Manzoor Ahmad

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Gender: Male
Date of birth: 06/08/1991
Nationality: Indian

A highly motivated and organised scientist with ten years of research experience. I received my initial research training at NIT Srinagar, where I worked on the extraction and modification of biologically active natural products. I subsequently joined IISER Pune as a Ph.D. student under the supervision of Prof. Pinaki Talukdar, focusing on light-responsive ion transport systems. I am a results-oriented problem-solver with a record of accomplishments in collaborative research. I have experience with technical writing, organic chemistry, chemical purification and analytical chemistry (including supramolecular host-guest interactions and ion transport). I am currently a postdoctoral researcher at the University of Oxford in the laboratory of Prof. Matthew Langton, working on stimuli-responsive ion transport systems.

Experienced in…

- Technical Writing
- Risk Analysis
- Project Management
- IT Support & Maintenance

Proficient in…

- Multistep Organic Synthesis
- Experimental Design
- X-ray Crystallography
- Analytical Techniques

Personal Profile

- Problem Solver
- Team player
- Clear Communicator
- Analytical Thinker

Work and Research Experience

POSTDOCTORAL RESEARCHER | UNIVERSITY OF OXFORD **December 2022 – present**

- **Design and synthesis** of stimuli-responsive synthetic ion transport systems that can transport ions across membranes and are controlled by external stimuli like light, enzymes, redox, etc.
- Use **liposomes as model systems** to determine the **transport and deliverability properties** of the compounds synthesized; Fluorescence assays for transport activity; UV-vis and NMR titration studies.
- Engaging in scientific discussion and **provide feedback** to my colleague.
- Scientific writing and reporting including drafting **grant proposals**.

TEACHING ASSISTANT | IISER PUNE | INDIA **2018 – 2019**

- **CHM222: Chemistry Laboratory III (January 2018 – April 2018):** Supervised undergraduate students and taught **chemical concepts** through practical laboratory work and prompting discussion.
- **CHM202: Principle of Organic Chemistry (January 2019 – April 2019):** Demonstrated and taught to undergraduate student's various concepts of Organic chemistry.
- **CHM340: Chemistry Lab II (August 2019 – November 2019):** Supervised undergraduate students to furnish synthesis of different organic compounds, purification, analysis through spectrometric studies.
- Corrected weekly reports and **provided feedback** for areas of improvement.
- Successfully conducted and **supervised examinations**.
- Served as a **mediator** between candidates, examiners, and the examination office and solved examination paper queries and logistical issues under time-sensitive conditions.

TEACHING ASSISTANT | NIT SRINAGAR | INDIA **JUNE 2015–DECEMBER 2016**

- Supervised undergraduate students and taught various practical experiments to engineering students.
- Corrected weekly reports and **provided feedback** for areas of improvement.
- Successfully conducted and **supervised examinations**

ASSISTANT LECTURER: | SAM DEGREE COLLEGE BUDGAM | INDIA **Jan–April 2015**

- Served as an instructor to teach various courses of Organic, Physical, and Inorganic chemistry.
- Corrected weekly reports and **provided feedback** for areas of improvement.
- Successfully conducted and **supervised examinations**.

Technical Skills

- **Synthetic chemistry**: Multi-gram scale-up and optimizations | Small molecule synthesis | pre-and post-functionalization | Chromatography (size exclusion, flash, HPLC and TLC).
- **Analytical tools**: Enantiomeric excess determinations by NMR | 1D and 2D NMR spectroscopy | Absorption spectroscopy | Circular Dichroism | Fluorescence spectroscopy | X-ray crystallography | Infrared spectroscopy | Mass Spectrometry (MALDI, ESI) | NMR and UV-vis titrations | Stoichiometry determinations
- **Research expertise:** Host-guest binding studies of synthetic receptors with various ions; Self-assembly studies of ion channels via morphology, solid-state, and solution phase analysis; Ion transport-related experiments across the vesicular membrane; Development of light-responsive ion transport systems; Evaluation of photo responsive behaviour of synthetic molecules (Photoisomerization and photocleavage) using LEDs of a different wavelength.
- **Characterization Methods:** Strong background in the spectroscopic analysis including 1D-NMR, 2D-NMR, FT-IR, CD, UV-Visible, and Fluorescence spectroscopy; Mass spectrometry; CHN, and SC-XRD studies for characterization; AFM, FESEM, and HRTEM analysis for the characterization of self-assembled behaviour of supramolecular ion channel.
- **Software Skills:** Well-versed with various supramolecular chemistry research-related computer packages viz. Chemdraw, ChemBioDraw, Origin, MarvinSketch, Gaussian, Biokine, Discovery Studio, MestReNova, SciFinder, Endnote, etc.

ADDITIONAL INFORMATION

- **Languages Known:** English, Kashmiri, Hindi, Urdu.
- **Communication Skills:** Ability to interact and communicate with people from diverse backgrounds.
- **Mentoring Activities:** Experienced in instructing the junior researchers (PhD and Master students) with much positive feedback.

Academic Qualifications

PH.D.|IISER PUNE|PUNE, INDIA **16th Nov 2022**

Postgraduate Fellowship awarded by the University Grants Commission.

Thesis: Development of biomimetic photo-responsive artificial carriers for the transmembrane chloride transport.

*Under the supervision of **Prof. Pinaki Talukdar** (https://sites.google.com/acads.iiserpune.ac.in/ptalukdar)*

MASTERS DEGREE IN CHEMISTRY|UNIVERSITY OF KASHMIR|INDIA **12th June 2014**

Specialization: "Organic Chemistry"

BACHELOR'S DEGREE |UNIVERSITY OF KASHMIR|INDIA **29th Jan 2012**

Subjects: Chemistry, Zoology, Botonny, and English

Publications

1. **M. Ahmad**, R. M. Devereuxa, A. J. Russell, and M. J. Langton. Near-Infrared Triggered Anion Transport Induces Cancer Cell Death. *Angew. Chem. Int. Ed*., **2025**, e23734

2. **M. Ahmad**, A. Docker, and M. J. Langton. Responsive anion transport with a Hamilton receptor-based anionophore controlled by photo-activation and host-guest competitive inhibition. *Chem. Sci.,* **2025**, *16*, 13715-13722.

3. U. Shivpuje, **M. Ahmad**, N. J. Roy, P. Talukdar. Ligand-responsive ON-OFF anion transport using copper-caged acylhydrazone transporters*. Chem. Commun.* **2025**, Accepted Manuscript (DOI: 10.1039/d5cc04105h).

4. **M. Ahmad**, N. J. Roy, D. Mondal, T. Vijayakanth, M. Lahiri, P. Talukdar. lluminating apoptosis: a visible light-activated chloride carrier for chloride transport and cell death. *J. Mater. Chem. B,* **2025**, *13*, 5957-5966.

5. **M. Ahmad**, M. Flerin, H. M. Tay, A. L. Thompson, F. Duarte, and M. J. Langton. Stimuli-responsive anion transport utilising caged hydrazone-based anionophores. Nanoscale, **2024**, 16, 21545–21553.

6. **M. Ahmad**, A. Muir, M. J. Langton. Off–On Photo- and Redox-Triggered Anion Transport Using an Indole-Based Hydrogen Bond Switch. ACS Omega, **2024**, 9, 45572−45580.

7. A. Kerckhoffs, **M. Ahmad**, M. J. Langton. Transient Photoactivation of Anionophores by Using Redshifted Fast-Relaxing Azobenzenes. Chem. Eur. J. **2024**, 30, e202402382.

8. **M. Ahmad**, S. Sarkar, R. Bhogade, A. Mondal, D. Mondal, J. Mondal, and P. Talukdar. Dynamic regulation of ion transport through a bis(1,3-propanediol)-based channel *via* allosteric azobenzene photoswitching. Nanoscale, **2025**, Advance Article. (*DOI: 10.1039/d4nr01711k)*

9. I. A. Rather, **M. Ahmad**, P. Talukdar, R. Ali. Probing and evaluating transmembrane chloride ion transport in double walled trifluorophenyl/phthalimide extended calix[4]pyrrole-based supramolecular receptors. *J. Mater. Chem. B*, **2024**, *12*, 5950–5956.

10. **M. Ahmad**, T. G. Johnson, M. Flerin, F. Duarte, M. J. Langton. Responsive anionophores with AND logic multi-stimuli activation. Angew. Chem. Int. Ed., **2024**, *63*, e202403314.

11. A. Mondal, M. Siwach, **M. Ahmad**, S. K. Radhakrishnan, P. Talukdar. Pyridyl-Linked Hetero Hydrazones: Transmembrane H^+/Cl^- Symporters with Efficient Antibacterial Activity. *ACS Infect. Dis.,* **2024**, 10, 371−376.

12. **M. Ahmad**, S. A. Gartland, and M. J. Langton. Photo-and Redox-Regulated Transmembrane Ion Transporters*.* Angew. Chem. Int. Ed., **2023***,* e202308842.

13. A. Mondal, G. Kumar Barik, S. Sarkar, D. Mondal, **M. Ahmad**, T. Vijayakanth, J. Mondal, M. K. Santra, P. Talukdar. Nontoxic Artificial Chloride Channel Formation in Epithelial Cells by Isophthalic Acid-Based Small Molecules. *Chem. Eur. J.,* **2023**, *29*, e202202887.

14. **M. Ahmad**, N. J. Roy, A. Singh, D. Mondal, A. Mondal, T. Vijayakanth, M. Lahiri and P. Talukdar. Photocontrolled activation of doubly o-nitrobenzyl-protected small molecule benzimidazoles

leads to cancer cell death. *Chem. Sci.,* **2023***, 14,* 8897–8904.

15. A. Mondal, **M. Ahmad**, D. Mondal and P. Talukdar*. Progress and prospects toward supramolecular bioactive ion transporters. *Chem. Commun.,* **2023***, 59,* 1917–1938.

16. D. Mondal, **M. Ahmad**, B. Dey, A. Mondal, P. Talukdar*. Reversible Unwinding-Rewinding of Bis(indole) Double Helix to Chloride-coordinated Supramolecular Channel. *Nat. Commun.,* **2022,** *13*, 6507. (DOI: 10.1038/s41467-022-34159-y).

17. D. Mondal, B. R. Dandekar, **M. Ahmad**, A. Mondal, J. Mondal*, P. Talukdar*. Selective and Rapid Water Translocation across Self-assembled Peptide-Diol Channel via the Formation of Dual Water Array. *Chem. Sci.,* **2022***, 13,* 9614–9623.

18. D. Mondal, **M. Ahmad**, P. Panwaria, A. Upadhyay, P. Talukdar*. Anion Recognition through Multivalent C–H Hydrogen Bonds: Anion Induced Foldamer Formation and Transport across Phospholipid Membrane. *J. Org. Chem.,* **2022**, *87*, 10−17.

19. **M. Ahmad**, D. Mondal, N. J. Roy, T. Vijayakanth, P. Talukdar*. Reversible Stimuli-Responsive Transmembrane Ion Transport Using Phenylhydrazone-Based Photoswitches. *ChemPhotoChem,* **2022**, e202200002.

20. J. A. Malla, **M. Ahmad**, and P. Talukdar. Molecular Self-assembly as a Tool to Construct Transmembrane Supramolecular Ion Channels. *Chem. Rec.,* **2021**, 21, 1–14.

21. **M. Ahmad**, S. Chattopadhayay, D. Mondal, T. Vijayakanth, P. Talukdar*. Stimuli-Responsive Anion Transport through Acylhydrazone-Based Synthetic Anionophores. *Org. Lett.,* **2021**, *23*, 7319−7324.

22. **M. Ahmad**, S. Metya, A. Das, P. Talukdar. A Sandwich Azobenzene-diamide Dimer for Photoregulated Chloride Transport. *Chem. Eur. J.,* **2020**, *26*, 8703−8708.

23. S. S. Burade, S. V. Pawar, T. Saha, N. Kumbhar, A. S. Kotmale, M. Ahmad, P. Talukdar and D. D. Dhavale. Sugar-derived oxazolone pseudotetrapeptide as γ-turn inducer and anion-selective transporter. Beilstein. *Beilstein J. Org. Chem.,* **2019**, *15*, 2419–2427

Awards

- **National Eligibility Test (NET) Award**. Conducted by the Council of Scientific and Industrial Research (CSIR), India, on 21st December 2014 (Roll no. - 147063). Secured UGC 12th Rank.
- **Junior Research Fellowship (JRF) Award.** Conducted by the Council of Scientific and Industrial Research (CSIR), India, on 19th June 2016 (Roll no. - 143452). Secured UGC 64th Rank.

Conferences

- MASC, Open University Milton Keynes, **15th December 2025** (Oral presentation).
- MASC, Oxford, **22nd July 2025** (Poster presentation).
- OxWiChem poster event at the University of Oxford: **22nd March 2024** (Poster presentation).
- *Asian Chemical Biology Initiative (ACBI) Meeting 2022 IISER Pune and Goa:* ***September 14–18, 2022*** *(Poster presentation).*

- ChemSymphoria 2021, Indian Institute of Science education and Research Pune, **December 2021** (Oral Presentation).
- International Conference on Disease Biology: Diagnostics and Therapeutics (DBDT-2020), Pune University, **March 2020** (Poster presentation).
- ChemSymphoria 2018, Indian Institute of Science education and Research Pune, **December 2018** (Poster presentation)