

SATISH BHARADWAJ

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PROFILE

Biophysical Chemist with original research accomplishments in inter-disciplinary areas of Bio-nanotechnology, Drug discovery and development, Protein Engineering, Molecular Biophysics and Surface and Colloid Chemistry

Proficient in many research related aspects of mentoring, supervision and evaluation, Laboratory and Instrumentation Facility Management, Technical support, writing grant proposals, review of research papers, presentations and research administration

Post-doctoral research experience in many world-renowned research institutions, City of Hope National Medical Center and Baylor University in the US, and Indian Institute of Science and Indian Institute of Technology in India

EDUCATION

Doctorate of Philosophy Indian Institute of Technology (IIT), New Delhi, India Field of research: Physical Chemistry Doctoral thesis: Mixed Surfactant Systems: Micellar and Volumetric Studies	1996
Master of Science in Chemistry Bangalore University, Bangalore, India Area of emphasis: Physical Chemistry	1988
Bachelor of Science in Chemistry Bangalore University, Bangalore, India Area of emphasis: Chemistry, Physics and Mathematics	1982

AWARDS

UGC-CSIR Research Fellowship Award by the University Grants Commission (UGC), India for pursuing Ph.D. program, 1990 - 1995, based on a national level competitive examination

EXPERTISE

Expertise in several specialized biophysical and biochemical techniques

Spectrophotometry - UV-Visible, FT-IR, Circular Dichroism (CD) and Fluorescence spectroscopy

Chromatography - HPLC, Ion-exchange, Affinity and Size Exclusion and Reverse-Phase Chromatography, Isoelectric Focussing (IEF)

Microcalorimetry - Differential Scanning (DSC), Isothermal Titration Calorimetry (ITC)

Enzyme Kinetics - Steady-state and Stopped-flow techniques

Electrophoresis - SDS-PAGE, Agarose Gel and Capillary Electrophoresis (CE)

Molecular Biology - Gene design, PCR, Gel extraction and purification, BLAST, GeneDOC

Microscopy - Light and Fluorescence microscopy

Physical Property Determination - Tensiometry, Densimetry, Thermo-gravimetry, Stability and performance properties of protein, detergent, paint and coating formulations

Protein Chemistry - extraction of plant proteins, over-expression of recombinant proteins, purification and characterization

Computational Skills - Proficient in use of Microsoft Office (Word, Excel, PowerPoint), ORIGIN Software for the analysis of scientific data, Bio-molecular Modeling (Insight, Biopolymer, Swiss-PDB Viewer) and Simulation (CHARMM) and programming in Fortran and C languages.

Communication Skills - Excellent verbal and written communication in English and presentation skills. Classroom teaching and presented research work in seminars and international conferences

PROFESSIONAL EXPERIENCE

Beckman Research Institute
City of Hope National Medical Center
Los Angeles, CA USA

Oct. 2004 - present

Determined the kinetics and thermodynamics of interaction of several novel therapeutic agents called fibrates with the enzyme, aldose reductase. Studied these interactions using Microcalorimetry, Spectrophotometry and Fluorescence techniques, towards development of new drugs for Diabetes

PROFESSIONAL EXPERIENCE (contd.)

Louisiana Tech University
Ruston LA USA

Aug. 2002 - Aug. 2004

Developed of a technique based on aerosol generation and electrostatic layer-by-layer assembly for the encapsulation of proteins. This technology will be utilized for targeted drug delivery, enzymatic micro-reactors for industrial applications and artificial cell development.

Determined the energetics of the electrostatic self-assembly of polyelectrolytes, polypeptides and designed peptides using microcalorimetric methods. This knowledge will be useful towards better design and control of properties of the thin films and microcapsules for food, biotech and drug delivery applications.

Baylor University
Waco TX USA

Sept. 2001 - July 2002

Determined the kinetics of the interaction of several Combretastatin-A pro-drugs with Alkaline Phosphatase, and binding to Tubulin. These drugs are a class of highly promising anti-cancer agents. My work involved the use of stopped-flow kinetics and fluorescence spectrometric methods in addition to routine biochemical techniques.

Indian Institute of Science
Bangalore, India

Jan. 1997 - Aug. 2001

Studied the domain structure and sugar-binding of Lectins, a class of proteins involved in molecular recognition and immunity. Extracted, purified and characterized Peanut, Ricinus, Mistletoe lectins and chicken lever galectins, using Microcalorimetric DSC, ITC, CD spectroscopy and Gel filtration techniques.

PUBLICATIONS

- Thermodynamic Characterization of Fibrates binding to human Aldose Reductase by Isothermal Titration Calorimetry
Satish Bharadwaj and Balendiran Ganesharatnam
Biochemistry (2006) (submitted)

PUBLICATIONS (contd.)

- Direct Determination of the Thermodynamics of Polyelectrolyte Complexation and Implications Thereof for Electrostatic Layer-by-Layer Assembly of Multilayer Films
Satish Bharadwaj, Reza Montazeri and Don T Haynie
Langmuir (2006) (IN PRESS) (Available online on ACS Publications website)
- Kinetics of Dephosphorylation of Combretastatin pro-drugs by Alkaline Phosphatase
Satish Bharadwaj and Mark Britt
Report of Research to sponsors, M/s. Oxigene, Sweden, 2002.
- Thermal Stability and Mode of Oligomerization of the tetrameric Peanut Agglutinin : A Differential Scanning Calorimetric Study
G Bhanu Prakash Reddy, Satish Bharadwaj and A Surolia
Biochemistry (1999), 38, 4464-4470.
- Microcalorimetric indications for ligand binding as function of the protein for galactose-specific plant and avian lectins
Satish Bharadwaj, H. Kaltner, N.V. Bovin, H.-J. Gabius and A Surolia
Biochimica Biophysica Acta (1999), 1472, 191-196.
- Crystallization and preliminary crystallographic analysis of winged bean acidic lectin.
Manoj, N., Srinivas, V. R., Satish Bharadwaj, Singha, N.C. and Suguna, K.
Acta Crystallographica Section D (1999), 55, 564-565.
- Evaluation of Stoichiometry and Energetics of Carbohydrate binding to Ricinus Communis Agglutinin: A Calorimetric Study
Shalini Sharma, Satish Bharadwaj, A Surolia and S K Podder
Biochemical Journal (1998), 333, 539-542.
- Mixed Surfactant System of Dodecylbenzene Sulfonate and Alpha-Olefin Sulfonate : Micellar and Volumetric Studies
S Bharadwaj and J C Ahluwalia
J. American Oil Chemists' Society (JAOCS) (1996), 73(1), 39-45.
- The Mixed Surfactant System of Dodecylbenzene Sulfonate and Alpha-Olefin Sulfonate
S K Suri, M S Thakur and S Bharadwaj
J. American Oil Chemists' Society (JAOCS) (1993), 70(1), 59-64.
- Versatility of Alpha Olefin Sulphonates in Indian Synthetic Detergent Industry
S K Suri, H. Naorem and S. Bharadwaj
Chemical Weekly (1991), Oct. 15, 113-123.
- Versatility of Alpha-Olefin Sulphonate in Indian Soap and Detergent Industry
S K Suri, N. Homendra and S. Bharadwaj
Chemical Business (1991), 4, 45-59.