghunath, P.**, Karunasagar, I., and Karunasagar, I., 2007. Evaluation of an alkaline phosphatase-labeled oligonucleotide probe for detection and enumeration of *Vibrio* spp. From shrimp hatchery environment. *Molecular and Cellular Probes* **21**, 312-315.
4. **Raghunath, P.**, Acharya, S., Bhanumathi, A., Karunasagar, I., and Karunasagar, I., 2008. Detection and molecular characterization of *Vibrio parahaemolyticus* isolated from seafood harvested along the southwest coast of India. *Food Microbiology* **25**, 824-830.
5. Bhowmick, P. P., Khushiramani, R., **Raghunath, P.**, Karunasagar, I., and Karunasagar, I., 2008. Molecular typing of *Vibrio parahaemolyticus* isolated from seafood harvested along the southwest coast of India. *Letters in Applied Microbiology* **46**, 198-204.

6. **Raghunath, P.**, Karunasagar, I., and Karunasagar, I., 2009. Improved isolation and detection of pathogenic *Vibrio parahaemolyticus* from seafood using a new enrichment broth. *International Journal of Food Microbiology* **129**, 200-203.
7. Maiti, B., **Raghunath, P.**, Karunasagar, I., and Karunasagar, I., 2009. Typing of clinical and environmental strains of *Aeromonas* spp. using two PCR based methods and whole cell protein analysis. *Journal of Microbiological Methods* **78**, 312-318.
8. Maiti, B., **Raghunath, P.**, Karunasagar, I., and Karunasagar, I., 2009. Cloning and expression of an outer membrane protein OmpW of *Aeromonas hydrophila* and study of its distribution in *Aeromonas* spp. *Journal of Applied Microbiology* **107**, 1157-1167.
9. Rehnstam-Holm, A. S., Godhe, A., Härnström, K., **Raghunath, P.**, Saravanan, V., Collin, B., Karunasagar, I., and Karunasagar, I., 2010. Association between phytoplankton and *Vibrio* spp. along the south westcoast of India – a mesocosm experiment. *Aquatic Microbial Ecology* **58**, 127-139.
10. **Raghunath, P.**, Maiti, B., Shekar, M., Karunasagar, I., and Karunasagar, I., 2010. Clinical isolates of *Aeromonas veronii* biovar *veronii* harbour a non-functional gene similar to the thermostable direct hemolysin-related hemolysin (*trh*) gene of *Vibrio parahaemolyticus*. *FEMS Microbiology Letters* **307**, 151-157.
11. Kumar, K*., **Raghunath, P*.**, Devegowda, D., Deekshit, V. K., Venugopal, M. N., Karunasagar, I. and Karunasagar, I. 2011. Development of monoclonal antibody based sandwich ELISA for the rapid detection of pathogenic *Vibrio parahaemolyticus* in seafood *International Journal of Food Microbiology* **145**, 244-249. (*These authors contributed equally to this work)
12. Subbannayya, K., Arjuna Rao, V., and **Raghunath, P.**, 2011. Fishmeal Extract Dextrose Agar- A new mycological medium – A preliminary report. *American-Eurasian Journal of Scientific Research* **6**, 146-148.
13. **Raghunath, P.**, 2011. Genetic markers of pandemic *Vibrio parahaemolyticus*: are they truly unique? *Foodborne Pathogens and Disease* **8**, 653-654.
14. Asplund, M. E., Rehnstam-Holm, A. S., Atnur, V., **Raghunath, P.**, Saravanan, V., Härnström, K., Collin, B., Karunasagar, I., and Godhe, A., 2011. Water column dynamics of *Vibrio* in relation to phytoplankton community composition and environmental conditions in a tropical coastal area. *Environmental Microbiology* **13**, 2738-2751.
15. Seshu Kumari, K., **Raghunath, P.**, Harshavardhan, B., and Abhijit Chaudhury., 2014. Distribution of *Candida albicans* and the non-albicans *Candida* species in different clinical specimens from South India. *International Journal of Microbiological Research* **5**, 01-05.
16. **Raghunath, P.**, Seshu Kumari, K., Subbannayya, K., 2014. SST broth, a new serum free germ tube induction medium for identification of *Candida albicans*. *World Journal of Microbiology and Biotechnology* **30**, 1955-1958.

17. **Raghunath, P.**, 2015. Roles of thermostable direct hemolysin (TDH) and TDH-related hemolysin (TRH) in *Vibrio parahaemolyticus*. *Front. Microbiol.* **5**, 805. doi: [10.3389/fmicb.2014.00805](https://doi.org/10.3389/fmicb.2014.00805)
18. Karunasagar, I., Karunasagar, I and **Raghunath, P.**, 2016. Editorial: Ecology, virulence and detection of pathogenic and pandemic *Vibrio parahaemolyticus*. *Front. Microbiol.* **7**, 156. doi: [10.3389/fmicb.2016.00156](https://doi.org/10.3389/fmicb.2016.00156)
19. **Raghunath, P.**, 2016. Heterotrophic Plate Count: A Doubtful Microbial Indicator for Monitoring the Potability of Water in Tropics. *Int. J. Curr. Microbiol App. Sci.* **5**, 482-483.
20. **Raghunath, P.**, 2016. An Update on the Transmission, Pathogenesis, Diagnosis, Treatment and Prevention of Zika Virus Infection, *Texila International Journal of Basic Medical Sciences* **1**, 1-10.
21. **Raghunath, P.**, 2017. Role of Gut Microbiota and Infectious Burden in the Development of Autoimmune and Allergic Diseases. *Iran J Allergy Asthma Immunol* **1**, 77-78.
22. **Raghunath, P.**, 2017. Impact of type 2 diabetes mellitus on the incidence of malaria. *J Infect Public Health* **10**, 357-358.
23. Lee L-H and **Raghunath, P.**, 2018. Editorial: Vibrionaceae Diversity, Multidrug Resistance and Management. *Front. Microbiol* **9**, 563. doi: [10.3389/fmicb.2018.00563](https://doi.org/10.3389/fmicb.2018.00563)
24. **Raghunath, P.**, 2018. Does Zika Virus Really Causes Microcephaly in Children Whose Mothers Became Infected with the Virus During Their Pregnancy?. *Iran J Public Health* **47**, 613-614.
25. **Raghunath, P.**, Jagan, N., Jyothinath, K., and Subbannayya, K. 2018. Evaluation of aqueous and ethanolic extracts of *Syzygium caryophyllatum* for antibacterial activities. *Asian J Pharm Clin Res* **11**, 235-237.

Publications as Abstracts

1. **Raghunath, P.**, Pradeep, B., Karunasagar, I., and Karunasagar, I., 2006. Rapid detection of *trh*-carrying *Vibrio parahaemolyticus* with the alkaline phosphatase-labeled oligonucleotide probe. Abstract accepted at the 20th International ICFMH Symposium, Italy.
2. **Raghunath, P.**, Karunasagar, I., and Karunasagar, I., 2007. Improved isolation and detection of pathogenic *Vibrio parahaemolyticus* from seafood using a new enrichment broth. Abstract accepted at the VIBRIO 2007 conference, France.
3. Godhe, A., Rehnstam-Holm, A., Karunasagar, I., Karunasagar, I., Asplund, M. E., Härnström, K., **Raghunath, P.**, Saravanan, V., and Tyagi, A., 2008. Inter-relation between bacteria and phytoplankton blooms in the Arabian Sea. Abstract published at Meeting Global Challenges in Research Cooperation, Uppsala, Sweden.

4. Rehnstam-Holm, A. S., Godhe, A., Härnström, K., **Raghunath, P.**, Saravanan, V., Kronkvist, B., Karunasagar, I., and Karunasagar, I., 2009. Association between phytoplankton and vibrio spp along the south west coast of india – a mesocosm experiment. Abstract published at ASLO Aquatic sciences meeting, Nice, France.
5. Karunasagar, I., **Raghunath, P.**, Maiti, B. and Atnur, V. (2009): Rapid detection and enumeration of *Vibrio* spp. from shrimp hatchery environments using enzyme-labelled probes. Poster presented at Larvi 2009, 5th fish & shellfish larviculture symposium, Ghent University, Belgium.
6. **Raghunath, P.**, Kim, S. Y., Jeong, K., Tan, W., Park, M. J., Lee, S. E., Rhee, J. H. (2012). FexA, another global regulator of virulence in *Vibrio vulnificus*. Abstract accepted at 112th General Meeting of American Society for Microbiology (ASM), San Francisco.

Book Chapters and Ebooks

1. **Raghunath, P.**, Karunasagar, I., Karunasagar, I., eds. (2016). Ecology, Virulence and Detection of Pathogenic and Pandemic *Vibrio parahaemolyticus*. Lausanne: Frontiers Media. doi: 10.3389/978-2-88919-912-9
2. Lee, L-H., **Raghunath, P.**, eds. (2018). *Vibrionaceae Diversity, Multidrug Resistant and Management*. Lausanne: Frontiers Media. doi: 10.3389/978-2-88945-476-1

Journal Editorial Board

1. Fronties in Microbiology
2. International Journal of Microbiology Research
3. Microbiology research
4. Merit Research Journal of Microbiology and Biological Sciences (MRJMBS) journal
5. Texila International Journal of Basic Medical Sciences (TIJBMS)
6. International Journal of Microbiology and Biotechnology
7. Webmed Central: Microbiology Editor
8. Clinical Case Reports International
9. International Journal of Microbiology and Bioinformatics

Journal Referee

1. Frontiers in Microbiology
2. Journal of Applied Microbiology
3. Letters in Applied Microbiology
4. Journal of Microbiological Methods
5. Gene
6. Food Microbiology
7. International Journal of Food Microbiology
8. Foodborne Pathogens and Disease

Technical skills acquired

- ❖ Very good experience in gene knock out techniques and site-directed mutagenesis in bacteria
- ❖ Expertised in gene complementation, in vivo and in vitro virulence studies
- ❖ Transcriptome profiling and data analysis
- ❖ Electrophoretic mobility shift assay (EMSA) and reporting
- ❖ Developed dynabeads enrichment method for the selective isolation of bacteria of interest
- ❖ Experience in maintenance of different cell lines such as SP2/O, Caco-2, J774A.1 and HeLa
- ❖ Experience in performing cytotoxicity and adhesion assays in Caco-2, J774A.1 and HeLa cell lines
- ❖ Cloning of prokaryotic and eukaryotic genes into suitable vector, DNA sequencing and sequence analysis using different bioinformatics tools
- ❖ Handling laboratory animals and production of monoclonal antibodies using hybridoma technology
- ❖ PCR and different variants of PCR like RT-PCR and real time PCR techniques in identification of target genes of bacteria and viruses
- ❖ Expertised in DNA and RNA isolation from bacteria, blood and different tissues
- ❖ Cloning and expression of prokaryotic and eukaryotic genes in *Escherichia coli*
- ❖ DNA hybridization, colony hybridization and southern blotting
- ❖ Expertised in molecular typing methods such as RAPD, ERIC-PCR, RFLP and PCR- RFLP
- ❖ Expertised in modern immunological tools like ELISA, dot blot and western blot techniques
- ❖ Expertised in protein purification and characterization by chromatographic techniques
- ❖ Gel electrophoresis of proteins and nucleic acids

- ❖ Conventional microbiological techniques for isolation and identification of bacteria, fungi, parasites and bacteriophages

Professional membership

Life member: Association of Microbiologists of India (AMI)

Personal information

Permanent Address: Flat no: G3, Home Sree Towers,
Madhavi co-operative society,
Jaya Nagar, Kukatpally,
Hyderabad-500072
Andhra Pradesh, India

Date of birth: 09-06-1979

References

1. Dr. Indrani Karunasagar, Ph.D
Director of Research
Nitte University Centre for Science Education & Research
KS Hegde Medical Academy
Mangalore, India
Email: karuna8sagar@yahoo.com
indrani.karunasagar@nitte.edu.in
Mobile: [+919448479750](tel:+919448479750)
2. Joon Haeng Rhee, MD, PhD
Director, Clinical Vaccine R&D Center
Director, Natl. Research Laboratory of Molecular Microbial Pathogenesis
Director, Research Institute for Vibrio Infections
Professor of Microbiology, Chonnam National University Medical School
Email: jhrhee@chonnam.chonnam.ac.kr
Phone: [+82-10-6693-4136](tel:+82-10-6693-4136), [+82-61-379-8479](tel:+82-61-379-8479)
3. Dr. Subbannayya Kotigadde, Ph.D
Professor and Head
Dept of Microbiology
KVG Medical college, Sullia
INDIA 574327
E-mail: dr_s_kotigadde@yahoo.co.in
Mobile: [+919986158589](tel:+919986158589)