

ABHIRAMI THUMSI
Masters in Biological Sciences (Integrated)
Biological Design Graduate Student

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RESEARCH INTEREST

I wish to understand the metabolic regulation of cell signaling mechanisms dictating cell fate decisions and immune responses.

With the zeal to enhance my knowledge in fields of Immunology, Molecular Biology and Therapeutics with a wish to employ this knowledge in developing therapeutics and medicine. I am currently enrolled in the Biological Design PhD program at Arizona state University.

EDUCATION (2012-2017)

Masters of Science (INTEGRATED) from Bangalore University in biological sciences
CGPA-8.3 (1-lowest, 10-highest) (or) **79%** (0%-lowest, 100%-highest)

RESEARCH EXPERIENCE

July 2018- June 2021

Metabolomics in oral cancer, a part of DBT (Department of Biotechnology) funded VNOCI project Indian Institute of Science (IISc), Bangalore, India

Supervisor- Dr. Debnath Pal

Worked as a Project Assistant in the **Virtual National Oral Cancer Initiative (VNOCI) project - study of cancer stem cells using various 'omics' platforms**, at the Indian Institute of Science (IISc). The work was oriented towards investigating the metabolic discrepancies in cancer stem cells as opposed to the differentiated cancer population, using mass spectrometry. I underwent training in Triple Quadrupole and Orbitrap mass spectrometry instruments with a view to comprehend the metabolite make up of cancer stem cells and understand their role in cancer progression and metastasis.

In addition, we looked to establish a correlation between the transcriptomic and metabolic signatures of oral cancer stem cells in the context of tobacco use. Combining the knowledge of cancer stem cells and the data available in public databases in addition to our own, we could narrow down probable biomarkers to help in diagnosis of oral cancer in the Indian cohort.

Parallely, we investigated the commonalities and differences between wound healing and cancer progression to provide insight into the cause and process of cancer formation. During my time here, I learnt various bioinformatics tools like pathway mapping and mutation studies in proteins (using Schrödinger and pymol tools). This experience gave me a chance to look at problems using a holistic approach and has equipped me to think on broader terms.

January 2017-June 2017

Master's Dissertation: **Molecular cloning of GABA Transporter (GAT) and Succinic Semi Aldehyde Dehydrogenase (SSADH) genes of the model organism *Drosophila melanogaster* Institute for Stem Cell Biology and Regenerative Medicine (inStem), Bangalore, India**

Supervisor- Dr. Tina Mukherjee

The 6 months' work aimed at designing tools (molecular clones) of GABA Transporter (GAT) and Succinic Semi-Aldehyde Dehydrogenase (SSADH) genes for various studies on *Drosophila*. I performed molecular cloning and understood the different techniques involved in generating clones. Learning this technique helped to appreciate the sensitivity and attention to detail required for such experiments. Though the work was purely oriented to performing cloning techniques, it paved a way to understand the purpose of molecular tools, need for different cloning strategies and its relevance to the laboratory's research to further address questions of wider biological interests.

Also, as this was my first experience in laboratory research, I understood the importance and necessity of institutional research settings, collaborations and team work and my experience here only motivated me more to pursue a career in research.

ACTIVITIES

- 2012-2017 Secured **1st rank** in academics in Integrated M.Sc. in Biological Sciences (2012-2017), awarded with a **Gold medal** for the same during the 53rd Annual Convocation of Bangalore University. Conferred with Dr. H. Narasimhaiah and Dr. H.P. Puttaraju **Merit and Endowment award** for excelling in academics.
- 2014-2015 Attended **THE BIO-REAP** series by IISc professors at the Jawaharlal Planetarium and was awarded with a cash prize for active participation.
- 2013-2014 Participated in **INSPIRE** camp conducted by DST, India.

SKILLS

- Molecular work** DNA, RNA and protein isolation from plant and animal systems and quantification; cDNA synthesis, gel electrophoresis, PCR, Cloning (TOPO, Restriction and Gateway); ligation, bacterial transformation, colony screening, plasmid purification, protein expression in bacterial systems.
- Biochemistry** Qualitative and quantitative analysis of biomolecules. Quantitative estimation of proteins, amino acids, reducing sugars, enzymes etc., in plant and animal tissues. Performed diagnostic tests like LDL, Widal, SGOT, SGPT, RPR etc., from blood and serum samples.
- Immunology** Blood group typing, lymphocyte isolation and enumeration, purification and separation of IgG from blood serum, Immunodiffusion and Immunoelectrophoresis
- Bioinformatics** Knowledge in using public databases (NCBI, ENSEMBL, UNIPROT etc.,) Primer designing, Promoter determination, ORF finder, binding site predictions etc.
- Others** Mass Spectrometry, pathway analysis, mutation analysis, basic knowledge in pymol, cytoscape and Schrödinger

HOBBIES

I am a prolific writer and engage in writing short stories and poems. I enjoy spending time in reading and dancing. I was an NCC (National Credit Corps) cadet (A certificate) during school. I was active in debates, quizzes, sports, dance and drama competitions and won many laurels for the same.