

CURRICULUM VITAE

Indrani Paul (nee Ghosh)

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Present Status :

Associate Professor, Department of Chemistry, Maharajadhiraj Uday Chand Women's College (MUCWC) B.C.Road, Burdwan, India-713104 Affiliated to the University of Burdwan.

Experience in Administrative Positions :

- IQAC Co-ordinator (From 01.08.2023-)
- Bursar of MUC Women's College from April 2021 to October 2023.
- Member of UGBS in Nutrition from 2017 to 2021.
- Member of undergraduate Board of studies (UGBS) in Chemistry from 2016 to 2020.
- Co-ordinator of RUSA scheme of MUC Women's College from September 2015 to January 2020.
- Teacher's Representative of Governing Body, MUC Women's College from 2012 to 2015.
- Head of the Department of Chemistry, MUC Women's College from July 2003 to June 2014.

Education:

- Post Doctoral Fellow at Uniformed University of Health Sciences (USUHS) Naval Medical Centre, Bethesda, Maryland, USA from June 2003 to July 2006.
- Ph.D., Immunobiological Chemistry (IICB), Jadavpur University, India, June 1999; Thesis — "Phosphorylcholine Binding protein from *Catla catla*: -an index for water pollution."
- Masters of Science, Chemistry, University of Burdwan, West Bengal, India, 1991.
- Bachelor of Science, Chemistry (Honours), Lady Brabourne College, University of Calcutta, India, 1989.

Researches Experience

1. Research Associate from April 2005 to July 2006 at Uniformed Services University of Health Science (USUHS), Naval Medical Centre, Bethesda, Maryland, USA. Dept. of Biochemistry and Molecular Biology (**Advisor Ernest L. Maynard**).

Purpose of Study : Working in the purification and characterization of a novel HIV-1 protein called Vif (virion infectivity factor). Studying protein-protein interaction of Vif with potential cellular host/viral proteins. Molecular cloning, expression, biophysical and biochemical study of several shorter motifs of Vif to elucidate its role in viral infectivity.

Instruments FPLC, Spectrofluorimeter, UV-Vis Spectrophotometer, anaerobic chamber, Electron microscopy(Sample preparation), Fluorescence Spectrophotometer, Circular Dichroism, FMOC,

Techniques Site directed mutagenesis, molecular cloning, protein purification and refolding, western blot. DNA gel electrophoresis, Peptide synthesis.

2. **NSF funded Post-doctoral fellow** from January 2004 -April 2005. Uniformed Services University of Health Science (USUHS), Naval Medical Centre, Bethesda, Maryland, Dept. of Biochemistry and Molecular Biology (**Advisor Daniel R. Terbush**).

Purpose of Study : Explored yeast molecular biology focusing on the vesicular docking and secretory pathway in yeast, *Saccharomyces cerevisiae*. Studying the role of Exo70 protein encoded by an essential gene EX070 in docking the vesicles to the plasma membrane. Studying in vivo and in vitro protein-protein interaction to find other cellular and/ or

membrane protein that interacts with Exo70 and elucidating its role in targeted exocytosis of vesicles.

Techniques in use: Transformation of yeast, tetrad dissection, PCR amplification of DNA, ligation reactions, molecular cloning in plasmid vectors, site-directed mutagenesis, DNA gel electrophoresis, coimmunoprecipitation of proteins, electrophoresis, western blot, fluorescence microscopy for the identification of structure/localization using rhodamin phalloidin/GFP-fusion protein as probes, two-hybrid protein interaction assays, invertase assay.

3. **Uniformed Services University of Health Science (USUHS), Naval Medical Centre, Bethesda, Maryland, USA. Dept. of Vaccine Research (Director: Clifford Snapper).** Research Associate from July 2003 - January 2004. Experience in an immunological laboratory.

Purpose of study: (i) the role of CD14 in mice subjected to Staphylococcus aureus and Staphylococcus epidermidis infection and (ii) generation of vaccine against these pathogens.

Techniques: their uv inactivation and heat treatment, handling of balb/c, nude and knockout mice- their peritoneal injection, blood withdrawal from tail vein, splenocyte isolation, growing insect cell line, PBMC isolation from human blood, Flow cytometry analysis (FACS), cytokine assay, ELISA.

4. **Maharajadhiraj Uday Chand Women's College (MUCWC), Burdwan, India. Dept. of Chemistry.** Served as Lecturer from August 1999-July 2003. Teaching undergraduate students (Honours and Pass Courses).

5. **Indian Institute of Chemical Biology (IICB), Calcutta, India; June 1994 - February 1999 as a Senior Research Fellow (CSIR). Experience in an well equipped immunobiological laboratory (Mentor: Dr. Chitra Mandal).**

Successive purification and extensive characterization of a phylogenetically conserved stress protein (C-reactive protein/CRP) from the plasma of a lowest chordate (major carp: Catla calla). To elucidate the hitherto unknown role of CRP the carps were subjected to various stress conditions (heavy metals, pesticides, organic effluent) and the modified CRPs were likewise characterized. Extensive comparative study of the normal and modified forms of these CRPs were conducted to understand the functional role of this protein and its probable use as an index of aquatic pollution. The work has now being projected to human CRP and its potential as a clinical marker of various disease conditions is under investigation.

Techniques used were: - Preparation of affinity matrix, gel electrophoresis, western blot, electron microscopy (sample preparation), fluorescence spectroscopy, circular dichroism spectroscopy, atomic absorption spectroscopy (data interpretation), de novo synthesis of proteins, immunochemistry, related radioassays, ELISA, hemagglutination assay, study of glycoproteins (CRPs as lectins), carbohydrate chemistry of glycoconjugates, cell line establishment, cloning of hybridoma, tissue culture, raising monoclonal antibodies and epitope mapping of monoclonal antibodies.

6. **Indian Association for the Cultivation of Science (IACS), Calcutta, India; August 1992-June 1994 as a Junior Research Fellow (CSIR) (Advisor Prof. Kamalaksha Nag).** Synthesis of novel heterocyclic compounds of biological significance, using them as Ligands and subsequent synthesis of both homo- and hetero-polynuclear co-ordinated Metal-Ligand complexes (transition metals) and their chemical characterization. Study of their electrochemical and magnetochemical properties and their structural determination.

Techniques adopted were: infra red and ultra violet spectroscopy (data analysis), single crystal preparation (for X-ray crystallography), cyclic voltammetry, charge transfer methods, electrogravimetric analysis and designing 3-dimensional models for stereochemical studies.

Publications:

1. **Indrani Paul**, Jian Cui and Ernest L. Maynard: Zinc Binding to the HCCH motif of HIV-1 *Vif* Induces a Conformational Change that mediates Protein-Protein Interactions ***Proceedings of the National Academy of Sciences (PNAS)*** (2006) 103, 18475-18480
2. **Indrani Paul**, Chhabinath Mandal, Anthony K. Allen and Chitra Mandal : Glycosylated molecular variants of C-reactive proteins from the major carp *Catla catla* in fresh and polluted aquatic environments. ***Glycoconjugate Journal*** (2001) 18, 547-556 (accepted May 2002)
3. **Indrani Paul**: Ph. D. Dissertation: "Phosphorylcholine Binding protein from *Catla catla* an index for water pollution." (1999) pg 1-171, Jadavpur University, India.
4. **Indrani Paul**, Chhabinath Mandal and Chitra Mandal; Effect of environmental pollutants on the C-reactive protein of a freshwater major carp, *Catla catla* ; ***Developmental and Comparative Immunology*** (1998) 22, 519 - 532.
5. Kaushik Nanda, Ramprasad Das, Indrani Paul, Sujoy Baitalik, and Kamalaksha Nag : Iso and mixed valent phenoxy bridged binuclear macrocyclic complexes of cobalt, iron and manganese; ***Polyhedron*** (1994) 13, 2639 - 2645.

6. **Indrani Paul**, Chhabinath Mandal and Chitra Mandal : C-reactive proteins behave as lectins and show differential sugar binding specificities when purified from the sera of normal and pollutant induced *Catla catla*. Manuscript under preparation.

Presentations:

1. *The vif* HCCH motif induces protein-protein interaction in response to zinc Indrani Paul and Ernest L. Maynard has been presented in Research Week Global Public Health, USUHS, Maryland, USA, May 2006.
2. *A conserved C-terminal domain of Exo7Op is required in cell polarity* **Indrani Paul**, L. Lai, L. Brown and Daniel R TerBush, Paper has been presented in the 44th Annual International Cell Biology Meeting, **December 2004**, Washington DC, USA.
3. **Indrani Paul** and Chitra Mandal, Paper has been presented in 6th. International Symposium on Biochemical Roles of Eukaryotic Cell Surface Macromolecules, **January 2003**, IICB, India.
4. **Indrani Paul** and Chitra Mandal, Paper has been presented in XIIth International Carbohydrate Conference, November 1996, IICB, India.
5. **Indrani Paul** and Chitra Mandal, Paper has been presented in 64th AGBM of 'Society of Biological Chemists', **October 1995**, Lucknow, India.

Project :

Honours & Awards :

- ❖ Qualified National Eligibility Test (CSIR-NET) for Junior Research Fellowship and eligibility for lecturership, 1991.
- ❖ Qualified Graduate Aptitude Test in (GATE) Chemical Sciences, 1992 (percentile score 92.45).

Affiliations:

- * Indian Immunological Society.