Bio-Sketch

Name: Dr Amit Kumar Mandal

Date of Birth: 3rd December 1968

Designation: Professor

Phone: 9972042937

Email: drakm123@gmail.com; amit@sjri.res.in,

Address: Clinical Proteomics Unit,
Division of Molecular Medicine,
St John's Research Institute,
St John's National Academy of Health Sciences,
100 Ft Road, Koramangala

PROFILE

My goal is to develop molecular insights into different disease states by exploring structure-function relationship of critical proteins identified by proteomic profiling of body fluids and tissue imaging.

I am interested in a variety of clinical conditions including hemoglobinopathies, iron deficiency anemia, depression, prostate cancer, multiple sclerosis, and effect of nano-particles in living systems.

My expertise is in protein chemistry focusing at structural biology and proteomics based research using soft ionization based (MALDI and ESI) mass spectrometry, imaging mass spectrometry and molecular spectroscopy (fluorescence, circular dichroism) platforms.

EDUCATION

Degree	Institution	Field(s)	Year	Class
B.Sc	University of Calcutta (Serampore College)	Chemistry Honours	1990	2nd
M.Sc	University of Calcutta	Chemistry (Physical Chemistry specialization)	1992	1st
Ph.D	Bose Institute, Kolkata (Degree from Jadavpur University)	Biophysics/Biochemistry	2004	N/A

Ph.D Thesis Title:

Structural and thermodynamic studies of aminoacyl-tRNA synthetase - cognate and non-cognate tRNA interaction

Supervisor: Prof. Siddhartha Roy

Department of Biophysics, Bose Institute, Kolkata

Research experience as Postdoctoral Fellow and as Independent Investigator:

Duration and Position	Institution work	Particulars of work done
May 2011 - Present Professor	St. John's Research Institute, St. John's National Academy of Health Sciences, Bangalore	Clinical proteomics and Structural biology using Mass Spectrometry and Molecular Spectroscopy
Jan 2007 – April 2011 Associate Professor	St. John's Research Institute, St. John's National Academy of Health Sciences, Bangalore	Clinical proteomics and Structural biology using Mass Spectrometry and Molecular Spectroscopy
Jan 2005 – Dec 2006 Research Associate (Supervisor: Prof P. Balaram)	Indian Institute of Science, Bangalore, India	Peptide structure and Human hemoglobin variants analysis using Mass Spectrometry
Dec 2002 – July 2003 Research Associate (Supervisor: Prof Paul Horwitz) (on lien vacancy from Lecturer post, Panskura Banamali College, W.B.; Service tenure: July 2000 - Dec 2004)	University of Texas Health Science Centre, San Antonio, Texas, USA	Protein folding using Molecular Spectroscopy

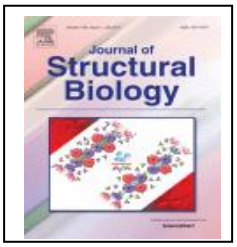
Awards

1. Centers of Innovation Award by WATERS, USA, 2013
   (**First recipient of this International Award in India and second in Asia**)
   http://www.waters.com/waters/nav.htm?cid=10176245
2. Postdoctoral Fellowship Award by Department of Biotechnology (Govt. of India), 2004
3. Junior Research Fellowship and Lectureship Award by CSIR-UGC (NET), 1994 (Qualified under CSIR Fellowship Scheme)

Publications (peer reviewed)

32. Suicidal behaviour is associated with decreased esterified cholesterol in plasma and membrane fluidity of platelets
    Boby Mathew, Krishnamachari Srinivasan, Pradeep Johnson, Tinku Thomas, **Amit Kumar Mandal***
    Asian Journal of Psychiatry, DOI: 10.1016/j.ajp.2017.11.023, (*In press*)
    (IF: 0.0)

31. Application of isotope exchange based mass spectrometry to understand the mechanism of inhibition of sickle hemoglobin polymerization upon oxygenation



Rajdeep Das, Amrita Mitra, Vijay Bhat, **Amit Kumar Mandal***

Journal of Structural Biology, 2017, 199, 76-83 [*Cover page article*]

(IF: 3.24)

30. Adsorption Induced Changes of Human Hemoglobin on Ferric Pyrophosphate Nanoparticle Surface Probed by Isotope Exchange Mass Spectrometry: An Implication on Structure–Function Correlation

Bindu Y Srinivasu, Beena Bose, Gopa Mitra, Anura V Kurpad, **Amit Kumar Mandal***

Langmuir, 2017, 33, 8032-8042

(IF: 3.83)

29. Effect of ascorbic acid rich, micro-nutrient fortified supplement on the iron bioavailability of ferric pyrophosphate from a milk based beverage in Indian school children

Maria Pauline, Sejil T Verghese, Bindu Srinivasu, Beena Bose, Tinku Thomas, **Amit Kumar Mandal**, Prashanth Thankachan, Anura V Kurpad

Asia Pacific Journal of Clinical Nutrition, DOI: 10.6133/apjcn.092017.07 (*In press*)

(IF: 1.82)

28. Assessment of cysteine reactivity of human hemoglobin at its residue level: A mass spectrometry based approach

Amrita Mitra, Monita Muralidharan, Deepsikha Srivastava, Rajdeep Das, Vijay Bhat, **Amit Kumar Mandal***

Hemoglobin, DOI: 10.1080/03630269.2017.1399905 (*In press*)

(IF: 0.85)

27. Elevated Levels of Glutathionyl Hemoglobin as an Oxidative Stress Marker in Patients with Major Depressive Disorder

Boby Mathew, Krishnamachari Srinivasan, Pradeep Johnson, Tinku Thomas, **Amit Kumar Mandal***

Indian Journal of Medical Research (Accepted on 3rd November, 2017; DOI has not been issued yet)

(IF: 1.53)

26. Analysis of isotopic peaks in hydrogen/deuterium exchange mass spectra for precise measurement of isotope average centroid mass of peptides and proteins

Arumugaperumal Arun, Sreekala Narayanan , Subhasis Sarangi, **Amit Kumar Mandal***

International Journal of Biochemistry Research & Review, 2017, 18, 1-8
(IF: 0)

25. Interaction of *p*-benzoquinone with hemoglobin in smoker's blood causes alteration of structure and loss of oxygen binding capacity
    Arunava Ghosh, Santanu Banerjee, Amrita Mitra, Monita Muralidharan, Bappaditya Roy, Rajat Banerjee, **Amit Kumar Mandal**, Indu B. Chatterjee
    Toxicology Reports 2016, 3: 295-305
    (IF: 0.0)
24. Mass spectrometry-Based Diagnosis of Hemoglobinopathies: A Potential Tool for the Screening of Genetic Disorder
    Rajdeep Das, Gopa Mitra, Boby Mathew, Vijay Bhat, Cecil Ross, Debnath Pal, **Amit Kumar Mandal***
    Biochemical Genetics, 2016, 54:816–825
    (IF: 1.543)
23. Protein Structure−Function Correlation in Living Human Red Blood Cells Probed by Isotope Exchange-based Mass Spectrometry
    Sreekala Narayanan, Gopa Mitra, Monita Muralidharan, Boby Mathew, **Amit Kumar Mandal***
    Analytical Chemistry, 2015, 87:11812-11818
    (IF: 6.32)
22. Beneficiary effect of nanosizing ferric pyrophosphate as food fortificant in iron deficiency anemia: evaluation of bioavailability, toxicity and plasma biomarker
    Bindu Y. Srinivasu, Gopa Mitra, Monita Muralidharan, Deepsikha Srivastava, Jennifer Pinto, Prashanth Thankachan, Sudha Suresh, Arun Shet, Suguna Rao, Gayatri Ravikumar, Tinku S. Thomas, Anura V. Kurpad, **Amit Kumar Mandal***
    Royal Society of Chemistry Advances, 2015, 5: 61678-61687
    (IF: 3.108)
21. Mass spectrometry based characterization of Hb Beckman variant in a falsely elevated HbA_{1C} sample
    Rajdeep Das, Monita Muralidharan, Gopa Mitra, Vijay Bhat, Boby Mathew, Debnath Pal, Cecil Ross, **Amit Kumar Mandal***
    Analytical Biochemistry, 2015, 489, 53-58
    (IF: 2.334)
20. Characterization of a Double Heterozygote HbE/β^+ Thalassemia IVS 1-1 [G>T] in a Juvenile Diabetic

Vijay S. Bhat, S. Lokeshwarappa, **Amit Kumar Mandal**

Indian Journal of Clinical Biochemistry, 2015, 30(2): 238-242

(IF: 0.0)

19. Automated Analysis of Hemoglobin Variants Using NanoLC-MS and Customized Databases

    Rajdeep Das, Gopa Mitra, Boby Mathew, Cecil Ross, Vijay Bhat, **Amit Kumar Mandal***

    Journal of Proteome Research, 2013, 12: 3215-3222

    (IF: 4.268)

18. Glutathionylation induced Structural Changes in Oxy Human Hemoglobin Analyzed by Backbone Amide Hydrogen/Deuterium Exchange and MALDI-Mass Spectrometry

    Gopa Mitra**,** Monita Muralidharan, Sreekala Narayanan, Jennifer Pinto, Krishnamachari Srinivasan, **Amit Kumar Mandal***

    Bioconjugate Chemistry, 2012, 23(12): 2344-2353

    (IF: 4.818)

17. Glutathionyl Hemoglobin is Elevated in Iron Deficiency Anemia

    Arun S Shet, Sneha M. Pinto,Gopa Mitra, **Amit Kumar Mandal**

    Acta Haematologica, 2012, 127: 26-30

    (IF: 1.205)

16. Co-inheritance of HbD ^{Iran} /Beta Thalassemia IVS1-5 (G>C) Trait in a Punjabi Lady with Diabetes

    Vijay Bhat, **Amit Kumar Mandal**, Boby Mathew

    Indian Journal of Clinical Biochemistry, 2012, 27(2): 202-206

    (IF: 0.0)

15. Identification of a Rare Hemoglobin Variant HbJ-Rajappen [alpha90 (FG2)Lys → Thr] Using Mass Spectrometry

    Vijay Bhat, **Amit Kumar Mandal**, Boby Mathew

    Indian Journal of Clinical Biochemistry, 2012, 27(4): 414-416

    (IF: 0.0)

14. Structural Perturbation of Human Hemoglobin on Glutathionylation Probed by Hydrogen-Deuterium Exchange and MALDI Mass Spectrometry

    Gopa Mitra, Monita Muralidharan, Jennifer Pinto, Krishnamachari Srinivasan, **Amit Kumar Mandal***

    Bioconjugate Chemistry, 2011, 22: 785-793

    (IF: 4.818)

13. Analysis of hemoglobin variants using nondenaturing gel electrophoresis and matrix-assisted laser desorption ionization mass spectrometry
    Boby Mathew, Vijay Bhat, **Amit Kumar Mandal*.**
    Analytical Biochemistry, 2011, 416: 135-137
    (IF: 2.334)
12. Characterization of a Hemoglobin Variant: HbQ-India/IVS 1-1 [G >T] - β-Thalassemia
    Vijay S Bhat, K K Dewan, Patnam Rajagopalan Krishnaswamy, **Amit Kumar Mandal**, Padmanabhan Balaram
    Indian Journal of Clinical Biochemistry, 2010, 25: 99-104
    (IF: 0.0)
11. Analysis of Protein Post-translational Modifications by Mass Spectrometry: with special reference to Hemoglobin.
    Murali Woodi, **Amit Kumar Mandal**, Padmanabhan Balaram, Patnam Rajagopalan Krishnaswamy
    Indian Journal of Clinical Biochemistry, 2009, 24: 23-29
    (IF: 0.0)
10. Electrospray mass spectrometric characterization of hemoglobin Q (Hb Q-India) and a double mutant hemoglobin S/D in clinical samples
    Amit Kumar Mandal, Shveta Bisht, Vijay Bhat, Patnam Rajagopalan Krishnaswamy, Padmanabhan Balaram
    Clinical Biochemistry, 2008, 41: 75-81
    (IF: 2.434)
9. Sequencing of T-Superfamily Conotoxins from *Conus Virgo*: Pyroglutamic acid Identification and Disulfide Arrangement by MALDI Mass Spectrometry
    Amit Kumar Mandal, Mani Ramakrishnan Santhana Ramasamy, Varatharajan Sabareesh, Mathew E. Openshaw, Kozhalmannom S. Krishnan, Padmanabhan Balaram
    Journal of American Society for Mass Spectrometry, 2007, 18: 1396-1404
    (IF: 2.786)
8. Quantitation and characterization of glutathionyl hemoglobin as an oxidative stress marker in chronic renal failure by mass spectrometry
    Amit Kumar Mandal, Murali Woodi, Varun Sood, Patanam Rajagopalan Krishnaswamy, Anjali Rao, Sudarshan Ballal, Padmanabhan Balaram
    Clinical Biochemistry, 2007, 40: 986-994
    (IF: 2.434)

7. Mass spectrometric identification of pyroglutamic acid in peptides following selective hydrolysis
   Amit Kumar Mandal, Padmanabhan Balaram
   Analytical Biochemistry, 2007, 370: 118-120
   (IF: 2.334)
6. Solvation Dynamics of a Protein in the Pre Molten Globule State
   Soma Samaddar, **Amit Kumar Mandal**, Sudip Kumar Mondal, Kalyanasis Sahu, Kankan Bhattacharyya, Siddhartha Roy
   Journal of Physical Chemistry B, 2006; 110(42): 21210-21215
   (IF: 3.177)
5. Glutamate Counteracts the Denaturing Effect of Urea through Its Effect on the Denatured State
   Amit Kumar Mandal, Soma Samaddar, Rajat Banerjee, Simanti Lahiri, Anusree Bhattacharyya, Siddhartha Roy
   Journal of Biological Chemistry, 2003; 278(38): 36077-36084
   (IF: 4.573)
4. Solvation change and ion release during aminoacylation by aminoacyl-tRNA synthetases
   Rajat Banerjee, **Amit Kumar Mandal**, Rajesh Saha, Soumi Guha, Soma Samaddar, Anusree Bhattacharyya, Siddhartha Roy
   Nucleic Acids Research, 2003; 31(20): 6035-6042
   (IF: 10.162)
3. Solvation Dynamics of a Probe Covalently Bound to a Protein and in an AOT Microemulsion: 4-(N-Bromoacetylamino)-Phthalimide
   Debabrata Mandal, Sobhan Sen, Dipankar Sukul, Kankan Bhattacharyya, **Amit Kumar Mandal**, Rajat Banerjee, Siddhartha Roy.
   Journal of Physical Chemistry B, 2002; 106:10741-10747
   (IF: 3.177)
2. Dynamics of compact denatured states of glutaminyl-tRNA synthetase probed by bis-ANS binding kinetics
   Anusree Bhattacharyya, **Amit Kumar Mandal**, Rajat Banerjee, Siddhartha Roy
   Biophysical Chemistry, 2000; 87: 201-212
   (IF: 2.402)
1. A cognate tRNA specific conformational change in glutaminyl-tRNA synthetase and its implication for specificity
   Amit Kumar Mandal, Anusree Bhattacharyya, Subhra Bhattacharyya, Tista Bhattacharyya, Siddhartha Roy

Protein Science, 1998; 7(4): 1046-51

(IF: 2.523)

Corresponding author

H index: 9, Average citation per paper: 9.09

Patent

1. Low cost electrochemical disposable sensor for measuring glycated hemoglobin

   Siva Rama Krishna Vanjari, Navakanta Bhat, Sampath Srinivasan, Bharadwaj Amrutur, Chakrapani Kalapu, **Amit Kumar Mandal**

   United States Patent; Patent No.: US 8,702,931 B2, Date of Patent: Apr.22, 2014

Book Chapter

1. Application of Hydrogen/Deuterium Exchange Mass Spectrometry in Structural Biology and Molecular Medicine

   Bindu Yadaganahalli Srinivasu, **Amit Kumar Mandal***

   A chapter in the Book "Advances in Biochemistry and Applications in Medicine"

   *Publisher: Open Access eBooks; 919 North Marker Street, Suite 425, Wilmington, Delaware 19801, USA, **E-mail:** info@openaccessebooks.com*

Technical write up

1. Structural Proteomics Takes Aim at Disease: A combination of H/DX-MS and IMS will help to explore the basis of functional failures in proteins linked to medical conditions.

   Amrita Mitra, **Amit Kumar Mandal***

   The Analytical Scientist. 2013, 0613: 303

Manuscripts under review

1. Down regulation of plasma Apolipoprotein-AIV and impaired reverse cholesterol transport in patients with recent suicidal attempt

   Boby Mathew, Krishnamachari Srinivasan, Pradeep Johnson, Tinku Thomas, Shakunthala Kandikuppa Murthy, **Amit Kumar Mandal***

   (*Under review in Indian Journal of Medical Research*)

2. Glutathionylation induced inhibition in sickle hemoglobin polymerisation: An approach to understand molecular mechanism using H/D exchange mass spectrometry

   Rajdeep Das, Gopa Mitra, Amrita Mitra, Vijay Bhat, Cecil Ross, Debnath Pal, **Amit Kumar Mandal***

   (*Under review in International Journal of Biological Macromolecules*)

3. Analysis of quaternary structure of Hb Beckman variant and molecular interpretation of its functional abnormality: A mass spectrometry based approach
   Monita Muralidhran, Rajdeep Das, Vijay Bhat, **Amit Kumar Mandal***
   (*Under review in ChemBioChem)*
4. Application of Mass Spectrometry to Analyse Protein Structure within a Live Cell
   Bindu Yadaganahalli Srinivasu, **Amit Kumar Mandal***
   (Under review; A chapter in the Book 'Advances in Biochemistry and Applications in Medicine')
5. Oxidative modification of CSF proteins in Multiple Sclerosis, probed by S- glutathionylation
   Deepsikha Srivastava, Gosala Raja Kukkuta Sarma, Dilon D'Souja, Monita Muralidharan, Krishnamachari Srinivasan , **Amit Kumar Mandal***
   (*Under review in Indian Journal of Medical Research*)
6. Conformational heterogeneity of tau: Implication on inherent disorder and fibrillation in Alzheimer's disease
   Benita Jebarupa, Monita Muralidharan, Arumugaperumal Arun, **Amit Kumar Mandal**, Gopa Mitra
   (*Under review in Journal of Structural Biology*)
7. Homologs from sulfur oxidation (Sox) and methanol dehydrogenation (Xox) enzyme systems collaborate to give rise to a novel pathway of chemolithotrophic tetrathionate oxidation
   Prosenjit Pyne, Masrure Alam, Moidu Jameela Rameez, Subhrangshu Mandal, Nibendu Mondal, Abhijit Sar, Utsab Debnath, Boby Mathew, Anup Kumar Misra, **Amit Kumar Mandal**, Wriddhiman Ghosh
   (*Under review in Molecular Microbiology*)
8. Effect of altered solution conditions on tau conformational dynamics: Implication on physiological function and aggregation during Alzheimer's disease
   Jebarupa; Monita, Muralidharan, **Amit Kumar Mandal**, Gopa Mitra
   (Under review in BBA - Proteins and Proteomics)

Corresponding author

Ph.D thesis guided/guiding

1. Structural proteomics of glutathionylation and glycation of erythrocyte proteome: A focus on glutathionylated and glycated hemoglobin (Student: *Monita Muralidharan*, Status: *Awarded*)

   Role: Guide (Single guidance)

2. Structural analysis of hemoglobin variants with a focus on inhibition in sickle hemoglobin polymerization (Student: *Rajdeep Das*, Status: *Awarded*)
   Role: Guide (Single guidance)
3. The development of proteomic markers to detect the effect of nano ferric pyrophosphate salt in a rat model and to study the nanoparticles – protein interaction *in vitro* (Student: *Bindu Y Srinivasu*, Status: *Awarded*)
   Role: Guide (Joint guidance; with Dr. Anura V Kurpad as Co-guide)
4. Mass spectrometry based plasma proteomic profiling of suicide attempters with and without major depression (Student: *Boby Mathew*, Status: *Awarded*)
   Role: Co-Guide (Joint guidance; with Dr. K. Srinivasan as Guide)
5. Structure and function analysis of glutathionylated and glycated conjugates of commonly occurring Hemoglobin variants in India: HbE, HbD and HbA_2 (Student: *Sreekala Narayanan*, Status: *Ongoing*)
6. Molecular profiling of tissues and urine in prostate cancer using proteomics and imaging mass spectrometry (Student: *Amrita Mitra*, Status: *Ongoing*)

List of Ongoing and Completed Projects

1. Effect of nanoparticles on a biological system probed by quantification of biomarker, proteome profiling of tissues using Imaging Mass Spectrometry and conformational analysis of desorbed hemoglobin
   Principal Investigator, ***Ongoing project***, (9/12/2015—8/12/2018),
   Funded by **Department of Science and Technology, Govt. of India**, Total cost – Rs. 3,51,21,600 *(Three crore fifty one lakhtwenty one thousand six hundred*) Order No. SR/NM-10682015(C)
2. Absolute quantification of plasma based biomarkers in patients with attempted suicide, in patients at high risk for attempting suicide and their first degree relatives using isotope labeled peptides
   Principal Investigator, ***Ongoing project*** (16/11/2015-15/11/2018),
   Funded by **Department of Science and Technology, Govt. of India,** Total cost – Rs. 45,15,610 (*Forty five lakh fifteen thousand six hundred ten*) Order No. EMR/2014/000853
3. Analysis of Hemoglobin Variants
   Principal Investigator, ***Ongoing project*** (29/9/2011—30/9/2017),
   Funded by **Department of Biotechnology (Biomedical Bioengineering Initiative), Govt. of India,** Total cost – Rs. 1,35,95,000 (*one crore thirty five lakh ninety five thousand*), (with cost free extension till 31/3/2018) Order No. BT/PR13926/MED/31/97/2010

4. Elucidation of the pathway of structural adaptation of tau from intrinsic disorder to highly structured filaments in Alzheimer's disease: A mass spectrometry based approach
   Co-Principal Investigator, ***Completed project*** (13/10/2014-12/10/2017),
   Funded by **Department of Science and Technology, Govt. of India,** Total cost – Rs. 47,99,000 (*Forty seven lakh ninety nine thousand*) Order No. SB/SO/HS-109/2013
5. Identification of a biomarker for prostate cancer using mass spectrometry based urine proteomics
   Principal Investigator, ***Completed project,*** (1/8/2012—31/7/2015),
   Funded by **Indian Council of Medical Research, Govt. of India,** Total cost – Rs. 28,42,800 (*Twenty eight lakh forty two thousand eight hundred*) Order No. 5/13/138/2012/NCD-III
6. Identification, characterization and quantification of glutathionylated proteins in cerebrospinal fluid using mass spectrometric based proteomics in patients with multiple sclerosis
   Co-Principal Investigator, ***Completed project,*** (1/4/2012—31/3/2015),
   Funded by **Department of Science and Technology, Govt. of India**, Total cost – Rs. 23,10,000 (*Twenty three lakh ten thousand*) Order No. SR/WOS-A/LS-247/2011(G)
7. Mass spectrometry based plasma proteomics in patients with attempted suicide
   Co-Principal Investigator, ***Completed project,*** (1/9/2010—31/8/2013),
   Funded by **Department of Science and Technology, Govt. of India**, Total cost – Rs. 29,40,000 (*Twenty nine lakh forty thousand*) Order No. SR/SO/HS-131/2007
8. Miniaturized Electrochemical Cell Platform for Monitoring of Glycated Hemoglobin
   (In collaboration with Indian Institute of Science)
   Principal Investigator (from St. John's Research Institute) ***Completed project,*** (8/3/2010-7/3/2012),
   Funded by **Society for Biomedical Technology, Defense Research and Development Organization, Govt. of India,** Total cost – Rs. 11, 94,160 (*Eleven lakh ninety four thousand one hundred sixty*) Order No. 0123/SBMT/GHB/2009
9. Vitamin B12: Its bioavailability and effect in a balanced protein supplement on sulfur amino acid and methyl transfer kinetics in Indian pregnancy
   Co-Principal Investigator, ***Completed project,*** (21/9/2010—20/9/2013),
   Funded by **Department of Biotechnology, Govt. of India**, Total cost – Rs. 77,72,800 (*Seventy seven lakhs seventy two thousand eight hundred*) Order No. BT/PR-14160/FNS/20/447/2010
10. Ferric Pyrophosphate Nanoparticles: Feasibility, Bioavailability and Toxicity Assessments
    Principal Investigator, ***Completed project,*** (16/6/2008—15/6/2012),

Funded by **Department of Science and Technology, Govt. of India,** Total cost – Rs. 2,94,10,000 (*Two crore ninety four lakh ten thousand*) (with one year cost free extension) Order No. SR/NM/NS-07/2008

11. Proteomic characterization of post translational modifications of hemoglobin in Iron deficiency and Iron overload

    Co- Principal Investigator, ***Completed project***, (19/4/2007—18/4/2009);

    Funded by **Department of Biotechnology, Govt. of India**, Total cost – Rs. 83,24,600 (*Eighty three lakhs twenty four thousand six hundred*) Order No. BT/PR/8954/FNS/20/326/2007

Total sanctioned fund raised in different projects (DST, DBT, ICMR, DRDO; Govt. of India):

Rs. 11,28,25,570/= (*eleven crores twenty eight lakhs twenty five thousands five hundred seventy*)

Conference publications

27. Adsorption Induced Structural Changes of Human Hemoglobin on Nanoparticle Ferric Pyrophosphate Surface and its subsequent functional perturbation

    Amit Kumar Mandal*, Bindu Y Srinivasu

    The 23rd International Network of Protein Engineering Centers (INPEC) meeting: Protein Structure, Function and Engineering (Page 38), Bose Institute, Kolkata, 9th-11th Nov 2017

    (Oral presentation)

26. Is Nano sized Ferric Pyrophosphate is safe as a food fortificant in Iron Deficiency Anemia? Structural proteomics based approach

    Bindu Y Srinivasu, **Amit Kumar Mandal***

    1st International conference on Biotechnology and Biological Sciences, Biospectrum 2017 (Page No.65), University of Engineering and Management, Kolkata, 25th – 26th August, 2017

    (Oral presentation)

25. Structural Proteomics of Genetic and Posttranslational Variants of Human Hemoglobin

    Amit Kumar Mandal*

    National conference on recent developments in organic chemistry and applied chemistry (IL-3), Department of Chemistry, School of Applied sciences, KIIT University, Bhubaneswar, 18th Mar 2017

    (Invited Oral presentation)

24. Characterization of conformational heterogeneity of tau by intact mass spectrometry: Implication on disorder and fibrillation

    Benita Jebarupa, Monita Muralidharan, **Amit Kumar Mandal**, Gopa Mitra*

The Third International Symposium on Protein folding and dynamics (Page 102), National Centre for Biological Sciences, Bangalore, 8th-11th Nov 2016

(Poster presentation)

23. Structural Proteomics of Glutathionyl Sickle Cell Hemoglobin: An Approach to Understand the Molecular Mechanism of Inhibition in Sickle Hemoglobin Polymerization

    Rajdeep Das, Gopa Mitra, Amrita Mitra, **Amit Kumar Mandal***

    Structural Proteomics of Macromolecular Complexes using x-ray Crystallography and Mass spectrometry (Page 10), Regional Centre for Biotechnology, Faridabad, Haryana, 18th – 20th Dec 2016

    (Invited Oral presentation)

22. Probing Hemoglobin Structure inside Living Red Blood Cells: An Application of Isotope Exchange Based Mass Spectrometry

    Amit Kumar Mandal,* Sreekala Narayanan, Gopa Mitra, Monita Muralidharan, Boby Mathew

    National Symposium on Emerging Trends in Chemistry (ETC-2016), North-Eastern Hill University, Shillong, Meghalaya, India, 28th - 29th March 2016

    (Oral presentation)

21. Nano Ferric pyrophosphate as a Food Fortificant in Iron Deficiency Anemia and its Effect on Plasma Proteins in a Rat Model

    Bindu Srinivasu,* Gopa Mitra, Monita Muralidharan, Deepsikha Srivastava, Jennifer Pinto, Anura V Kurpad, **Amit Kumar Mandal**

    International Conference on Nanomaterials and Nanotechnology (NANO-2015) (Page 298), K.S. Rangasamy College of Technology, Tiruchengode, 7th-10th December 2015

    (Poster presentation)

20. Effect of Nano sizing Ferric Pyrophosphate in Iron Deficiency Anemia: bioavailability and plasma proteomics

    Bindu Srinivasu, Gopa Mitra, Monita Muralidharan, Deepsikha Srivastava, **Amit Kumar Mandal***

    Recent Developments in Medical Biotechnology and Structure Based Drug Designing, (PP-03), Indian Institute of Technology, Guwahati, 6th -07th December, 2015

    (Poster presentation)

19. Effect of nanoparticle ferric pyrophosphate in iron deficiency, its Impact on plasma proteins *in vivo*

    Bindu Srinivasu,* Gopa Mitra, Monita Muralidharan, Deepsikha Srivastava, Jennifer Pinto, Anura V Kurpad, **Amit Kumar Mandal**

14th Human proteome Organization World Congress (Page 133, P11.21), Vancouver, Canada, 27th-30th Sept 2015

(Poster presentation)

18. Beneficiary effect of nanosizing Ferric Pyrophosphate as food fortificant in Iron Deficiency Anemia: evaluation of bioavailability, toxicity and plasma biomarker

    Bindu Srinivasu, Gopa Mitra, Monita Muralidharan, Deepsikha Srivastava, **Amit Kumar Mandal***

    National conference on emerging issues in environmental and occupational health and safety its National Scenario and Regional Needs (IL-6), Regional Occupational Health Centre (ICMR), Bangalore, 22nd-24th July 2015

    (Invited Oral presentation)

17. Hydrogen/Deuterium exchange Mass spectrometry to understand protein conformation and dynamics

    Amit Kumar Mandal*

    National workshop on Proteomics (Page 12), Department of Biochemistry, Biotechnology and Microbiology, University of Calcutta, Kolkata, 23rd-27th Feb 2015

    (Invited Oral presentation)

16. *De novo* sequencing of a venom peptide using Mass Spectrometry

    Amit Kumar Mandal*

    National workshop on Proteomics (Page 11), Department of Biochemistry, Biotechnology and Microbiology, University of Calcutta, Kolkata, 23rd-27th Feb 2015

    (Invited Oral presentation)

15. Mass spectrometry based analysis of hemoglobin variants in the screening of Hemoglobinopathies

    Amit Kumar Mandal*

    Contemporary Research Trends in diagnostics and Therapeutics, Department of Biotechnology, Anna University, Chennai, 16th–18th Feb 2015

    (Invited Oral presentation)

14. Bioavailability of Nano Ferric Pyrophosphate salt and its effect on proteins *in vivo*

    Bindu Srinivasu,* Gopa Mitra, Monita Muralidharan, Deepsikha Srivastava, Jennifer Pinto, Anura V Kurpad, **Amit Kumar Mandal**

    International Conference on BioChromatography, Molecular Recognition and Proteomics, Proteomics society of India (JPP102, D-1-43), Indian Institute of Technology, Mumbai, 6th–11th Dec 2014

    (Poster presentation)

13. Glutathionylation induced structural changes in deoxy and oxy human hemoglobin analyzed by hydrogen/deuterium exchange based MALDI mass spectrometry

    Monita Muralidharan,* Gopa Mitra, Sreekala Narayanan, Jennifer Pinto, Krishnamachari Srinivasan, **Amit Kumar Mandal**

    The Second International Symposium on Protein folding and dynamics (Page 108), National Centre for Biological Sciences, Bangalore, 5th-7th Nov 2014

    (Poster presentation)

12. Down Regulation of plasma apolipoprotien A-1V in Suicidal Attempters: A Mass Spectroscopy based approach

    Boby Mathew,* Krishnamachari Srinivasan, Johnson Pradeep, **Amit Kumar Mandal**

    13th Human proteome Organization World Congress (Page 232, P-714), Madrid, Spain, 5th-8th Oct 2014

    (Poster presentation)

11. Hemoglobin structure function correlation in living human Red Blood cells probed by isotope exchange based mass spectrometry

    Sreekala Narayanan, Gopa Mitra, Monita Muralidharan, Deepsikha Srivastava, **Amit Kumar Mandal***

    Interdisciplinary Science: Catalyst for Sustainable Progress (Page 18), Indian Institute of Science, Bangalore, 4th-6th Sept 2014

    (Invited Oral presentation)

10. Effect of nanosizing ferric pyrophosphate in rats with iron deficiency anemia

    Bindu Srinivasu,* Gopa Mitra, Monita Muralidharan, Deepsikha Srivastava, Jennifer Pinto, Anura V Kurpad, **Amit Kumar Mandal**

    South Regional Conference of the Association of Clinical Biochemists of India, Kasturba Medical College, Mangalore, 23rd-24th May 2014

    (Oral presentation)

9. Application of isotope exchange based mass spectrometry in structural analysis of hemoglobin *in vivo*

    Sreekala Narayanan, Boby Mathew, **Amit Kumar Mandal***

    Molecular Architecture, Dynamics and Assembly in Living Systems (MADALS 2014) (Page 50), Saha Institute of Nuclear Physics, Kolkata, 7th-10th Feb 2014

    (Invited Oral presentation)

8. Mass spectrometry based analysis of hemoglobin variants using customized database

    Amit Kumar Mandal*

Medical Proteomics, Proteomics Society of India (Page 29), Indian Institute of Science, Bangalore, 28th–30th Nov, 2013

(Invited Oral presentation)

7. Automated analysis of hemoglobin variants using NanoLC/MS and customized tryptic peptides database

   Rajdeep Das,* Gopa Mitra, Boby Mathew, **Amit Kumar Mandal**

   International Interdisciplinary Science Conference (IISC-2012) on Protein Folding and Diseases (JPP 37), Jamia Millia Islamia, New Delhi, 8th-10th Dec 2012

   (Poster presentation)

6. Conformational Dynamics of Protein probed by hydrogen deuterium exchange mass spectrometry

   Gopa Mitra, Jennifer Pinto, Monita Muralidharan, **Amit Kumar Mandal***

   National Seminar on Biotechnology for Sustainable Development (BSD 2012) (Page 27), Heritage Institute Technology, Kolkata, 23rd-24th Feb 2012

   (Oral presentation)

5. Quantification of Glutathionyl hemoglobin, a biomarker of oxidative stress, using LC/ESI-MS and its conformational analysis using hydrogen/deuterium exchange coupled to MALDI-MS

   Gopa Mitra, Monita Muralidharan, **Amit Kumar Mandal***

   International Conference on Omics Meets Disease, Proteomics Society of India (Page 17), Saha Institute of Nuclear Physics, Kolkata, 15th-18th Dec 2011

   (Invited Oral presentation)

4. Ferric Pyrophosphate Nanoparticles: Feasibility, Bioavailability & Toxicity Assessments

   Jennifer Pinto,* Gopa Mitra,* Bindu Srinivasu, Monita Muralidharan, Sudha Suresh, Arun Shet, Anura V Kurpad, **Amit Kumar Mandal**

   National Review and Coordination meeting of Nano Mission Council (Page 59), Department of Science and Technology, Indian Institute of Technology, Delhi, 25th-27th Feb 2011

   (Poster presentation)

3. An automated method for Hemoglobin analysis using mass spectrometry

   Rajdeep Das,* Boby Mathew, Gopa Mitra, Vijay Bhat, **Amit Kumar Mandal**

   National Conference on Molecular Medicine & Nano Biotechnology, NIHMANS, Bangalore, 13th-14th Oct 2010

   (Poster presentation)

2. Structural characterization of hemoglobin in solution phase using mass spectrometry

   Amit Kumar Mandal*

National Seminar on Proteomics: Advances, Applications and Challenges (Page 27), Institute of Bioinformatics and Applied Biotechnology, Bangalore, 19th–20th Feb 2010

(Invited Oral presentation)

1. Mass spectrometry of Hemoglobin Variants

   Amit Kumar Mandal*

   National Conference on Protein folding Dynamics and Diseases (Page 14), PES Institute of Technology, Bangalore, 29th-31st Oct 2009

   (Invited Oral presentation)

   ****Presenting author***

Invited Lectures:

5. Is Nano sized Ferric Pyrophosphate is safe as a food fortificant in Iron Deficiency Anemia? Structural proteomics based approach

   Saha Institute of Nuclear Physics, Kolkata, 29th August 2017

4. Clinical Proteomics of Hemoglobinopathies

   Research Scholar's Day, School of Medical Science and Technology

   Indian Institute of Technology, Kharagpur, 9th Nov 2016

3. Structural Proteomics of Abnormal Hemoglobin

   Department of Biotechnology and Dr. B C Guha Centre for Genetic Engineering and Biotechnology, University of Calcutta, Kolkata, 7th Sep 2016

2. Protein Structure−Function Correlation in Living Human Red Blood Cells Probed by Isotope Exchange-based Mass Spectrometry

   Department of Chemistry, Indian Institute of Technology, Guwahati, 6th Dec 2015

1. Mass spectrometry based analysis of hemoglobin inside live Red Blood Cells and in the Screening of Hemoglobinopathies

   Indian Institute of Science Education and Research, Kolkata, 5th Jan 2015

Manuscripts under preparation

1. Structural characterization and functional correlation of posttranslational modification of human hemoglobin with *p*-benzoquinone, a potent oxidant in cigarette smoke

   Amrita Mitra, Indu B. Chatterjee, **Amit Kumar Mandal***

2. Structural analysis of glutathionyl human hemoglobin

   Monita Muralidhran, Debnath Pal, **Amit Kumar Mandal***

3. Profiling of glycation of erythrocyte proteins across increasing HbA_1c in diabetic patients
   Monita Muralidhran, Vijay Bhat, **Amit Kumar Mandal***
4. Analysis of glycated hemoglobin across varying glycemic index in Diabetes Mellitus
   Monita Muralidhran, Vijay Bhat, **Amit Kumar Mandal***

Others

1. Adjudication of Ph.D thesis from *Department of Biotechnology and Dr. B C Guha Centre for Genetic Engineering and Biotechnology, University of Calcutta* – Three Ph.D thesis adjudicated
2. Reviewer:
   Journals: i) Clinical Chemistry and Laboratory Medicine; ii) Proteomics iii) Blood Advances, American Society of Hematology
3. International Grant: i) Reviewer of International Research Grant from National Science Centre, Polish Academy of Sciences, Govt. of Poland, Europe
4. Postdoctoral fellow trained:
   Completed: 4 (Dr. Gopa Mitra, Dr. Deepsikha Srivastava, Dr. Amruta Jambekar, Dr. T. Vinuchakkaravarthy)
   Onging: 2 (Dr. Monita Muralidharan, Dr. Bindu Y Srinivasu)
5. Project Assistant trained:
   Completed: 3 (Sneha Pinto, Jennifer Pinto, Nisha Dsouza)
6. Summer trainee guided:
   Two M.Sc student (Anand Khristi, Moubanti Das)
   One BS – MS integrated student (Jolly Janette Mendonza)

Committee member

Ph. D committee member of Rajiv Gandhi University of Health Sciences, Bangalore, Karnataka

References

1. Prof. Siddhartha Roy,
   Director (officiating),
   P-1/12, CIT Road, Sceheme-VII M,
   Bose Institute, Kolkata- 700054
   West Bengal,
   Email: sidroykolkata@gmail.com
   Mobile No.: 9831565126

2. Prof. Padmanabhan Balaram,
   Emeritus Professor (former Director of IISc),
   Molecular Biophysics Unit,
   Indian Institute of Science,
   Bangalore - 560012
   Email: pb@mbu.iisc.ernet.in
   Mobile No.: 9945043004
3. Prof., Krishnamachari Srinivasan
   Professor,
   Department of Psychiatry,
   St. John's Medical College and Hospital,
   St. John's National Academy of Health Sciences,
   Sarjapur Road, Bangalore - 560034
   Email: srinivasanstjohns@gmail.com
   Mobile No.: 9845038195
4. Prof. Indu B. Chatterjee,
   Emeritus Professor,
   Department of Biotechnology and Dr.B.C. Guha Centre for genetic engineering and Biotechnology
   Ballygunge Science College, University College of Science,
   University of Calcutta, 35, Ballygunge Circular Road, Kolkata – 700019
   Email: ibchatterjee123@gmail.com
   Mobile No.: 9830493842

I, Amit Kumar Mandal, hereby declare that the information contained herein is true and correct to the best of my knowledge and belief.