DR. RITUPARNA DAS

PHD IN ORGANIC CHEMISTRY

CONTACT

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Kolkata, India

RESEARCH EXPERIENCE

UNILEVER-Research Associate-III
IISER Kolkata | February 2026 - Till Date

SERB-Research Associate-III
IISER Kolkata | April 2023 - December 2025

DST-Women's Scientist-A
IISER Kolkata | October 2019 - March 2023

SERB-Research Associate
IISER Kolkata | Feb 2019 - September 2019

SERB-National Post Doctoral Fellow
IISER Kolkata | Feb 2017 - Feb 2019

IISER-Post Doctoral Fellow
IISER Kolkata | Feb 2015 - Feb 2017

ACADEMIC BACKGROUND

PhD | IISER Kolkata
Synthetic Organic Chemistry | 2011-2015

MS | IISER Kolkata
CGPA Obtained - 8.68 | 2009-2011

BSc | St. Xavier's College, Kolkata
Marks Obtained - 67.3 % | 2006-2009

Higher Secondary (HS) | WBCHSE
Marks Obtained - 83.7 % | 2006

Secondary (Madhyamik) | WBBSE
Marks Obtained - 89 % | 2004

RESEARCH METRICS

ORCID ID: 0000-0003-3991-3395
WOS Researcher ID: ABA-1774-2021
h-index: 8 **| i10-index:** 8 **| Citation :** 405

MEMBER

Indian Chemical Society (ICS)
Life Member - No.8437 | June, 2021

CERTIFICATIONS

- **ACS Reviewer** 2023 and 2024
- Certified Workshop on '**ChatGPT and Ai in Microsoft Office**'
- Completed 25PDU for '**Project Management CAPM**'
- **Senior Visharad** in Painting
- Multiple **Interschool Quiz and Extempore Competitions**

EXPERTISE SYNOPSIS

- Fifteen years of Research Experience in **Synthetic Organic Chemistry**
- Proficient in retrosynthetic analysis and performing **Multistep organic synthesis**, purification by **Coloumn chromatography**
- Capable of risk identification, trouble-shooting, problem solving and mitigating chemistry and project related problems.
- Firm command of all laboratory setup, planning, research protocols.
- Familiar of handling **Independent projects** as Principal Investigator
- Capable of doing **collaborative work** within a team as well as independent scenario.
- **Lead, Mentor, Train and Manage** a group of Research scholars in a collaborative environment for dissertation and Research Work
- Perform multiple ongoing projects on a day-to day basis within a time-frame.
- Proficient in various **Interdiciplinary Research** fostering a blend of Chemistry and Biology
- Aware about the various **Government sponsored Projects** and capable of formulating projects to acquired Government Funding for Research Work
- **Reviewer** of Articles of Renowned International Journals
- Possessing **excellent communication and interpersonal skills**
- **Preparing, editing and documenting** the research findings in international journals as corresponding author.

PROJECTS HANDLED AS PRINCIPAL INVESTIGATOR

- **SERB-NPDF Project | 2017-2019**

'**pH Sensitive sialic acid modified gold nano particles for targeted drug delivery to cancer cells**' . Total cost: **19,20,000 INR**
Scope Development, Initiating, Planning and Executing the Research Work

- **DST-Women's Scientist-A Project | 2019-2023**

'Targeting Alzheimer's: Selective detection with GM1 oligosaccharide decorated porphyrin dendrimers ' Total cost: **37,05,200.00 INR**
Scope Development, Initiating, Planning and Executing the Research Work Involving extensive Collaboration and InterDisciplinary Research

WORK SUMMARY

- Synthesis of complex oligosaccharides from commercially available monosaccharides through protecting group manipulations and stereo-selective glycosylations and subsequent characterisation.
- Design, Synthesis and characterisation of magnetic glyconanoparticles having Fe_3O_4 as the magnetic core and galactose, lactose, galabiose and globotriose as carbohydrate ligands
- Synthesis of sugar functionalised metal complexes and as fluorescent sensors for lectins.
- Design and Synthesis of carbohydrate-porphyrin dendrimes and study its role as lectin sensors.
- Design and synthesis of cyclodextrin and cellulose nano composite based fluorescent probes for selective and efficient sensing of fluoride ions in hydrophilic medium. I
- Design and synthesis of dithiocarbamate small molecule probe for efficient lectin sensing, as well as fluoride sensing.
- Synthesis and charachterization of 1,6-heptadiynes based mannose polymers and analysis of tehir binding towards mannose binding lectin, Concanavalin A in their tetravalent form.
- Synthesis of gangliosides GM1, GM2 and GM3. Sialic acid based porphyrin derivatives and study of its therapeutic studies against the plaque formation by Amyloid beta fibrils upon photoirradiation

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TECHNICAL SKILLS

Instruments Handled and Analytical: NMR (Jeol 400 MHz and Bruker 400 MHz and 500 MHz)**, IR, UV-Vis, Fluorsecnce Spectrometer, MS** (ESI, MALDI)**, Polarimeter, Circular Dichroism (CD), Dynamic Light Scattering (DLS), SEM, TEM, AFM, Hydrogenation Assembly (ThalesNano), UltraCentrifuge, Lyophilizer**

SOFTWARES HANDLED

MS Office 365 (MS WORD, EXCEL, Powerpoint), ChemDraw, Origin, PyMol, TopSpin, Microsoft Project, ChatGPT, Canva, DallE, DeepSeek, Grammarly

LANGUAGES

BENGALI (Native) - Speaking, Reading and Writing
ENGLISH - Speaking, Reading and Writing
HINDI : Speaking, Reading

HOBBIES

Painting
Reading Fiction and Non-Fiction Books
Listening to Music

REFERENCES

Professor Balaram Mukhopadhyay
IISER Kolkata
mbalaram@iiserkol.ac.in

Professor Subhajit Bandyopadhyay
IISER Kolkata
sb1@iiserkol.ac.in

Professor Rob A. Field
Pro-Vice Chancellor-Science
University of East Anglia, Iceni Diagnostics
r.a.field@uea.ac.uk

PUBLICATIONS

- Photolytic degradation of Alzheimer's amyloid Ab42-fibril by sialic acid decorated glycodendrimers: **Rituparna Das**, Swarnendu Roy, Rahul Das and Balaram Mukhopadhyay : ResearchSquare Prepint , **2025.**
- The effect of neighbouring group participation and possible long range remote group participation in O- glycosylation : **Rituparna Das*** and Balaram Mukhopadhyay* Beilstein Journal of Organic Chemistry **2025**, 21, 369-406. (**Corresponding Author**)
- 1,6-Heptadiynes Based Cyclopolymerization Functionalized with Mannose by Post Polymer Modification for Protein Interaction : Pawan Kumar, Pintu Kanjilal, **Rituparna Das**, Balaram Mukhopadhyay, Raja Shunmugam and *et. al* Carbohydrate Research, **2021**, *508*, 108397.
- A brief insight to the role of Glyconanotechnology in modern day diagnostics and therapeutics : **Rituparna Das*** and Balaram Mukhopadhyay* Carbohydrate Research **2021**, *507*, 108394. (**Corresponding Author**)
- Allyl piperidine-1-carbodiothioate and benzyl 1H-imidazole 1 carbodithioate: two potential agents to combat against mycobacteria : G. Mukhejee, K. Mukherjee, **Rituparna Das**, Balaram Mukhopadhyay and A. K. Sil* and *et. al. Journal of Applied Microbiology* **2021**, *130,* 786-796
- A 'turn-on' fluorescence glycosyl dithiocarbamate probe for selective fluoride sensing in aqueous medium : **Rituparna Das**,* Bedangshu Mishra and Balaram Mukhopadhyay* *Synlett* **2018**, *29*, 2001- 2005. (**Corresponding Author**)
- Use of Glycosyl Dithiocarbamates: Small Molecule 'Turn on' Fluorescent probe for carbohydrate binding proteins : **Rituparna Das**,* Bedangshu Mishra and Balaram Mukhopadhyay* *Chemistry Select* **2018**, *3*, 648-652. (**Corresponding Author**)
- Carbohydrates in Fluoride Sensing : Use of cyclodextrin and CNC-based Chemical probes : **Rituparna Das*** and Balaram Mukhopadhyay* *Chemistry Select* **2017**, *2*, 4499-4504. (**Corresponding Author**)
- Chemical *O*-Glycosylations : An overview: **Rituparna Das*** and Balaram Mukhopadhyay* *Chemistry Open* **2016**, *5,* 401-433. (**Corresponding Author**)
- Use of 'click chemistry' for the synthesis of carbohydrate-porphyrin dendrimers and their multivalent approach toward lectin sensing: **Rituparna Das*** and Balaram Mukhopadhyay* *Tetrahedron Lett.* **2016**, *57*, 1775-1781. [Corrigendum to "Use of 'click chemistry' for the synthesis of carbohydrate-porphyrin dendrimers and their multivalent approach toward lectin sensing" *Tetrahedron Letters* **2016,** *57,* 2129- 2131] (**Corresponding Author**)
- Chemical synthesis of the pentasaccharide related to the repeating unit of the O-antigen from Salmonella enterica O44: **Rituparna Das**, Balaram Mukhopadhyay* *Journal of Carbohydrate Chemistry* **2015,** *34,* 247-262.
- Concise synthesis of the tetrasaccharide repeating unit of the *O*-polysaccahride isolated from *Edwardsiella tarda* PCM 1156 strain: **Rituparna Das**, Mukul Mahanti and Balaram Mukhopadhyay*, *Carbohydrate Research* **2014**, *399*, 15-20.
- Chemical synthesis of the tetrasaccharide repeating unit of the O-antigenic polysaccharide from *Plesiomonas shigelloides* strain AM36565: **Rituparna Das**, Balaram Mukhopadhyay*, *Carbohydrate Research* **2013**, *376*, 1-6
- Synthesis of a sugar-functionalized iridium complex and its application as a fluorescent lectin sensor: Soumik Mandal#, **Rituparna Das#**, Parna Gupta and Balaram Mukhopadhyay* *Tetrahedron Lett.* **2012**, *53*, 3915-3918. (#**Equal authorship**)
- Synthesis of two trisaccharides related to the triterpenoid saponin Eryloside isolated from the sponge *Erylus nobilis*: Santanu Mandal, **Rituparna Das**, Balaram Mukhopadhyay* *Tetrahedron: Asymmetry 2011, 22, 1108-1113*

BOOK CHAPTERS

- **Carbohydrate-based anti-bacterial and anti-cancer vaccines** : **Rituparna Das** and Balaram Mukhopadhyay in Carbohydrates in Drug Discovery and Development edited by Vinod Tiwari, **Elsevier** , Chapter 14, **2020**
- **Glycosidic Bond Formation Methodology : Challenges and Impact in Oligosaccharide: Rituparna Das** and Balaram Mukhopadhyay in Elsevier-Synthetic Strategies in Carbohydrate Chemistry edited by Vinod Tiwari, **Elsevier**, Chapter 2, **2024**
- **An Insight into the Synthesis of Oligosaccharides Related to Acinetobacter sp. and their Implications Towards Human Health" Rituparna Das,** Sanajit Maiti, Bedangshu Mishra and Balaram Mukhopadhyay, **ACS Symposium Series, 2026** *In Press*