

## Resume

### Dr. Shreyasi Dutta

#### Contact

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#### ❖ PERSONAL DETAILS

**Nationality:** Indian  
**Date of birth:** 19<sup>th</sup> December, 1984  
**Sex:** Female

❖ **CURRENT POSITION:** Assistant Professor (Stage 1),  
Department of Chemistry  
City College, 102/1 Raja Rammohan Sarani, Kolkata-700009.  
(Under Calcutta University).

#### ❖ EDUCATION

##### 2016 - 2018 National Postdoctoral Fellow (NPDF)

**Institute:** Bose Institute, Centenary Campus, P1/12, Scheme VIIIm, Kankurgachi C. I. T. Road, Kolkata -700054, India  
**Division:** Biochemistry Department  
**Mentor:** Prof. Ajit Bikram Datta

##### 2015 - 2016 Post Doctoral Research Associate -I

**Institute:** S. N. Bose National Centre for Basic Sciences, JD Block, Sector-III, Salt Lake City, Kolkata - 700106, India  
**Division:** Chemical, Biological & Macro-molecular Sciences  
**Mentor:** Prof. Samir Kumar Pal

##### 2010 - 2015 PhD in Chemical Biology

**University:** Homi Bhabha National Institute, Mumbai  
**Institute:** Saha Institute of Nuclear Physics, Block-AF, Sector-I, Bidhan Nagar, Kolkata – 700064  
**Division:** Biophysics & Structural Genomics Division  
**Thesis:** Mode of action of two aureolic acid antibiotics and chelerythrine – a chemical biology approach  
**Advisor:** Prof. Dipak Dasgupta

##### 2009 -2010 Post M.Sc. in Bio-Physical Sciences

**Institute:** Saha Institute of Nuclear Physics, Block-AF, Sector-I, Bidhan Nagar, Kolkata – 700064  
**Division:** Biophysics & Structural Genomics Division  
**Marks:** 67.5 % (Rank 10)  
**Review:** Small epigenetic modulators – as potential drugs

##### 2007 -2009 Junior Research Fellow

**Institute:** Indian institute of Science, Bangalore  
**Department:** Solid State and Structural Chemistry Unit  
**Advisor:** Prof. Srinivasan Natarajan

##### 2005 - 2007 Master of Sciences (M.Sc.) in Chemistry

**Institute:** Indian Institute of Technology, Madras

*Department:* Department of Chemistry  
*Thesis:* Synthesis of several metal phenyl phosphonates and arsenates - their structure characterisation by X-ray diffraction and many other spectroscopic techniques for structure–property correlation  
*Advisor:* Prof. K. Vidyasagar  
*CGPA:* 7.1/10 (First class)

**2002 - 2005 Bachelor of Sciences (B.Sc.) in Chemistry**

*University:* Jadavpur University, Kolkata  
*Department:* Department of Chemistry  
*Subjects:* Chemistry (Major), Physics and Mathematics  
*Marks:* First class with distinction  
Chemistry (63 %), Physics & Mathematics (76 %)

**2001 Higher Secondary Examination**

*Board:* West Bengal Council of Higher Secondary Education  
*Marks:* 79 % (First Division with Star marks)

**1999 Secondary Examination (Madhyamik Pariksha)**

*Board:* West Bengal Board of Secondary Education  
*Marks:* 87 % (First Division with Star marks)

❖ **AWARDS AND ACHIEVEMENTS**

<u>Awards</u>	<u>Awarding agency</u>	<u>Year</u>
<b>National Postdoctoral Fellowship</b>	Science and Engineering Research Board, Department of Science and Technology	2016
<b>Senior Research Fellowship</b>	Saha Institute of Nuclear Physics, Department. of Atomic Energy (DAE)	2013
<b>Senior Research Fellowship</b>	Council for Scientific and Industrial Research (CSIR)	2010
<b>Junior Research Fellowship</b>	Council for Scientific and Industrial Research (CSIR)	2008

- **Qualified CSIR-UGC National Eligibility Test (NET), June 2007 for Junior Research fellowship**
- **Qualified Graduate Aptitude Test in Engineering (GATE), February 2007 with Score 332, All India Rank: 702**
- **Ranked 63<sup>rd</sup> in All India IITJAM exam, 2005 for studying MS (Chemistry) in the IITs across the country**

❖ **PREVIOUS TEACHING EXPERIENCE:**

- **State Aided College Teacher I(SACT -I)**  
Department of Chemistry  
Basanti Devi College  
147B, Rash Behari Avenue, Kolkata - 700029
- **Guest Lecturer**  
Department of Chemistry  
188, Raja S.C. Mallick Rd,  
Kolkata 700032.

## ❖ RESEARCH EXPERIENCE

<b>2016 – 2018:</b>	<b>Bose Institute, Kolkata</b>	<b><u>National Postdoctoral Fellowship</u></b> <i>Advisor: Dr. Ajit Bikram Datta</i>
<i>Project: Structural and biochemical studies on the interactions of Ubiquitin conjugating E2 enzymes and E3 ligases</i>		
<b>2015 – 2016:</b>	<b>S. N. Bose National Centre for Basic Sciences, Kolkata</b>	<b><u>Postdoctoral Research</u></b> <i>Advisor: Prof. Samir Kumar Pal</i>
<i>Project: Development of photo-induced drug delivery system using small molecules with therapeutic importance.</i>		
<b>2009- 2014:</b>	<b>Saha Institute of Nuclear Physics, Kolkata</b>	<b><u>Ph.D. Research</u></b> <i>Advisor: Prof. Dipak Dasgupta</i>
<i>Project: Molecular basis of self-association of antibiotic chromomycin A3 under physiological pH</i>		
<ul style="list-style-type: none"> <li><b>Results:</b> Chromomycin A3 self-aggregates in both neutral as well as in anionic forms under physiological pH. <sup>1</sup>H NMR spectroscopy (1D and 2D), in addition to other spectroscopic methods, has been employed to elucidate the mode to self-association. It is found that the self-association is mediated by hydrophobic interaction of glycosidic side chains.</li> </ul>		
<i>Project: Association of antitumor antibiotic mithramycin with manganese (+2) ion and the potential cellular targets of mithramycin after association with manganese</i>		
<ul style="list-style-type: none"> <li><b>Results:</b> Association of mithramycin with Mn<sup>2+</sup> was characterized by spectroscopic and calorimetric methods. Mithramycin forms [(MTR)<sub>2</sub> Mn<sup>2+</sup>] complex upon binding to Mn<sup>2+</sup>, which in turn binds to chromatin, chromosomal DNA. Thus inhibit DNA transcription and replication.</li> </ul>		
<i>Project: DNA Binding ability of plant alkaloid chelerythrine with different base sequences and in association with histone protein present in chromatin</i>		
<ul style="list-style-type: none"> <li><b>Results:</b> Able to show that chelerythrine binds to different structural levels of chromatin, such as long chromatin, chromatosome and chromosomal DNA isolated from rat liver using spectroscopic and calorimetric measurements. Moreover, it is also observed that chelerythrine binds to DNA without any base specificity.</li> </ul>		
<b>2007-2009:</b>	<b>Solid State &amp; Structural Chemistry Unit (S.S.C.U.), Indian Institute of Science, Bangalore</b>	<b><u>Additional research work</u></b> <i>Advisor: Prof. Srinivasan Natarajan</i>
<i>Topic: Investigations of metal carboxylates with open structure</i>		
<ul style="list-style-type: none"> <li><b>Results:</b> Metal carboxylates exhibiting open structures with large voids and channels are important for its possible applications in the areas of sorption, separation and catalysis. Able to synthesise lanthanide containing metal organic framework (MOFs) with pyridine-2,5-carboxylic acid (2,5 PDA), pyridine-2,6-dicarboxylic acid (2,6-PDA), 2,2'-diphenic acid (2,2'-DPA) and solved the crystal structure.</li> </ul>		
<b>2005-2007:</b>	<b>Indian Institute of Technology, Madras</b>	<b><u>M.Sc. Project</u></b> <i>Advisor: Prof. K. Vidyasagar</i>
<i>Topic: Synthesis and characterization of metal phenyl phosphonates and arsenates by X-ray diffraction and other techniques and property correlation</i>		

## ❖ LIST OF PUBLICATIONS

1. Spectroscopic and calorimetric approach to understand the molecular basis of self-association of aureolic acid antibiotic, Chromomycin A3. **Shreyasi Dutta**, Shibojyoti Lahiri and Dipak Dasgupta. *Open Journal of Biophysics* **2014**, 4, 66-82.
2. Association of antitumor antibiotic Mithramycin with  $Mn^{2+}$  and the potential cellular targets of Mithramycin after association with  $Mn^{2+}$ . **Shreyasi Dutta**, Shibojyoti Lahiri, Amrita Banerjee, Shriya Saha and Dipak Dasgupta. *Journal of Biomolecular Structure and Dynamics* **2015**, 33(2), 434-46.
3. Photoinduced dynamics and toxicity of a cancer drug in proximity of inorganic nanoparticles under visible light. Siddhi Chaudhuri, Samim Sardar, Damayanti Bagchi, **Shreyasi Dutta**, Sushanta Debnath, Partha Saha, Peter Lemmens, Samir Kumar Pal. *Chemphyschem* **2016**, 7, 270-277.
4. The plant alkaloid chelerythrine binds to chromatin, alters H3K9Ac and modulates global gene expression. Amrita Banerjee, Sulagna Sanyal, **Shreyasi Dutta**, Payal Chakraborty, Prajna Paramita Das, Kuladip Jana, Chandrima Das and Dipak Dasgupta. *Journal of Biomolecular Structure and Dynamics* **2017**, 35(7), 1491-1499.
5. Allosteric Inhibitory Molecular Recognition of a Photochromic Dye by a Digestive Enzyme: Dihydroindolizine makes alpha-chymotrypsin Photo-responsive. Damayanti Bagchi, Abhijit Ghosh, Priya Singh, **Shreyasi Dutta**, Saleh A. Ahmed and Samir Kumar Pal. *Scientific Reports*. **2016** Sep 28;6:34399
6. Essential Dynamics of an Effective Phototherapeutic Drug in a Nanoscopic Delivery Vehicle: Psoralen in Ethosome for Biofilm Treatment. Damayanti Bagchi, **Shreyasi Dutta**, Priya Singh, Siddhi Chaudhuri and Samir Kumar Pal. *ACS Omega* 2 (2017) 1850.
7. Ultrafast Spectroscopy on DNA-Cleavage by Endonuclease in Molecular Crowding. Priya Sing, Susobhan Choudhury, **Shreyasi Dutta**, Aniruddha Adhikari, Siddhartha Bhattacharya, Debasish Pal, Samir Kumar Pal. *International Journal of Biological Macromolecules*. **2017** 103, 395–402.
8. A Novel Nanohybrid for Cancer Theranostics: Folate Sensitized  $Fe_2O_3$  Nanoparticle for Colorectal Cancer Diagnosis and Photodynamic Therapy. Ramesh Nandi, Snehasis Mishra, Tuhin Kumar Maji, Krishnendu Manna, Prasenjit Kar, Saswati Banerjee, **Shreyasi Dutta**, S. K. Sharma, Peter Lemmens, Krishna Das Saha and Samir Kumar Pal, *Journal of Materials. Chemistry B* **2017** 5, 3927.