

Ajit Kamath

Indian Institute of Technology Madras

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RESEARCH INTERESTS:

Developmental Biology, Cell Biology, Molecular Biology, Immunology.

EDUCATION:

Program	Institution	GPA (Grade point average) /Percentage
BTech&MTech (integrated) in Biotechnology (2011)	Indian Institute of Technology Madras , Chennai, TN, India	GPA (after 8 semesters): 8.45/10 (aggregate); 8.8/10 (Majors CGPA)
XII (2006) (Maharashtra Board)	Bhavans' College , Mumbai, Maharashtra, India	85%(aggregate); 94.33% (science & maths)
X (2004) (Maharashtra Board)	A.H. Wadia High School , Mumbai, Maharashtra, India	85%(aggregate); 91.33% (science & maths)

RELEVANT COURSES:

Major Theory courses

Life Sciences
Microbiology
Biochemistry
Genetics
Molecular biology
Cell Biology
Enzyme Structure and Mechanisms
Structural Biology
Immunology
Cancer Biology

Major Laboratory courses

Microbiology
Molecular Biology and Genetic Engineering
Biochemistry
Downstream Processing
Bio-Reaction Engineering

RESEARCH EXPERIENCE:

1. Dual Degree Project, IITMadras

Jun 2010 – May 2011

Interaction studies of $G_{i\alpha}$ and Human Calnuc using NMR (*I am presently working on this project*)

- Guide: **Dr. A. Gopalakrishna**, Dept. of Biotechnology, IIT Madras
- This project involves elucidating the nature of interaction between $G_{i\alpha}$ and the $G_{i\alpha}$ binding domain in CalNuc.
- The proteins are cloned in E.Coli, their expression optimized in M9 medium and labeled using N^{15} and C^{13} .
- Their interaction will be studied using pull-down assays, fluorescence studies, isothermal titration calorimetry (ITC) and NMR (Nuclear Magnetic Resonance).

2. iGEM 2009 (international Genetically Engineered Machines)

Aug – Oct 2009

Design and construction of a Plasmid Locking Assembly for Multiple Insert DNA

- Guide(s): **Dr. Guhan Jayaraman**, Dept. of Biotechnology, IIT Madras; **Dr. Madhulika Dixit**, Dept. of Biotechnology, IIT Madras; **Dr. Mukund Thattai**, National Centre for Biological Sciences.
- This project was aimed at designing and constructing a novel versatile system which can maintain plasmid DNA in E.coli by using user defined selection pressures.
- The designed system was able to lose the multiple plasmids in a particular order also specified by the user.
- The work received a **Silver medal at iGEM09** held at MIT, Boston

3. Summer Project 2009 ,Rheinische Friedrich-Wilhelms-Universität, Bonn

May – Aug 2009

Isolation and study of Eosinophils from Mice infected with *Litomosoides sigmodontis*

- Guide: **Dr. Katrin Gentil**, IMMIP, Rheinische Friedrich-Wilhelms-Universität, Bonn
- The project involved isolation of eosinophils from Balb/c mice infected with *Litomosoides sigmodontis* and from mice immunized with OVA (Ovalbumin).
- Determination of their naive activation status was done by measuring surface expression of CD69, MHCII and L-Selectin by FACS.
- Following stimulation with filarial extracts, measurement of the expression of surface activation markers and the production of IL-6 and MIP-2 were done by ELISA.
- The results showed that the eosinophils were differently activated in the infected and immunized models.

4. Summer Intern 2008, Serum Institute of India Ltd.

Jun – Jul 2008

Fusion of B cells with myeloma cells to generate hybrid clones and their screening to select the clones producing specific antibodies.

- Guide: **Dr. Sanjay Singh**, Dy. Director, R&D, Serum Institute of India, Ltd.
- This project involved immunization of mice against snake venom to produce antibodies against snake venom.
- B cells were isolated from the spleen of mice and were fused with Myeloma cell lines to get hybrid clones (Hybridomas).
- These were then screened for the required Antibodies.

OTHERS:

Projects as a part of Coursework CFA PROJECT

- Analyzed total energy and water expenditure in a soccer match.
- Performed theoretical modeling of fluid and energy intake during a full length soccer match.

Academic Achievements:

- Received the **DAAD** (Deutscher Akademischer Austausch Dienst) **WISE** (Working Internships in Science and Engineering) scholarship for 2009 to undertake a project in Bonn, Germany. This is a scholarship offered by the German Government to students all over the world as an opportunity to study in Germany.
- Secured a rank of **1712** in **IIT-JEE** (top 0.005% among over 300,000 participants)
- Secured a state rank of **45** in **AIEEE** (All India Engineering Entrance Examination)
- Stood among one of the **top 200** candidates selected to appear for the national level Chemistry Olympiad-2002, conducted by Homi Bhabha Center for Science Education (**HBCSE, TIFR**).
- Stood among one of the **top 100** candidates in the **National level science talent search examination** held by Unified council in 2005

Co-curricular Activities:

- Represented my department in our annual technical festival viz. **SHAASTRA** in 2007 and 2008.
- Handled 20 volunteers and a sum of about Rs. 0.2 million while organizing the Open House for our department in 2008.