Curriculum Vitae

Purnananda Guptasarma, Ph.D

Dean of Faculty Affairs,
Professor (Higher Administrative Grade), Department of Biological Sciences,
Indian Institute of Science Education and Research (IISER) Mohali, Knowledge City,
Sector-81, SAS Nagar, Punjab – 140306, India

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Areas of Expertise (relating to teaching / research):

- Protein Science, Protein Engineering and Protein Design
- Cell & Molecular Biology
- Molecular Biophysics
- Structural Biochemistry
- Molecular Genetics
- Bio-molecular Spectroscopy & Spectrometry
- Bio-molecular Separations and Biochemical Engineering
- Protein-Protein Interactions
- Microbial Enzymes and Biotechnology

Education:

- *M.Sc (Hons) Biol. Sci. & B.E (Hons) C. Engg.* (Dual Degree) (1983-1988)
  Birla Institute of Technology and Science (BITS) Pilani, Rajasthan
  M.Sc. Thesis Supervisor: Prof. Sandhya Mitra | B.E. Practice School: Development Consultants Pvt. Ltd., Secunderabad
- *Ph.D* (1988-1993) as Junior Research Fellow / Senior Research Fellow of the CSIR, Govt. of India
  Centre for Cellular and Molecular Biology (CCMB), Hyderabad & Jawaharlal Nehru University, New Delhi,
  Thesis Supervisor: Prof. D. Balasubramanian
- *Postdoctoral studies* (1993-1994) as Research Associate of the Department of Biotechnology, Govt. of India
  Centre for Cellular and Molecular Biology (CCMB), Hyderabad
  Research Supervisor: Prof. D. Balasubramanian
- *Postdoctoral studies* (1994-1996) as International Travelling Research Fellow of the Wellcome Trust, UK
  Cambridge Center for Molecular Recognition (CCMR), Department of Biochemistry, Univ. of Cambridge, UK,
  Research Supervisor: Prof. Richard N. Perham, FRS

Professional Positions / Responsibilities Held:

- *International Fellow* (Wellcome Trust), University of Cambridge, UK (Sept 13, 1994 – Oct 05,1996)
- *Scientist C*, CSIR-Institute of Microbial Technology, Chandigarh (Oct 31, 1996 – Dec 31, 2000)
- *Scientist E-I*, CSIR- Institute of Microbial Technology, Chandigarh (Jan 01, 2001 – Dec 31, 2003)
- *Scientist E-II*, CSIR- Institute of Microbial Technology, Chandigarh (Jan 01, 2004 – Dec 31, 2008)
- *Scientist F*, CSIR- Institute of Microbial Technology, Chandigarh (Jan 01, 2009 – Oct 19, 2010)
- *Professor*, Department of Biological Sciences, IISER Mohali (Oct 20, 2010 – to date)
- *Professor* (Higher Administrative Grade), Department of Biological Sciences, IISER Mohali (July 19, 2023 – to date)

Administrative Positions / Responsibilities Held:

- *Head*, Department of Biological Sciences, IISER Mohali (June 01, 2012 - July 31, 2015)
- *Dean*, Research & Development, IISER Mohali (Jan 01, 2016 - Dec 31, 2018)
- *Coordinator*, Technology Business Incubator, IISER Mohali (Jan 01 2016 - April 06, 2018)
- *Director*, COE-FAST Centre of Excellence in Protein Science, Design and Engineering, IISER Mohali (Sept 04, 2014 – to date)
- *Member*, Board of Governors, IISER Mohali (Jan 01, 2017– Dec 31, 2018)
- *Dean*, Faculty Affairs, IISER Mohali (July 11, 2023 to date)

Research Recognitions Received:

- INSA Medal for Young Scientists (1993), Indian National Science Academy, New Delhi | Area: Biochemistry and Biophysics
- INSA A.K. Bose Memorial Medal (1996), Indian National Science Academy, New Delhi | Area: Life Sciences
- CSIR Young Scientist Award (2000), Council of Scientific and Industrial Research, New Delhi | Area: Biological Sciences
- AVRA Young Scientist Award (2005), AV Rama Rao Foundation, Hyderabad | Area: Biochemical Sciences

Other Scientific Honours:

- International Traveling Research Fellowship, Wellcome Trust, UK (1994-1996)
- Young Associate, Indian Academy of Sciences, Bangalore (1997)
- Awarded CSIR New Idea Fund (1998)
- Member, India-UK, Young Scientists Network, British Council (2002)
- Life Member, Guha Research Conference (2004)
- Editorial Board Member, Prion (2012 – to date)
- Secretary, Indian Biophysical Society (2016 & 2017)
- Vice-President, Indian Biophysical Society (2018 & 2019)

Scientific Services Rendered:

- Member Task Force, Energy Biosciences, Department of Biotechnology, Govt. of India (completed; 1.5 + 3 years)
- Member SAC - Centre for Innovative and Applied Bioprocessing, Mohali (completed; 3 years)
- Member, Executive Committee, Indian Biophysical Society (completed; 4 years)
- Member SAC - Centre for Energy Biosciences, ICT, Mumbai
- Member SAC - Centre for Advanced Bioenergy Research, ICGEB, New Delhi
- Member SAC - Centre for Advanced Bioenergy, IOC, Faridabad
- Member Research Council, CSIR - Indian Institute of Chemical Biology, Kolkata
- Member TEC, Basic Research in Modern Biology, Department of Biotechnology, Govt. of India
- Member TEC, Innovation, Department of Biotechnology, Govt. of India
- Member TEC, North-East Region, Department of Biotechnology, Govt. of India
- Member, Biotechnology Ignition Grant, BIRAC
- Member, various committees of DBT, BIRAC, CSIR and IUSSTF

Research Mentorship Performed:

Ph.D Theses supervised: 18

- Bishwajit Kundu (1997-2001), *now* Professor, School of Life Sciences, IIT Delhi
- Anshuman Shukla (1998-2003), *now* Technical Expert, InterTek, Manchester, UK
- Sourav Mukherjee (1999-2004), *now* Director, Business Development, Aragen Biosciences, Boston, USA
- Swati Sharma (2001-2006), *now* Assistant Professor, Emory University, USA
- Shubbir Ahmed (2002-2008), *now* Scientist, AIIMS, New Delhi
- Sanjeev Kumar Chandrayan (2003-2009), *now* Project Lead, Reliance Industries
- Divya Kapoor (2004-2009), *now* Associate Director, Sycamore Informatics, USA
- Neeraj Dhaunta (2006-2012), *now* Director, RecDesProt Pvt. Ltd and Research Associate, IISER Mohali
- Uzma Fatima (2006-2012), *now* Freelance Science Editor
- Satya Prakash (2006-2012), *now* Senior Scientist, Analytical Development, Intas Pharmaceuticals, Ahmedabad
- Prerna Sharma (2009-2014), *now* Asst. Professor, Biochemistry, Commonwealth School of Medicine, Scranton, Pennsylvania
- Kanika Arora (2010-2015), *now* Research Associate, University of Waterloo
- Sukhdeep Kumar (2011-2015), *now* Asst. Professor, DAV College, Jalandhar
- Nitin Kishor (2011-2016), *now* Senior Manager, Sun Pharma, Vadodara
- Prince Tiwari (2012-2018), *now* Assistant Professor, IIT Roorkee
- Pallavi Kaila (2012-2019), *now* Postdoc, University of California, San Diego
- Bhishem Thakur (2014-2020), *now* Postdoc, Duke University, North Carolina
- Arpita Mrigwani (2017-2023), *now* Postdoc, University of Bern, Switzerland

Ph.D Theses being supervised: 5

- Archit Gupta (2017 – to date)
- Arpita Sarkar (2017 – to date)
- Snehal Waghmare (2018 – to date)
- Mehak Mahajan (2022- to date)
- Gurmeet Kaur (2022 - to date)

M.S Theses supervised: > 15

Teaching Performed:

- 29 Courses - Undergraduate, Postgraduate, and Doctoral level - taught over 10+ years (23 semesters) at IISER Mohali since Aug 2010
- 15 Courses - Doctoral level - taught over 14 years at CSIR-Institute of Microbial Technology Chandigarh, between 1996 and 2010

Mega Projects/Grants Defended/Obtained/Anchored :

- P.I. - CSIR Network Project - Protein and Peptide Design - at CSIR-Institute of Microbial Technology *(8 crores)*
- Co-P.I. - DBT Program Mode (COE) - Therapeutic Proteins - at CSIR- Institute of Microbial Technology *(1.8 Crores)*
- Co-I. - DBT Program Mode (COE) - Engineered Antibodies - at CSIR- Institute of Microbial Technology *(2.0 Crores)*
- P.I. - MHRD Centre of Excellence in Frontier Areas of S&T – Protein Centre - at IISER MOHALI *(4 Crores)*

- Coordinator - DST supported Technology Business Incubator at IISER MOHALI *(5 Crores)*
- P.I - DBT Hyperthermophile Enzyme Hydrolase Research Centre at IISER MOHALI *(2.25 Crores)*

Patents held as primary inventor:

- US patent No. 9062296
- US patent No. 9663773
- European patent No. EP 2099820 (in UK)
- European patent No. EP 2099820 (in Germany)
- European patent No. EP 2099820 (in France)
- European patent No. EP 2099820 (in Denmark)
- Japan patent No. 5890600
- China patent No. ZL200780048162.0
- Australian Patent No. 2007318868
- Indian patent No. 2411/DEL/2006

R&D-based Entrepreneurship Encouraged:

- Encouraged Ph.D students and Postdocs to start up a protein reagents company : *RecDesProt Pvt. Ltd* in which 6.6 % shares are owned (as directed by the DSIR policy of 2009) without management role

Scientific Research Publications

(Total = 77; Corresponding author = 71)

Research Articles

Advances in Experimental Medicine and Biology

- Tiwari P *et al* (2018) Structural-Mechanical and Biochemical Functions of Classical Cadherins at Cellular Junctions: A Review and Some Hypotheses. ***Advances in Experimental Medicine and Biology*** 1112, 107-138.

Analytical Biochemistry

- Guptasarma P & Raman B (1995) Use of Tandem Cuvettes to Determine Whether Radiative (Trivial) Energy Transfer Can Contaminate Steady-State Measurements of Fluorescence Resonance Energy Transfer. ***Analytical Biochemistry*** 230, 187-191.
- Mukherjee S *et al* (2005) Slow irreversible unfolding of *Pyrococcus furiosus* triosephosphate isomerase: Separation and quantitation of conformers through a novel electrophoretic approach. ***Analytical Biochemistry*** 347, 49-59.
- Dhaunta N *et al* (2011) N-Terminal sequencing by mass spectrometry through specific fluorescamine labeling of α-amino groups before tryptic digestion. ***Analytical Biochemistry*** 408, 263-268.
- Arora K *et al* (2015) Single cell-level detection and quantitation of leaky protein expression from any strongly-regulated bacterial system. ***Analytical Biochemistry*** 484, 180-182.
- Kishor N & Guptasarma P (2015) Direct N-terminal sequencing of polypeptides using a thermostable bacterial aminopeptidase and MALDI-TOF mass spectrometry. ***Analytical Biochemistry*** 488, 6-8.

Archives of Biochemistry and Biophysics

- Kundu B *et al* (2003) Peptide scanning-based identification of regions of γ-II crystallin involved in thermal aggregation: Evidence of the involvement of structurally analogous, helix-containing loops from the two double Greek key domains of the molecule. ***Archives of Biochemistry and Biophysics*** 410, 69-75.
- Shukla A *et al* (2004) A novel UV laser-induced visible blue radiation from protein crystals and aggregates: scattering artifacts or fluorescence transitions of peptide electrons delocalized through hydrogen bonding? ***Archives of Biochemistry and Biophysics*** 428, 144-153.
- Guptasarma P (2008) Solution-state characteristics of the ultraviolet A-induced visible fluorescence from proteins. ***Archives of Biochemistry and Biophysics*** 478, 127-129.
- Kaila P & Guptasarma P (2019) An ultra-stable glucanotransferase-cum-exoamylase from the hyperthermophile archaeon Thermococcus onnurineus. ***Archives of Biochemistry and Biophysics*** 665:114-121.

Biochemical and Biophysical Research Communications

- Kundu B *et al* (2002) Manipulation of unfolding-induced protein aggregation by peptides selected for aggregate-binding ability through phage display library screening. ***Biochemical and Biophysical Research Communications*** 291, 903-907.

- Kundu B & Guptasarma P (2002) Manipulation of Unfolding-Induced Protein Aggregation by Peptides Selected for Aggregate-Binding Ability through Phage Display Library Screening. ***Biochemical and Biophysical Research Communications*** *293*, 572-577.

- Sharma P & Guptasarma P (2015) 'Super-perfect' enzymes: Structural stabilities and activities of recombinant triose phosphate isomerases from *Pyrococcus furiosus* and *Thermococcus onnurineus* produced in Escherichia coli. ***Biochemical and Biophysical Research Communications*** 460, 753-758.

- Kumar S *et al* (2016) Arsenic and 17-β-estradiol bind to each other and neutralize each other's signaling effects. ***Biochemical and Biophysical Research Communications*** 477, 575-580.

- Kaila P *et al* (2019) Structure-guided mutational evidence and postulates explaining how a glycohydrolase from *Pyrococcus furiosus* functions simultaneously as an amylase and as a 4-α-glucanotransferase. ***Biochemical Biophysical Research Communications*** 509, 892-897.

- Thakur B *et al* (2021) A novel protein-engineered dsDNA-binding protein (HU-Simulacrum) inspired by HU, a nucleoid-associated DNABII protein. ***Biochemical Biophysical Research Communications*** 534, 47-52.

- Arora K *et al* (2021) HU-AB simulacrum: Fusion of HU-B and HU-A into HU-B-A, a functional analog of the Escherichia coli HU-AB heterodimer. ***Biochemical Biophysical Research Communications*** 560, 27-31.

Biochemical Society Transactions

- Perham RN *et al* (1996) Protein engineering of domains in flavoprotein disulphide oxidoreductases: Contributions to folding and assembly. ***Biochemical Society Transactions*** 24, 61- 66.

Biochimie

- Ahmed S & Guptasarma P (2008) Design of a soluble mini-protein through tandem duplication of the minimally engineered beta hairpin 'tongue' motif of alpha-hemolysin. ***Biochimie*** 90, 957-967.

Biochimica et Biophysica Acta: Proteins and Proteomics

- Ahmed S *et al* (2008) Folding behavior of a backbone-reversed protein: Reversible polyproline type II to β-sheet thermal transitions in retro-GroES multimers with GroES-like features. ***Biochimica et Biophysica Acta: Proteins and Proteomics*** 1784, 916-923.

- Ahmed S *et al* (2008) Conformational behavior of polypeptides derived through simultaneous global conservative site-directed mutagenesis of chymotrypsin inhibitor 2. ***Biochimica et Biophysica Acta: Proteins and Proteomics*** 1784, 796-805.

- Kapoor D *et al* (2008). Replacement of the active surface of a thermophile protein by that of a homologous mesophile protein through structure-guided 'protein surface grafting'. ***Biochimica et Biophysica Acta: Proteins and Proteomics*** 1784, 1771-1776.

- Chandrayan SK & Guptasarma P (2009) Attenuation of ionic interactions profoundly lowers the kinetic thermal stability of *Pyrococcus furiosus* triosephosphate isomerase. ***Biochimica et Biophysica Acta: Proteins and Proteomics*** 1794, 905-912.

- Dhaunta N *et al* (2013) Introduction of a thermophile-sourced ion pair network in the fourth beta/alpha unit of a psychophile-derived triosephosphate isomerase from *Methanococcoides burtonii* significantly increases its kinetic thermal stability. ***Biochimica et Biophysica Acta: Proteins and Proteomics*** 1834**,** 1023-1033.

Biochemistry

- Guptasarma P *et al* (1992) Hydroxyl radical mediated damage to proteins, with special reference to the crystallins. ***Biochemistry*** 31, 4296-4304.

- Khan JM *et al* (2016) The Achilles' Heel of "Ultrastable" Hyperthermophile Proteins: Submillimolar Concentrations of SDS Stimulate Rapid Conformational Change, Aggregation, and Amyloid Formation in Proteins Carrying Overall Positive Charge. ***Biochemistry*** 55, 3920-3936.

- Arora K *et al* (2021) N-Terminal Extensions Appear to Frustrate HU Heterodimer Formation by Strengthening Intersubunit Contacts and Blocking the Formation of a Heterotetrameric Intermediate. ***Biochemistry*** 60, 1836-1852.

Biochemistry (Moscow)

- Shukla A *et al* (2008) Coalescence of spherical beads of retro-HSP12.6 into linear and ring-shaped amyloid nanofibers. ***Biochemistry (Moscow)*** 73, 681-685.

BioEssays

- Guptasarma P (1995) Does replication-induced transcription regulate synthesis of the myriad low copy number proteins of *Escherichia coli?* ***BioEssays*** *17, 987-997.*

- Guptasarma P (1996) Cooperative relaxation of supercoils and periodic transcriptional initiation within polymerase batteries. ***BioEssays*** 18, 325-332.

- Luthra-Guptasarma M, and Guptasarma P (2021) Does chronic inflammation cause acute inflammation to spiral into hyper-inflammation in a manner modulated by diet and the gut microbiome, in severe Covid-19? ***Bioessays*** 43:e2000211.

Biophysical Chemistry

- Guptasarma P (1997) Resolving multiple protein conformers in equilibrium unfolding reactions: A time-resolved emission spectroscopic (TRES) study of Azurin. ***Biophysical Chemistry*** 65, 221-228.

Biotechnology Letters

- Kumari A *et al* (2018) Characterization of a mildly alkalophilic and thermostable recombinant *Thermus thermophilus* laccase with applications in decolourization of dyes. ***Biotechnology Letters*** 40, 285-295.

Biotechnology and Applied Biochemistry

- Mukherjee S *et al* (2003) Single-step purification of a protein-folding catalyst, the SlyD peptidyl prolyl isomerase (PPI), from cytoplasmic extracts of Escherichia coli. ***Biotechnology and Applied Biochemistry*** 37, 183-186.

Biotechnology and Bioengineering

- Mrigwani A *et al* (2022) Rational mutagenesis of *Thermobifida fusca* cutinase to modulate the enzymatic degradation of polyethylene terephthalate. ***Biotechnology and Bioengineering*** **120**, 674-686

Current Eye Research

- Guptasarma P *et al* (1992) Dityrosine formation in the proteins of the eye lens. ***Current Eye Research*** 11, 1121-1125.

Current Science

- Guptasarma P (1999) Proposing T-independent B-cell activation by prion rods: Could disease result from 'chaperoning' of nascent prions by PrPsc-cognate immunoglobulins? ***Current Science*** 77, 508- 514.

Electrophoresis

- Tiwari P *et al* (2019). Understanding anomalous mobility of proteins on SDS-PAGE with special reference to the highly acidic extracellular domains of human E- and N-cadherins. ***Electrophoresis*** 40, 1273-1281.

- Kapoor D *et al* (2007) Using DNA sequencing electrophoresis compression artifacts as reporters of stable mRNA structures affecting gene expression. ***Electrophoresis*** 28, 3862-3867.

Enzyme and Microbial Technology

- Kapoor D *et al* (2009) A functional comparison of the TET aminopeptidases of *P. furiosus* and *B. subtilis* with a protein-engineered variant recombining the former's structure with the latter's active site**.** ***Enzyme and Microbial Technology*** 46,1-8.

Faraday Discussions

- Dhamija S *et al* (2018) Probing the excited state dynamics of Venus: origin of dual-emission in fluorescent proteins ***Faraday Discussions*** 207, 39-54.

FEBS Journal

- Kapoor D (2009) Creation of a new eye lens crystallin (Gambeta) through structure-guided mutagenic grafting of the surface of βB2 crystallin onto the hydrophobic core of γB crystallin ***FEBS Journal*** 276, 3341-3353.

- Sharma P *et al* (2016) Creation of active TIM barrel enzymes through genetic fusion of half-barrel domain constructs derived from two distantly related glycosyl hydrolases. ***FEBS Journal*** 283, 4340-4356.

FEBS Letters

- Guptasarma P (1992) Reversal of peptide backbone direction may protein structure. ***FEBS Letters*** 310, 205-210.

- Sharma S & Guptasarma P (2008) Dimorphic aggregation behavior of a fusion polypeptide incorporating a stable protein domain (EGFP) with an amyloidogenic sequence (retroCspA). ***FEBS Letters*** 582, 2203-2211.

FEBS Open Bio

- Sharma P & Guptasarma P (2017) Endoglucanase activity at a second site in *Pyrococcus furiosus* triosephosphate isomerase: Promiscuity or compensation for a metabolic handicap? ***FEBS Open Bio*** 7, 1126-1143.

Green Chemistry

- Mrigwani *et al* (2022) Conversion of polyethylene terephthalate into pure terephthalic acid through synergy between a solid-degrading cutinase and a reaction intermediate-hydrolysing carboxylesterase. ***Green Chemistry*** 24**,** 6707–6719.

Indian Journal of Biochemistry and Biophysics

- Gupta *et al* (2023) Newly-discovered behaviour in the bacterial histone-like protein, HU. ***Indian Journal of Biochemistry and Biophysics*** 60, 666-672.

International Journal of Biochemistry and Cell Biology

- Verma A *et al* (2008) Identification and characterization of a spontaneously aggregating amyloid-forming variant of human PrP(90–231) through phage-display screening of variants randomized between residues 101 and 112. ***International Journal of Biochemistry and Cell Biology*** 40, 663-676.

International Journal of Biological Macromolecules

- Shukla A *et al* (2007) Confocal spectrofluorimetric evidence for the hetero-aggregation of sequence-scrambled forms of two model all-beta sheet proteins. ***International Journal of Biological Macromolecules*** 41, 650-654.

- Kumari A *et al* (2018) Multiple thermostable enzyme hydrolases on magnetic nanoparticles: An immobilized enzyme-mediated approach to saccharification through simultaneous xylanase, cellulase and amylolytic glucanotransferase action. ***International Journal of Biological Macromolecules*** 120, 1650-1658.

IUBMB Life

- Maiti S *et al* (2002) Phenomenological Perspectives on the Folding of β/α-Barrel Domains Through the Modular Formation and Assembly of Smaller Structural Elements. ***IUBMB Life*** 54, 213-221.

Journal of the American Chemical Society

- Balasubramanian D *et al* (1991) In situ photoreactions of proteins in spectrometers leading to variations in signal intensities. ***Journal of American Chemical Society*** 114, 1877-1878.

Journal of Biological Chemistry

- Shukla A *et al* (2003) A backbone-reversed form of an all-beta α-crystallin domain from a small heat-shock protein (retro-sHSP12.6) folds and assembles into structured multimers. ***Journal of Biological Chemistry*** 278, 26505-26510.

- Thakur B *et al* (2021) The DNA-binding protein HU is a molecular glue that attaches bacteria to extracellular DNA in biofilms. ***Journal of Biological Chemistry*** 296:100532.

- Gupta A *et al* (2023) The bacterial nucleoid-associated proteins, HU and Dps, condense DNA into context-dependent biphasic or multiphasic complex coacervates. ***Journal of Biological Chemistry*** 299:104637

Journal of Photochemistry and Photobiology B: Biology

- Gupta A *et al* (2023) Avoidance of the use of tryptophan in buried chromosomal proteins as a mechanism for reducing photo/oxidative damage to genomes. ***Journal of Photochemistry and Photobiology B: Biology*** 245, 112733

Medical Hypotheses

- Luthra-Guptasarma M & Guptasarma P (2010) Metal-catalyzed proteolysis, conformational antigenicity, photosensitized oxidation, and electrical dysfunction explain the pathogenicity of protein aggregates. ***Medical Hypotheses*** 75**, 294-298.**

Medical Mycology

- Bhardwaj S *et al* (2007) Putative structure and characteristics of a red water-soluble pigment secreted by *Penicillium marneffei*. ***Medical Mycology*** 45, 419-427.

PLoS One

- Chandrayan SK *et al* (2014) Hyperthermophile Protein Behavior: Partially-Structured Conformations of *Pyrococcus furiosus* Rubredoxin Monomers Generated through Forced Cold-Denaturation and Refolding. ***PLoS One*** 9(3), e80014.

- Prakash S *et al* (2014) The Key to the Extraordinary Thermal Stability of P. furiosus Holo-Rubredoxin: Iron Binding-Guided Packing of a Core Aromatic Cluster Responsible for High Kinetic Stability of the Native Structure. ***PLoS One*** 9(3): e89703.

- Kumar S *et al* (2014) Calcium Binding to Beta-2-Microglobulin at Physiological pH Drives the Occurrence of Conformational Changes Which Cause the Protein to Precipitate into Amorphous Forms That Subsequently Transform into Amyloid Aggregates ***PLoS One*** 9(4): e95725.

Protein Engineering

- Shukla A *et al* (2003) A backbone-reversed all-β polypeptide (retro-CspA) folds and assembles into amyloid nanofibers. ***Protein Engineering*** 16, 875-879.

Protein Expression and Purification

- Kundu B *et al* (2004) The excised heat-shock domain of αB crystallin is a folded, proteolytically susceptible trimer with significant surface hydrophobicity and a tendency to self-aggregate upon heating ***Protein Expression and Purification*** 36, 263-271.

- Mukherjee S & Guptasarma P (2005) Direct proteolysis-based purification of an overexpressed hyperthermophile protein from *Escherichia coli* lysate: a novel exploitation of the link between structural stability and proteolytic resistance. ***Protein Expression and Purification*** 40, 71-76.

- Chandrayan SK *et al* (2008) Expression, purification, refolding and characterization of a putative lysophospholipase from *Pyrococcus furiosus*: Retention of structure and lipase/esterase activity in the presence of water-miscible organic solvents at high temperatures. ***Protein Expression and Purification*** 59, 327-333.

Proteins: Structure, Function & Bioinformatics

- Kundu B & Guptasarma P (1999) Hydrophobic dye inhibits aggregation of molten carbonic anhydrase during thermal unfolding and refolding. ***Proteins: Structure, Function & Bioinformatics*** 37, 321-324.

- Shukla A *et al* (2004) Folding of β/α-Unit Scrambled Forms of *S. cerevisiae* Triosephosphate Isomerase: Evidence for Autonomy of Substructure Formation and Plasticity of Hydrophobic and Hydrogen Bonding Interactions in Core of (β/ α)8-Barrel. ***Proteins: Structure, Function & Bioinformatics*** 55, 548-557.

- Chandrayan SK & Guptasarma P (2008) Partial destabilization of native structure by a combination of heat and denaturant facilitates cold denaturation in a hyperthermophile protein. ***Proteins: Structure, Function & Bioinformatics*** 72, 539-546.

- Sebastian SJ *et al* (2015) Probing protease sensitivity of recombinant human erythropoietin reveals α3-α4 inter-helical loop as a stability determinant. ***Proteins: Structure, Function & Bioinformatics*** 83, 1813-1822.

- Mrigwani A *et al* (2023) Counter-intuitive enhancement of degradation of polyethylene terephthalate through engineering of lowered enzyme binding to solid plastic. ***Proteins: Structure, Function & Bioinformatics*** 2023; 1- 15.

Protein and Peptide Letters

- Fatima U *et al* (2010) Structures of Differently Aggregated and Precipitated Forms of γB Crystallin: An FTIR Spectroscopic and EM Study. ***Protein and Peptide Letters*** 17, 1155-1162.

The Protein Journal

- Sharma S & Guptasarma P (2008) Evidence of Native-like Substructure(s) in Polypeptide Chains of Carbonic Anhydrase Deposited into Insoluble Aggregates During Thermal Unfolding. ***The Protein Journal*** 27, 50-58.

- Fatima U *et al* (2012) Insufficient (Sub-native) Helix Content in Soluble/Solid Aggregates of Recombinant and Engineered Forms of IL-2 Throws Light on How Aggregated IL-2 is Biologically Active. ***The Protein Journal*** 31, 529-543.

Trends in Biotechnology

- Guptasarma P (1996) Symmetry transformations at alpha carbon atoms. ***Trends in Biotechnology*** 14, 42-43.

Review(s)

Resonance

- Guptasarma (2018) Nobel Prize in Chemistry – 2018: Speeding Up Protein Evolution. ***Resonance*** 23**,** 1343-1358

Book Chapter

- Luthra M *et al* (1991) In ***Molecular Conformations and Biological Interactions***
  (Eds : P. Balaram & S. Ramaseshan). Indian Academy of Sciences, Bangalore, pp 281-293.

Invited lectures and invited conference presentations:

These number in the 100s. During the period 1996-2020, per year, on an average 6-7 invited talks in University and College Departments and Research Institutions were delivered, and 3-4 invited conference presentations were made, i.e., about 10-12 invited lectures per year. It is not practical to list all of these here for a 24-year period of being a principal investigator (PI), researcher and teacher.

Languages spoken / understood:

- English, Hindi, Bengali, Punjabi (domicile in Chandigarh; 1996-2020), Telugu (domicile in Hyderabad; 1967-1983 & 1988-1994)

Extra-curricular engagements (University Years)

- Member, Music Club, BITS Pilani (1983-1984 to 1987-1988)
- Member, Press Club, BITS Pilani (1984-1985 to 1987-1988)
- Member, English Language Activities Society, BITS Pilani (1984-1985 to 1987-1988)
- Member, English Drama Club, BITS Pilani (1987-1988)
- Member, Photography Club, BITS Pilani (1985-1987)
- Joint Secretary, Music Club, BITS Pilani (1985-1986)
- Secretary, Music Club, BITS Pilani (1986-1987)
- Secretary, Press Club, BITS Pilani (1986-1987)
- Editor-in-chief, Cactus Flower – Annual Magazine, BITS Pilani (1985-1986)
- Editor-in-chief, Sandpaper - Campus Monthly Newspaper, BITS Pilani (1986-1987)
- Editor-in-chief, Apogee – Academic Week Newsletter, BITS Pilani (1986-1987)

Extra-curricular interests

- Family
- Music
- Reading
- Writing
- Films and documentaries
- Human beings
- Subjects relating to science
- Subjects relating to spirituality