

Curriculum Vitae

Name: Bappa Maiti	School of Applied & Interdisciplinary Sciences
Gender: Male	Indian Association for the Cultivation of Science
Date of Birth: 17-07-1988	Jadavpur, Kolkata
Nationality: Indian	India
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Key Skills: *Rational designing of molecules via molecular modeling and multi-step organic synthesis. Performing biophysical and biological experiments to evaluate the effectiveness of synthesized compound in vitro. Good communication, writing, and analytical skills. Ability to work independently. Have passion, enthusiasm and optimistic work attitude.*

Current Position

April 2017 - present: Research Associate, School of Applied & Interdisciplinary Sciences, Indian Association for the Cultivation of Science, India.

Research Topics:

Higher order non-canonical DNA and RNA structures as therapeutic targets.

Previous Research Background & Education

2015-2017	Research Associate , Organic Chemistry, Indian Institute of Science (IISc), India
2010-2015	Ph.D. , Organic Chemistry, Indian Institute of Science (IISc), India Thesis: “ <i>Evolution of New Lipids and Molecular Gelators: Syntheses, Aggregation Properties and Applications</i> ” Supervisor: Prof. Santanu Bhattacharya
2008-2010	M.Sc. , Chemistry, Department of Chemistry, Indian Institute of Engineering Science and Technology, Shibpur, India.
2005-2008	B.Sc. , Chemistry, Midnapore College, Vidyasagar University, India.

Research Expertise

Delivery Vehicles for Gene and Drug:

Designing cationic lipid-based non-viral vectors for both pDNA and siRNA delivery *in vitro*. Biophysical characterizations of cationic lipids. Also liposomal delivery of anti-cancer drug.

Supramolecular Chemistry: Exploring a diverse range of non-covalent interactions such as hydrogen bonding, halogen bonding, metal ion coordination, electrostatic, charge transfer in addition to π - π and Van der Waals interactions to furnish a diverse class of organo- and hydro-gelators and subsequent investigation of their potential applications.

Nucleic Acid Targeted Therapeutics:

Design and multi-step synthesis of bioactive compounds for targeting higher order non-canonical DNA and RNA structures such as G-quadruplexes and I-motifs. Subsequent investigation of the nucleic acids and small molecule interaction by various biophysical and biological techniques.

Theoretical Calculation:

Determining the optimum geometry, preferred conformation, HOMO-LUMO energy levels of synthesized molecules (Avogadro, Gaussian, and ChemCraft). Studying macromolecule-small molecular interaction by molecular dynamic simulation (AutoDock, Gromacs, and Amber).

Instrument Handled: NMR spectroscopy, FTIR spectroscopy, Mass spectrometry and elemental analysis, UV/Vis spectroscopy, Fluorescence spectroscopy, Circular Dichroism spectroscopy, Differential Scanning Calorimetry (DSC; both for solution and solid samples), Atomic Force Microscopy (AFM), Transmission Electron Microscopy (TEM), Polarized Optical Microscopy (POM), Fluorescence Microscopy, Malvern Zetasizer, Anton paar Rheometer, Powder X-ray Diffractometer (PXRD), FACS profiling of various cell related experiments, Confocal Microscopy.

Other Relevant Skills

Well-versed in software used for scientific writing, presentation, data analysis (Origin, GraphPad Prism, Office Excel, TextPad, etc), database searching (SciFinder and Reaxys), graphics handling. Experience in scientific writing including manuscripts in peer-reviewed journals.

Research Publications

- (1) **Bappa Maiti**, Subham Bhattacharjee, and Santanu Bhattacharya. Palladium-Induced Transformation of Nematic Liquid Crystals to Robust Metallogel Comprising Self-assembled Nanowires. *Chem. Commun.*, **2019**, 55, 12651-12654.

- (2) **Bappa Maiti**, Nilanjan Dey, and Santanu Bhattacharya. “Engaging Dynamic Surfactant Assemblies in Improving Metal Ion Sensitivity of 1,4,7-Triazacyclononane Based Receptor: Differential Optical Response for Cysteine and Histidine”. *ACS Appl. Bio Mater.* **2019**, 2, 2365-2373.
- (3) Mohini Kamra, **Bappa Maiti**, Akanksha Dixit, Anjali A Karande and Santanu Bhattacharya. “Tumor Chemosensitization through Oncogene Knockdown Mediated by Unique α -tocopherylated Cationic Geminis”. *Biomacromolecule* **2019**, 20, 1555–1566.
- (4) **Bappa Maiti**, Subham Bhattacharjee, and Santanu Bhattacharya. Perfluoroarene Induces a Pentapeptidic Hydrotrope into a pH-tolerant Hydrogel allowing Naked Eye Sensing of Ca^{2+} Ions. *Nanoscale*, **2019**, 11, 2223-2230.
- (5) **Bappa Maiti**, Krishan Kumar, Parikshit Moitra, Paturu Kondaiah and Santanu Bhattacharya. “Reduction Responsive Nanovesicles Derived from Novel α -Tocopheryl-Lipoic Acid Conjugates for Efficacious Drug Delivery to Sensitive and Drug Resistant Cancer Cells”. *Bioconjugate Chem.* **2018**, 29, 255-266.
- (6) **Bappa Maiti**, Mohini Kamra, Anjali A Karande and Santanu Bhattacharya. “Transfection Efficiencies of α -Tocopherylated Cationic Gemini Lipids with Hydroxyethyl bearing Headgroups under High Serum Conditions”. *Org. Biomol. Chem.* **2018**, 16, 1983-1993.
- (7) Subham Bhattacharjee, **Bappa Maiti** and Santanu Bhattacharya. “First Report of Charge-Transfer Induced Heat-Set Hydrogel. Structural Insights and Remarkable Properties”. *Nanoscale*, **2016**, 8, 11224-11233.
- (8) Subham Bhattacharjee, **Bappa Maiti**, Dipen Biswakarma and Santanu Bhattacharya. “Gelation of Novel Pyrene-Cored Chiral Dendrimers: Dendritic Effect in Gelation and Shear Thinning Behavior”. *Macromol. Symp.* **2016**, 369, 14–18.
- (9) Krishan Kumar, **Bappa Maiti**, Paturu Kondaiah, and Santanu Bhattacharya. “Efficacious Gene Silencing in Serum and Significant Apoptotic Activity Induction by Survivin Downregulation Mediated by New Cationic Gemini Tocopheryl Lipids”. *Mol. Pharmaceutics* **2015**, 12, 351-361.
- (10) Krishan Kumar, **Bappa Maiti**, Paturu Kondaiah and Santanu Bhattacharya. “ α -Tocopherol Derived Lipid Dimers as Efficient Gene Transfection Agents. Mechanistic Insights into Lipoplex Internalization and Therapeutic Induction of Apoptotic Activity”. *Org. Biomol. Chem.* **2015**, 13, 2444-2452.

Conference Presentation

- (1) International Symposium on New Trends in Applied Chemistry, Department of Chemistry, Sacred Heart College (Autonomous), Thevara, Kochi, India. 9-11 February 2017.
- (2) International Conference on BioMaterials, BioEngineering, and BioTheranostics, BioMET 2018, VIT, Vellore, India. 26-28 July 2018.

- (3) SAIS SYMPOSIUM 2019, Indian Association for the Cultivation of Science, Kolkata, India. 8-9 March, 2019.

Awards, Fellowship & Positions

- (1) Research Associate Fellowship at IACS-Kolkata (2017-)
(2) Research Associate Fellowship in CSIR-ADD project at IISc-Bangalore. (2016-2017)
(3) Research Associate Fellowship, IISc-Bangalore (2015-2016).
(4) Junior and Senior Research Fellowship, *Council of Scientific and Industrial Research* (CSIR), Govt. of INDIA, during Ph.D. 2010-2015.
(5) Qualified GATE-2010.

References

1. Prof. Santanu Bhattacharya
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3. Dr. Santosh Kumar Misra
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