ERIC MACWAN

• Nationality: Indian • ericmacwann@gmail.com • +91-9998005220 • @EricMacwan

RESEARCH EXPERIENCE

National Center of Biological Sciences (NCBS), Bangalore, India

Position: Graduate Trainee August 2018 – July 2019

- Supervisor: **Dr. Sabarinathan Radhakrishnan**
- Lab theme: Computational and Functional Genomics of Cancer
- Project: Unraveling the zygosity selection and allelic expression imbalance of cancer driver mutations.
- Project summary: The products of Dominant-negative mutation (DNM) affect wild type allele's function. DNMs in tumor suppressor genes have been reported in multiple cancers and they can drive tumor progression. The project involved fishing and understanding the nature of DNMs in tumor suppressor genes across tumor types using TCGA and PCAWG cancer datasets.
- Supervisor contact: sabari@ncbs.res.in

Indian Institute of Science Education and Research (IISER), Pune, India

Position: Dissertation Project Student May 2017 – November 2017

- Supervisor: **Dr. Sudha Rajamani**
- Lab theme: Chemical Origin of Life
- Project: Binding of Nucleobases to Prebiotic Amphiphilic Assemblies; Implications for the origin of life.
- The project involved checking the possibility of membrane (fatty acid vesicles) playing a role as a selection pressure in the selection of canonical nucleobases during the primitive time.
- Project summary: The primitive cell-like structure, the proto-cell, is supposed to be an RNA like genetic polymer encapsulated in amphiphilic ordered aggregates. The membrane might have played a crucial role as a selection pressure in the selection of present nucleobases. To test this hypothesis, I used fatty acid vesicles as a membrane and allowed them to interact with canonical and non-canonical bases.
- Supervisor contact: srajamani@iiserpune.ac.in

Indian Institute of Science Education and Research (IISER), Pune, India

Position: Research Intern May 2016 – July 2016

- Supervisor: **Dr. Neelesh Dahanukar**
- Lab theme: Molecular Phylogenetics and Conservation Biology
- Project: Molecular Phylogeny and phylogeography of freshwater fishes of sub-family *Danioninae* from India.
- Project summary: Project involved barcoding of Danioninae fish family, DNA extraction, PCR of barcoding gene (Cytochrome C oxidase), Purification of the PCR product, sequence editing, genetic data mining, sequence alignment, phylogenetic hypothesis testing, and phylogeographical mapping**.**
- Supervisor contact: neelesh.dahanukar@snu.edu.in

Institute of Mathematical Sciences (IMSC), Chennai, India

Position: Research Intern May 2015 – July 2015

- Supervisor: **Dr. Rahul Siddharthan**
- Lab theme: Computational Biology
- Project: Computational prediction and characterisation of regulatory sites and cis-regulatory modules.
- Project summary: Project involved understanding the working and mathematical background of different alignment softwares (BLAST, Cluster-Buster). Python programming language was used for scripting.
- Supervisor contact: rsidd@imsc.res.in

EDUCATION

Dr. Vikram Sarabhai Institute of Cell and Molecular Biology,
The Maharaja Sayajirao University of Baroda **Vadodara, India**

- **Bachelor of Science in Cell & Molecular Biology** 2013 – 2016
- **Master of Science in Cell & Molecular Biology** 2016 – 2018

ACHIEVEMENTS

- Selected in Summer Research Programme at IMSC Chennai, India. (2015)

RESEARCH STRENGTHS

SOFT SKILLS

- Interacted with many researchers from diverse fields while working in different research Institutions. Delivered presentations of research work at three conferences, during lab meetings in front of colleagues and, in front of the alma mater's professors and students.

BIOINFORMATICS SKILLS

- **Applications** Extensive working knowledge in the analysis of cancer genomics data using R/Bioconductor, Python, and Linux shell scripting. Design and usage of biological databases.
- **Statistics** Good understanding of biostatistical methodologies and tools.
- **Operating System** Proficient in Linux/Unix, Microsoft Windows, DOS.
- **Programming Languages** Python, R, Bash.
- **Genomics** Big data/Genomics data management, Cancer genomics data analysis (TCGA, PCAWG), NGS Data Analysis. Full understanding and working knowledge of variant calling workflow.

- **Molecular Phylogenetic Analysis** — Multiple Sequence alignment, MEGA 7, BLAST, CLUSTAL, MUSCLE, FASTA.

LABORATORY SKILLS

- **Molecular Biology Techniques** — DNA and RNA isolation from animal cells (fish gills), PCR of barcoding gene (Cytochrome C oxidase), Purification of the PCR product, Gel Electrophoresis, PCR, UV spectroscopy.

CONFERENCE PRESENTATIONS

- **Binding of prebiotic nucleobases to prebiotic amphiphile assemblies and their implications for the origins of life,** BioConclave (2017), IISER Pune

- **Unraveling the zygosity selection and allelic expression imbalance of cancer driver mutations,** NCBS Annual Talks - The Language of Biology (2019), inStem Annual Review of Research (2019)

PORTFOLIO & INTERESTS

- **Portfolio**: http://macwaneric.github.io
- **Interests**: Programming, Classical Guitar, Western Classical Music (Vivaldi, Tchaikovsky, Sarasate, Beethoven, Mozart).
- **Languages**: English (Full Professional Proficiency), Gujarati (Native Proficiency), Hindi (Native Proficiency).

EXTRACURRICULAR ACTIVITIES

- Volunteered in **educating children** living in slums with the Change Vadodara Campaign (NGO) (2016-2018)

REFERENCES

- **Dr. Sabarinathan Radhakrishnan**
  Reader-F at National Centre for Biological Sciences (NCBS), Bengaluru, Karnataka, India
  sabari@ncbs.res.in

- **Dr. Neelesh Dahanukar**
  Assistant Professor at Department of Life Sciences, Shiv Nadar University, Delhi NCR, India.
  neelesh.dahanukar@snu.edu.in

- **Dr. Vihas Vasu**
  Professor at Zoology Department, Faculty of Science, The Maharaja Sayajirao University of Baroda (**MSU**), Vadodara, Gujarat, India
  vihasv@gmail.com