

## Manonmani Soundararajan

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### **Bio-information**

Date of birth: 11 May 1992, Female, Married, Indian

### **Academic Qualification**

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| <b>Mar 2016 – Present:</b>   | <b>PhD (Doctor of Philosophy) in Life Science</b><br>Institute for Molecular Infection Biology (IMIB), Wuerzburg                                       |
| <b>Oct 2014 – Mar 2016:</b>  | <b>Masters in Fokus Life Science</b><br>Julius Maximilian University of Wuerzburg<br>German aggregate grade point: 1.9                                 |
| <b>Jun 2009 – May 2013:</b>  | <b>Bachelor of Technology (B.Tech) in Biotechnology</b><br>Tamil Nadu Agricultural University, India<br>Indian aggregate grade point: 8.67             |
| <b>Jun 2007 – March 2009</b> | <b>Higher Secondary School in Physics, Chemistry and Biology</b><br>S.R.V Girls Higher Secondary School, Tamil Nadu, India<br>Indian aggregate: 94.80% |

### **Research experiences**

#### **Publications:**

Bury S<sup>†</sup>, **Soundararajan M<sup>†</sup>**, Bharti R, von Büнау R, Förstner KU and Oelschlaeger TA (2018) The Probiotic *Escherichia coli* Strain Nissle 1917 Combats Lambdoid Bacteriophages stx and  $\lambda$ . *Front. Microbiol.* 9:929. doi: 10.3389/fmicb.2018.00929

<sup>†</sup>These authors have contributed equally to this work.

#### **PhD thesis (Mar 2016 – present)**

In my doctoral thesis, I am actively involved in elucidating the probiotic nature of *E. coli* Nissle 1917 (EcN). EcN is one the very few probiotics commercially available as a drug (Muraflor) and used in treatment of various gastrointestinal disorders. Specifically, I aim at understanding the phage resistance of this strain as it is an important safety aspect and contributes to the genetic stability of this strain.

#### **Master thesis (Mar 2015 – May 2015)**

Dr. Tobias Oelschlaeger, Institute for Molecular Infection Biology (IMIB), Wuerzburg

Initially I underwent a six-week internship studying the mechanism behind the shigatoxin phage resistance of *E. coli* Nissle 1917. In these six weeks, I was exposed to basic molecular biological and microbiological techniques which gave me confidence to work individually for my master thesis. And for my master thesis, I continue to work on the same project in addition I also studied the adherence nature of EcN to the intestinal mucin. Combination of comfortable workspace and excellent guidance gave me a great learning experience both theoretically and practically. I was also encouraged to give my ideas as inputs which gave me a new view on innovative research thinking.

#### **Laboratory internship program 1 (Nov 2014 – Dec 2014)**

Dr. Rosalia Deeken, Department of Molecular Plant Physiology and Biophysics - Botany I, Wuerzburg

Underwent a six-week internship under the guidance of Dr. Rosalia Deeken on the project “Fluorescent *Agrobacteria* as a tool to study their distribution in grapevine”, which basically focuses on disease biology of plant pathogenic bacterium – *Agrobacterium vitis* and on the post-infection localization and interaction inside plant.

#### **Biotechnology Industrial Training Program (Oct 2013 – Apr 2014)**

Research & Development Centre, T Stanes Limited, India

Sponsors: Biotech Consortium India Limited and Department of Biotechnology, Government of India

I was given an opportunity to work in R&D sector for 6 months as a trainee in “Quality control sampling for various bio-fertilizers and bio-control agents”. I was also actively involved in standardization of polymer formulation for the betterment of shelf life of the bio-control agent – *Beauveria bassiana*

#### **Bachelor thesis (Sep 2012 – Apr 2013)**

Prof. Dr. V. Balasubramanian, Centre for Plant Molecular Biology and Biotechnology, Tamil Nadu Agricultural University, India

My thesis was on “*Agrobacterium* mediated transformation of tobacco with indigenous *cry2A* gene”. Cry2A is a crystal protein or  $\delta$ -endotoxin produced by *Bacillus thuringiensis* (Bt) during sporulation. Besides their long-term use as a biological insecticide in the form of sprays of spore–crystal mixtures, individual Cry toxins have been expressed in transgenic plants to render crops resistant to insect pests. In my bachelor thesis I was involved in *Agrobacterium* mediated transformation of tobacco with indigenous *cry2A* gene and screening of putative transformants of tobacco.

#### **Summer Research Fellowship Programme (May 2012 – Jul 2012)**

Prof. Saumitra Das, Department of Microbiology and Cell biology, Indian Institute of Science

Sponsors: Indian Academy of Sciences.

I worked on the project “Cloning and expression of 2C protein of Coxsackie virus” in which I successfully expressed a viral gene in *E. coli* expression system .

## **Technical Skills**

- **Molecular biology techniques**  
gene cloning and knockout techniques in *E.coli*
- **Microbiology techniques**  
culturing of microorganisms and growth phase analysis, isolation of microorganisms from novel environments, bacteriophage cultivation, isolation and detection techniques
- **Protein isolation and characterization techniques**  
ELISA, SDS gel electrophoresis, western blot, protein quantification assays, Cs-Cl density gradient centrifugation
- **Microscopic techniques**  
confocal laser scanning microscopy, Transmission electron microscopy, freezing microtome
- **Plant tissue culture techniques**  
*Agrobacterium* mediated transformation, hardening and validation protocols
- **Tools and softwares**  
Graph Pad Prism, CLC work bench, protein structure elucidation using Chimera, phylogenetic tree construction using NTsys, Clustal Omega, BLAST, SWISS model

## **International academic tests**

- **IELTS** (International English Language Testing System) - Overall band score: 8, Dec 2013
- **GRE** (Graduate record Examinations) – Overall score: 311, June 2013
- **START DEUTSCH A1** – Credits: 94%, Goethe zentrum, India

## **Workshops and Conferences (selected)**

- Won “Student travel award” in “Microbe 2017” conference held in June 2017 at New Orleans, USA organized by American Society of Microbiology
- Was selected as mentor in RISE Germany 2017 program organized by “Deutscher Akademischer Austauschdienst under ST23 – Stipendienprogramme Nordamerika, RISE” and successfully supervised a bachelor student from USA for 10 weeks in summer 2017.
- Presented posters in 9<sup>th</sup>, 10<sup>th</sup> and 11<sup>th</sup> Seeon conference on Microbiota, Probiotics and Host, Seeon organized by organized by SPP 1656 of German Society of Hygiene and Microbiology
- Presented a poster in annual ASM Microbe 2017 meeting held at New Orleans, USA on June 1-5, 2017
- Actively participated in following workshops organized by GSLS,Wuerzburg:

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|---|---------------------|
| Oral presentation skills/ Poster presentation | Apr 2017/ July 2017 |
| Scientific Image processing & Analyzing       | Oct 2016            |
| Introduction to biotech industry              | Sep 2016            |