

Dr. MANI RAMALINGAM., M.Sc., Ph.D

Scientific Officer, Department of Molecular Biology, Unipath Specialty Laboratory Limited,
Doctor House, Ahmadabad, Gujarat, India. Email: mani.bio@gmail.com; **Mobile:** 098840 96478

PROFILE

- **Research Associate;** post Ph.D, I have worked in Biochemistry and Cell biology at Sankara Nethralaya eye hospital and Research centre for the last 3.5 years. The works involved on clinical specimen and in vitro studies using animal cell culture models.
- More than 4 years of academic research experiences in protein purification and characterization from animal liver tissue with heavy metal exposure as part of my Ph.D program.
- Skilled in molecular biology and cell biology techniques apart from statistical analysis using SPSS and Graphpad prism software.
- Good communication, teamwork, scientific writing skills developed through previous experiences and duties as well through publications.

EDUCATION

- ❖ **Ph.D in Biotechnology** 2015 (September)
Thesis Title: A Study on Metallothionein Induction, Micro-architectural Alterations and Apoptosis in Cadmium-Exposed Liver and Kidney Tissues of Marine Catfish, *Arius arius*.
at St. Peter's University, Chennai, Tamil Nadu, India
- ❖ **Master of Sciences in Bioinformatics** 2006
Guru Nanak College (Autonomous), University of Madras, Chennai, Tamil Nadu, India
Passed with first class
- ❖ **Bachelor of Sciences in Chemistry** 2004
Presidency College (Autonomous), University of Madras, Chennai, Tamil Nadu, India
Passed with first class

AWARD

Best poster presentation award under Clinical Research category in the National conference at the 25th Year of Indian Eye Research Group Conference (ARVO-INDIA) in Hyderabad (July-2018); Titled, "Evaluation of Dry Eye following Vitreo-Retinal surgery".

RESEARCH EXPERIENCES

- Unipath Specialty Laboratory Limited,** Ahmedabad, Gujarat
Scientific Officer (Molecular biology dept) 2nd August 2021 – Till
Molecular Diagnostics: working with Covid 19, Dengue, Chickunguniya, HSV, TB, JAK2 (Cancer) and H1N1 Influenza virus analysis by real time PCR technologies. Primer designing, experimental analysis, results validation and Report Approval.
- Allovedic Healthcare LLP** Chennai, Tamil Nadu
Scientist (R&D) 24th February 2021 – 30th July 2021
Anti-diabetic drug was developed using Herbal compounds. Compounds were extracted by Soxhlet extractor using various solvents. The extracted compounds were formulated. Then following assays were done Anti-diabetic activities (α -amylase and α -Glucosidase activity), Anti-

oxidant assay Heavy metals were analyzed. The animal study (Acute toxicity, Efficiency and Efficacy) was designed based on literature study.

3. Sankara Nethralaya Eye hospital and Research Centre

Chennai, Tamil Nadu

Research Associate

April-2017 – December-2020

1. **Project titled**, “Effect of the Metabolites relevant to pathogenesis of Age Related Macular Degeneration on the phagocytic machinery of the Retinal Pigment Epithelial (RPE) Cells and screening of therapeutic molecules: An *in vitro* Study” Funded by Council of Scientific and Industrial Research (CSIR), India. ATCC cell lines of RPE were subjected various metabolic an oxidative stress and the phagocytic function evaluated using therapeutic molecules, based on, Fluorescent microscopy, qPCR and western blot analysis.
2. **Project titled**, “To evaluate prevalence of dry eye following retinal surgery” Funded by Novartis Healthcare Private Ltd, Mumbai, with an outcome of one publication (PlosOne, 2020) and one award presentation. Multiplex cytokine profiling, mucin expression studies based on fluorescence based bead array and qPCR along with Principal Component Analysis, Cluster analysis and pathway analysis. Clinical correlation studies were done in collaboration with the vitreo-retinal services at Sankara Nethralaya.

3. Presidency College (Autonomous),

Chennai, Tamil Nadu

Research Associate

Nov 2015 – April 2017

Isolation, Purification and Characterization of Metallothionein protein in fishes on exposure to Cadmium.

Ph.D project, summary: I was investigated about the low-molecular-weight inducible stress protein Metallothionein (MT) from marine catfish, *Arius arius*, an *in vivo* study. MT protein prevented the cadmium toxicity. The fishes were treated with various cadmium concentrations / time intervals. MT was quantified, expressed, localized, isolated, purified, and characterized using techniques such as ICP-OES, Western Blot, IHC, Affinity Chromatography and MALDI-TOF MS. Purified protein was identified and confirmed by Western blot; its amino acid sequence was obtained by in-gel trypsin digestion method using MALDI-TOF MS and Peptide Mass Fingerprinting. MT 3D structure was predicted by homology modeling and validated by Ramachandran plot. Also investigated the effect of cadmium toxicity on liver and kidney tissues of *Arius arius* exposed to various cadmium concentrations at different time intervals. Apoptosis was studied using techniques such as Caspase-3 activity, DNA fragmentation and DAPI nucleic acid staining apart from histological and cellular morphological changes.

TECHNICAL SKILLS

Cell Culture:

Mammalian cell culture, ARPE19 cell culture, primary cell handling, transwell culture, and Normal cell converted to senescent cell, cell-based bioassays, Cell viability assay, and media preparation. Retinal endothelial cell lines, cell line characterization, and functional studies.

Molecular Biology Techniques

Protein purification, Affinity Chromatography, Column Chromatography, Immunology assays, Protein expression analysis, ELISA assays, DNA & RNA isolation, Primer designing, Gene expression analysis, Western blot, Real-time PCR, Conventional and Gradient PCR, Gel electrophoresis, 2D-gel electrophoresis, Immunofluorescence assay, UV-Vis spectroscopy, Protein

Microarray analysis, Enzyme assays, Multi-plex Cytokines analysis, Ultra-centrifuge and Lyophilization, DNA damage assay.

Molecular Diagnostics:

Covid 19, Dengue, Chickunguniya, HSV, JAK2, TB and H1N1 Influenza virus experimental analysis by real time PCR. Results validation.

Histological Techniques: Immunology, Histopathology and Histological cellular alterations analysis.

Microscopy: Confocal, fluorescence and Phase-contrast light microscopy.

Bioinformatics: Swiss-prot database analysis, Homology modeling, Protein sequence analysis tools, pathway analysis.

COMPUTER SKILLS

- Excellent working knowledge in MS-Office (MS-Word, Excel and PPT)
- Adobe Photoshop CS5,
- Statistical Analysis Software's: GraphPad Prism 6.0 and SPSS 25.0

PUBLICATIONS

1. **Mani R**, Suresh A, Sumit R, Anandan B, Sambantham S, Ibrahim M and Meena B*. "A study on cellular and DNA damage in kidney of marine catfish, *Arius arius* sequestered to acute cadmium toxicity and the possible role of metallothionein". **Marine Pollution Bulletin**, 163; 111930. **Elsevier. 2021. Impact Factor =4.043**
2. **Mani R**, Shobha PS, Thilagavathi S, Prema P, Viswanathan N, Vineet R, Dhanashree R and Angayarkanni N*. "Altered mucins and aquaporins indicate dry eye outcome in patients undergoing Vitreo-retinal surgery". **PLoS ONE** 15(5): e0233517. **June-2020. Impact Factor =2.73**
3. **Mani R.**, and Angayarkanni N*. Effect of metabolites relevant to the pathogenesis of Age- related Macular degeneration on the phagocytic machinery of Retinal Pigment Epithelial cells and screening of therapeutic molecules: An *in vitro* study. **Under manuscript.**
4. **Mani R.**, Sumit R and Suresh A Meena B*. "Metallothionein synthesis, Micro-Architectural Alterations and Apoptosis in Cadmium exposed Liver tissue of marine catfish, *Arius arius*". *European Journal of Biomedical and Pharmaceutical sciences*. 3(7):549-559; **2016.**
5. **Mani R.**, Valivittan K, Suresh A., Meena B*. "Glutathione-S-Transferase and Catalase activity in different tissues of marine catfish, *Arius arius* on exposure to cadmium". *International Journal of Pharmacy and Pharmaceutical Science*. 6(1):326-332; **2014.**
6. **Mani R**, Valivittan K and Meena B*. "Metallothionein expression in marine catfish, *Arius arius* liver on exposure to cadmium using Immunohistochemistry and Western blot". *International Journal of Pharmacy and Pharmaceutical Science*. 6(2): 818-821; **2014.**
7. **Mani R**, Valivittan K and Meena B*. "Metallothionein induction on exposure to cadmium in marine catfish, *Arius arius*". *International Journal of Biological and Pharmaceutical Research*. 5(4): 293-300; **2014.**
8. **Mani R**, Valivittan K and Meena B*. "Determination of LC₅₀ of cadmium chloride in marine catfish, *Arius arius*". *International Journal of Current Pharmaceutical Research*. 5(4): 60-62; **2013.**
9. Sumit R, Meena B, Suresh A, **Mani R** and Vincent S*. "Metallothionein Induction in Fresh Water Catfish *Clarias gariepinus* on Exposure to Cadmium". *International Journal of Pharmacy and Pharmaceutical Science*. 6(1): 377-383; **2014.**
10. Sumit R, Meena B, Suresh A, **Mani R** and Vincent S*. "Immunolocalization of metallothionein in different tissues of freshwater catfish, *Clarias gariepinus* on exposure to cadmium". *International Journal of Pharmaceutical Sciences and Research*. 5(12): 1000-1006; **2014.**
11. Suresh. A, Sumit R, **Mani R** and Meena B*. "Isolation, purification and confirmation of metallothionein from the liver tissue of cadmium exposed freshwater fish, *Ctenopharyngodon idella*". *International Journal of Current Pharmaceutical Research*. 7(3): 73-75; **2015.**

12. Suresh. A, Sumit R, **Mani R** and Meena B*. "Induction of metallothionein with cadmium chloride in an economically important freshwater fish-grass carp, *Ctenopharyngodon idella* (valeur, 1844)". *Asian Journal of Pharmaceutical and Clinical Research*. 8(5): 131-136; **2015**.

CONFERENCE PRESENTATIONS

1. **Mani R**, Angayarkanni N* *et al.*, Evaluation of Dry Eye following Vitreo-Retinal Surgery. Indian Eye Research Group Conference (ARVO-INDIA) at LVPEI in Hyderabad, July-2018 (**Best poster presentation**).
2. **Mani R**, Meena B* *et al.*, A Study on Metallothionein Induction, Micro-architectural Alterations and Apoptosis in Cadmium-Exposed Liver of Marine Catfish, *Arius arius* (Hamilton, 1822). International Conference on ICEWEST at Presidency College Chennai, February-2015 (**Paper Presentation**).
3. **Mani R**, Meena B* *et al.*, Isolation and Purification of Metallothionein Protein in Liver of Marine catfish, *Arius arius* (Hamilton, 1822)" in National Conference on Frontiers in Translational Microbiology. Sri Sankara Arts and Science College, Tamil Nadu, January-2015 (**Paper Presentation**).
4. **Mani R**, Meena B* *et al.*, Metallothionein Induction on Exposure to Cadmium in Marine Catfish, *Arius arius*(Hamilton, 1822)" in National Conference on Frontiers in Translational Microbiology, Sri Sankara Arts and Science College, Tamil Nadu, January-2015 (**Poster Presentation**).

PERSONAL PROFILE

Marital Status	:	Unmarried
Community	:	BC
Languages Known	:	English & Tamil
DOB	:	06.05.1984
Permanent Address	:	No.9-B, Meenachi Nagar, Mangadu, Chennai- 600 122.
Present Address	:	No.4, Second floor, SF/4, Sankalp Avenue, Jivraj Park, Shivnagar, Vejalpur, Amhedabad, Gujarat, 380051.

DECLARATION

I hereby declare that the information furnished above is true to the best of my knowledge.

Place: Chennai

Date:

MANI. R,



Reference:

1. Dr.N.Angayarkanni, Ph.D.,

Prof and Head,
Department of Biochemistry and Cell biology,
SankaraNethralaya, Nungambakkam,
Chennai-600006.
Mob: 09840422930,
E-mail: drak@snmail.org

2. Dr.DhanashreeRatra, MBBS, MD, DNB, FRCS.

Senior Consultant Vitreo retinal services,
Department of Vitreo Retinal Services,
SankaraNethralaya,
Nungambakkam, Chennai – 600 006.
Mobile: 99400 84285
E-mail: drdad@snmail.org