

Prajwal V Bharadwaj

Email: prajwal4bharadwaj@gmail.com

Experience

University of Liverpool - United Kingdom

October 2023 - Ongoing

PhD Project: Studying the dynamics of plasmids and their bacterial hosts and understanding the persistence of antibiotic resistance in bacterial communities through the lens of persistence of plasmids. This project combines microbiological analysis to study and manipulate bacteria and plasmids and the use of machine learning to model these interaction dynamics.

Indian Institute of Science - Bangalore, India

August 2022 - June 2023

Project: Studying evolution of antibiotic resistance in prey bacteria in the presence of a predator and evolution of escape strategies by the prey. The model system used was of *M xanthus* (predator) and *E coli*, *P fluorescence* and *S enterica* (prey).

- Experimental coevolution of *M xanthus* and three prey bacteria - Microbial culture techniques
- Analysis of predatory efficiency of and competition between clones of *M xanthus* from a population mixing evolution experiment
- Standardisation of NGS based Frequency Analysis of *M xanthus* and *E coli* clones

Max Planck Institute for Evolutionary Biology - Plön, Germany

April 2020 - July 2022

MS Project: Understanding movement patterns and duplication rate of REPIN Transposable Elements in *Pseudomonas* genome sequences

- Creating and testing of REPIN Clusterer - a Bioinformatics pipelines in Python Programming Language
- Developed innovative computational method of clustering REPIN Sequences together based on orthology
- Established events of duplication of REPIN Sequences based on the Clusters and calculated their rate of duplication.
- Critical analysis of potential theories on movement of REPIN within host genome
- Automated BLAST searches, isolated genes, compared genes, built, compared and analysed phylogenetic trees, curated computer code and datasets

Indian Institute of Science - Bangalore, India

May 2019 - July 2019

Project: Characterization of the natural history of the pentatomid fig bug - an understudied bug camouflaging on fig syconium

- Standardised methods to study the pentatomid fig bug in the laboratory and identified the life cycle of the fig bug
- Designed and conducted novel and unique experiments to study the behaviour of the bug in relation to fig syconia and possible camouflage behaviour

iGEM Team IISER Bhopal - Bhopal, India

January 2019 - October 2019

Project: Collaborated with a team of my peers to conduct a project to synthetically modify *E coli* to grow optimally at 4°C

- Troubleshooting molecular biology experiments to transform bacteria with our gene of interest and conducted growth experiments to assess viability
 - Performed PCR amplification, Restriction digestion, cloning, Blue white selection, screening for transforming *E coli*.
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Education

University of Liverpool - United Kingdom
PhD in Biological Sciences

October 2023 - Ongoing

Indian Institute of Science Education and Research Bhopal - Bhopal, India August 2017-July 2022
Bachelor of Science -Master of Science (Dual Degree) in Biological Sciences
CPI: 9.11/10 (equivalent to top 5% in my batch)

Fellowships

KVPY Fellowship - 2017-2022 (~ 450000 INR / 5000 Euro)

A highly competitive fellowship (<5% acceptance), awarded by the Government of India for the entire duration of my BS-MS Degree in Biological Science.

Masters Thesis Stipend - 2021-2022 (~10000 Euro)

I was awarded a scholarship that covered all my expenses for an 8 month period to work on my Thesis at the Max Planck Institute for Evolutionary Biology

Conferences and Workshops

Biological Transactions from Molecules to Organisms 2023: An international conference organised by the Indian Institute of Science, Bangalore between 18th and 21st January 2023. I was selected to present a poster titled "Influence of conflicting selection-constraints on the de-novo evolution of antibiotic resistance".

Climate Change and the Essential Service of Pollination: Organised by Prof. Renee Borges in the Indian Institute of Science, Bangalore between 17th and 19th July 2019. A series of talks by eminent persons in the field of Pollination Biology followed by a Practical demonstration session.

Nobel Prize Series India 2018: Organised in association with Nobel Media and Government of India. The Nobel Prize Series is an exciting initiative that brings together Nobel Laureates and eminent scientists to stimulate innovation and creative thinking amongst young students of science.

Vijyoshi National Science Camp 2016: Organised by and held in IISc Bangalore during December 2016.

Positions of Responsibility

Department Representative, Biological Sciences For The Academic Year 2019-2021

As **Secretary General**, I organised a Model United Nations Conference in IISERB (2018) and KMUN (2019). I chaired two committees in IISERB MUN 2019 and KMUN 2018.

Content Developer and **Associate Writer** for the Career Development Cell, IISER Bhopal.

Organising Committee member and **PR Head** for organising Enthuzia ,IISER Bhopal's Cultural Fest well as Arts and Letters, Literary Fest

References

Dr. Frederic Bertels

Group Leader

Max Planck Institute for Evolutionary Biology

bertels@evolbio.mpg.de

Dr. Samay Pande

Assistant Professor

IISc Bangalore

samayp@iisc.ac.in
