

Dr. Chandana Barat

Department: Biotechnology

Designation: Assistant Professor

Qualifications: M. Sc. (Biochemistry), University of Calcutta. **Ph. D.** (Biochemistry, Molecular Biology), Indian Institute of Science, Bangalore, India

Email ID: chandanasgb@yahoo.com

Area of Research Interest: Study of protein folding and aggregation

Awards and Fellowships

Nov. 1996: Best poster award at the 65th Annual Conference of the Society of Biological Chemists held at Bangalore, India.

Aug. 1992 - Dec. 1998: Junior and Senior Research Fellowships and Lectureship by the University Grants Commission, New Delhi, India.

Mar. 1992: Qualified the Graduate Aptitude Test in Engineering (GATE), held by Indian Institute of Technology (IIT).

Jan. 1992: University of Calcutta Merit Scholarship for securing third rank in M. Sc. Aug. 1991: Shanti Devi Merit Certificate for best dissertation in M. Sc.

Publications

1. Surojit Mondal, Bani Kumar Pathak, Sutapa Ray and <u>Chandana Barat</u> (2014) Impact of P-Site tRNA and Antibiotics on Ribosome Mediated Protein Folding: Studies Using the *Escherichia coli* Ribosome PLoS One. 2014; 9(7): e101293.

2. 10. B. K. Pathak, S. Mondal, A.N Ghosh C.Barat (2014) The Ribosome Can Prevent Aggregation of Partially Folded Protein Intermediates: Studies Using the Escherichia coli Ribosome PLoS ONE 2014;9(7):e101293.

3. MR Sharma , A. Dönhöfer, <u>**C. Barat**</u>, V. Marquez, P.P. Datta, P. Fucini, D.N. Wilson ,R.K. Agrawal (2010) PSRP1 is not a ribosomal protein, but a ribosome-binding factor that is recycled by the ribosome-recycling factor (RRF) and elongation factor G(EF-G). J Biol Chem. 285(6):4006-14. Impact Factor: 5.328.

4. M.R. Sharma, D.N. Wilson, P.P Datta, <u>C. Barat</u>, F. Schluenzen, P. Fucini, R.K. Agrawal (2007) Cryo-EM study of the spinach chloroplast ribosome reveals the structural and functional roles of plastid-specific ribosomal proteins. Proc Natl Acad Sci U S A. 104(49):19315-20. Impact Factor: 9.771

5. <u>**C. Barat**</u>, P.P. Dutta, S. Raj, M.R.Sharma, H. Kaji, A. Kaji, R.K. Agrawal (2007) Progression of the ribosome recycling factor through the ribosome dissociates the two ribosomal subunits. Mol. Cell, 27, 250 -261. Impact Factor: 14.0

6. M. R. Sharma^{*}, <u>**C. Barat**</u>^{*}, D. N. Wilson^{*}, T. M. Booth, M. Kawazoe, C. H. Takemoto, S.Yokoyama, P. Fucini, and R. K. Agrawal (2005)Interaction of the highly conserved bacterial GTPase, ERA, with the small ribosomal subunit: Functional implications for the 30S assembly. <u>Mol.Cell</u>, <u>18</u>: 319-329. Impact Factor: 14.0 ^{*} these authors contributed equally

7. <u>C. Barat</u>, L. Simpson, E. Breslow (2004) Properties of human vasopressin precursor constructs: inefficient monomer folding in the absence of copeptin as a potential contributor to diabetes insipidus. <u>Biochemistry</u>, <u>43</u>: 8191-203. Impact Factor: 3.226

8. P. Pattanaik, G. Ravindra, <u>C. Sengupta[†]</u>, K. Maithal, P. Balaram, H. Balaram (2003), Unusual fluorescence of W168 in Plasmodium falciparum triosephosphate isomerase, probed by single-tryptophan mutants. <u>Eur. J.</u> <u>Biochem.</u>, <u>270</u>: 745-756. Impact Factor: 3.451

9. <u>C. Sengupta</u>[†] and R.R. Dighe (2000), Biological activity of single chain chorionic gonadoptropin, hCG alpha-beta, is decraesed upon deletion of five carboxy-terminal amino acids of the alpha subunit without affecting its receptor binding. J. Mol. Endocrinol., 24: 157-164. Impact Factor: 2.727

10. <u>C. Sengupta</u>[†] and R.R. Dighe (1999), Hyperexpression of biologically active human chorionic goandotropin using the methylotropic yeast, Pichia pastoris. <u>J. Mol. Endocrinol.</u>, <u>22</u>, 273-283. Impact Factor: 2.727**Sengupta:** Maiden Name

Abstracts presented

Pathak, K. B., Mondal, S., Barat, C. Folding of molten globule form of BCAII bydomain V of ribosomal 23S rRNA.- Accepted for a poster presentation at the **80th Annual Meeting of the Society of Biological Chemists** (SBC) to be held at CSIR-CIMAP, Lucknow, during 12 – 15 November 2011.

Mondal, S., Pathak, K.B., Barat, C. Two step post-translational release of folding competent protein from ribosome involves distinct nucleotide determinants- Accepted for a poster presentation at the **80th Annual Meeting of the Society of Biological Chemists** (SBC) to be held at CSIR-CIMAP, Lucknow, during 12 – 15 November 2011.

Barat, C., Datta, P.P., Raj, V.S., Sharma, M.R., Kaji, H., Kaji, A., & Agrawal, R.K. (2006). Progression of the ribosome recycling factor (RRF) through the ribosome dissociates the ribosomal subunits. Meeting on *"Translational Control"* Cold Spring Harbor Laboratory, New York, USA, Abst. No. 350.

Wilson, D.N., Sharma, M.R., Barat, C., Booth, T.M., Kawazoe, M., Hori-Takemoto, C., Shirouzu, M., Yokoyama, S., Fucini, P., & Agrawal, R.K. (2005). A control checkpoint for translation initiation: The role of Era during small ribosomal subunit assembly. EMBL Meeting on *"Translational Control"*, Hiedelberg, Germany. Abst. No. 171.

Barat, C., Datta, P.P., Raj, V., Kaji, H., Kaji, H., & Agrawal, R.K. (2005). Movement of Ribosome Recycling Factor on the Ribosome Dissociates Ribosomal Subunits. *21st International tRNA Workshop*, Bangalore, India. Manjuli R. Sharma^{*}, Chandana Barat^{*}, Daniel N. Wilson^{*}, Timothy M. Booth, Masahito Kawazoe, Chie Hori-Takemoto, Shigeyuki Yokoyama, Paola Fucini, and Rajendra K. (2004) ERA Protein Binds in a Functionally Important Region of the 30S Ribosomal Subunit **Poster presented at the RNA Society Meeting.** C. Barat, L. Simpson and E. Breslow. (2004) Folding of Human Vasopressin Precursor: Potential Importance of the Stability of the Initial Folded Product in Protein Folding Pathways. **Poster presented at the 48th Annual Meeting of Biophysical Society, Baltimore, Maryland.**

M. R. Sharma^{*}, C. Barat^{*}, D. N. Wilson^{*}, T. M. Booth, M. Kawazoe, C. Hori-Takemoto, S. Yokoyama, P. Fucini, and R. K. (2004) ERA Protein Binds in a Functionally Important Region of the 30S Ribosomal Subunit **Poster presented at the the 48th Annual Meeting of Biophysical Society, Baltimore, Maryland.** (^{*} these authors contributed equally)

C. Barat and E. Breslow (2003) Folding properties of human vasopressin precursor and its 87STOP mutant **47th Annual Meeting of Biophysical Society, San Antonio, TX., Abstract no:2395-Plat .**

R.R. Dighe, C. Sengupta[†], V. Nalwadi, M. Samaddar, J. Catterral (1997), Expression of FSH, hCG and FSH receptor using *Pichia pastoris* expression vector", **Oral Presentation at the Gene Expression Meeting San Diego, CA.**

C. Sengupta[†] and R.R. Dighe (1996), Expression of individual and translationally fused hCG subunits using *Pichia pastoris* expression system, **Poster presented at the 65th Annual meeting of the [SBC(I)].**

R.R. Dighe, M. Samaddar, C. Sengupta[†] (1995), Recombinant DNA Expression of Follicle stimulating Hormone and human chorionic gonadotropin in the yeast, *Pichia pastoris*", **Oral Presentation at the International Endocrinology Congress, San Francisco, CA.**

C. Sengupta[†] and R.R. Dighe (1995), Recombinant DNA expression of human chorionic gonadotropin subunits in the yeast *Pichia pastoris*, **Poster presented at the 64th Annual Meeting of the Society of Biological Chemists of India, [SBC(I)].**

[†]Maiden name

Conferences Attended

Jan 2016: Participated in the RNA Meeting, CCMB, Hyderabad, India.

Jan 2015: Participated in Biotica 2015, Center for Nanotechnology, India.

Jan. 2014: Participated in the RNA Meeting, Indian Institute of Chemical Biology, India.

Feb. 2004: Participated in the 48th Annual Meeting of Biophysical Society, Baltimore, Maryland.

Jun. 2001: Participated in the 4th Summer session of the New York Structural Biology Group, Cold Spring Harbor Laboratory, NY.

Dec. 1996: Participated in the winter school on "Protein Folding and Design" organized by Tata Institute of Fundamental research, Bombay, India.

Aug.1996: Participated in the Conference on "Endocrinology, Metabolism and Diabetes", IISc, Bangalore.

List of Projects implemented/completed/submitted:

Grant agency	Title of the proposed project and Reference	Duration, (from mm/yy to mm/yy)
	number	
University	ROLE OF UNIVERSALLY CONSERVED A2602 OF	3 years
Grants	BACTERIAL 23S RIBOSOMAL RNA IN THE	
Commission	RELEASE OF NASCENT PEPTIDE DURING	April 2008-March 2011 (ongoing)
	RIBOSOME MEDIATED PROTEIN FOLDING	April 2000-Watch2011 (oligoling)
Council for	EFFECT OF ANTIBIOTICS AND TRNA ON	3 years
Scientific and	RIBOSOME MEDIATED PROTEIN FOLDING	
Industrial		April 2008-March 2011 (an
Research		further extension period of one
		vear has been granted by (SIP)
Dementaria		year has been granted by CSIK)
Department of	COMPADISON OF CHADEDONE ACTIVITIES ON	3 years
Biotechnology,	REFOLDING OF AGGREGATION PRONE PROTEIN	
West Bengal	FOI DING INTERMEDIATES	April 2012-March 2015
	TOEDING INTERMEDIATES	
Department of		3 years
Science and	EFFECT OF TRANSLATIONAL SPEED AND	
Technology	CHAPERONES ON FOLDING OF RECOMBINANT	Amil 2012 messant
India	GREEN FLUORESCENT PROTEIN AND FIREFLY	April 2013-present
mara	LUCIFERASE IN Escherichia coli	

Name of Research Fellow: Ms. Senjuti Banerjee

PhD. Students : 1 (awarded), 1 (submitted)