

# SOHINI MONDAL

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## EDUCATION

M.Sc. Chemistry	2024	Indian Institute of Technology Madras	8.13/10.0 CGPA
B.Sc. Chemistry (Hons.)	2022	Jadavpur University, Kolkata	8.49/10.0 CGPA
10+2	2017	Delhi Public School, Farakka (CBSE)	89% (PCMB+Eng.)
10 <sup>th</sup>	2015	Delhi Public School, Farakka (CBSE)	10.0 CGPA

## CERTIFICATIONS

- Qualified Indian Patent Agent Exam 2025, Indian Patent Office, Score: 195 (Registration Pending)
- e-Tutorial on Using Patent Information, by World Intellectual Property Organization – WIPO, issued Mar 2025
- Diploma in Patent Law & Analysis (USPTO) NSDC, under the Ministry of Skill Development & Entrepreneurship of the Govt. of India, in progress
- World Intellectual Property Organization (WIPO) Courses: General Course on Intellectual Property, Specialized Course on the Essentials of Patents, in progress

## INTERNSHIP

**IIT Madras, Chennai** (HCK Biophysical Chemistry lab)

**June-July, 2023: 6 weeks**

- Developed practical skills in molecular biology techniques, including PCR and cloning.
- Expanded theoretical knowledge of knotted proteins and their biological systems.
- Gained hands-on experience in protein purification and plasmid extraction.
- Improved laboratory protocol adherence and record-keeping abilities.

## PROJECT/ SEMINAR

- **Master's Thesis Project:** *Mtb* Proteasome Optimization, Purification, and Degradation Kinetics, **IIT Madras (Aug 2023 - Apr 2024, 9 months)** **Supervisor: Dr. Hemachandra Kotamarthi**
  - Optimized and purified *Mtb* 20S core particle (CP) using Ni-NTA and FPLC.
  - Characterized ATPase and proteolytic activities via NADH/NAD<sup>+</sup> and fluorescence-based assays.
  - Determined substrate degradation kinetics (Pup-GFP, Pup-UCHL1) using fluorescence and SDS-PAGE, including Michaelis-Menten parameters.
  - Designed constructs for optical tweezers assays, incorporating Biotin tagging.
  - Utilized PCR and site-directed mutagenesis for construct development.
  - Proficient in data analysis using Spectrophotometer, Spectrofluorometer, and Microwell Plate-Reader.
- **Presented poster** titled “Purification and Optimization of *Mtb*’s Proteasomal complex to probe its oligomerization, unfolding, translocation and degradation mechanism” in Chemistry in House Symposium’23 (CiHS 2023), **IIT Madras**
- **B.Sc. Project seminar:** Detailed Study on Various Types of Nucleic Acids, **Jadavpur University (Jan-Apr 2022, 4 months)**
  - Conducted in-depth research on diverse nucleic acid types, including synthetic variants.
  - Explored the structure, function, and applications of both natural and unnatural nucleic acids.
  - Analyzed research data and prepared a comprehensive seminar presentation.

## POSITIONS OF RESPONSIBILITY

- One of the volunteer members of the Organizing Committee for the Theoretical Chemistry Symposium 2023 (TCS’23) at IIT Madras and helped in the organization and execution of the event through participant accommodation and logistical support.
- One among the Cultural Group Members, and Unit Coordinator from the Chemistry Department in Diganto Bengali Cultural Association, IIT Madras, 2023-24

## SKILLS

- Patent Drafting & Filing
- Patentability Analysis
- Prior Art Search
- Softwares(ChemDraw,OriginPro,PyMol, Schrödinger)
- Patent Databases (InPass, USPTO, WIPO, etc.)
- Patent Prosecution(basic)
- Patent Law (Indian Patent Act & Rules, Design Act & Rules)
- Python Programming (basics)

## ACHIEVEMENTS

- Qualified GATE 2024 conducted by IISc Bangalore
- Qualified JAM 2022 conducted by IIT Roorkee
- Got invited for DST Inspire summer internship 2015 for scoring 10 CGPA in CBSE Secondary School exam
- Third Prize, 19<sup>th</sup> All India Inter DPS Children's Art Exhibition 2013, Organised by DPS Ranipur, Hardwar

## EXTRACURRICULAR ACTIVITIES

- Extensive training in Indian Classical Vocal Music (6+ years).
- 10 years of formal art and painting training, culminating in certification.