SCHOOL OF SCIENCES

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EDUCATIONAL QUALIFICATIONS

Ph.D. Chemical Sciences, 2019, CSIR National Chemical Laboratory (NCL Pune)
M. S. Chemistry, 2005, Washington University in St. Louis USA
M.Sc. Chemistry, 2002, IIT Kanpur
B.Sc. Chemistry honours, 2000, University of Calcutta

Work Experience (latest first)

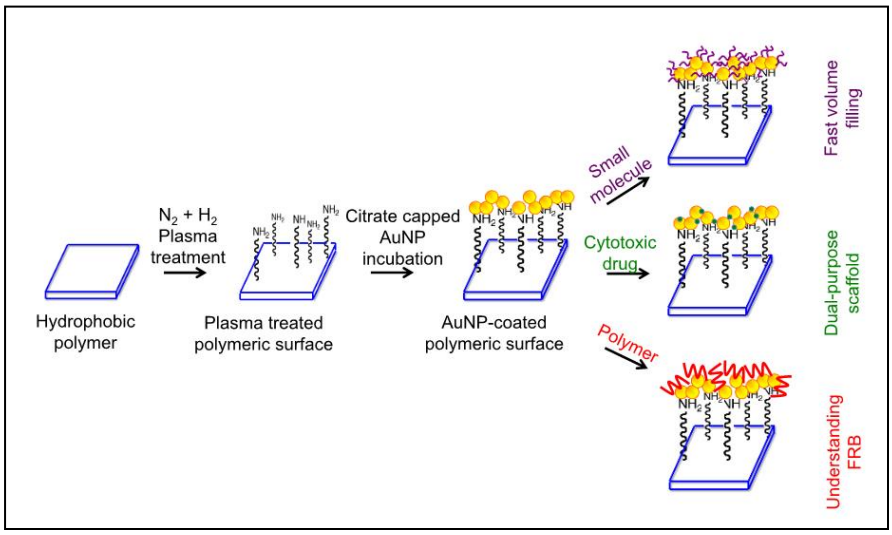
DST Women Scientist (Research Fellow), 2014-2017, CSIR National Chemical Laboratory
CSIR Senior Research Fellow, 2013 April-December, CSIR National Chemical Laboratory
Technical research assistant II, 2009-2011, Brigham and Women's Hospital, Harvard Medical School, Boston USA
Research assistant, 2005-2008, Washington University in St. Louis, USA

SUBJECTS TAUGHT

- Chemical Thermodynamic (CH2 103)
- Advanced Physical Chemistry II (CH5 103)
- Chemical Kinetics (CH4 104)
- Organic Qualitative Analysis (CH2 107)

RESEARCH AREA

Our research interest highlights the development of (unnatural) polymeric scaffolds for smooth functioning inside human body. Synthetic polymers (mostly hydrophobic polymers like HDPE) carry the advantages of optimal size, shape, porosity, interconnection, and the desired mechanical strength to stay permanently inside human body. Unfortunately, at the same time they are hydrophobic (dislikes water hence the cellular system) which restricts their facile integration with living tissue. To bridge this gap, we have made conscious effort in modifying the polymeric surface with gold nanoparticles. Gold nanoparticles, having a diverse surface chemistry impart a handle in changing the surface property of the scaffold. As a result, along with smooth functioning inside human body, the mechanism of cellular attachment (to a foreign body) can be well understood.



Various *in vivo* applications of a hydrophobic scaffold

PROJECTS

Title: NA
Amount: NA
Role: NA
Agency: NA
Duration: NA

CORE GROUP

Name: NA
Date of joining: NA
Topic: NA

HONOR/AWARD

- DST Women Scientist Fellowship January 2014 till July 2017
- Graduate Aptitude Test for Engineering (2002): 98.35 percentile (All India Rank 41)
- National Eligibility Test (NET) 2002: UGC-JRF (Junior Research Fellowship)
- CSIR SRF Fellowship June 2013 (discontinued)
- Graduate Students Fellowship and teaching assistantship from Washington University in St. Louis A&S
- Indian Academy of Sciences Fellowship: Summer 2001

MEMBERSHIP

- NA

KEY PUBLICATIONS

1. **Poulomi Sengupta**, Bhagavatula L. V. Prasad (2018). Surface modification of polymers for tissue engineering applications: Arginine acts as a sticky protein equivalent for viable cell accommodation. ACS Omega 3 (4), 4242-4251. (Latest IF 2.584)

2. **Poulomi Sengupta**, Sudipta Basu, Shivani Soni, Ambarish Pandy, Michael Oh, Kenneth T. Chin, Abhimanyu S. Paraskar, Bhaskar Roy, Sasmit Sarangi, Yamicia O. Connors, Venkatesh Sabbisetti, Jawahar Kopparam, Chitra Amarasiriwardena, Innocent Jayawardene, Nicola Lupoli, Daniela M. Dinulescu, Raghunath A. Mashelkar, Shiladitya Sengupta. A cholesterol-tethered platinum II-based supramolecular nanoparticle increases antitumor efficacy and reduces nephrotoxicity. PNAS, 2012, 109 (28), 11294-11299. (Latest IF 9.58)

JOURNALS

- **Poulomi Sengupta**, Bhagavatula L. V. Prasad (**2018**). Surface Modification of Polymeric Scaffolds for Tissue Engineering Applications. Regen. Eng. Transl. Med. 4(2), 75-91.
- **Poulomi Sengupta**, Bhagavatula L. V. Prasad (**2018**). Surface modification of polymers for tissue engineering applications: Arginine acts as a sticky protein equivalent for viable cell accommodation. ACS Omega, 3 (4), 4242-4251.
- Ashwini Wali, Yucheng Zhang, **Poulomi Sengupta**, Yuji Higaki, Atsushi Takahara, Manohar V. Badiger (**2018**). Electrospinning of non-ionic cellulose ethers/polyvinyl alcohol nanofibers: Characterization and applications. Carbohydrate Polymers. 181, 175-182.
- **Poulomi Sengupta**, Sachin S. Surwase, Bhagabatula L. V. Prasad (**2018**). Modification of porous polyethylene scaffolds for cell attachment and proliferation. International Journal of Nanomedicine, 13, 87-90.
- Sohan Patil, Meenu M. Kuman, Sandeep Palvai, **Poulomi Sengupta**, Sudipta Basu (**2018**). Impairing the Powerhouse in Colon Cancer Cells by Hydrazide-hydrazone based Small Molecule. ACS Omega, 3, 1470-1481.
- Sandeep Palvai, Meenu M. Kuman, **Poulomi Sengupta**, Sudipta Basu. ACS Omega, (**2017**). Hyaluronic Acid Layered Chimeric Nanoparticle: Targeting MAPK-PI3K Signalling Hub in Colon Cancer Cells. 2, 7868-7880.
- Aditi Nandi, Abhik Mallick, Piyush More, **Poulomi Sengupta**, Nirmalya Ballav, Sudipta Basu (**2017**). Cisplatin-induced self-assembly of graphene oxide sheets into spherical nanoparticles for damaging subcellular DNA. Chemical Communications. 53, 1409-1412.
- Chandramouli Ghosh, N. Gupta, Piyush More, **Poulomi Sengupta**, Abhik Mallick, Manas K. Santra, Sudipta Basu (**2016**). Engineering and In Vitro Evaluation of Acid Labile Cholesterol Tethered MG132 Nanoparticle for Targeting Ubiquitin-Proteasome System in Cancer. Chemistry Select. 1(16), 5099-5106.
- Ambarish Pandey, Sasmit Sarangi, Kenneth Chien, **Poulomi Sengupta**, Anne-Laure Papa, Sudipta Basu, Shiladitya Sengupta (**2014**). Anti-platelet agents augment cisplatin nanoparticle cytotoxicity by enhancing tumor vasculature permeability and drug delivery. Nanotechnology, 25(44), 445101.
- Ambarish Pandey, Ashish A. Kulkarni, Bhaskar Roy, Aaron Goldman, Sasmit Sarangi, **Poulomi Sengupta**, Collin Phipps, Jawahar Kopparam, Michael Oh, Sudipta Basu, Mohammad Kohandel, Shiladitya Sengupta (**2014**). Sequential application of a cytotoxic nanoparticle and a PI3K inhibitor enhances antitumor efficacy Cancer Research. 74(3), 675-685.

- Ashish A. Kulkarni, Bhaskar Roy, Poornima S. Rao, Gregory. A. Wyant, Ayaat Mahmoud, Madhumita Ramachandran, **Poulomi Sengupta**, Aaron Goldman, Venkata Ramana Kotamraju, Sudipta Basu, Raghunath A. Mashelkar, Erkki Ruoslahti, Daniela M. Dinulescu, Shiladitya Sengupta (**2013**). Supramolecular nanoparticles that target phosphoinositide-3-kinase overcome insulin resistance and exert pronounced antitumor efficacy Cancer Research, 73(23), 6987-97.
- Sasmit Sarangi, Ambarish Pandey, Anne-Laure Papa, **Poulomi Sengupta**, Jawahar Kopparam, Ushashi Dadwal, Sudipta Basu, Shiladitya Sengupta (**2013**). P2Y12 receptor inhibition augments cytotoxic effects of cisplatin in breast cancer. Med Oncol., 30(2), 567.
- Anne-Laure Papa, Sudipta Basu, **Poulomi Sengupta**, Deboshri Banerjee, Aaron Goldman, Shiladitya Sengupta and Rania Harfouche (**2012**). Mechanistic studies of Gemcitabine-loaded nanoplatforms in resistant pancreatic cancer cells. BMC Cancer, 12, 419.
- **Poulomi Sengupta**, Sudipta Basu, Shivani Soni, Ambarish Pandy, Michael Oh, Kenneth T. Chin, Abhimanyu S. Paraskar, Bhaskar Roy, Sasmit Sarangi, Yamicia O. Connors, Venkatesh Sabbisetti, Jawahar Kopparam, Chitra Amarasiriwardena, Innocent Jayawardene, Nicola Lupoli, Daniela M. Dinulescu, Raghunath A. Mashelkar, Shiladitya Sengupta (**2012**). A cholesterol-tethered platinum II-based supramolecular nanoparticle increases antitumor efficacy and reduces nephrotoxicity. PNAS, 109 (28), 11294-11299.
- **Poulomi Sengupta**, Sudipta Basu, Shiladitya Sengupta (**2011**). Cancer, Signal Transduction and Nanotechnology. Current Drug Delivery, 8, 254-260.

BOOKS

- NA

BOOK CHAPTERS

- **Poulomi Sengupta** (**2014**). Nanotechnology and it's use in tissue engineering – a book chapter in the book titled Diverse Applications of Nanotechnology in Biomedicine, Chemistry, and Engineering (Advances in Chemical and Materials Engineering) IGI Global publications.
- **Poulomi Sengupta** (**2015**). Recent Innovations in Coronary Stents – a book chapter in the book titled Emerging Applications, Perspectives, and Discoveries in Cardiovascular Research (Advances in Medical Diagnosis, Treatment, and Care) IGI Global publications.

CONFERENCES (Selected)

- **Poulomi Sengupta**, Dr. Bhagavatula L. V. Prasad (**2018**). Designing a two-in-one scaffold for drug release and tissue engineering ICONSAT Bengaluru
- **Poulomi Sengupta**, Dr. Bhagavatula L. V. Prasad (**2018**). Designing a two-in-one scaffold for drug release and tissue engineering. Oral presentation at The Mumbai Pune Soft Matter Meet.
- **Poulomi Sengupta**, Dr. Bhagavatula L. V. Prasad (**2017**). Designing a two-in-one scaffold for drug release and tissue engineering. Physical Chemistry Day CSIR National Chemical Laboratory (best poster award).

- **Poulomi Sengupta**, Dr. Vinay Agrawal, Dr. Bhagavatula L. V. Prasad (**2015**). Small molecule alteration controls cell adhesion property in polymeric scaffolds. Presented at International Nanobiomed conference IIT Mumbai December
- **Poulomi Sengupta**, Sachin S. Surwase, Dr. Vinay Agrawal, Dr. Bhagavatula L. V. Prasad (**2014**). Modification of porous polyethylene scaffolds for cell attachment and proliferation. International Conference on Translational Nanomedicine, Institute of Life Sciences, Ahmedabad. December
- Bhaskar Roy, **Poulomi Sengupta**, Daniela Dinulescu, Katherine Muto, Sudipta Basu, Shiladitya Sengupta (**2012**). Targeting Cancer by a Chimeric Nanoparticle formulation of Cisplatin and PI828, a PI3 kinase inhibitor. Presented in AACR annual meeting April
- Bhaskar Roy, **Poulomi Sengupta**, Shivani Soni, Anne Laure PAPA, Jawahar Kopparam, Sasmit Sarangi, Ambarish Pandey, Sudipta Basu, Shiladitya Sengupta (**2012**). Enhancing Anti Cancer Activity of PI103, a dual PI3K/mTOR inhibitor by designing a self-assembled Nanoformulation. Presented in AACR annual meeting April
- Ambarish Pandey, **Poulomi Sengupta**, Bhaskar Roy, Jawahar Kopparam, Sudipta Basu, Shiladitya Sengupta (**2010**). Targeting Cancer with Novel PI3K Inhibitor Containing Nanoparticles. Presented in 102nd AACR meeting December
- **Poulomi Sengupta**, Shivani Soni, Sudipta Basu, Shiladitya Sengupta (**2010**). Targeting cancer by cisplatincontaining nanovectors. Presented in 101st AACR meeting April
- John Stephen, Taylor; **Poulomi Sengupta** (**2007**). Synthesis of novel PNA building blocks for strain-promoted "click" chemistry. In the 234th ACS meeting in Boston August

WORKSHOP/TRAINING (Selected)

- Tissue culture workshop, Electron microscopy workshop

PATENTS/ TECHNOLOGY TRANSFER

- Shiladitya Sengupta, Abhimanyu Paraskar, Shivani Soni, Sudipta Basu, Poulomi Sengupta Nanoscale platinum compounds and methods of use thereof. Inventors:. US Application number US20160367682A1.

OTHER INFORMATIOS

Editorial member, Journal name
Reviewer (only Peer-Reviewed journal name)
None