SUKANYA DAS
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RESEARCH EXPERIENCE

08/2015 – 08/2016

MASTER'S THESIS
Genome wide identification of genes that are induced in pathogen specific memory T-cells upon ex vivo antigen stimulation.
Summary: Genes induced in pathogen specific memory T-cells expressing interferon gamma were identified using deep sequencing. A protocol to isolate sequencing quality mRNA from a few thousand fixed cells was developed and validated.

Thesis mentor: Dr. Sanjay Tyagi, Professor, PHRI-NJMS.

Tools used: Tissue culture, PBMC isolation, RNA-FISH, FACS, multicolor flow cytometry, RNA isolation, cDNA synthesis.

06/2015 – Present

RESEARCH ASSISTANT, Public Health Research Institute, Rutgers, The state university of New Jersey. PI: Dr. Yuri Bushkin.

PROJECTS

1. **Profiling T-cell response to ex-vivo antigen stimulation using single molecule RNA-FISH/Flow**.
   Tools/skills: PBMC isolation, ex vivo stimulation, tissue culture, multicolor flow cytometry, data analysis using FlowJo, RNA-FISH probe design, labeling and purification of FISH probes.
2. **Development of a technique to quantify the number of RNA molecules per cell using RNA-FISH/Flow**.
   Tools used: Flow cytometry, FACS, Fluorescent microscopy, MATLAB, RNA-FISH

ROLE

- Design and perform ex vivo stimulation of PBMC from human blood
- Performing RNA-FISH experiments
- Maintain lab records and files
- Analyze and present data in lab meetings
- Provide appropriate conclusions and help plan follow up experiments.

10/2013 – 11/2014

RESEARCH ASSOCIATE, Genext Genomics pvt ltd, India.

PROJECT

Identification and validation of a new drug target for *Mycobacterium tuberculosis,* under the biotechnology Ignition grant (BIG), funded by the dept. of Biotechnology, govt. of India. PI: Mrs. Supriya Kashikar.

ROLE

- Designing and performing experiments on cloning, expression and isolation of recombinant proteins; Biochemical Characterization of the novel proteases
- Purification and protein refolding techniques from inclusion bodies
- Bioinformatics studies on the identified proteases
- Troubleshooting experimental hurdles and errors
- Maintaining lab records on the experiments performed for the project assigned.
- Preparing reports and presentation of the experimental data, observation and future experimental plan.

SKILLS AND TECHNIQUES

PCR based cloning, Primer designing, Affinity chromatography, Ion Exchange and gel filtration,
2-D electrophoresis, SDS-PAGE, Gelatine zymography.

EDUCATION AND TRAINING

09/01/2017 - Current	**PhD, Molecular Biosciences, RBHS-Piscataway**
01/2015 – 10/2016	**Master of Science, Biomedical Science** **GPA: 3.76/4.0** **Graduate school of biomedical science, Rutgers the state university of New Jersey, Newark** **Courses:** Cellular Biology, Biochemistry and Molecular biology, Gene Expression, Molecular Virology, Viruses cells and diseases, Microbes and Infectious Diseases, Practical approaches to study protein function, molecular mechanisms of diseases, Master's thesis.
07/2009 – 06/2013	**Bachelor of Engineering, Biotechnology** **CGPA: 7.73/10.0** **Manipal Institute of Technology, Manipal University, India.** **Courses**: Cell and Molecular biology, Immunology, Microbiology, Biochemistry
PROJECTS AND SEMINARS	**Academic Project, 01/2013-04/2013** Development of mammalian double gene expression vector for antibody production. From: Institute of Biotechnology, Hyderabad, India. **Seminars** 1. Various drug targets from the life cycle of HIV used in the antiretroviral therapy for AIDS. 2. Reverse transcriptase and Integrase inhibitors used in ART: A case study for quantitative structure-activity relationship based drug designing.
07/2012 – 08/2012	**INDUSTRIAL TRAINEE**, Albert David limited. Department of Microbiology, quality control. **Techniques learnt:** Bacterial endotoxin tests, Sterility tests of raw materials, Microbial limit tests
06/2011 – 07/2011	**TRAINEE,** Bioaxis DNA research Centre, Hyderabad, India. **Screening and designing of potential vaccine candidates against *Bacillus anthracis*.** Course: Immunoinformatics.
04/2007 – 05/2008	**12th grade,** Prabhodananada Prashanti Niketan, India. CBSE board, **81.6%** core subjects: Maths, physics and chemistry
04/2005 – 05/2006	**10th grade,** Kendriya Vidyalaya No. 2 Golconda, Hyderabad, India, CBSE board, **94.6%**

PERSONAL SKILLS

Communication	Good communication skills gained through constant participation in public speaking events and interaction with peers. ▫ Participated in Voice of Bt conducted by Novozyme. ▫ Participated in Model United Nations
Organizational	LEADERSHIP: ➢ Headed the technical resource team of biotechnology at IEEE (2011-2012) ➢ Vice president of Institute of engineer Biotechnology (2011-2012), was responsible for the team organizing Symbiot 2012, a national level biotech symposium. ➢ Event head of Bio-business event conducted during Symbiot 2012. ➢ Category head of the biotechnology events conducted during TechWekend 2012, an IEEE technical festival.
Computer	❑ Good command of Microsoft Office™ tools ❑ Basics of C++ ❑ MATLAB