

# SUNDARAM RAMAKRISHNAN

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## **Education:**

- Ph. D. 1991**  
(Biotechnology) Imperial College (University of London), London, UK.  
“*Construction and properties of lactose fermenting brewers’ and bakers’ yeast*”  
Supervisor: Prof. B.S. Hartley, FRS
- M. Phil. 1982**  
(Biology) Madurai Kamaraj University, Madurai, India.  
“*DNA-binding proteins of chick embryonic brain*”
- M. Sc. 1981**  
(Microbiology) Madurai Kamaraj University, Madurai, India.  
“*Influence of Azotobacter chroococcum on growth and yield of paddy*”
- B. Sc. 1979**  
Madras University, Madras, India.  
Zoology, chemistry and Entomology
- Summer 1993**  
Spetsai Summer School on “Protein Structure, Function and Design” (NATO).
- Summer 1987**  
Engineering Principles for Biologists, Indian Institute of Technology, New Delhi, India.

## **Awards:**

- American Heart Association Post-Doctoral Fellowship, 1993 -1995  
British Commonwealth Fellowship, 1987 – 1991  
NATO grant to participate Spetsai Summer School, 1993

## **Experience:**

- July 99 to Present **Senior Scientist**, California Institute of Molecular Medicine
- June 95 to Sept. 97 **Staff Research Associate**, Protein Expression Laboratory, Department of Structural Biology and Molecular Medicine, Molecular Biology Institute, University of California, Los Angeles, CA 90023.  
“*Expression, Purification and characterization of Recombinant Proteins expressed in E.coli and yeast:*”

- June 91 to Sept. 91                    **Academic Visitor**, Center for Biotechnology, Imperial College, London. Collaborated with Whitbread Breweries, UK, in transferring my Ph.D work.
- Sept. 83 to Sept. 89                    **Assistant Professor**, Department of Microbiology, PSG College of Arts and Science, Coimbatore, India.
- May 82 to Sept. 83                    **Junior Superintendent**, Central Warehousing Corporation of India.

## **Technical Expertise:**

### Protein chemistry and Molecular Biology

- Construction and Screening of cDNA libraries, Cloning, Sequencing, Northern, Southern and Western blots and PCR (cloning, mutagenesis etc.)
- Expression, optimization and purification of recombinant proteins in *E. coli* using pET, pTricHis, pMal (maltose binding protein) and GST fusion systems
- Novel expression systems to obtain soluble protein, chaperonin mediated (GroEL, GroES) *in vivo* expressions and thioredoxin co-expression
- Optimization protease cleavage of fusion proteins and purification
- Purification of proteins by column chromatography (ion-exchange, affinity and hydrophobic), HPLC (reverse phase, gel filtration), BioRad Economy and Biologic system (FPLC)
- Designing and construction of novel proteins by site-directed mutagenesis.
- Protein expression using *Pichia pastoris* and *Saccharomyces cerevisiae*
- Physical analysis of proteins (Circular Dichroism, Analytical Gel Filtration, Fluorescence Spectroscopy), Enzyme Kinetics

### Microbiology and Genetics

- Physiological studies of recombinant microorganisms using bench-top bioreactors (aerobic and anaerobic conditions)
- High density microbial fermentation for recombinant protein production (Fed-batch)
- Chromatographic quantitation of sugars and alcohol
- Prokaryotic (*E. coli*) and eukaryotic (yeast) genetical techniques

### **Research Publications:**


Ramakrishnan, S., and Hitchcock-DeGregori, S. E. (1996). Structural and Functional Significance of Asp 89 of Troponin C central helix. *Biochemistry* 35: 15515-15521

Ramakrishnan, S., Hong, J., Kaufman, D., Middleton, B., Radhakrishnan, S., and Perry, L. J. (1996). Expression of human glutamic acid decarboxylase in *Pichia pastoris*, Current topics in gene expression systems, page 57 (abs)


Perry, L. J., Han, A., Ramakrishnan, S., Heckmann, K., and Weiss, M. S. (1996). *E.coli* expression, purification and crystallization studies of *Euplotes octocarinatus* pheromones 2 and 3, Association of Biomolecular Resource Facilities: Biomolecular Techniques (abs)

Ramakrishnan, S., and Hitchcock-DeGregori, S. E. (1995). Investigation of the structural requirements of the troponin C central helix for function, *Biochemistry*, 34: 16789-96

Ramakrishnan, S., and Hitchcock-DeGregori, S. E. (1994). Significance of the length of the troponin C central helix. *Biophys. J.* 66: 309A

Ramakrishnan, S., and Harley, B.S. (1993). Fermentation of lactose by yeast cells secreting recombinant fungal -galactosidase. *Applied and Environmental Microbiology* 59: 4230-35

Ramakrishnan, S., and Hitchcock-DeGregori, S.E. (1993). Consequence of insertion in and deletion of the central helix region of troponin C. *Biophys. J.* 64: 134A

Kumar, B., Ramakrishnan, S., Teri, T. T., J.K. C., and Hartley, B. X. (1992). *Saccharomyces cerevisiae* cells secreting an *Aspergillus niger* -galactosidase grow on whey permeate. *Biotechnology* 10: 82-85

Hartley, B. S., Kumar, V., and Ramakrishnan, S. (1990). DNA construct and Modified Yeast **UK Patent** PCT/GB/90/00373

### **Referees:**

Available upon request