

SOUVIK SUR, Ph.D.

Major: Chemistry



Education

- Ph.D. on the topic "Synthesis, Biophysical Characterizations, Molecular Dynamics Simulations and Biological Evaluation of Novel benzimidazole substituted Naphthalenediimides as G-Quadruplex Stabilizing Ligands" on May 2015 from University of Delhi, India.
- Qualified in CSIR-UGC NET (Lectureship) Examination, which was held on December 2008. (Reg. No.106608).
- Passed M.Sc. (Chemistry/specialization in Organic Chemistry) from Department of Chemistry, University of Delhi, with first class (63.1%) marks in the year 2009.
- Passed B. Sc. (Honours) Chemistry from Bejoynarayan Mahavidyalaya, Hooghly, University of Burdwan, West Bengal with (58.4%) marks in the year 2007.
- Passed (10+2 or 12th) W.B.C.H.S.E. from Kanailal Vidyamandir, Hooghly West Bengal with first class marks (69.8%) in the year 2002.
- Passed (10th) W.B.B.S.E. from Mahesh Sri Ram Krishna Ashram, Hooghly, with high first class (91.4%) marks in the year 2000.

Work Experience (6 years +)

Post Held	Organization	Period
Assistant Professor	Research and Development Center Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India	March 2019 to till date
Research Associate	School of Life Sciences, Jawaharlal Nehru University, India	April 2018 to March 2019
Guest Lecturer	Zakir Husain College, University of Delhi, New Delhi, India	August 2018 to December 2018
Guest Faculty	Department of Chemistry, University of Delhi, New Delhi, India	January 2018 to April 2018
Senior Research Fellow	Special Centre for Molecular Medicine, Jawaharlal Nehru University, India	September 2017 to December 2017
Post Doctoral Fellow	Clemson University, United States of America	July 2015 to June 2017

Honour

- Young Scientist Award (for Award Paper talk in 51st Annual Convention of Chemists, Organized by Indian Chemical Society).
- Best Poster Award in International Conference "ETDDNP-2018" at University of Delhi, India.
- CSIR-SRF in Chemical Sciences (A National Fellowship to Support Graduate Program) in Chemistry.

Research Area

- During **Postdoctoral** days, I am working on synthesis of Novel Aminoglycosides-Peptide conjugates using Solid Phase and also characterizing with Biophysical techniques of interactions between novel aminoglycosides with E. coli and Human RNA A-sites, normal and modified oligonucleotides and Molecular modeling of those complex biomolecules. I also have extensive hands on experience in their purification and characterization through commonly used spectroscopic methods and with ITC and DSC. Besides calorimetry, I am equally trained in various spectroscopic methods normally employed in studying biomolecules-drug interaction such as Circular Dichroism, Fluorescence, UV-Vis and MALDI-TOF mass spectrometry of large molecules.
- During **Doctoral** study, I have designed and synthesized various ligands which bind to G-quadruplex DNAs of different topology. Few of those showed promising anticancer activity against different cancerous cell lines. Multistep synthesis of those ligands with their characterizations and biophysical study developed a new approach to study those novel molecules towards cancer. Besides that, I have an expertise in Molecular modeling which leads me to correlate all experimental data with in-silico modeling. Hopefully in near future some of those will enlighten new era in medicinal chemistry.

Teaching Experience

- Practical Class of Semester-II M.Sc. Chemistry (Organic), University of Delhi
- Practical Class of B.Sc. Pass Course Semester-III Course-Generic-3, University of Delhi
- Theory and Practical Class of B.Sc.CHE-3L, IGNOU, Delhi
- Theory paper BAS610, BAS625-Organic Chemistry B.Sc. 3rd Year, 6th Semester at TMU
- M.Sc. Final Year Project (MCH492) 4th Semester at TMU
- Theory Paper MCH311-Spectroscopy-II for M.Sc. 3rd Semester at TMU
- Theory Paper BAS120-Fundamental Inorganic Chemistry for B.Sc. 1st Semester at TMU
- Practical Class (MCH361-Organic Chemistry) of M.Sc. 3rd Semester at TMU
- Practical Class (BAS563-Analytical Chemistry) of B.Sc. 5th Semester at TMU
- Practical Class (BAS564-Polymer Chemistry) of B.Sc. 5th Semester at TMU

Publications

- “Complex Formation between KI and Crown Ethers in Methanol, Ethanol and 1-Butanol at Different Temperatures” Atri D. Tripathi, **Souvik Sur. Bulletin of Pure and Applied Sciences. Vol.39 C (Chemistry), No.2, 2020: P.8-14.**
- “PPEF: A Bisbenzimidazole potent Antimicrobial Agent Interacts at Acidic Triad of Catalytic Domain of E. coli topoisomerase IA” Raja Singh, Stuti Pandey, **Souvik Sur**, Vibha Tandon. **Biochimica et Biophysica Acta - General Subjects, 2019, 1863, 1524–1535.** (I.F.3.681)
- “Interaction of HIV-1 Integrase with Polypyrimidine tract binding protein and associated Splicing Factor (PSF) and its Impact on HIV-1 Replication” Pooja Yadav, **Souvik Sur**, Dipen Desai, Smita Kulkarni, Vartika Sharma and Vibha Tandon. **Retrovirology 2019, 16, 12.** (I.F.3.417)
- “Benzimidazoles: Selective inhibitors of Topoisomerase I with Differential mode of action” Sandhya Bansal, **Souvik Sur**, Vibha Tandon. **Biochemistry, 2019, 58(6):809-817** (I.F.2.997)
- “Substituent specific bisbenzimidazole binding towards AT-rich DNA” Stuti Pandey, **Souvik Sur** and Vibha Tandon. **J. Indian Chem. Soc. 2018, 95, 1607-1616.**
- “Transition-Metal-Free Access to Pyridocarbazoles from 2-Alkynylindole-3-carbaldehydes via Azomethine Ylide” Shalini Verma, Pawan Mishra, Manoj Kumar, **Souvik Sur**, Akhilesh Verma. **Journal of Organic Chemistry, 2018, 83(12): 6650-6653.** (I.F.4.859)
- “Utilization of chromic polydiacetylene assemblies as a platform to probe specific binding between drug and RNA” Anothai Kamphan, Changjun Gong, Krishnagopal Maiti, **Souvik Sur**, Rakchart Traiphol and Dev P. Arya. **RSC Adv. 2017, 7, 41435–41443.** (I.F.3.108)
- “Selective Inhibition of Escherichia coli RNA and DNA Topoisomerase I by Hoechst 33258 Derived Mono- and Bisbenzimidazoles” Nihar Ranjan, Sandra Story, Geraldine Fulcrand, Fenfei Leng, Muzammil Ahmad, Ada King, **Souvik Sur**, Weidong Wang, Yuk-Ching Tse-Dinh, Dev P Arya. **J. Med. Chem. 2017, 60(12):4904-4922.** (I.F.6.259)
- “Naphthalenediimides-Linked Bisbenzimidazole Derivatives as Telomeric G-quadruplex-Stabilizing Ligands with Improved Anticancer Activity” **Souvik Sur**, Vinod Tiwari, Devapriya Sinha, Mohammad Zahid Kamran, Kshatresh Dutta Dubey, Gopinatha Suresh Kumar, Vibha Tandon. **ACS Omega 2017, 2, 966–980.** (I.F. 2.584)
- “Radioprotective agents: Strategies and Translational Advances” Mohammad Zahid Kamran, Atul Ranjan, Navrinder Kaur, **Souvik Sur**, Vibha Tandon. **Medicinal Research Reviews 2016, Apr; 36(3):461-9.** (I.F.8.763)
- “Design, Synthesis, and Biological Evaluation of 1,2-Dihydroisoquinolines as HIV-1 Integrase Inhibitors” Vibha Tandon, Urvashi, Pooja Yadav, **Souvik Sur**, Sheenu Abbat, Vinod Tiwari, Raymond Hewer, Maria A. Papathanasopoulos, Rameez Raja, Akhil C. Banerjea, Akhilesh K. Verma, Shrikant Kukreti, and Prasad V. Bharatam. **ACS Med. Chem. Lett., 2015, 6 (10), 1065–1070.** (I.F.3.746)
- “Synthesis and Biological Evaluation of Novel Bisbenzimidazoles as Escherichia coli Topoisomerase IA Inhibitors and Potential Antibacterial Agents.” **Souvik Sur**, Hemlata Nimesh, Devapriya Sinha, Pooja Yadav, Prachi Anand, Priyanka Bajaj, Jugsharan S. Viridi, Vibha Tandon, J.

Med. Chem. 2014, 57, 5238–5257 (First authorship is equal-contributed with second and third authors). (I.F.6.259)

- “Influence of PNA containing 8-aza-7-deazaadenine on structure stability and binding affinity of PNA-DNA duplex: insights from thermodynamics, counter ion, hydration and molecular dynamics analysis”, **Souvik Sur**, Sharad K Gupta, Rajendra Prasad Ojha, Vibha Tandon, **Mol. BioSyst.**, **2013, 9, 1958-1971**(First authorship is equal-contributed with second and third authors). (I.F.2.920)
- “Bi and tri-substituted Phenyl Ring Containing Bisbenzimidazoles Bind Differentially with DNA Duplexes: A Biophysical and Molecular Simulation study” **Souvik Sur**, Manish Singh, B. Jayaram, VibhaTandon; **Mol. BioSyst.**, **2013Oct; 9(10):2541-53.**(First authorship is equal-contributed with second and third authors). (I.F.2.920)
- “Identification of SFPQ as novel interacting partner of HIV-1 Integrase and its functional characterization”, **Souvik Sur**, Nirpendra Singh, Navrinder Kaur, Atul Ranjan, Braham Parkash, Ramesh Chandra, VibhaTandon; **BMC Infectious Diseases****2012, 12 (Suppl 1): P80 (4 May 2012).** (I.F.2.768)
- “Inhibition of HIV-1 Integrase gene expression by 10-23 DNAzyme” Nirpendra Singh, Atul Ranjan, **Souvik Sur**, Ramesh Chandra, Vibha Tandon. **July 2012, J. Biosci. 37(3), 493–502.** (I.F.1.419)
- “Complex Formation between KI and Crown ethers in Methanol, Ethanol and 1-Butanol at different temperatures” A D. Tripathi and **Souvik Sur**. **Bulletin of Pure and Applied Sciences Section- C- Chemistry 2020** (Accepted).

Skills

Multistep Organic Synthesis of Heterocyclic molecules and purification through column chromatography and biophysical characterizations of small molecule with Proteins/Enzyme/DNA/RNA etc.

Handling of the following Instruments:

- UV-Spectrophotometer
- Fluorimeter
- Circular Dichroism (CD) Spectropolarimeter
- HPLC
- MicroCal VP- Isothermal Calorimeter
- VP-DSC Differential Scanning Calorimeter
- Biacore 3000 (Surface Plasmon Resonance)
- Mass QTOF/MALDI Instruments

Molecular modeling through in-silico docking and Molecular Dynamics Simulation

Software Expertise:

- Auto Dock
- Schrodinger-Glide, Desmond
- Amber-Molecular Dynamics Package

Oral/Poster Presentations in National/International Conference

Oral Presentation

- Presented on the topic “Enhanced Sequence-Specific DNA and RNA Recognition using Oligonucleotide-Benzimidazole Conjugates” in “6th ISNS World Congress organized by University

of Delhi and Jamia Hamdard University at Vigyan Bhavan, New Delhi in January 2019.

- Presented on the topic "Study of Novel Di-Substituted Naphthalene Diimides Stabilizing Inter and Intra-strand G Quadruplexes" in "BIOSPARKS-2014" organized by School of Life Science, Jawaharlal Nehru University, New Delhi in March 2014.
- Presented on the topic "Evaluation of Novel benzimidazole substituted Naphthalenediimides as G-Quadruplex Stabilizing Ligands" in 10th JNOST Conference, December 2014, IIT Madras, India.
- Presented on the topic "Highly efficient and selective G-Quadruplex DNA recognition by novel Bisubstituted Naphthalenediimides; Mechanistic insight into ligand binding through MD Simulations" in 51st Annual Convention of Chemists, organized by Indian Chemical Society in December 2014, held in Kurukshetra University, Haryana, India.

Poster presentation

- Presented a Poster on the topic "Modulation of Hybridizing Properties of PNA with modified Base" in "7th Indo-Italian Workshop on Chemistry and Biology of Antioxidants" organized by Department of Chemistry, University of Delhi, Delhi and Embassy of Italy in November 2010.
- Presented a Poster on the topic "Inhibition of HIV -1 Integrase gene expression by 10-23 DNAzyme" in International conference on "Nucleic Acids in Disease & Disorder" December 7th to 9th, 2011 in Kusuma School of Biological Sciences, IIT Delhi.
- Presented a Poster on the topic "Identification of SFPQ as Novel Interacting Partner of HIV-1 Integrase and its Functional Characterization" in "International Science Symposium on HIV & Infectious Diseases", January 2012; Vigyan Auditorium, CSIR Campus, Taramani, Chennai, India.
- Presented a Poster on the topic "8-aza-7-deazaadenine base Influence PNA•DNA duplex structure: Insights from Thermodynamics, Counter Ion, Hydration and MD Simulations" in Tetrahedron Symposium, June 2013; Vienna, Austria.
- Presented a Poster on the topic "PNA containing 8-aza-7-deazaadenine influence PNA•DNA duplex structure, stability, binding affinity: Insights from Thermodynamics, Counter Ion, Hydration and Molecular Dynamics Analysis" in, Recent Advances in Computational Drug Design, organized by Schrodinger in IISc. Bangalore, India, in September 2013.
- Presented a Poster on the topic "8-aza-7-deazaadenine base Influence PNA•DNA duplex structure: Insights from Thermodynamics, Counter Ion, Hydration and MD Simulations" in IX JNOST Conference, December 2013, IISER, Bhopal, India
- Presented a Poster on the topic "A Study of Novel Di-Substituted Naphthalene Diimides Stabilizing Inter and Intra-strand G Quadruplexes" in "20th ISCBC-2014 International conference" organized by Department Of Chemistry, University of Delhi, Delhi in March 2014.
- Presented a Poster on the topic "Design & Synthesis of Novel Smart G-Quadruplex Stabilizing ligands with ability to differentiate between Topological Structures" in ISBOC-10 Conference, January 2015, IISER, Pune, India.
- Presented a Poster on the topic "Design & Synthesis of Novel Smart G-Quadruplex Stabilizing ligands with ability to differentiate between Topological Structures" in National Science Day 2015 Conference in Jawaharlal Nehru University, February 2015, New Delhi, India.
- Presented a Poster on the topic "Naphthalenediimides-Linked Bisbenzimidazole Derivatives as Telomeric G-quadruplex-Stabilizing Ligands with Improved Anticancer Activity" in International Conference-ETDDNP-2018 organized by Department Of Chemistry, University of Delhi, Delhi in January 2018.

Training /Workshops

- Trained in Supercomputing Facility for Bioinformatics and Computational Biology Indian Institute of Technology (IIT), Delhi.
- Attended SAIF Training Programme on "Analytical Techniques" at Central Drug Research Institute (CDRI), Lucknow.

Personal Information

Father's name – Sanjib Kumar Sur.

Age - 38 years.

Date of birth – 31st October, 1983

Sex –Male

Category- General

Marital status – Married

Language known – English, Hindi, Bengali

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References

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- 5. Prof. Akhilesh Kumar Verma**
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I hereby declare that the details furnished above are true and correct to the best of my knowledge and belief.

Date: 05/08/2021


(Souvik Sur)