



# DEBKUMAR DEBNATH

2 year M.Sc. Chemistry, Indian Institute of Technology Kharagpur

Male

DOB: 23/11/98



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Examination	University	Institute	Year	CPI / %
M.Sc	Indian Institute of Technology	IIT Kharagpur	2020	9.50 (3 <sup>rd</sup> Sem)
B.Sc.	University of Calcutta	Ramakrishna Mission Vidyamandira	2020	9.56
Intermediate/+2	WBCHSE	Mahesh Sri Ramkrishna Ashram	2017	92
Matriculation	WBBSE	Mahesh Sri Ramkrishna Ashram	2015	88

## OBJECTIVE

To feed my scientific temperament and refine my practical finesse via hands-on experience in a diversified lab where I can talk to individuals from all walks of life, learn from them, and contribute to their knowledge. My ulterior motive is to push the envelope of academia and erudition and to deal with real-life ramifications in research.

## SCHOLASTIC ACHIEVEMENTS

- Secured **AIR-81** out of **16,687 students** in the prestigious exam of **IIT-JAM CHEMISTRY** [2020]
- Achieved **1<sup>st</sup> rank** in **B.Sc. Chemistry** from Ramakrishna Mission Vidyamandira affiliated by University of Calcutta— *Prafulla Chandra Ray GOLD medal, Aswini kumar Lahiri Memorial prize, Laldi Mohan Memorial prize, Ramgopal-Bimala Agarwala Medal, Somnath Banerjee Memorial Medal, U. Sanjiva Memorial prize, Bijoy Roy Choudhury and Sabita Roy Choudhury Memorial prize.*
- Awarded **INSPIRE Scholarship** for higher studies (SHE) by the Department of Science and Technology (DST) for being within the top 1% of the **WBCHSE Board**. [2017-Present]
- Offered interview for Integrated M.Sc.-PhD program in Chemical Science at **IISER Kolkata**. [2020]
- Felicitated by **Pravashnagar Prabasi Sangha and Purbasa Sabpeyechir Asar** for securing highest marks in Higher Secondary Examination amongst the students in Pravashnagar Block-23.

## AREAS OF INTEREST

- Biophysical Chemistry
- Protein Chemistry
- Drug Design and Discovery
- Drug Delivery

## RESEARCH EXPERIENCE

- [Masters Thesis project](#)

1. ***“Glycation and the effect of oxidative stress on protein and reduction of oxidized protein using natural polyphenols: Spectroscopic analysis”*** [Oct-present, 21]

*Guide: Prof. Swagata Dasgupta, IIT Kharagpur*

**Abstract:-**

- Analog of RNase A was purified from prokaryotic cell line.
- Oxidative stress study by using H<sub>2</sub>O<sub>2</sub> from spectroscopic analysis.
- Inhibition of oxidative stress on Trp and Tyr residue of protein by using polyphenols.
- Glycation of protein and its study using spectroscopy.

2. ***“Effect of antibiotics on angiogenesis: Biophysical study”*** [Oct-Dec, 21]

*Guide: Prof. Swagata Dasgupta, IIT Kharagpur*

**Abstract:-**

- 5 antibiotics were selected which typically used in Gram-negative bacterial infection.
- Docking study between antibiotics and the protein.
- Agarose gel based study on protein-ligand interactions.
- Thermodynamics study of protein-ligand interactions using biophysical techniques.

➤ **Online Theoretical Summer Internship**

***“Dynamics of Polyelectrolytes at High salt Concentration”*** [May-July, 20]

*Guide: Dr. Susmita Roy, IISER Kolkata*

**Abstract:-**

- Inference of this study was to merge polyelectrolytic study with intrinsically disordered protein.
- Scaling analysis of Debye length and its application of the mobility of polyelectrolytes.
- Charge dependency on the friction coefficients of the polyelectrolytes.
- Effect of Onsager transport coefficients on dynamical properties of polyelectrolytes.

➤ **Offered Internship**

**Tata Institute of Fundamental Research(TIFR), Mumbai| Guide: Prof. Malay Patra**

Offered two months fully funded summer internship opportunity after selection through short listing followed by write up conducted by TIFR, Mumbai. It has been postponed due to COVID-19 pandemic.

## SKILLS

<b>Laboratory Skills</b>	<ul style="list-style-type: none"><li>• <b>Spectroscopic Technique:</b> Fluorescence Spectrometer, FT-IR, UV-Visible, MALDI, Colorimetric determination</li><li>• <b>Separation Technique:</b> Thin Layer Chromatography(TLC), Solvent Extraction, SDS-PAGE, Agarose Gel</li><li>• <b>Titrimetric Methods:</b> Redox titration, complexometric titration, conductometric &amp; potentiometric titration, Iodometry &amp; Iodimetric titration, isothermal titration calorimetry(ITC)</li><li>• <b>Others:</b> Organic synthesis, purification of compounds, crystallisation, qualitative inorganic and organic analysis, CAM assay</li></ul>
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<b>Technical Skills</b>	<ul style="list-style-type: none"> <li>• <b>Programming Languages:</b> Python Basic</li> <li>• <b>Software skills:</b> MS-Office, Chemdraw, Avogadro, Chimera, Pymol, Autodock Vine, Mistroneva</li> </ul>
<b>Language Skills</b>	<ul style="list-style-type: none"> <li>• <b>Native:</b> Bengali</li> <li>• <b>Professional:</b> English</li> <li>• <b>Other:</b> Hindi</li> </ul>

## KEY COURSES

<b>Physical</b>	Biophysical chemistry, Computational Chemistry, Molecular Spectroscopy, Statistical Thermodynamics, Spectroscopic Technique (UV, 1D & 2D NMR, FTIR, CD, fluorescence)
<b>Inorganic</b>	Bioinorganic, Organometallic chemistry, Spectroscopy (NMR, EPR, XAS, EXAFS)
<b>Organic</b>	Methods in organic synthesis, Spectroscopy (IR, NMR, Mass)

## ONLINE COURSES

- “**Drug Discovery**” an online course authorized by **University of California San Diego** and offered through **Coursera**. [19<sup>th</sup> Aug’20]
- “**Drug Development**” an online course authorized by **University of California San Diego** and offered through **Coursera**. [26<sup>th</sup> Sep’20]
- Training in “**Molecular Biology and Biochemistry Techniques**” with EDUFABRICA in association with **SPRINGFEST IIT Kharagpur**. [25<sup>th</sup> Aug to 3<sup>rd</sup> Sept’20]
- Completed 3 weeks online “**Computer Aided Drug Design/Discovery**” course organized by **Learntouupgrade and Wetlab Championship**. [8<sup>th</sup> Aug’20]

## EXTRACURRICULAR ACTIVITY

- I served as a NSS( National Service Scheme) volunteer from 2017-2018.
- Awarded prize for the **best room in the hostel** (on basis of cleanliness) on students’ day in Ramakrishna Mission Vidyamandira.(7<sup>th</sup> April, 2018)
- Joined a drama club at IIT Kharagpur, named “Druheen”.
- Joined in a social worker group, named “Swasti”.