Dr. Rima Saha (IN/PA-4630)

ж

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EDUCATION:	A CONTRACTOR OF CONTRACTOR
Department of Polymer Science and Technology, University of Calcutta, Kolkata, India.	
Ph. D. Dissertation: "Reversible Addition Fragmentation Chain Transfer (RAFT) Polymerization	May, 2023
Mediated Amino Acid Based Polymer for Biomedical Application"	
Presidency University, Kolkata, West Bengal, India. M. Sc., Chemistry (Organic special, 78.30%)	2014-2016
Barrackpore Rastraguru Surrendranath College, West Bengal State University, West Bengal, India B.Sc., Chemistry (70.50%)	2011-2014
Rahara Bhabanath Institution for Girls, Kolkata, West Bengal, India 12^{th} and (79.10 %) 10^{th} grade (85%).	2011 and 2009
PERSONAL DETAILS:	
Female, Unmarried, Indian, Date of Birth: September 10, 1993; Passport No RO443766	
AWARDS AND ACHIEVEMENTS:	
✓ Qualified Graduate Aptitude Test in Engineering (GATE) in Chemistry	2017
✓ Qualified for Lectureship for National Eligibility Test (NET) in Chemistry	2017
✓ Qualified for Indian Patent Agent Examination (IN/PA-4630)	2022
RESEARCH EXPERIENCE:	
• Postdoctoral Fellow (IPDF): [Prof. Privadarsi De's Research Group]	July 2023-Present
• Graduate Student, University of Calcutta, Kolkata, India. [Dr. Kishor Sarkar's Research Group]	July 2017-May 2023
"Reversible Addition Fragmentation Chain Transfer (RAFT) Polymerization Mediated Amino Acid Based	l
Polymer For Biomedical Application"	
Important findings:	
✓ Amino-acid and fatty acid-based methacrylate monomer synthesis and their polymerization <i>via</i>	RAFT method
✓ RAFT polymerization of photo responsive acrylate monomer and their application in cancer the	erapy
✓ Synthesis of di-block and tri-block copolymers and their application in gene and/or drug deliver	ry
• M. Sc. Project, Presidency University, Kolkata, India. [Advisor: Dr. Koena Ghosh]	2016
"Regioselective synthesis of Ferrocenyl substituted Pyrazoline derivatives and study of their optical prop	erties"
• Summer Research Fellow, JNCASR, Bangalore, India. [Prof. Subi Jacob George's Research Group]	May 2015-July 2015
"Synthesis of oligo(para)phenylenevinylene chromophore appended with dipicolyl ethylene di-amine rec	ceptor"
EMPLOYMENT:	
Women Scientist-C Decembe	er 2021-December 2022

Scheme on Intellectual Property Rights (WOS-C, KIRAN IPR) of TIFAC, Dept. of Science and Technology (DST), Govt. of India.

RESEARCH EXPERTISE:

Multi-step organic synthesis; RAFT polymerizations; synthesis of random, block, gradient copolymers; polymerization induced self-assembly; stimuli-responsive polymers; polymers with targeted molecular weight, pDNA isolation from bacterial cell, agarose gel electrophoresis, cell culture.

SUMMARY OF SKILS:

- ✓ Spectroscopic Techniques: ¹H, ¹³C NMR, UV-Vis, FT-IR, Fluorescence.
- ✓ Thermal Analysis: TGA, DSC
- ✓ Size Exclusion Chromatography (SEC)
- ✓ Circular dichroism (CD), Dynamic Light Scattering (DLS)
- ✓ Dialysis, Lyophilization, Column chromatography
- ✓ Software used: Origin, ChemDraw Ultra, MestreNova, Graphpad Prism, ImageJ, Endnote.
- ✓ Microscopy: Scanning Electron Microscopy (SEM), Transmission Electron Microscopy (TEM), Confocal.

PUBLICATIONS

Research articles

✓ Patentability searches using various patent databases like USPTO, INPASS, WIPO, EPO, Derwent Innovation.

- ✓ Patent novelty and inventive step search.
- ✓ Patent provisional (PS) and complete specification (CS) drafting.
- ✓ FER response preparation.
- ✓ Preparation of patent landscape reports and other technical documents.
- 6. Patra, R; Halder, S; **Saha, R**; Jana, K; Sarkar, K. "Highly Efficient Photo Switchable Smart Polymeric Nano Vehicle for Gene and Anticancer Drug Delivery in Triple Negative Breast Cancer" *ACS Biomater. Sci. Eng.*, 10, 4, (**2024**) 2299–2323(IF: 5.8).

5. Saha R., Halder S., Pradhan S S., Jana K., Sarkar K. "Superior gene transfection efficiency in triple negative breast cancer by RAFT mediated amino acid based cationic di-block copolymers". *J. Mater. Chem. B*, 11 (2023) 3617-3634 (IF: 7).

4. Chakraborty D., Musibb D.¹, **Saha R**.¹, Das A., Razae M. K, Ramue V., Chongdara S., Sarkar K., Bhaumik A*., "Highly stable tetradentate phosphonate-based green fluorescent Cu-MOF for anticancer therapy and antibacterial activity" *Materials Today Chemistry*. 24 (**2022**) 100882 (IF: 7.3) (¹Equal contribution).

3. Bej S., Das R., Mondal A., **Saha R.**, Sarkar K., Banerjee P., "Knoevenagel condensation triggered synthesis of dual-channel oxene based chemosensor: Discriminative spectrophotometric recognition of F^- , CN^- and HSO_4^- with breast cancer cell imaging, real sample analysis and molecular keypad lock applications" *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*. 273 (**2022**) 120989 (IF: 4.4).

2. Sarkar P, Ghosh S, **Saha R**, Sarkar K., "RAFT polymerization mediated core–shell supramolecular assembly of PEGMA-costearic acid block co-polymer for efficient anticancer drug delivery" *RSC Advance*. 11 (**2021**) 16913-16923 (IF: 3.9).

1. Saha R, Bhayye S, Ghosh S, A Saha, Sarkar K*., "Supramolecular assembly of amino acid based cationic polymer for efficient gene transfection efficiency in triple negative breast cancer" *ACS Appl. Bio Mater.* 2, 12, (2019) 5349–5365 (IF:4.7).

Book Chapters

2. Patra R., Ghosal K., **Saha R**., Sarkar P., Chattopadhyay S., Sarkar K. "Advances in the Development of Biodegradable Polymeric Materials for Biomedical Applications with Respect to Their Synthesis Procedures, Degradation Properties, Toxicity, Stability and Application"; Encyclopedia of Materials: Plastics and Polymers, *Elsevier*, 4, 2022, 567-592.

1. Ghosal K., Sarkar P., Saha R., Ghosh S., Sarkar K. "Advances in Tissue Engineering and Regeneration" In: Li B., Moriarty T., Webster T., Xing M. (eds) Racing for the Surface, *Springer*, 2020, 577-646.

ACADEMIC CONTRIBUTIONS

Oral Presentations

• International Conference on Biomaterial-Based Therapeutic Engineering and Regenerative Medicine (BIOTERM), at *IIT Kanpur*, on November 28-December 1, 2019.

• International Conference on Nanotechnology: Ideas, Innovations & Initiatives; ICN:3I-2017, at *IIT Roorkee* on December 6-8, 2017.

Poster Presentations

• International Conference on BioMaterials, BioEngineering and BioTheranostic (BIOMET); at *Vellore Institute of Technology* (*VIT*) on July 24-28, 2018.

• Symposium on polymer Science (SPS-2019); at IISER Kolkata, on July 5-6, 2019.

REFERENCES

Prof. Padmavati Manchikanti Professor, Rajiv Gandhi School of Intellectual Property Law; IIT Kharagpur, Kharagpur, West Bengal-721302, India Email: <u>mpadma@rgsoipl.iitkgp.ac.in</u>; Phone: +91-9434743672 Dr. Mahuya Hom Chaodhury Scientist-C, Nodal Officer, West Bengal State Counsil of Science & Technology (WBSCST), Kolkata-700064, West Bengal, India. Email: <u>mhc123ster@gmail.com</u> Pnone: +91-9007780898 Sangeeta Nagar

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Curriculum Vitae | Rima Saha