Aiswarya Prasad

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PhD candidate in Quantitative Biology with expertise in microbiome research, bioinformatics, and hands-on lab experience. Strong focus on microbiome ecology, metagenomics, and diverse next-generation sequencing (NGS) approaches. Proven track record in leading multi-disciplinary research projects and international collaboration. Seeking opportunities to leverage my skills in a challenging innovation-focused role.

Education

PhD in Quantitative Biology
University of Lausanne, Switzerland | AUG 2020 - AUG 2025 (planned)

- Awarded the Faculty of Biology and Medicine (FBM) PhD Fellowship and Mathilde Agassiz Scholarship (awarded to top-placed FBM fellow).
- Presented research as posters at 3 prominent international conferences; invited as a speaker at 3, awarded best selected talk. Co-authored 4 publications and performed the peer-review of 2 papers.
- 4 years of Teaching experience as TA for the Master-level “bioinformatics through research” course; developed an R markdown template to improve and standardize course material as interactive HTML documents. Supervised semester-long student projects presented at the course.
- Engaged as a student representative on the department faculty hiring committee and the organizing committee for the annual department scientific retreat.

B.S. and M.S. in Biology
Indian Institute of Science, Bengaluru | AUG 2015 - JUL 2020

- KVPY National Science Fellowship (All-India rank: 335)

Research Experience

PhD candidate

University of Lausanne | AUG 2020 - PRESENT

- Led honeybee gut microbiome evolution research using next-generation sequencing and custom-made Snakemake pipelines (*Eg*., https://github.com/Aiswarya-prasad/honeybee-cross-species-metagenomics/).
- Designed and conducted experiments on microbiota-free bees with synthetic bacterial communities to study processes influencing community assembly using PacBio long-read sequencing.
- Collaborated with multi-disciplinary teams in Malaysia and Kenya and initiated a new collaboration in India, expanding the study’s scope with cross-country data and mitigating delays due to pandemic restrictions in Malaysia by over one year.

Master thesis research
Indian Institute of Science, Bengaluru | MAY 2019 - MAY 2020

- Established Nanopore sequencing system in a low-resource setting at 10% of the cost of other commonly available systems.
- Developed an end-to-end pipeline from sample collection to bioinformatic analysis for metagenomics; tested various approaches for sample preparation and metaproteomic analysis of fecal samples using LC-MS/MS.
- Analyzed the human gut microbiome in chronic pancreatitis patients, studying disease-related changes in collaboration with doctors.

iGEM undergraduate research
Indian Institute of Science, Bengaluru | MAY 2016 - OCT 2016

- Co-founded the first team from the institute and secured a bronze medal at iGEM in Boston, a competition for innovative biotech solutions using genetically engineered machines.
- Contributed to the designing and cloning of a quorum sensing-based auto-inducible system for protein overexpression in bacteria.
- Engaged in teamwork to secure funding for research and travel via three grants.

Publications

Mazel, F., Prasad, A., Engel, P. (2024) Host specificity of gut microbiota associated with social bees: patterns and processes. Microbiology and Molecular Biology Reviews (In Review)

Prasad, A., Pallujam, AD., Siddaganga, R., Suryanarayanan, A., Mazel, F., Brockmann, A., Yek SH., Engel, P. (2024) Evolution of the honeybee gut microbiome. Nature communications. (In Review)

Baud, G. L., Prasad, A., Ellegaard, K. M., & Engel, P. (2023). Turnover of strain-level diversity modulates functional traits in the honeybee gut microbiome between nurses and foragers. Genome Biology, 24(1), 283.

Sarton-Lohéac, G., Nunes da Silva, C. G., Mazel, F., Baud, G., de Bakker, V., Das, S., El Chazli, Y., Ellegaard, K., Carcia-Carcera, M., Glover, N., Liberti, J., Nacif Marçal, L., Prasad, A., Sommerville, V., SAGE class 2019-2020 and 2020-2021, Bonilla-Rosso, G., & Engel, P. (2023). Deep divergence and genomic diversification of gut symbionts of neotropical stingless bees. Mbio, 14(2), e03538-22.

Extracurricular Engagement

Director, Strategy and Expert Sourcing
Nucleate Switzerland | OCT 2024 (Onwards)

The Consulting Society – Consultant and Learning Unit Manager
École Polytechnique Fédérale de Lausanne (EPFL) | MAY 2024 (Onwards)

Workshop on Decolonizing Global North-South Research Collaboration
Centre for Development and Environment, University of Bern (Online) | AUG 2022

Moderator, Health & Medical Data Privacy Committee
iGEM India BIOSUMMIT (Remote) | JUL 2020

iGEM Delegate, United Nations Convention on Biological Diversity
Sharm El-Sheikh, Egypt | NOV 2018