



## SUJAY SUBRAMANIAM

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### NATIONALITY

INDIAN

### EDUCATION

July 2018 – July 2020

#### MASTER OF TECHNOLOGY IN INDUSTRIAL BIOTECHNOLOGY

MANIPAL INSTITUTE OF TECHNOLOGY, MANIPAL (India) | **CGPA:9.01/10**

Course work - Biopharmaceutical technology, Mathematical modelling, Statistical Design and Analysis of Experiments, Bioprocess engineering.

July 2014 – May 2018

#### BACHELOR OF TECHNOLOGY IN BIOTECHNOLOGY

SASTRA DEEMED TO BE UNIVERSITY, THANJAVUR (India) | **CGPA:6.12/10**

Course work - Cell biology, Genetic engineering, Basic Bioinformatics, Immunology, Microbiology, Biochemistry, Molecular biology and Protein engineering.

### RESEARCH EXPERIENCE

August 2019 – July 2020

#### MASTER'S THESIS STUDENT

Per Artursson's lab,  
Department of Pharmacy,  
UPPSALA UNIVERSITY,  
SWEDEN

#### DEVELOPMENT OF PREDICTIVE MODELS FOR DETERMINING THE DRUG EFFLUX

- Evaluated the influence of efflux transporters (MDR1 and BCRP) present in the blood brain barrier on drug transport and analyzed the pharmacokinetics of the drugs using *in vitro* models (CRISPR-Cas9 generated MDCK cell models)
- Skills acquired- **Mammalian cell culture, *in vitro* transwell assays – Manual and using automated liquid handling system (Hamilton), Liquid Chromatography - Mass Spectrometry (LC-MS/MS), *in vitro* to *in vivo* extrapolation (IVIVE)**

September 2016 – May 2018

#### RESEARCH STUDENT-

Biomolecular Crystallography  
lab, SASTRA DEEMED TO BE  
UNIVERSITY, INDIA

#### BINDING STUDIES OF SHEEP LACTOGLOBULIN

- Performed isolation and purification of  $\beta$ -Lactoglobulin from raw sheep milk and investigated the binding properties of the protein with different drug molecules
- Skills acquired- **Chromatography techniques (Size exclusion and ion exchange), SDS-PAGE, Isothermal titration calorimetry (ITC), Crystallization techniques, Molecular docking.**

#### STRUCTURAL STUDIES ON TUBERCULOSIS PROTEIN

- Cloned the genes that are specific for the aminoacyl tRNA synthetase and expressed the protein in *E. coli*.
- Skills acquired- **Bacterial cell culture, Transformation, Protein lysate extraction by sonication, PCR, Agarose gel electrophoresis.**

### AREAS OF INTEREST

Protein engineering, Drug delivery and Drug disposition.

### PUBLICATIONS

1. Co-authored a paper titled "*Theoretical investigations of two adamantane derivatives: A combined X-ray, DFT, QTAIM analysis and molecular docking*". Journal of Molecular Structure, **1159**, 233-245.
2. Co-authored a paper titled "*Expanding the efflux *in vitro* assay toolbox: A CRISPR-Cas9 edited MDCK cell line with human BCRP and completely lacking canine MDR1*". Journal of Pharmaceutical sciences, **110**, 1-552

### ADDITIONAL TECHNICAL SKILLS

MATLAB, PyMol, GraphPad,  
High Performance Liquid  
Chromatography (HPLC)

DNA and RNA isolation,  
R-Programming and Python (Basics)

## ADDITIONAL WORKS

- Presented a poster “CRISPR-Cas9 generated cell models for specific studies of the human efflux transporters hBCRP and hMDR1” in a seminar conducted on Modern research methods in biomedicine and drug development: non-animal perspectives.
- PhD course on Human cell culture- Methods and applications (Karolinska Institute).
- “The Science of stem cells” by American Museum of Natural History (Coursera).
- Cell culture training at Manipal (Two cancer cell lines- MCF7 and U87).
- “Drug discovery” by University of California San Diego (Coursera).
- Undertook a mini project on utilizing nanoparticles for ocular drug delivery.

## ACADEMIC ACHIEVEMENTS

- Awarded with GOLD MEDAL for being topper of 2018-20 batch in M.Tech- Industrial Biotechnology at Manipal Institute of Technology

## LANGUAGE SKILLS

English- Fluent

## EXTRA CURRICULAR ACTIVITIES

- Coordinated with about 25 teams as an overall cultural coordinator of SASTRA University's cultural fest KURUKSASTRA for the year 2017-18.
- Guided a team of around 40 people as head of team Infra of SASTRA University's cultural fest for the year 2017-18.
- Volunteered at "Environmental Foundation of India"-an NGO which is actively working on conservation of nature and restoration of many lakes all over India.

## REFERENCES

- 1- Dr. Maria Karlgren  
Designation- Associate Professor (Uppsala University)  
Contact- [maria.karlgregn@farmaci.uu.se](mailto:maria.karlgregn@farmaci.uu.se)
- 2- Dr. Bharath Raja Guru  
Designation- Professor (Manipal Institute of Technology)  
Contact- [bharath.guru@manipal.edu](mailto:bharath.guru@manipal.edu)