CURRICULUM VITAE

Santimukul Santra, Ph.D.

Professor of Chemistry
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EXPERTISE

Research expertise in the following interdisciplinary areas: organic synthesis | dendritic polymer chemistry | nanobiotechnology | nanomedicine and vaccine formulations for personalized therapy | nanosensor fabrication for infectious disease fusion and biomarker detection. Over 10 years of university classroom teaching experiences in the areas of chemistry, polymer chemistry and nanoscience.

EDUCATION

Ph.D. Department of Chemistry, Indian Institute of Technology (I.I.T.)-Bombay, Mumbai, India, **2006.**
M.S. Department of Chemistry, Banaras Hindu University, Varanasi, India, **2000.**
B.S. Department of Chemistry, Ramakrishna Mission-Narendrapur, University of Calcutta, India. **1998.**

THESIS and DISSERTATION

"Design and Multi-Step Syntheses of Functional Biopolymers Based on 2, 2'-Bis(hydroxymethyl) Propionic Acid, Malonic Acid and beta-Alanine" Ph.D. Dissertation, Department of Chemistry, Indian Institute of Technology-Bombay, Mumbai, India, **2006**. (Mentor: Prof. Anil Kumar)

"Extraction of natural products and herbal pigments from neem leaves and their characterizations", M.S. Project, Department of Chemistry, Banaras Hindu University, Varanasi, India, **2000** (Mentor: Prof. R. S. Khanna).

EMPLOYMENT PROFILE

Missouri State University, Department of Chemistry and Biochemistry, Springfield, Missouri, USA.
- *Professor*, **Fall 2023-Present**

Pittsburg State University, Department of Chemistry, Pittsburg, Kansas, USA.
- *Associate Professor*, **2018-2023**
- *Assistant Professor,* **2013-2017**

Jaya Biosciences Inc., South San Francisco, CA, USA.
- *Co-founder and Director of Research and Development,* **2021-present**

Seva Therapeutics Inc., San Francisco, CA, USA.
- *Co-founder and Director of Research and Development,* **2015-present**

Rensselaer Polytechnic Institute, Department of Chemistry and Chemical Biology, Troy, USA.
- *Visiting Research Professor,* **Summer 2015**

Kansas Polymer Research Center, Pittsburg State University, Pittsburg, Kansas, USA.
- *Research Consultant,* **2013-2023**

University of Central Florida, Nanoscience Technology Center, Orlando, Florida, USA.
- *Research Assistant Professor*, **2010-2012**
- *Postdoctoral Research Associate,* **2007-2009**

Indian Institute of Technology-Bombay, Department of Chemistry, Mumbai, India.
- *Doctoral Senior Graduate Research Associate,* **2004-2006**
- *Doctoral Junior Graduate Research Assistant*, **2000-2003**

Banaras Hindu University, Department of Chemistry, Varanasi, India.
- *Student Trainee*, **1999-2000**

GRANTS and CONTRACTS

Currently Funded Projects: *Accumulated Extramural Funding: over $1.9 M*

5. 2022-2025. Role: PI. *"Investigation of Membrane Fusion Interactions of Enveloped Viruses using Magnetically-Labeled Liposomes."* **National Institute of Health (NIH)**, Parent **R15-AREA** grant, ID: 1R15GM146194-01, $397,063.00

4. 2022-2025. Role: PI. *"Synthesis of petroleum-based new dendritic macromolecules for designing reusable copper catalysts to promote fundamental chemical transformations"*. **ACS-Petroleum Research Fund (ACS-PRF) Undergraduate Research (UR),** ID: PRF # 65928-UR7. $70,000.00

3. 2022-2023. Role: PI. "*Pilot Project: Development of HBPE-based personalized nanomedicine*". **JAYA Biosciences** (Industrial Contract), $50,000.00

2. 2022-2023. Role: PI. "*One-Step Synthesis of Soybean Polyols Using Microwave Reactor: Method Development*", **Kansas Soybean Commission (KSC**), $49,000.00

1. 2022-2023. Role: PI. "*Combination Therapy of TNBC: The Hsp90 Inhibitor Synergizes the Therapeutic Efficacy of CT20p Peptide*". One Star-Trainee Award and Two **K-INBRE** Semester Scholar Awards, $17,000.00

Pending resubmissions/decisions:

A) Industrial grant, SEVA therapeutics (co-founder), Role: PI, pending decision, 2023.
B) NIH-R03 proposal submitted to NIAID in Fall 2022. Role: PI, $139,000. Scored 30.
C) NIH-R15 proposal submitted to NIAID in Fall 2022. Role: Co-I, $445,000. Scored 27.

Completed Projects:

16. 2019-2022. Role: PI. "*Development of Magneto-Plasmonic Nanosensors for the Ultrasensitive Detection of Food-Borne Pathogens*". **United States Department of Agriculture** (**USDA**)-**NIFA**, ID: 2018-07295, $145,015.00

15. 2021-2022. Role: PI. "Pilot Project: Development of HBPE-based personalized nanomedicine". **Industrial Contract**, $30,047.00 (SEVA Therapeutics)

14. 2017-2020. Role: PI. "Magnetic Resonance Nanosensors for the Rapid Diagnosis of Influenza". **National Institute of Health (NIH)**, Parent R03, ID: 1 R03 AI132832-01. $138,558.00 (1-year no cost extension)

13. 2019-2020. Role: PI. "Functional magnetic nanosensors for the sensitive detection of zika virus". Bridging Award, *Kansas Idea Network of Biomedical Research Excellence* (**K**-**INBRE**, NIGMS) P20 GM103418, $55,448.00

12. 2019-2020. Role: PI. "One-step polyols synthesis: Technology advancement and commercialization", Kansas Soybean Commission (**KSC**), $45,000.00
11. 2019-2020. Role: PI. "Topical lotions: Developing new technology for cosmetic industries", Kansas Soybean Commission (**KSC**), $50,000.00

10. 2019-2020. Role: PI. "Engineered Magneto-Plasmonic Nanosensors for the Ultrasensitive Detection of E. coli O157:H7". **K-INBRE** Star-Trainee Award, $9,000.00

9. 2018-2019. Role: PI. "Acquisition of water purification system". **K-INBRE** core facility support (NIGMS P20 GM103418). $10,000.00

8. 2016-2018. Role: PI. "Development of new click-ene chemistry for the low-cost synthesis of polymeric materials". **ACS-Petroleum Research Fund (ACS-PRF UNI),** ID: 56629-UNI7. Role: PI, $55,000.00

7. 2017-2018. Role: PI. "Magnetic nanoprobes for cancer imaging". Bridging Award, **K-INBRE** (NIGMS P20 GM103418), $54,695.00

6. 2015-2017. Role: PI. "New soybean polymers for industrial applications", Kansas Soybean Commission (**KSC**), ID: PSU/KSC # 1774, $100,000.00

5. 2016-2017. Role: PI. "**Shimadzu Equipment Grant for Research", Shimadzu** Scientific Instruments, $130,000.00

4. 2015-2017. Role: PI. "Development of New soybean-based anti-oxidant topical lotion for skin care applications", Kansas Soybean Commission (**KSC**), ID: PSU/KSC # 1763. $100,000.00

3. 2015-2016. Role: Co-PI. "Polycarbonate from soybean oil-based epoxide and carbon dioxide", Kansas Soybean Commission (**KSC**). $50,000.00

2. 2014-2015. Role: PI. "Development of novel sulfur-containing theranostic nanomedicines for the targeted X-ray/CT imaging and treatment of cancers". **K-INBRE**, $31,000.00

1. 2014-2018, Role: PI. "Magnetic Relaxation Nanosensors (MRnS) and Nanomedicines for Biomedical Applications". **K-INBRE** accumulative 4 Star-Trainee Awards and 6 Semester Scholar Awards. $60,000.00

PUBLICATIONS

Peer Reviewed Publications: *Forty-six manuscripts published and two under review.*

46. T. Banerjee, N. Panchal, C. Sutton, R. Elliott, T. Patel, K. Kajal, E. Arogunyo, N. Koti, and **S. Santra**. Tunable Magneto-Plasmonic Nanosensor for Sensitive Detection of Foodborne Pathogens. **Biosensors**, **2023,** *13*, 109.

45. Panchal, N.; Jain, V.; Elliott, R.; Flint, Z.; Worsley, P.; Duran, C.; Banerjee, T.; **Santra, S.** "Plasmon-Enhanced Bimodal Nanosensor: An Enzyme-Free Signal Amplification Strategy for Ultrasensitive Detection of Pathogens". **Analytical Chemistry, 2022**, *94*, 13968−13977.

44. S. Naz, T. Banerjee, F. Totsingan, K. Woody, R. A. Gross, **S. Santra**. "Therapeutic Efficacy of Lactonic Sophorolipids: Nanoceria-Assisted Combination Therapy of NSCLC using HDAC and Hsp90 Inhibitors". **Nanotheranostics, 2021**, *5*, 391-404.

43. V. Jain, T. Shelby, T. Patel, E. Mekhedov, J. P. Petersen, J. Zimmerberg, A. Ranaweera, D. Weliky, P. Dandawate, A. Shrikant, S. Sulthana, Y. Vasquez, T. Banerjee, **S. Santra**. "A Bimodal Nanosensor for Probing Influenza Fusion Protein Activity Using Magnetic Resonance Imaging". **ACS Sensors, 2021**, *6*, 1899.

42. T. Banerjee, T. Patel, O. Pashchenko, R. Elliott, **S. Santra**. "Rapid Detection and One-Step Differentiation of Cross-Reactivity Between Zika and Dengue Virus using Functional Magnetic Nanosensors". ***ACS Applied Bio Materials,*** **2021**, *4*, 3786.

41. S. Santra, Z. Shaw, R. Narayanam, T. Banerjee. "Selective O-alkylation of Bis-MPA: A Facile Synthetic Approach to Develop Biodegradable Polymers for Drug Delivery Applications". ***ACS Applied Polymer Materials,*** **2020**, 2, 3465.

40. S. Santra, R. Bean, B. Heckert, Z. Shaw, V. Jain, L. Shrestha, R. Narayanam, Q. Austin. "Alkene-Azide Chemistry: A Facile, One-Step, Solvent- and Catalyst-Free Approach for Developing New Functional Monomers and Polymers". ***Polymer Chemistry,*** **2020**, 11, 3723.

39. Z. Shaw, A. Patel, T. Butcher, T. Banerjee, R. Bean and **S. Santra.** "Pseudo-Branched Polyester Copolymer: An Efficient Drug Delivery System to Treat Cancer". ***Biomaterials Science***, **2020**, *8*, 1481 (Cover page).

38. P. Dandawate, G. Kaushik, D. Subramaniam, C. Ghosh, S. Chowdhury, D. Standing, P. Ramamoorthy, A. Manzardo, A. Sayed, T. Banerjee, **S. Santra**, M. Butler, S. Padhye, J. Baranda, A. Kasi, W. Sun, O. Tawfik, D. Coppola, M. Malafa, S. Umar, M. Soares, S. Saha, S. Weir, A. Dhar, R. Jensen, S. Thomas and S. Anant. "Targeting Prolactin Receptor using an Antipsychotic to Suppress Pancreatic Ductal Adenocarcinoma". ***Gastroenterology,*** **2019**, *5*, 1433.

37. R. Alnasser, Z. Shaw, and **S. Santra.** "Hyperstar Polyester-Based Functional Nanotheranostics for the Targeted Drug Delivery and Treatment of Cancer". ***ChemNanoMat,*** **2019**, *5*, 1506.

36. T. Banerjee, T. Tummala, R. Elliott, B. Wesley, V. Jain, L. Hadorn and **S. Santra.** "Multimodal Magneto-Fluorescent Nanosensor for Rapid and Accurate Detection of Blood-Borne Pathogens". ***ACS Applied Nano Materials, 2019****, 2, 5587.*

35. J. Kallu, T. Banerjee, S. Sulthana, S. Darji, R. Higginbotham, C. Fletcher, N. N. Gerasimchuk and **S. Santra.** "Nanomedicine-Assisted Combination Therapy of NSCLC: New Platinum-Based Anticancer Drug Synergizes the Therapeutic Efficacy of Ganetespib". ***Nanotheranostics,*** **2019,** *3*, 120.

34. M. R. Abedin, S. Umapathi, H. Mahendrakar, T. Laemthong, H. Coleman, D. Muchangi, **S. Santra**, M. Nath, S. Barua. "Polymer Coated Gold-Ferric Oxide Superparamagnetic Nanoparticles for Theranostic Applications". ***Journal of Nanobiotechnology,*** **2018**, 16:48.

33. R. Elliott, T. Banerjee and **S. Santra.** "ZIKA: An Emerging Disease Requiring Prevention and Awareness". ***PLoS Neglected Tropical Diseases,*** **2018,** *12, e0006486.*

32. O. Pashchenko, T. Shelby, T. Banerjee and **S. Santra**. "A comparison of optical, electrochemical, magnetic, and colorimetric point-of-care biosensors for infectious disease diagnosis". ***ACS Infectious Diseases,*** **2018,** *4,* 1162.

31. R. Elliott and **S. Santra**. "Nanomedicine: Tackling Undruggable Non-Small Cell Lung Cancer". ***Journal of Nanomedicine Research,*** **2018**, *7*, 173.

30. A. Carr, A. Khaled, R. Bassiouni, O. Flores, D. Nierenberg, H. Bhatti, P. Vishnubhotla, J. Manuel Perez, **S. Santra** and A. Khaled. "Targeting chaperonin containing TCP1 (CCT) as a molecular therapeutic for small cell lung cancer". ***Oncotarget,*** **2017**, *8*, 110273.

29. T. Shelby, T. Banerjee, I. Zegar and **S. Santra**. "Highly Sensitive, Engineered Magnetic Nanosensors to Study the Ambiguous Activity of Zika Virus". ***Scientific Reports,*** **2017**, *7*, 7377.

28. T. Shelby, S. Sulthana, J. McAfee, T. Banerjee and **S. Santra**. "Foodborne Pathogens Screening Using Magneto-Fluorescent Nanosensor: Rapid Detection of E. coli O157:H7". ***J. Vis. Exp. (JoVE),*** **2017**, *127*, e55821.

27. O. Flores, **S. Santra**, C. Kaittanis, R. Bassiouni, Annette R. Khaled, J. Grimm and J. M. Perez. "PSMA-Targeted Theranostic Nanocarrier for Prostate Cancer". ***Theranostics,*** **2017**, *7*, 2477-2494.

26. B. Heckert, T. Banerjee, S. Sulthana, S. Naz, R. Alnasser, D. Thompson, G. Normand, J. Grimm, J. M. Perez and **S. Santra**. "Design and Synthesis of New Sulfur-Containing Hyperbranched Polymer and Theranostic Nanomaterials for Bimodal Imaging and Treatment of Cancer". ***ACS Macro Letters,*** **2017**, *6*, 235-240.

25. S. Sulthana, T. Banerjee, J. Kallu, SR. Vuppala, B. Heckert, S. Naz, T. Shelby, O. Yambem, **S. Santra**. "Combination Therapy of NSCLC Using Hsp90 Inhibitor and Doxorubicin Carrying Functional Nanoceria". ***Molecular Pharmaceutics*****, 2017**, *14*, 875–884.

24. S. Naz, J. Beach, B. Heckert, T. Tummala, O. Pashchenko, T. Banerjee, **S. Santra**. "Cerium Oxide Nanoparticles: A "Radical" Approach to Neurodegenerative Disease Treatment". ***Nanomedicine,*** **2017,** *12*, 545-553.

23. T. Banerjee, T. Shelby, **S. Santra**. "How nanosensors may detect pathogen contamination before it ever reaches the dinner table". ***Future Microbiology,*** **2017**, *12*, 97-100.

22. T. Shelby, T. Banerjee, J. Kallu, S. Sulthana, I. Zegar, **S. Santra**. "Novel Magnetic Relaxation Nanosensors: An Unparalleled "Spin" on Influenza Diagnosis". ***Nanoscale,*** **2016**, *8*, 19605.

21. T. Banerjee, S. Sulthana, T. Shelby, B. Heckert, J. Jewell, K. Woody, V. Karimnia, J. McAfee, **S. Santra**. "Multiparametric Magneto-fluorescent Nanosensors for the Ultrasensitive Detection of Escherichia coli O157:H721". ***ACS Infectious Diseases,*** **2016**, *2*, 667–673.

20. C. Kaittanis, T. M. Shaffer, A. Ogirala, **S. Santra**, J. M. Perez, G. Chiosis, Y. Li, L. Josephson, J. Grimm. "Environment-responsive nanophores for therapy and treatment monitoring via molecular MRI quenching". ***Nature Communications,*** **2014**, *5*, 3384.

Before joining Pittsburg State University*:*

19. Santra, S.; Jativa, D. J.; Kaittanis, C.; Normand, G.; Grimm, J.; Perez, J. M. "Gadolinium-Encapsulating Iron Oxide Nanoprobes as Activatable NMR/MRI Contrast Agent". ***ACS Nano,*** **2012**, *6*, 7281.

18. Boohaker, R.; Zhang, G.; Lee, M.; Nemec, K.; **Santra, S.;** Perez, J. Manuel; Khaled, A. "Rational Development of a Cytotoxic Peptide to Trigger Cell Death". ***Molecular Pharmaceutics,*** **2012**, *9,* 2080-2093.

17. C. Kaittanis, H. Boukhriss, **S. Santra,** J. F. Valentine, S. A. Naser, J M. Perez. **"**Hybridizing magnetic relaxation nanosensors facilitate the rapid and sensitive detection of an intracellular pathogen in human peripheral leukocytes". ***PLoS One,*** **2012**, *7*, e35326.

***Featured** in Genetic Engineering and Biotechnology News Magazine. Featured in www.nano.gov website of National Nanotechnology Initiative group. Posted on National Institute of General Medical Science (NIH) website. Posted on Sciencedaily.com website. Posted on Europapress.com website. Posted on Eurekalert.com website. Posted on today.ucf.com website. Interviewed on FOX 35 news channel.

16. C. Kaittanis, **S. Santra**, A. Asati, J. M. Perez. **"**A Cerium Oxide Nanoparticle-based Device for the Detection of Chronic Inflammation via Optical and Magnetic Resonance Imaging". ***Nanoscale,*** **2012**, *4*, 2117-2123.

15. S. Santra, C. Kaittanis, O. J. Santiesteban, J. M. Perez **"**Cell-Specific, Activatable and Theranostic Prodrug for Dual Targeted Cancer Imaging and Therapy". ***J. Am. Chem. Soc.,*** **2011**, *133*, 16680-16688.

14. S. Santra, C. Kaittanis, O. J. Santiesteban, J. M. Perez **"**Trifunctional Targeting". ***ACS Chem. Biol.*** *(Spotlight)*, **2011**, *6*, 1143-1143.

13. S. Santra,* J. M. Perez. "Facile, One-Step, Selective *N*-Alkylation of Amino Acids: Novel Polyamino Acid-Based Theranostic Nanoagents for Targeted Cancer Therapy". ***Biomacromolecules,*** **2011**, *12*, 3917-3927.

12. C. Kaittanis, **S. Santra**, O. J. Santiesteban, T. Henderson, J. M. Perez **"**The Assembly State between Magnetic Nanosensors and their Targets Orchestrates their Magnetic Relaxation Response". ***J. Am. Chem. Soc.,*** **2011**, *133*, 3668-3676.

11. A. Asati, C. Kaittanis, **S. Santra**, J. M. Perez. "pH-Tunable Oxidase-Like Activity of Cerium Oxide Nanoparticles Achieving Sensitive Fluorigenic Detection of Cancer Biomarkers at Neutral pH". ***Anal. Chem.,*** **2011**, *83*, 2547-2553.

10. C. Kaittanis, T. Banerjee, **S. Santra**, O. J. Santiesteban, K. Teter, J. M. Perez. "Identification of Molecular-Mimicry-Based Ligands for Cholera Diagnostics using Magnetic Relaxation". ***Bioconjugate Chemistry,*** **2011***,* 22, 307-314.

9. A. Asati, **S. Santra**, C. Kaittanis, J. M. Perez. "Surface chemistry-dependent cell localization and cytotoxicity of cerium oxide nanoparticles". ***ACS Nano,*** **2010**, *4*, 5321-5331.

8. S. Santra, C. Kaittanis, J. M. Perez. **"**Cytochrome c Encapsulating Theranostic Nanoparticles: A Novel Bifunctional System for targeted delivery of therapeutic membrane-impermeable proteins to tumors and imaging of cancer therapy". ***Molecular Pharmaceutics***, **2010**, *7*, 1209-1222.

7. Kaittanis, C.; **Santra, S**.; Perez, J. M. Emerging nanotechnology-based strategies for the identification of microbial pathogenesis. ***Adv. Drug Deliv. Rev.,*** **2010**, *62*, 408.

6. Santra, S.; Kaittanis, C.; Perez, J. M. Aliphatic Hyperbranched Polyester: A New Building Block in the Construction of Multifunctional Nanoparticles and Nanocomposites. ***Langmuir,*** **2010**, *26*, 5364.

5. Santra, S.; Kaittanis C.; Grimm J.; and Perez J. M. Drug/Dye-Loaded, Multifunctional Iron Oxide Nanoparticles for Combined Targeted Cancer Therapy and Dual Optical/MR-Imaging. ***Small,*** **2009**, *5*, 1862.

4. Asati, A.; **Santra, S**.; Kaittanis, C.; Nath, S.; Perez, J. M. Oxidase-like activity of polymer-coated cerium oxide nanoparticles. ***Angew. Chem. Int. Ed. Engl.,*** **2009**, *48*, 2308.

*** Featured** as *very important paper*. Selected for *cover picture* of the journal. Featured in ACS Chemical & Engineering News Magazine. Invited by ACS Communication office for Media coverage. Posted on National Institute of General Medical Science (NIH) website.

3. Kaittanis, C.; **Santra. S**.; Perez, J. M. Role of nanoparticle valency in the nondestructive magnetic-relaxation-mediated detection and magnetic isolation of cells in complex media. ***J. Am. Chem. Soc.,*** **2009**, *131*, 12780.

2. S. Santra and A. Kumar. "Facile synthesis of aliphatic hyperbranched polyesters based on diethylmalonate and their irreversible molecular encapsulation". ***Chem. Comm.,*** **2004**, 2126.

1. A. Kumar, A. Q. Contractor, A. V. Ambade, T. Ranganathan, K. Krishnamoorthy, S. P. Mishra, U. P. Ojha, **S. Santra**, M. Kanungo "Novel approaches for novel materials". ***Int. J. Plast. Tech.,*** **2003**, 6, 73.

PATENTS

Patents: *Fifteen Issued patents and patent Applications. Two patents licensed to pharma-companies.*

15. **S. Santra.** "One-Step Synthesis of Soybean Polyols". **US Patent Appl. No. 63/015,167.**

14. **S. Santra.** "Triethylene Glycol-Functionalized Triglyceride Polyol Polymers". **US Patent Appl. No. 63/017,873.**

13. J. M. Perez, **S. Santra.** "Synthesis of hyperbranched amphiphilic polyester and theranostic nanoparticles thereof." **US Patent Issued. Patent # 8,372,944 B1. Licensed.**

12. J. M. Perez, **S. Santra.** "Multimodal, Multifunctional Polymer Coated Nanoparticles" **US Patent Issued. Patent # 8,236,284 B1.**

11. J. M. Perez, A. Asati, **S. Santra**, C. Kaittanis. "Differential Tumor Cell Cytotoxicity via Contact with Coated Cerium Oxide Nanoparticles". **US Patent Issued. Patent # 10,213,458.**

10. J. M. Perez, A. Asati, C. Kaittanis, S. Nath and **S. Santra**, "Oxidase activity of polymer coated cerium oxide nanoparticles". **US Patent Issued. Patent # 10,261,074.**

9. J. M. Perez, C. Kaittanis, A. Asati, **S. Santra** "A cerium-oxide-nanoparticle-based device for the detection of Reactive oxygen species and monitoring of chronic inflammation". **US Patent Issued. Patent # 8,795,733.**

8. J. M. Perez, **S. Santra.** "Bi-DOTA complex-loaded dendritic polymer nanoparticles". **US Patent Appl. No. 62/362,323. International Patent Appl. No. PCT/US2017/042145.**

7. A. Khaled, J. M. Perez, **S. Santra**, C. Kaittanis, O. Santiesteban, J. Grimm. "Methods and compositions for theranostic nanoparticles". **U.S. patent Appl. No. 62/153,912.**

6. J. M. Perez, A. Asati, **S. Santra**, C. Kaittanis "Application Device for Inducing Cytotoxicity to Tumor Cells via Coated Cerium Oxide Nanoparticles". **U.S. patent Appl. No. 14/862,559.**

5. J. M. Perez, **S. Santra**. "Activatable imaging contrast agents". ***US Patent Appl. No. 13,936,933.***

4. J. M. Perez, A. Asati, **S. Santra**, C. Kaittanis "Surface Charge Dependent Cell Localization and Cytotoxicity of Cerium Oxide Nanoparticles". **U.S. patent Appl. No. 61/537,102**.

3. Santra, S. Kumar, A. *et.al*., "Malonic acid-based monomers and polymers". **Indian Patent Appl. 664/ MUM/2006.**

2. Santra, S. Kumar, A. *et al.,* "*N*-alkylation of amino acids and their application in polymer synthesis". **Indian Patent Appl. 775/MUM/2006.**

1. Santra, S. Kumar, A. *et.al*., "*O*-alkylation of β, β-disubstituted hydroxyl- compounds and its applications in Polymer syntheses". **Indian Patent Appl. 776/MUM/2006.**

RESEARCH INTERESTS

Blend of expertise in the field of organic chemistry, novel dendritic biopolymer synthesis, and nanotechnology for the diverse applications in the area of nanomedicines, vaccine delivery, nanosensors and catalysis. Dr. Santra's research focuses on personalized nanoplatforms (nanomedicine and nanosensor) that uses magnetic relaxation, plasmon resonance, nanozyme and lateral flow assay technologies for vaccine management and other biomedical applications.

Bioengineering of activatable prodrugs for developing precision nanomedicines.
Design and synthesis of therapeutic drug conjugates (prodrugs) using cleavable and non-cleavable cross-linkers. Formulation of precision nanomedicines using prodrugs for the targeted delivery to tumor. Assessment of intracellular prodrug activation using *in vitro* and *in vivo* assays. Study prodrug mechanism of action and the mechanism of cell death. *Activatable prodrugs with Gd-DTPA and Bi-DOTA complexes* for MR and X-ray CT imaging and cancer therapy. These prodrugs are ideal candidate for cataract therapy, which Dr. Santra's lab is currently focusing on.

Non-viral drug delivery: Therapeutic drug and vaccine formulations and targeted delivery using dendritic biopolymers.
Design and syntheses of tri-functional monomers. Biochemical synthesis of biodegradable hyperbranched polymers (HBPE, Patented technology and licensed) and dendrimers using Novozyme biocatalysts. Therapeutic drug, peptide, mRNA, native virus, viral protein and imaging agent encapsulations, solvent diffusion, *surfactant-free nanoformulations*, polymeric and metallic nanoparticles. *Personalized nanomedicine and vaccine delivery*. Nanochemistry, surface functionalization and targeted drug delivery. *In vitro* and *in vivo* therapeutic assessment, treatment evaluations. Lung, cervical, prostate, breast, ovarian, colon cancer treatment. Cell viability, ROS, apoptosis, necrosis, migration and comet assays. Chemotherapy and immunotherapy. Combination therapy and multidrug resistance.

Tool development for vaccine management: Rapid detection of SARS-CoV-2 neutralizing antibodies
One of the critical factors for understanding protective immunity after vaccination/natural infection involves *determining levels of neutralizing antibody (NAb)*. Ongoing research in Dr. Santra's lab involves design and *development of novel non-enzymatic labels for lateral flow assays (LFA)* for the rapid detection of SARS-CoV-2 neutralizing antibodies. These unique and tunable colorimetric labels exhibit ultrahigh catalytic activity and being used as an alternative label to conventional redox and natural enzymes, HRP. Ultimately, integration of these catalytic labels in lateral flow assays (LFA, figures below) could greatly improve time in determination of neutralizing antibody status, and therefore improve surveillance and epidemiological measures.

Biomimetic nanosensors for investigation of fusion protein interactions in enveloped viruses.
New lipid-coated magnetic nanosensors (LIONs), mimicking as magnetic-labeled host membranes are developed with and without receptor to detect minute interactions between the host membrane and viral fusion proteins. In addition, T2 relaxation technology is used as a generic bioanalytical tool for the rapid and sensitive quantification of viral protein fusion interactions for the first time. Fusion protein's interaction with new LIONs platform results in detectable changes in T2 magnetic relaxation time (ΔT2 ms) that is collected using a bench-top NMR instrument. Development of LIONs represents an important scientific breakthrough as this platform will provide quantitative insights into 1) viral protein membrane fusion and 2) the influences of various factors including host membrane compositions, pH, and protease activation on fusion interactions. Currently, the lab is further developing novel magnetic nanosensor technology platform for detecting fusion protein interactions of enveloped viruses including *SARS-CoV-2, influenza, zika and Ebola*. This technology will have important application for the identification of virus binding and fusion inhibitors.

Magnetically-labeled reporter viruses: A new tool for screening antiviral therapeutics
Magnetically-labeled reporter virus particles (M-RVPs) are being developed for real-time faster monitoring of host-viral protein fusion interactions *in SARS-CoV-2, influenza and zika viruses*. The magnetic signal tag on RVPs enables rapid quantifiable readout (T2 relaxation) in comparison to luciferase signal, which can be only measured after successful expression of luciferase reporter gene and takes a minimum of 48 h following incubation. The proposed assay is adaptable to 96-well format without requiring live viruses and can be performed in BSL2 containment facility. This technology will have important application in screening antiviral therapeutics.

Field deployable LFA technology: Nanosensors for detection of food-borne pathogens
Metallic nanostructures are engineered to offer multimodality in the point-of-care detection of infectious diseases. Dr. Santra's lab has completed few projects for the detection infectious diseases including E. coli O157:H7. These projects

attracted funds from Federal agencies including USDA and developed technologies for the detection of food-borne pathogens and other infectious diseases. Magneto-plasmonic nanosensors (MPnS) with magnetic and surface plasmon resonance modalities for sensitive detections.

Engineered functional hyperbranched polymers and dendrimers for catalysis

Another priority area that Dr. Santra's lab currently working on the use of dendritic structure in the field of catalysis. This new research direction is adopted by the PI as a requirement from ACS-Petroleum Research (PRF). Dr. Santra received both the Undergraduate New Investigator (UNI, 2016) award and Undergraduate Research (UR, 2022) award from ACS-PRF. The lab uses advanced technologies for the syntheses and formulation of new dendritic structures, polyurethane and polyamide hyperbranched polymers and dendrimers. These structures were used as a chelating template for the fabrication of metal catalysts. This is very interactive for the hands-on experience of students and the laboratory experience is often transitioned to the classroom and vice versa. Students enjoy working with different colored metal-dendritic catalysts, fostering their knowledge in the catalysis and reaction kinetics, and rate determinations.

STUDENTS GRADUATED WITH THESIS

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22. Neelima Koti (2023). Thesis title: Synthesis and Characterizations of Biodegradable Hyperbranched Polymers for the Targeted Delivery and Treatment of Lung Cancers.

21. Kajal Singh (2023). Thesis title: Dendritic Polymer-Stabilized Reusable Gold Nanocatalysts for Efficient Hydrogenation Reactions.

20. Eniola Esther Arogunyo (2023). Thesis title: Development of Functional Plasmonic Nanoceria for the Ultrasensitive Detection of *Escherichia coli* O157:H7.

19. Truptiben Patel (2022). Thesis title: Hyperbranched Polyester-Based Drug Delivery System for The Optical Imaging and Treatment of Cancer.

18. Nilamben Panchal (2021). Thesis title: Nanozyme: A Developing Nanotechnology for The Detection of Foodborne Pathogens.

17. Raghunath Narayanam (2021). Thesis title: Targeted Combination Therapy of NSCLC Using Taxol and Fingolimod loaded nanoceria.

16. Himanshu Polara (2021). Thesis title: Combination Therapy: Dual drug loaded superparamagnetic iron-oxide nanoparticle for targeted MR imaging and treatment of cancer.

15. Arth Patel (2020). Thesis title: Synthesis of Gadolinium-Doxorubicin Prodrug Carrying Functional Nanoceria for the Targeted Drug Delivery and Cancer Treatment.

14. Zachary Shaw (2020). Thesis title: Synthesis of New Aliphatic Pseudo-Branched Polyester Co-polymers for Biomedical Applications.

13. Ren Bean (2019). Thesis title: "Click-ene" Chemistry: An Efficient Synthetic Strategy for the One-Step Development of Functional Monomers and Polymers.

12. Saloni Darji (2019). Thesis title: Nanomedicine-Based Immuno-Chemotherapy for the MR Imaging and Treatment of Triple Negative Breast Cancer.

11. Bayan Dous (2018). Thesis title: Synthesis of Doxorubicin-Based Prodrug and Activatable Magnetic Relaxation Nanoprobe for the Imaging and Treatment of Cancer.

10. Momin Ansare (2018). Thesis title: Combination Therapy: PARP Inhibitor Synergizes the Therapeutic Efficacy of Doxorubicin in the Treatment of Prostate Cancer.

9. Tanuja Tummala (2018). Thesis title: Targeted Triple Drug Regimen for The Treatment of Prostate Cancer.

8. Elaf Alattas (2017). Thesis title: Synthesis and Characterization of Enzyme Catalyzed Biodegradable "Click-Ene" Polymers for Targeted Cancer Therapy.

7. Wadha Alqahtani (2017). Thesis title: One-Step Synthesis and Characterization of Biodegradable 'Click-able' Polyester Polymer for Biomedical Applications.

6. Shuguftha Naz (2017). Thesis title: Molecularly Targeted Nanomedicine: Role of Hsp90 Inhibitor and Sophorolipids in The Treatment of Lung Cancer.

5. James F. Beach (2017). Thesis title: One-Pot Syntheses and Characterizations of "Click-able" Polyester Polymers for Potential Biomedical Applications.

4. Riyadh Alnasser (2016). Thesis title: Synthesis and Characterization of Novel Biodegradable Polyester Polymer for Biomedical Applications.

3. Shoukath Sulthana (2016). Thesis title: Development of Functional Nanoceria for Targeted Imaging and Treatment of Non-Small-Cell Lung Cancer.

2. Jyothi Kallu (2016). Thesis title: Development of Novel Magnetic Nanotheranostics for the Combination therapy of K-RAS driven NSCLC.

1. Blaze Heckert (2015). Thesis title: Development of new Bi-DOTA complex-loaded dendritic polymer nanoparticles for x-ray imaging and treatment of lung cancer.

TEACHING EXPERIENCES

Dr. Santra teaches only two courses per semester at the Pittsburg State University since 2013. He is an excellent classroom teacher as recognized by his students. His teaching follows evidence-based practices and flip-class module to break the barrier between the instructor and students. Every year, he receives very high teaching ratings, on average 4.8 out of 5.0, in the student's SPTE evaluations. His individual student rating is higher than the average department, college and university rating. He has tremendous teaching interests and holds outstanding teaching experiences in the wide range of chemistry, polymer chemistry and nanotechnology courses. He already taught over 12 different courses at PSU, as given below, and most of it is assigned to him as per the requests from students. He generously volunteered to teach the 3rd and even a 4th course during the COVID-19 pandemic for face-2-face instruction as requested by the department. The following courses are instructed by Dr. Santra in multiple semesters.

CHEM 215: General Chemistry I
CHEM 216: General Chemistry I Laboratory
CHEM 225: General Chemistry II
CHEM 226: General Chemistry II Laboratory
CHEM 325: Organic Chemistry I
CHEM 326: Organic Chemistry I Laboratory
CHEM 360: Introduction to Polymer Science and Technology
CHEM 625: Polymer Synthesis and Characterizations
CHEM 626: Polymer synthesis laboratory
CHEM 687: Polymers in Nanotechnology
CHEM 850: Inorganic and Architecturally Unusual Polymers
CHEM 887: Advanced Biopolymers and Nanotechnology

AWARDS and SCHOLARSHIPS

Faculty Awards:

-Excellence in Research Award, College of Arts & Sciences, Pittsburg State University, Pittsburg, **2023**.
*-NIH R15 AREA grant Award, **2022**.*
*-ACS-PRF Undergraduate Research (UR) grant Award, **2022**.*
-Excellence in Teaching Award, College of Arts & Sciences, Pittsburg State University, Pittsburg, **2021**.
-Outstanding Faculty Scholarship Award, Pittsburg State University, Pittsburg, KS, **2020**.
-Excellence in Research Award, College of Arts & Sciences, Pittsburg State University, Pittsburg, **2020**.
-Bridging Award, K-INBRE (NIGMS), **2019**.
-Outstanding Undergraduate Research Faculty Mentor Award, Pittsburg State University, KS, **2019**.
-Core Facility Award, K-INBRE (NIGMS), **2018**.
-Excellence in Teaching Award, College of Arts & Sciences, Pittsburg State University, Pittsburg, **2018**.
-Bridging Award, K-INBRE (NIGMS), **2017**.
-Excellence in Research Award, College of Arts & Sciences, Pittsburg State University, Pittsburg, **2017**.
-Outstanding Faculty Scholarship Award, Pittsburg State University, Pittsburg, KS, **2017**.
-Undergraduate New Investigator Award, ACS-Petroleum Research Fund, ***2016.***
-Outstanding Undergraduate Research Faculty Mentor Award, Pittsburg State University, KS, **2015**.
-Excellence in Research Award, College of Arts & Sciences, Pittsburg State University, Pittsburg, **2014**.
-Best Oral Presentation Award, NanoFlorida Symposium, USF-Tampa, **2012**.
-Best Poster Presentation Award, NanoFlorida Symposium, UCF-Orlando, **2010**.
-Senior Research Fellowship, National Eligibility Test, Government of India*,* **2004**.
-Junior Research Fellowship, National Eligibility Test, Government of India*,* **2000***.*

Annual Faculty Performance Evaluation:
-Exceptional Performance, **2015-2023.**
-Meritorious Performance, **2014.**

<u>Student Awards</u> (2013-present)**:**

2023:
115. Semester Scholar Award to Adam Worsley, K-INBRE, KS.
114. Excellence in Scholarship award to Eniola Arogunyo from chemistry, PSU.
113. Semester Scholar Award to Caleb Worsley, K-INBRE, KS.
112. Excellence in Teaching award to Kajal Singh from chemistry, PSU.
111. Excellence in Research Award to Neelima Koti from chemistry, PSU.
110. Excellence in Research Award to Kajal Singh from chemistry, PSU.
109: Research excellence in cellular and molecular biology to Paul Worsley from Biology, PSU.
108. Excellence in Teaching award to Neelima Koti from chemistry, PSU.
107: Best Poster Presentation Award to Kajal Singh, PSU.
106. Best oral presentation Award to Paul Worsley, K-INBRE, KS.
105: Excellence in Scholarship award to Jainish Patel from polymer chemistry, PSU.
104. Excellence in Research Award to Uday Panchal from polymer chemistry, PSU.
103. Excellence in Research Award to Sahithi Kondaveeti from polymer chemistry, PSU.

2022:
102. Semester Scholar Award to Caleb Worsley, K-INBRE, KS.
101. Best Poster Presentation Award to Paul Worsley, K-INBRE, KS
100. Semester Scholar Award to Adam Worsley, K-INBRE, KS.

99. Star-Trainee Award to Paul Worsley, K-INBRE, KS.
98. Excellence in Research Award to Eniola Arogunyo from chemistry, PSU.
97. Undergraduate Organic Chemistry Award to Paul Worsley from Chemistry, PSU.
96. Excellence in Research Award to Truptiben Patel from polymer chemistry, PSU.
95. Graduate Scholarship Award to Neelima Koti from chemistry, PSU.
94. Excellence in Teaching Award to Kajal Singh from chemistry, PSU.

2021:
93. Semester Scholar Award to Paul Worsley, K-INBRE, KS.
92. Star-Trainee Award to Caine Duran, K-INBRE, KS.
91. Semester Scholar Award to Abigail Noble, K-INBRE, KS.
90. Best BIO-KANSAS Graduate Poster Award to Truptiben Patel from Capitol Research Summit, Topeka.
89. Excellence in Research Award to Nilamben Panchal from polymer chemistry, PSU.
88. Excellence in professional service Award to Raghunath Narayanam from polymer chemistry, PSU.
87. Excellence in Teaching Award to Truptiben Patel from polymer chemistry, PSU.

2020:
86. Graduate distinguished thesis Award to Zachary Shaw, PSU.
85. Semester Scholar Award to Drake Shaw, K-INBRE, KS.
84. Semester Scholar Award to Caine Duran, K-INBRE, KS.
83. Best Graduate Poster Award to Raghunath Narayanam, Bio-Kansas Capitol Research Summit, Topeka.
82. Excellence in research Award to Raghunath Narayanam from polymer chemistry, PSU.
81. Excellence in professional service Award to Nilamben Panchal from polymer chemistry, PSU.
80. Excellence in professional service Award to Rutul Patel from polymer chemistry, PSU.
79. Undergraduate Physical Chemistry Award to Truptiben Patel from chemistry, PSU.
78. Graduate scholarship Award to Himanshu Polara from chemistry, PSU.
77. Outstanding research in cellular/molecular biology Award to Vedant Jain from Biology, PSU.
76. Best Oral Presentation Award to Vedant Jain, 18th K-INBRE Symposium, KS.

2019:
75. Star-Trainee Award to Vedant Jain, K-INBRE, KS.
74. Semester Scholar Award to Thai Butcher, K-INBRE, KS.
73. Polymer chemistry excellence in research Award to Saloni Darji, PSU.
72. Polymer chemistry excellence in teaching Award to Saloni Darji, PSU.
71. Polymer chemistry excellence in teaching Award to Ren Bean, PSU.
70. Chemistry excellence in Research Award to Arth Patel, PSU.
69. Polymer chemistry excellence in scholarship Award to Ren Bean, PSU.
68. Best undergraduate poster Award to Vedant Jain, Capitol Research Summit, Topeka, KS.
67. Best undergraduate poster Award to Vedant Jain, PSU research colloquium.
66. Chemistry excellence in professional service Award to Himanshu Polara, PSU.
65. Kansas Bioscience Best Poster Award to Zachary Shaw, Capitol Research Summit, Topeka, KS.
64. Polymer chemistry excellence in Professional Service Award to Zachary Shaw, PSU.
63. Best undergraduate poster Award to Denise Muchangi, Capitol Research Summit, Topeka, KS.
62. BIO-KANSAS Best Graduate Poster Award to Zachary Shaw, Capitol Research Summit, Topeka, KS.
61. Best Poster Presentation Award to Vedant Jain, K-INBRE, KS.
60. Best Poster Presentation Award to Rebekah Elliott, K-INBRE, KS.

2018:
59. Missouri Valley-Parental Drug Association Award to Ren Bean, Capitol Research Summit, KS.
58. PSU Best Graduate Poster Award to Ren Bean, Capitol Research Summit, Topeka, KS.
57. Star-Trainee Award to Denise Muchangi, K-INBRE, KS.
56. BIO-KANSAS Best Graduate Poster Award to Ren Bean, Capitol Research Summit, Topeka, KS.
55. Best Poster Presentation Award to Sneha Ramanujam, PSU.
54. Polymer chemistry graduate research award to Ren Bean, PSU.

53. Polymer chemistry graduate teaching award to Zachary Shaw, PSU.
52. Semester Scholar Award to Vedant Jain, K-INBRE, KS.
51. Best Biochemistry student award to Oleksandra Pashchenko, Chemistry, PSU.
50. Best Poster Presentation Award to Wesley Brantley, K-INBRE, KS.
49. Polymer chemistry graduate scholarship award to Tanuja Tummala from PSU.
48. Best Poster Presentation Award to Ren Bean, K-INBRE, KS.
47. Chemistry graduate scholarship award to Bayan Dous, PSU.

2017:
46. University Scholar Award to Quentin Austin, K-INBRE, KS.
45. Star-Trainee Award to Sasha Pashchenko, K-INBRE, KS.
44. Semester Scholar Award to Lok Shrestha, K-INBRE, KS.
43. Excellence in Research Award to Shuguftha Naz, Department of Chemistry, PSU.
42. Excellence in Scholarship Award to Tanuja Tummala, Department of Chemistry, PSU.
41. Excellence in Teaching Award to James Beach, Department of Chemistry, PSU.
40. Excellence in Professional Service Award to Elaf Alattas, Department of Chemistry, PSU.
39. Undergraduate Research Award to Sasha Pashchenko, Department of Chemistry, PSU.
38. Undergraduate Research Award to Laci Hadorn, Department of Chemistry, PSU.

2016:
37. Travel Award to Shuguftha Naz and Tyler Shelby, Pittsburg State University.
36. Best Poster Presentation Award to Shuguftha Naz, ACS Pentasectional Conference, Oklahoma.
35. Best Oral Presentation Award to Jyothi Kallu, PSU Research Colloquium.
34. Best Poster Presentation Award to Shoukath Sulthana, PSU Research Colloquium.
33. Best Poster Presentation Award to Jyothi Kallu, PSU Research Colloquium.
32. Best Poster Presentation Award to Kalee Woody, PSU Research Colloquium.
31. Best Poster Presentation Award to Tyler Shelby, PSU Research Colloquium.
30. Best Teaching Assistant Award to Shoukath Sulthana, Chemistry, PSU.
29. Best Graduate Assistant Award to Jyothi Kallu, Polymer Chemistry, PSU.
28. Distinguished Graduate Thesis Award to Blaze Heckert, Polymer Chemistry, PSU.
27. Star-Trainee Award to Laci Hadorn, K-INBRE, KS.
26. Semester Scholar Award to Sasha Pashchenko, K-INBRE, KS.
25. BIO-KANSAS Best Graduate Poster Award to Shoukath Sulthana, Capitol Research Summit, Topeka.
24. Best Undergraduate Poster Presentation Award to Tyler Shelby, K-INBRE, KS.
23. Oral Presentation recognition to Jyothi Kallu, K-INBRE, KS.

2015:
22. University Scholar Award to Jessica Jewell, K-INBRE, KS.
21. Semester Scholar Award to Deaven Thompson, K-INBRE, KS.
20. Star-Trainee Award to Tyler Shelby, K-INBRE, KS.
19. Best UG Poster Presentation Award to Blaze Heckert, Chemistry PSU.
18. Best Graduate Oral Presentation Award to Jyothi Kallu, Polymer Chemistry, PSU.
17. Best UG Poster Award to Deaven Thompson, Chemistry, PSU.
16. Best Graduate Poster Award to Shoukath Sulthana, Polymer Chemistry, PSU.
15. Best Undergraduate Poster Award to Kalee Woody, Capitol Research Summit, Topeka, KS.
14. Best Poster Presentation Award to Jyothi Kallu, Bio-Kansas, Capitol Research Summit, Topeka, KS.
13. Best Graduate Poster Presentation Award to Jyothi Kallu, Capitol Research Summit, Topeka.
12. Best Poster Presentation Award to Kalee Woody, K-INBRE, KS.
11. Best Poster Presentation Award to Blaze Heckert, K-INBRE, KS.

2014:
10. Star-Trainee Award to Blaze Heckert, K-INBRE, KS.
9. Best UG Oral Presentation Award to Kalee Woody, Chemistry, PSU.
8. William & Mary Fern Souder Scholarship to Dagen Worthington, Polymer Chemistry, PSU.

7. Best UG Poster Presentation Award to Blaze Heckert, Chemistry, PSU.
6. Semester Scholar Award to Kalee Woody, K-INBRE, KS.
5. Best UG Research Award to Blaze Heckert, Chemistry, PSU.
4. Best Graduate Teaching Award to Nelson Elbers, Chemistry, PSU.
3. Best UG Poster Presentation Award to Kalee Woody, Chemistry, PSU.
2. Semester Scholar Award to Deaven Thompson, K-INBRE, KS.

2013:
1. Semester Scholar Award to Blaze Heckert, K-INBRE, KS.

PROFESSIONAL ACTIVITIES

PROPOSAL REVIEWER:

7. Study Sections, National Institute of Health (NIH)

- BBBT-M (80) A, Bioengineering, Biodata, and Biomodelling Technologies, **2023.**
  Role: *Chair of the study section and proposal reviewer*.

- ZRG1-BST-M (80), Bioengineering Sciences & Technologies, **2022.**
  Role: Proposal reviewer.

6. NIFA study section, United States Department of Agriculture (USDA), 2019.
Role: Proposal reviewer.

5. ACS Petroleum Research Fund (ACS-PRF), 2018, 2021.
Role: Proposal reviewer.

4. Florida Breast Cancer Foundation (FBCF), 2015-Present.
Role: Proposal reviewer.

3. London "Breast Cancer Now" foundation, 2016.
Role: Proposal reviewer.

2. Swiss National Science Foundation, 2015.
Role: Proposal reviewer.

1. Davidson Institute for Talent Development, 2014.
Role: Proposal reviewer.

JOURNAL REVIEWER:
ACS Nano, Langmuir, ACS Applied Materials Interfaces, Molecular Pharmaceutics, ACS Biomaterials Science and Engineering, Biomacromolecules, Colloids and Surfaces B: Biointerfaces, Molecules, Macromolecules, ACS Applied Bio Materials, Current Nanoscience, ACS Applied Nano Materials, International Journal of Nanomedicine, RSC Advances, ACS Omega, ACS Infectious diseases.

Editorial board member-
-Journal of Nanomedicine Research, Journal of Nanomaterials.

Administrative experiences-
-Graduate advisor of polymer chemistry program
-Chair of chemistry curriculum committee

University services-
-Curriculum development: BS and MS degrees in polymer chemistry program
-Member of Provost's Council for Research And Creative Endeavors (CRaCE)
-Member of polymer chemistry curriculum committee
-Member of graduate council executive committee
-Member of graduate council
-Member of CAS honors committee
-Member of CAS faculty awards selection committee
-Member of student health fee committee
-Member of MS thesis committee
-Member of "Leadership PSU"
-Member of university "host family and moving crew" committee
-Member of departmental summer school, open house and recruitment committees

SCIENTIFIC and PROFESSIONAL SOCIETIES

American Chemical Society (ACS)
- Division of Polymer Chemistry: *Member*, **2011-present**.
- Division of Biological Chemistry: *Member*, **2009-present.**

Materials Research Society (MRS)
- *Member*, **2019-present**.
Scientific Meeting Committee member:

ACS Pentasectional Meetings: MoKanOk Section, Pittsburg, KS:
- 65th meeting, April 18, **2020,** *Member*.
- 60th meeting, April 10, **2015,** *Member*.

ACS Midwest Regional Meetings:
- Fall Meeting, October 16, **2013**, Springfield, MO, Symposium on "*Current trends in polymer science*", *Session Chair*.

Pittsburg State University:
- Research colloquium, Pittsburg, Kansas, **2014-present**; *poster judge*.

K-INBRE:
- Research conference, **2014-present**; *poster judge*.

A-INBRE:
- Research conference, **2014-present**; *poster judge*.

PRESS and MEDIA COVERAGE on RESEARCH

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21. NIGMS blog news on drug delivery and cancer research, 2022. https://biobeat.nigms.nih.gov/2022/05/three-brothers-are-making-research-a-family-affair/
20. KOAM TV news on drug delivery and cancer research, 2021. https://www.youtube.com/watch?v=K3gHVkhJ4nQ
19. Pittsburg State University news on drug delivery and cancer research, 2021. https://www.pittstate.edu/gorillaconnection/2021/11/three-brothers-work-to-find-best-way-to-deliver-cancer-fighting-drugs.html
18. KSN TV news on drug delivery and cancer research, 2021. https://www.youtube.com/watch?v=eHDcgaTK2VA
17. ACS Press release on bacteria detection and nanosensors: https://www.acs.org/content/acs/en/pressroom/presspacs/2016/acs-presspac-september-21-2016/speedy-bacteria-detector-could-help-prevent-foodborne-illnesses.html
16. Food Safety News on E. coli detection: http://www.foodsafetynews.com/tag/tuhina-banerjee/#.V-3IWfkrLIU
15. New food Economy on pathogen detection using nanosensors: http://newfoodeconomy.com/rapid-e-coli-detection/AASCU highlight: https://www.aascu.org/email/ataascu/@aascu.html
14. AASCU news on magnetic nanosensors. https://www.magnetmail.net/actions/email_web_version.cfm?recipient_id=1218090634&message_id=13667778&user_id=AASCU&group_id=1014095&jobid=35656608
13. News on bacteria detection: http://www.hindustantimes.com/health-and-fitness/scientists-develop-nanosensor-which-can-detect-bacteria-in-food-or-water/story-aXMjPaKbhUXdejttvIziiI.html
12. News on E. coli detection. https://cosmosmagazine.com/chemistry/a-quick-easy-test-for-e-coli-contamination
11. https://www.terumobct.com/location/north-america/pages/home.aspx
10. http://www.morningsun.net/news/20161018/finding-e-coli---researchers-target-killer-bacteria
9. http://www.fox14tv.com/story/33412276/pitt-state-researchers-develop-rapid-e-coli-detection
8. http://www.fourstateshomepage.com/news/new-pitt-state-research-could-help-shed-light-on-foodbourne-illness-bacteria
7. http://www.joplinglobe.com/news/local_news/psu-scientists-create-method-to-detect-harmful-bacteria-in-food/article_ba762d47-c35f-5fa9-b7f6-cd2934bfe617.html
6. Polymer chemistry and cancer targeting research was highlighted in COVER page of University magazine: http://magazine.pittstate.edu/issue/fall-2014/
5. Collegio newspaper: http://psucollegio.com/2014/09/fighting-cancer-one-nano-at-a-time/
4. Joplin globe newspaper: http://www.joplinglobe.com/news/article_b58ffdd4-3a1d-11e4-a02b-ff0a85e9562c.html
3. TV Channel CODE-12:http://www.fourstateshomepage.com/story/d/story/polymer-chemistry-lab-cancer-research/42749/J4f-EjApuE6klcWmLA9y7Q
2. The Morning Sun Newspaper: http://www.morningsun.net/article/20140617/NEWS/140619808/0/SEARCH/?Start=1
1. FOX 35 News channel: http://www.myfoxorlando.com/story/17586368/medical-tests-in-an-instant.

LECTURES and PRESENTATIONS

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136. "Sensitive Detection of Foodborne Pathogens using Magneto-Plasmonic Nanosensor". Adam Worsley, Tuhina Banerjee, Nilamben Panchal, Carissa Sutton and Santimukul Santra*. K-INBRE, January 14, 2023. (poster presentation).

135. "Plasmonic Nanosensor for the Rapid Detection of *Escherichia Coli* O157:H7**".** Eniola Arogunyo, Sahithi Kondaveeti, Kristos Baffour, Tuhina Banerjee and Santimukul Santra*. K-INBRE, January 14, 2023. (poster presentation).

134. “Synthesis and Characterization of Aliphatic Hyperbranched Polyester for the Targeted Delivery of Therapeutic Drugs to Treat Lung Cancer”. Caleb Worsley, Neelima Koti and Santimukul Santra*. K-INBRE, January 14, 2023. (poster presentation).

133. “Dendritic Polymer Stabilized Gold Nanocatalysts for Efficient Hydrogenation Reactions”. Kajal K, Caleb Worsley, Carissa Sutton, Tuhina Banerjee and Santimukul Santra*. K-INBRE, January 14, 2023. (poster presentation).

132. “Nanoceria-Based Drug Delivery System for the Treatment of Lung Cancer”. Paul Worsley, Raghunath Narayanam and Santimukul Santra.* K-INBRE, January 14, 2023. (oral presentation).

131. "Biodegradable Polymer-Derived Precision Nanomedicine for Targeted Drug Delivery and Treatment of Prostate Cancer.” Paul Worsley, James Beach, Adam Worsley, Caleb Worsley, and Santimukul Santra.* ACS-Midwest Conference. Iowa City, IA. October 19-21, 2022. (poster presentation).

130. "Rapid Detection of Food-Borne Pathogens Using Lateral Flow Assay.” Eniola Arogunyo,[1] Nilam Panchal,[1] Sahithi Kondaveeti,[1] Carissa Sutton,[2] Vedant Jain,[1] Tuhina Banerjee,[2] and Santimukul Santra.[1,]* ACS-Midwest Conference. Iowa City, IA. October 19-21, 2022. (poster presentation).

129. "Microwave-Assisted Synthesis of Hydrogenation Catalysts Based on Hyperbranched Polyester Polymer Templated Gold Nanoparticles.” Kajal K,[1] Caleb Worsley,[1] Zachary Flint,[2] Neelima Koti,[1] Uday Panchal,[1] Tuhina Banerjee[2] and Santimukul Santra.[1,*] ACS-Midwest Conference. Iowa City, IA. October 19-21, 2022. (poster presentation).

128. "Synthesis and characterization of biodegradable hyperbranched polymers for the targeted delivery of therapeutic drugs to treat lung cancer.” Neelima Koti, Adam Worsley, Kajal Kajal, Jainish Patel and Santimukul Santra.* ACS-Midwest Conference. Iowa City, IA. October 19-21, 2022. (poster presentation).

127. “Chemistry Orchestrates with Biology in the Age of Cancer and Infectious Diseases”. Santimukul Santra.* Department of Biology, Missouri State University, September 16, 2022. (Invited Oral presentation).

126. “New Biodegradable Polymer-Derived Precision Nanomedicine for Targeted Drug Delivery and Treatment of Prostate Cancer”. Paul Worsley, James Beach, Truptiben Patel, Santimukul Santra. Research colloquium, Pittsburg State University, April 13, 2022. (poster presentation).

125. “Biomimetic Macromolecular Nanoplatforms: Novel Biochemical Approaches for Rapidly Emerging Viruses”. Santimukul Santra.* Department of Chemistry and Biochemistry, Missouri State University, February 16, 2022. (Invited Oral presentation).

124. "Development of Magneto-Plasmonic Nanosensors for the Detection of E. coli O157:H7”. Eniola Arogunyo, Nilam Panchal, Carissa Sutton, Vedant Jain, Tuhina Banerjee, Santimukul Santra. Capitol Graduate Research Summit, Topeka, KS, March 29, 2022. (poster presentation).

123. “One-step synthesis of soybean polyols: technology advancement and commercialization”. Thai Butcher, Raghunath Narayanam, Santimukul Santra. Capitol Graduate Research Summit, Topeka, KS, March 29, 2022. (poster presentation).

122. “New Drug Delivery System: Facile Synthesis of Biocompatible Polymers for Targeted Delivery and Treatment of Cancer”. Truptiben Patel, Paul Worsley, Adam Worsley, Caleb Worsley and Santimukul Santra. K-INBRE, January 13, 2022. (poster presentation).

121. “Plasmon-Enhanced Bimodal Nanozyme: An Enzyme-Free Signal Amplification Strategy for Ultrasensitive Detection of Pathogens”. Caine Duran, Nilam Panchal, Vedant Jain, Tuhina Banerjee, Santimukul Santra. Kansas Undergraduate Research Days, Topeka, KS, February 29, 2022. (poster presentation).

120. "Gadolinium-chelating dendritic nanotheranostics for the targeted MR imaging and treatment of cancer". Truptiben Patel, Paul Worsley, Adam Worsley, Caleb Worsley and Santimukul Santra. K-INBRE, January 13, 2022. (online poster presentation).

119. "Facile synthesis of biodegradable polymers for targeted drug delivery and treatment of cancer". Paul Worsley, James Beach and Santimukul Santra. K-INBRE, January 13, 2022. (online poster presentation).

118. "Nanozyme-Assisted Rapid Detection of Foodborne Pathogens Using Functional Magneto-Plasmonic Nanosensors". Caine Duran, Nilam Panchal, Vedant Jain, Tuhina Banerjee, Santimukul Santra. K-INBRE, January 14, 2022. (online oral presentation).

117. "Hyperbranched polyester-based drug delivery system for the targeted MR imaging and treatment of cancer". Truptiben Patel, Adam Worsley, Caleb Worsley, Tuhina Banerjee and Santimukul Santra. 55th ACS Midwest Regional Meeting, Springfield, MO. October 20-22, 2021 (oral presentation).

116. "Greener approach to synthesize polyester polymer for targeted drug delivery". Paul Worsley, Wadha Alqahtani, Caine Duran, Elaf Alattas, and Santimukul Santra. 55th ACS Midwest Regional Meeting, Springfield, MO. October 20-22, 2021 (oral presentation).

115. "Activatable MR Prodrug for Targeted Delivery and Treatment of Cancer". Truptiben Patel, Arth Patel, Zachary Shaw, Tuhina Banerjee, Santimukul Santra. Research colloquium, Pittsburg State University, April 14, 2021 (oral presentation).

114. "Detection of Food-Borne Pathogens using nanozyme technology". Nilamben Panchal, Vedant Jain, Rebekah Elliott, Samantha Knoblauch, T. Banerjee, Santimukul Santra. Research colloquium, Pittsburg State University, April 14, 2021 (oral presentation).

113. "Nanoceria-Delivered Magnetic Resonance Probe: A Multimodal Theranostic Tool to Identify, Treat, and Monitor Cancer". Truptiben Patel, Arth Patel, Zachary Shaw, Tuhina Banerjee, Santimukul Santra. Capitol Graduate Research Summit, Topeka, KS, February 18, 2021. (poster presentation).

112. "Nanozyme: A Developing Nanotechnology for the Detection of Food-Borne Pathogens". Nilamben Panchal, Vedant Jain, Rebekah Elliott, Samantha Knoblauch, T. Banerjee, Santimukul Santra. Capitol Graduate Research Summit, Topeka, KS, February 18, 2021. (poster presentation).

111. "Energy-efficient one-step synthesis of soybean polyols for technology advancement". Santimukul Santra.* Kansas Soybean Commission (KSC), KS, Dec 4th, 2020.

110. "Polyethylene glycol-based drug delivery system for the targeted treatment of cancer". Thai Butcher, Zachary Shaw, Arth Patel, Tuhina Banerjee, Santimukul Santra. Capitol undergraduate Research Summit at Topeka, KS, March 04, 2020. (poster presentation).

109. "Nanozyme-technology for the detection of food-borne pathogens". Vedant Jain, Nilam Panchal, Tuhina Banerjee, Santimukul Santra. Capitol undergraduate Research Summit at Topeka, KS, March 04, 2020. (poster presentation).

108. "Synthesis of doxorubicin-based prodrug and activatable MR nanoprobe for the imaging and treatment of cancer". Raghunath Narayanam, Bayan Daus, Tuhina Banerjee and Santimukul Santra. Capitol Graduate Research Summit at Topeka, KS, February 26, 2020. (poster presentation).

107. "Magneto-Plasmonic Nanosensors (MPnS) for the Multiparametric Detection of E. Coli O157:H7". Nilamben Panchal, Vedant Jain, Tuhina Banerjee, and Santimukul Santra. 18th K-INBRE Symposium, Kansas City, MO, 18th January, 2020. (poster presentation).

106. "Design and Synthesis of Functional Nanomedicine for the Targeted Treatment of Prostate Cancer". Thai Butcher, Zachary Shaw, Arth Patel, Tuhina Banerjee, and Santimukul Santra. 18th K-INBRE Symposium, Kansas City, MO, 18th January, 2020. (poster presentation).

105. "Nanozyme: A Developing Nanotechnology for the Detection of Food-Borne Pathogens". Vedant Jain, Nilam Panchal, Tuhina Banerjee, and Santimukul Santra. 18th K-INBRE Symposium, Kansas City, MO, 18th January, 2020. (Oral presentation).

104. "Functional MRnS for the rapid detection of zika virus and assessment of cross-reactivity". Raghunath Narayanam, Tyler Shelby, Tuhina Banerjee and Santimukul Santra. 18th K-INBRE Symposium, Kansas City, MO, 18th January, 2020. (poster presentation).

103. "Synthesis of Activatable Theranostics and Functional Drug Delivery Systems." Santimukul Santra,* Department of Chemistry, Oklahoma State University, Stillwater, OK. September, 2019. (Colloquium presentation).

102. "Combination Therapy of Prostate Cancer: PARP Inhibitor Synergizes the Therapeutic Efficacy of Doxorubicin". Himanshu Polara, Momin Ansare, Tuhina Banerjee, and Santimukul Santra. ACS Pentasectional conference, Norman, OK, April 13, 2019. (oral presentation).

101. "Synthesis of doxorubicin-based prodrug and activatable MR nanoprobe for the imaging and treatment of cancer". Arth Patel, Bayan Daus, Tuhina Banerjee and Santimukul Santra. ACS Pentasectional conference, Norman, OK, April 13, 2019. (oral presentation).

100. "Magneto-Plasmonic Nanosensor for the Detection of Ebola Virus". Denise Muchangi, Saloni Darji, Sneha Ramanujam, Zachary Shaw, Tuhina Banerjee, and Santimukul Santra. Research colloquium, Pittsburg State University, April 10, 2019. (poster presentation).

99. "Magnetic Resonance Nanosensors for the investigation of influenza binding and fusion mechanism". Vedant Jain, Tyler Shelby, Elena Mekhedov, Joshua Zimmerberg, Prasad Dandawate, Shrikant Anant, Ahinsa Ranaweera, David Weliky, Tuhina Banerjee and Santimukul Santra. Research colloquium, Pittsburg State University, April 10, 2019. (poster presentation).

98. "Personalized Drug-cocktail Nanomedicine for the treatment of prostate cancer". Ren Bean, Laci Hardon, Shuguftha Naz, Tuhina Banerjee, Shrikant Anant and Santimukul Santa. ACS National meeting and exposition, Orlando, FL. April 2, 2019. (poster presentation).

97. "Liposome-coated iron oxide nanoparticles (LIONs): A dynamic approach for the investigation of influenza fusion mechanisms." Tuhina Banerjee, Tyler Shelby and Santimukul Santra. ACS National meeting and exposition, Orlando, FL. April 2, 2019. (oral presentation).

96. "Development of Functional Magnetic Relaxation Nanosensors for the Investigation of Zika Binding and Fusion Mechanism". Saloni Darji, Tuhina Banerjee and Santimukul Santra. ACS National meeting and exposition, Orlando, FL. April 2, 2019. (poster presentation).

95. “TNF-α and sophorolipids: Combination approach for the treatment of prostate cancer". Zachary Shaw, Lok Shrestha, Jyothi Kallu, James Beach, Tuhina Banerjee, Richard Gross and Santimukul Santra. ACS National meeting and exposition, Orlando, FL. April 2, 2019. (poster presentation).

94. "Engineered Multifunctional Nanomedicines for the Targeted Drug Delivery and Treatment of Cancer." Santimukul Santra,* Department of Chemical and Biochemical Engineering, Missouri University of Science and Technology, Rolla, MO. April 29, 2019. (poster presentation).

93. "Magneto-Plasmonic Nanosensor for the Detection of Ebola Virus." Denise Muchangi, Saloni Darji, Sneha Ramanujam, Zachary Shaw, Tuhina Banerjee, and Santimukul Santra. Capitol Graduate Research Summit at Topeka, KS, March 20, 2019. (poster presentation).

92. "Magnetic Resonance Nanosensors for the Investigation of Influenza Binding and Fusion Mechanisms." Vedant Jain, Tyler Shelby, Elena Mekhedov, Joshua Zimmerberg, Prasad Dandawate, Shrikant Anant, Ahinsa Ranaweera, David Weliky, Tuhina Banerjee and Santimukul Santra. Capitol Graduate Research Summit at Topeka, KS, March 20, 2019. (poster presentation).

91. "TNF-α and sophorolipids: Combination approach for the treatment of prostate cancer". Zachary Shaw, Lok Shrestha, Jyothi Kallu, James Beach, Tuhina Banerjee, Richard Gross and Santimukul Santra. Capitol Graduate Research Summit at Topeka, KS, Feb 26, 2019. (Best poster presentation award).

90. "Combination Therapy: PARP Inhibitor Synergizes the Therapeutic Efficacy of Doxorubicin in the Treatment of Prostate Cancer". Momin Ansare, Saloni Darji, Sneha Ramanujam, Tanuja Tummala, Tuhina Banerjee, Santimukul Santra. 17th K-INBRE Symposium, Kansas City, MO, January 19, 2019. (poster presentation).

89. "Synthesis of Doxorubicin-Based Prodrug and Activatable MR Nanoprobe for the Imaging and Treatment of Cancer". Rebekah Elliott, Bayan Ahmad S Dous, Saloni Darji, Tuhina Banerjee, and Santimukul Santra. 17th K-INBRE Symposium, Kansas City, MO, January 19, 2019. (poster presentation).

86. "Development of Functional Magnetic Relaxation Nanosensors for the Investigation of Zika Binding and Fusion Mechanism". Saloni Darji, Tuhina Banerjee and Santimukul Santra. K-INBRE Symposium at Kansas City, MO, January 19, 2019. (poster presentation).

85. "Magneto-Plasmonic Nanosensor for the Detection of Ebola Virus". Denise Muchangi, Saloni Darji, Zachary Shaw, Sneha Ramanujam, Tuhina Banerjee and Santimukul Santra. 17th K-INBRE Symposium, Kansas City, MO, January 19, 2019. (poster presentation).

84. "Magnetic Resonance Nanosensors for the Investigation of Influenza Binding and Fusion Mechanisms." Vedant Jain, Tyler Shelby, Elena Mekhedov, Joshua Zimmerberg, Prasad Dandawate, Shrikant Anant, Ahinsa Ranaweera, David Weliky, Tuhina Banerjee and Santimukul Santra. 17th K-INBRE Symposium, Kansas City, MO, Janary 19, 2019. (poster presentation).

83. "Synthetic Biopolymers in Nanotechnology: A New Era of Targeted Drug Delivery and Cancer Therapy". Santimukul Santra.* Department of Chemistry, Missouri State University, Springfield, MO 65897, November 8, 2018.

82. "One-step polyols: Technology advancement and commercialization". Santimukul Santra* and Jian Hong. Kansas Soybean Commission (KSC), KS, Nov 30th, 2018.

81. "Development of new soybean-based anti-oxidant topical lotion for skin care applications". Tuhina Banerjee and Santimukul Santra.* Kansas Soybean Commission (KSC), KS, Nov 30th, 2018.

80. "Gedunin Synergizes the Therapeutic Effect of CT20p Peptide in Cancer Treatment". Saloni Darji, Tanuja Tummala, Tuhina Banerjee, Annette Khaled, Shrikant Anant and Santimukul Santra. ACS-Midwest at Iowa, Oct 21-23, 2018. (poster presentation).

79. "Personalized Drug-cocktail Nanomedicine for the Treatment of Prostate Cancer". Ren Bean, Quentin Austin, Laci Hadorn, Shuguftha Naz, Tuhina Banerjee, Shrikant Anant# and Santimukul Santra. Graduate Capitol Research Summit at Topeka, KS, February 20, 2018 (Best Graduate poster presentation).

78. "Magentic nanosensor platform for the fast and accurate detection of bacterial contaminations in platelet concentration". Ren Bean, Quentin Austin, Laci Hadorn, Shuguftha Naz, Tuhina Banerjee, Shrikant Anant# and Santimukul Santra*.ACS Pentasectional at Tulsa, OK, April 21, 2018 (poster presentation).

77. "Magnetic Resonance Nanosensors for the Investigation of Influenza Binding and Fusion Mechanisms". Vedant Jain, Tyler Shelby, Elena Mekhedov, Joshua Zimmerberg, Prasad Dandawate, Shrikant Anant, Ahinsa Ranaweera, David Weliky, Tuhina Banerjee and Santimukul Santra. Research colloquium, Pittsburg State University, April 11, 2018. (poster presentation).

76. “Personalized Drug-cocktail Nanomedicine for the Treatment of ProstateCancer ”. Ren Bean, Quentin Austin, Laci Hadorn, Shuguftha Naz, Tuhina Banerjee, Shrikant Anant and Santimukul Santra. Research colloquium, Pittsburg State University, April 11, 2018. (poster presentaton).

75. "Herbal Drug Synergizes the Therapeutic Effect of CT20p Peptide in Cancer Treatment". Saloni Darji, Tanuja Tummala, Tuhina Banerjee, Annette Khaled, Shrikant Anant and Santimukul Santra. ACS Pentasectional at Tulsa, OK, April 21, 2018. (poster presentation).

74. "Revolutionary treatment for prostate cancer: A combination approach using TNF-alpha and sophorolipids". Zachary Shaw, Lok shrestha, Jyothi Kallu, James Beach, Tuhina Banerjee, Richard Gross and Santimukul Santra. Research colloquium, Pittsburg State University, April 11, 2018. (poster presentation).

73. "Magnetic Resonance Nanosensors for the Investigation of Influenza Binding and Fusion Mechanisms". Vedant Jain, Tyler Shelby, Elena Mekhedov, Joshua Zimmerberg, Prasad Dandawate, Shrikant Anant, Ahinsa Ranaweera, David Weliky, Tuhina Banerjee and Santimukul Santra. ACS Pentasectional at Tulsa, OK, April 18, 2018. (poster presentation).

72. "Magnetic Resonance Nanosensors for the Investigation of Influenza Binding and Fusion Mechanisms". Vedant Jain, Tyler Shelby, Elena Mekhedov, Joshua Zimmerberg, Prasad Dandawate, Shrikant Anant, Ahinsa Ranaweera, David Weliky, Tuhina Banerjee and Santimukul Santra. 16 th K-INBRE Symposium, Kansas City, MO, Janary 13, 2018. (poster presentation).

71. "Olaparib and Doxorubicin carrying Translational Nanotheranostics for the treatment of Prostate Carcinomas". Tanuja Tummala, Momin Ansare, Saloni Darji, Kalee Woody, Tuhina Banerjee and Santimukul Santra. Research colloquium, Pittsburg State University, April 11, 2018. (poster presentation).

70. "Herbal Drug Synergizes the Therapeutic Effect of CT20p Peptide in Cancer Treatment". Saloni Darji, Tanuja Tummala, Tuhina Banerjee, Annette Khaled, Shrikant Anant and Santimukul Santra. Research colloquium, Pittsburg Satate University, April 11, 2018. (poster presentation).

69. "Personalized nanomedicine: A new era of targeted cancer therapy". Santimukul Santra. K-INBRE conference at Kansas City, MO, Jan 12-14, 2018. (Invited oral presentation).

68. “TNF-α and sophorolipids: Combination approach for the treatment of prostate cancer". Zachary Shaw, Lok Shrestha, Jyothi Kallu, James Beach, Tuhina Banerjee, Richard Gross and Santimukul Santra. K-INBRE conference at Kansas City, MO, Jan 12-14, 2018. (poster presentation).

67. “Magnetic nanosensor platform for the fast and accurate detection of bacterial contaminants in platelet concentrates". Wesley Brantley, Ren Bean, Tanuja Tummala, Tuhina Banerjee and Santimukul Santra. K-INBRE conference at Kansas City, MO, Jan 12-14, 2018. (Best poster presentation award).

66. “Targeted Nanomedicine: Role of Hsp90 Inhibitor and Sophorolipid in the Treatment of Cancer". Vedant Jain, Shuguftha Naz, Tuhina Banerjee, Filbert Totsingan, Richard Gross and Santimukul Santra. K-INBRE conference at Kansas City, MO, Jan 12-14, 2018. (poster Presentation).

65. “Personalized Nanomedicine for the Combination Therapy of Prostate Cancer". Tanuja Tummala, Saloni Darji, Shuguftha Naz, Tuhina Banerjee and Santimukul Santra. K-INBRE conference at Kansas City, MO, Jan 12-14, 2018. (poster presentation).

64. “Early detection of zika and dengue viruses with functionalized magnetic nanosensors". Oleksandra Pashchenko, Tyler Shelby, Tuhina Banerjee and Santimukul Santra. K-INBRE conference at Kansas City, MO, Jan 12-14, 2018. (poster presentation).

63. “Multiparametric Magneto-Fluorescent Nanosensors for Ultrasensitive Detection of E. coli O157:H7". Saloni Darji, Tuhina Banerjee, Tyler Shelby, James McAfee and Santimukul Santra. K-INBRE conference at Kansas City, MO, Jan 12-14, 2018. (poster presentation).

62. “Drug Cocktail Carrying Nanomedicine for the Treatment of Cancer". Ren Bean, Quentin Austin, Laci Hadorn, Shuguftha Naz, Tuhina Banerjee, Shrikant Anant and Santimukul Santra. K-INBRE conference at Kansas City, MO, Jan 12-14, 2018. (poster presentation).

61. “Synthesis and characterization of enzyme catalyzed biodegradable "click-able" polymers for targeted cancer Thearpy". Wadha Alqahtani, Richard Gross and Santimukul Santra. K-INBRE conference at Kansas City, MO, Jan 12-14, 2018. (poster presentation).

60. “Synthesis and characterization of enzyme catalyzed biodegradable "click-ene" polymers for biomedical applications". Elaf Alattas, Richard Gross and Santimukul Santra. K-INBRE conference at Kansas City, MO, Jan 12-14, 2018. (poster presentation).

59. “Synthesis and characterization of enzyme catalyzed biodegradable "click-able" polymers for targeted cancer Thearpy ". Wadha Alqahtani, Richard Gross and Santimukul Santra. ACS Midwest Regional Meeting, Kansas Memorial Union, Lawrence, Oct 18-20, 2017. (Poster presentation).

58. “Synthesis and characterization of enzyme catalyzed biodegradable "click-ene" polymers for biomedical applications". Elaf Alattas, Richard Gross and Santimukul Santra. 254th ACS National Meeting & Exposition, Washington DC, Aug 20-25th, 2017 (poster presentation).

57. “Development of Designer Nanomedicines and Nanosensors: Important Roles in Human Health". Santimukul Santra, Tuhina Banerjee, Tyler Shelby, Blaze Heckert, Shoukath Sulthana, Shuguftha Naz, James McAfee and Irene Zegar. 253rd ACS National Meeting & Exposition, San Francisco, CA. Apr 2-6th, 2017 (poster presentation).

56. “Molecularly Targeted Nanomedicine: Role of Hsp90 Inhibitor and Sophorolipid in the Treatment of Cancer". Shuguftha Naz, Jyothi Kallu, Tuhina Banerjee, Richard Gross, Filbert Totsingan and Santimukul Santra. Research symposium, Pittsburg State University, KS, April 6th, 2017. (Oral Presentation).

55. “Dual modal Nanosensors for the Early Detection of Escherichia Coli O157:H7". Tuhina Banerjee, Shoukath Sulthana, Tyler Shelby, James Mcafee and Santimukul Santra. 253rd ACS National Meeting & Exposition, San Francisco, CA. Apr 2-6th, 2017 (poster presentation).

54. “Targeted combination therapy of prostate cancer". Tanuja Tummala, Shuguftha Naz, Tuhina Banerjee and Santimukul Santra. Research symposium, Pittsburg State University, KS, April 6th, 2017. (poster presentation).

53. “Drug Cocktail Carrying Nanomedicine for the Treatment of Prostate". Laci Hadorn,, Shuguftha Naz, Tuhina Banerjee, Shrikant Anant, Santimukul Santra. Research symposium, Pittsburg State University, KS, April 6th, 2017. (poster presentation).

52. “PSMA-Receptor Targeting Translational Magnetic Nanoprobes: Novel Nanotheranostics for the Treatment of Prostate Carcinomas". Shuguftha Naz, Laci Hadorn, Tuhina Banerjee, Shrikant Anant, Santimukul Santra. Pittsburg State University, KS, April 6th, 2017. (poster presentation).

51. “Combination Therapy of Prostate Cancer Utilizing Functionalized Iron Oxide Nanoparticles carrying TNF-α and Lactonic Sophorolipids". James Beach, Tuhina Banerjee, Jyothi Kallu, Ryan Higginbotham, Richard Gross and Santimukul Santra. Research symposium, Pittsburg State University, KS, April 6th, 2017. (oral presentation).

50. “One-step Synthesis and Characterization of Biodegradable ‘Click-able’ Polyester Polymer for Biomedical Applications". Wadha Alqahtani, Shuguftha Naz, James Beach, Tanuja Tummala, Richard Gross and Santimukul Santra. Research symposium, Pittsburg State University, KS, April 6th, 2017. (poster presentation).

49. “Rapid Diagnosis of H5N1 and H7N9 Influenza with Novel Magnetic Nanosensor". Oleksandra Pashchenko, Tuhina Banerjee, Tyler Shelby, and Santimukul Santra. Research symposium, Pittsburg State University, KS, April 6th, 2017. (poster presentation).

48. “PSMA-Receptor Targeting Translational Magnetic Nanoprobes: Novel Nanotheranostics for the Treatment of Prostate Carcinomas". Shuguftha Naz, Laci Hadorn, Tuhina Banerjee, Shrikant Anant, Santimukul Santra. ACS Pentasectional Conference, March 24-25th, 2017, Cameron University, Lawton, OK (poster presentation).

47. “Drug Cocktail Carrying Nanomedicine for the Treatment of Prostate". Laci Hadorn, Shuguftha Naz, Tuhina Banerjee, Shrikant Anant, Santimukul Santra. ACS Pentasectional Conference, March 24-25th, 2017, Cameron University, Lawton, OK. (poster presentation).

46. “Targeted combination therapy of prostate cancer". Tanuja Tummala, Shuguftha Naz, Tuhina Banerjee, Santimukul Santra. ACS Pentasectional Conference, March 24-25th, 2017, Cameron University, Lawton, OK. (poster presentation).

45. “PSMA-Receptor Targeting Translational Magnetic Nanoprobes: Novel Nanotheranostics for the Treatment of Prostate Carcinomas". Shuguftha Naz, Laci Hadorn, Tuhina Banerjee, Shrikant Anant, Santimukul Santra. Annual Capitol Research Summit, Feb 15th, 2017, Topeka, KS. (poster presentation).

44. “Drug Cocktail Carrying Nanomedicine for the Treatment of Prostate Cancer". Laci Hadorn, Shuguftha Naz, Tuhina Banerjee, Shrikant Anant, Santimukul Santra. Annual Capitol Research Summit, Feb 15th, 2017, Topeka, KS. (poster presentation).

43. “Nanomedicine: An emerging modern technology for the treatment of cancer". Santimukul Santra.* Science Café, Wichita. September 12th, 2016.

42. "Non-Small-Cell-Lung-Cancer Treatment Using Hsp90 Inhibitor Carrying Magnetic Nanotheranostics". Kalee Woody, Jyothi Kallu, Deaven Thompson, Tuhina Banerjee, Nikolay N. Gerasimchuk and Santimukul Santra. K-INBRE conference at Kansas City, MO, Jan 16-17, 2016 (Poster presentation).

41. "Novel Magnetic Nanosensor for the Rapid Detection of Influenza Virus and Comparative Analysis of Entry Blocker Proteins". Tyler Shelby, Tuhina Banerjee, Jyothi Kallu, Irene Zegar and Santimukul Santra. K-INBRE conference at Kansas City, MO, Jan 16-17, 2016 (Best poster presentation award, 1st position).

40. "Designer Polymeric Nanotheranostics for the Detection and Treatment of Cancer". Blaze Heckert, Tuhina Banerjee, Riyadh Alnasser and Santimukul Santra. K-INBRE conference at Kansas City, MO, Jan 16-17, 2016 (Poster presentation).

39. "New MR Activatable Nanoprobe for the Multiparametric Imaging and Treatment of Prostate Cancer". Jyothi Kallu, Jessica Jewell, Tuhina Banerjee, and Santimukul Santra*. K-INBRE conference at Kansas City, MO, Jan 16-17, 2016 (Oral presentation recognition).

38. "New Multi-Functional Nanoceria for the Treatment of Lung Cancer". Shoukath Sulthana, Tuhina Banerjee, Jyothi Kallu and Santimukul Santra. Annual Capitol Research Summit, Feb 2nd, 2016, Topeka, Best BIO-KANSAS Poster presentation award).

37. "Novel Magnetic Nanosensor for the Rapid Detection of Influenza Virus and Comparative Analysis of Entry Blocker Proteins". Tyler Shelby, Tuhina Banerjee, Jyothi Kallu, Irene Zegar and Santimukul Santra. Annual Capitol Research Summit, Feb 18, 2016, Topeka, (PSU Best Poster presentation).

36. "Novel drug cocktail-carrying anti-oxidant nanoceria for the treatment of cancer". Shuguftha Naz, Tuhina Banerjee, Jyothi Kallu, Shoukath Sulthana, Filbert Totsingan, Richard Gross and Santimukul Santra. ACS Pentasectional Conference, April 8th, 2016, Oklahoma Wesleyan University, (Best Poster Poster presentation award).

35. "Novel Magnetic Nanosensor for the Rapid Detection of Influenza Virus and Comparative Analysis of Entry Blocker Proteins". Tyler Shelby, Tuhina Banerjee, Jyothi Kallu, Irene Zegar and Santimukul Santra. ACS Pentasectional Conference, April 8th, 2016, Oklahoma Wesleyan University, (Poster Presentation)

34. "Non-Small-Cell-Lung-Cancer Treatment Using Hsp90 Inhibitor Carrying Magnetic Nanotheranostics". Kalee Woody, Jyothi Kallu, Deaven Thompson, Tuhina Banerjee, Nikolay N. Gerasimchuk and Santimukul Santra. Research symposium, Pittsburg State University, KS, 2016 (Best poster presentation award).

33. "Novel drug cocktail-carrying anti-oxidant nanoceria for the treatment of cancer". Shuguftha Naz, Tuhina Banerjee, Jyothi Kallu, Shoukath Sulthana, Filbert Totsingan, Richard Gross and Santimukul Santra. Research symposium, Pittsburg State University, KS, 2016 (poster presentation).

32. "Novel Magnetic Nanosensor for the Rapid Detection of Influenza Virus and Comparative Analysis of Entry Blocker Proteins". Tyler Shelby, Tuhina Banerjee, Jyothi Kallu, Irene Zegar and Santimukul Santra. Research symposium, Pittsburg State University, KS, 2016 (Best poster presentation award).

31. "New MR Activatable Nanoprobe for the Multiparametric Imaging and Treatment of Prostate Cancer". Jyothi Kallu, Jessica Jewell, Tuhina Banerjee, and Santimukul Santra. Research symposium, Pittsburg State University, KS, 2016 (Best poster and oral presentation awards).

30. "New Multi-Functional Nanoceria for the Treatment of Lung Cancer". Shoukath Sulthana, Tuhina Banerjee, Jyothi Kallu and Santimukul Santra. Research symposium, Pittsburg State University, KS, 2016 (Best poster presentation award).

29. "Novel drug cocktail-carrying anti-oxidant nanoceria for the treatment of cancer". Shuguftha Naz, Tuhina Banerjee, Jyothi Kallu, Shoukath Sulthana, Filbert Totsingan, Richard Gross and Santimukul Santra. ACS Midwest Regional Meeting (MWRM), Manhattan, KS, October 26, 2016 (oral presentation).

28. "In the Age of Nano-Bio Technology: Designer Nanotheranostics to Target Cancer and Infectious Diseases". Santimukul Santra.* Colloquium presentation, Department of Biology, Wichita State University. September 21st, 2015.

27. “Inhibitor-Induced Combination Therapy of K-RAS Driven NSCLC”. Blaze Heckert, Deaven Thompson, Kalee Woody and Santimukul Santra. 250th ACS National Meeting & Exposition, Boston, MA. August 16-20th, 2015 (Poster Presentation).

26. “Innovative Anti-Oxidant Nanoceria for the Early Diagnosis and Treatment of Lung Cancer”. Shoukath Sulthana, Blaze Heckert, Jyothi Kallu and Santimukul Santra. 250th ACS National Meeting & Exposition, Boston, MA. August 16-20th, 2015 (Poster Presentation).

25. “Non-Small-Cell-Lung-Cancer Treatment Using Hsp90 Inhibitor Carrying Magnetic Nanotheranostics”. Jyothi Kallu, Blaze Heckert, Shoukath Sulthana and Santimukul Santra.250th ACS National Meeting & Exposition, Boston, MA. August 16-20th, 2015 (Poster Presentation).

24. “Functional Magnetic Nanoprobes: Novel Nanotheranostics for the Treatment of Prostate Carcinomas”. Deaven Thompson, Blaze Heckert, Shoukath Sulthana, Santimukul Santra. 250th ACS National Meeting & Exposition, Boston, MA. August 16-20th, 2015 (Poster Presentation).

23. “Non-Small-Cell-Lung-Cancer Treatment Using Hsp90 Inhibitor Carrying Magnetic Nanotheranostics”. Jyothi Kallu, Blaze Heckert, Shoukath Sulthana and Santimukul Santra. Research symposium, Pittsburg State University, KS, 2015 (Best Oral presentation award, 1st position).

22. “Inhibitor-Induced Combination Therapy of K-RAS Driven NSCLC”. Blaze Heckert, Deaven Thompson, Kalee Woody and Santimukul Santra. Research symposium, Pittsburg State University, KS, 2015 (Best poster presentation award, 1st position).

21. “Functional Magnetic Nanoprobes: Novel Nanotheranostics for the Treatment of Prostate Carcinomas”. Deaven Thompson, Blaze Heckert, Shoukath Sulthana and Santimukul Santra. Research symposium, Pittsburg State University, KS, 2015 (Best poster presentation award, 2nd position).

20. “Innovative Anti-Oxidant Nanoceria for the Early Diagnosis and Treatment of Lung Cancer”. Shoukath Sulthana, Blaze Heckert, Jyothi Kallu, Santimukul Santra. Research symposium, Pittsburg State University, KS, 2015 (Best poster presentation award, 1st position).

19. "PSMA-Receptor targeting magnetic nanoprobes: Novel nanotheranostics for the treatment of prostate carcinomas". Kalee Woody, Shoukath Sulthana, Jyothi Kallu and Santimukul Santra. Annual Capitol Research Summit, Feb 11-12th, 2015, Topeka, PSU undergraduate poster award winner.

18. "Non-Small-Cell Lung Cancer treatment using Hsp90 inhibitor carrying magnetic nanotheranostics". Jyothi Kallu, Kalee Woody, Tuhina Banerjee and Santimukul Santra. Annual Capitol Research Summit, Feb 11-12th, 2015, Topeka, Best poster BIO-KANSAS award and best PSU graduate poster award winner.

17. "PSMA-Receptor targeting magnetic nanoprobes: Novel nanotheranostics for the treatment of prostate carcinomas". Kalee Woody, Shoukath Sulthana, Jyothi Kallu and Santimukul Santra. K-INBRE, Jan 17-18th, 2015, Best poster award winner.

16. "Inhibitor-induced combination therapy of K-RAS driven NSCLC". Blaze Heckert, Deaven Thompson, Kalee Woody and Santimukul Santra. K-INBRE, Jan 17-18th, 2015, Best poster award winner.

15. "Gadolinium-Encapsulating Iron Oxide Nanoprobe as Activatable NMR/MRI Contrast Agent". Santimukul Santra, Shoukath Sulthana, Deaven Thompson, J. Manuel Perez. ACS Midwest Regional Meeting, University of Missouri, Columbia, Nov 12-15th, 2014 (Oral presentation).

14. "Highly economic, one-step synthesis of soybean polyols for industrial applications". Santimukul Santra.* Kansas Soybean Commission (KSC), KS, Dec 4th, 2014.

13. "Development of new soybean-based anti-oxidant topical lotion for skin care applications". Santimukul Santra.* Kansas Soybean Commission (KSC), KS, Dec 4th, 2014.

12. "Targeting PSMA-Receptors with Glutamated Magnetic Nanoparticles: Novel Nanotheranostics for the Treatment of Prostate Carcinomas". Kalee Woody, Blaze Heckert, Jyothi Kallu and Santimukul Santra. ACS Midwest Regional Meeting, University of Missouri, Columbia, Nov 12-15th, 2014 (Poster presentation).

11. "Anti-Oxidant Nanotheranostics for the Detection and Treatment of Cancer". Metthew Reddick, Blaze Heckert, Kalee Woody, Deaven Thompson and Santimukul Santra. K-INBRE conference at Kansas City, MO, Jan 17-18, 2014 (Poster presentation).

10. "Activatable nanoprobes for cancer targeting". Santimukul Santra, Blaze Heckert, Kalee Woody and Deaven Thompson. K-INBRE conference at Kansas City, MO, Jan 17-18, 2014 (Poster presentation).

9. "Design and Synthesis of Novel Polymeric Nanotheranostics for the Targeted Imaging and Treatment of Cervical Cancer". Matthew Reddick, Blaze Heckert and Santimukul Santra. Topeka, Feb 12, 2014 (Poster presentation).

8. "Targeting PSMA-Receptors with Glutamate-Conjugated Magnetic Nanoparticles: Novel Nanotheranostics for the Treatment of Prostate Carcinomas". Kalee Woody, Santimukul Santra. Graduate Research symposium, Pittsburg State University, KS, April 16, 2014 (Best oral presentation award, 1st position).

7. "Functional Nanotheranostics for the Detection and Treatment of Cancer". Megan Burdick, Blaze Heckert, Santimukul Santra. Annual Research symposium, Pittsburg State University, KS, April 16, 2014 (Best poster presentation award, 3rd position).

6. "Targeting PSMA-Receptors with Glutamate-Conjugated Magnetic Nanoparticles: Novel Nanotheranostics for the Treatment of Prostate Carcinomas". Kalee Woody, Santimukul Santra. Annual Research symposium, Pittsburg State University, KS, April 16, 2014 (Best poster presentation award, 2nd position).

5. "Polymeric Nanotheranostics for the Detection and Treatment of Cancer". Blaze Heckert and Santimukul Santra. Graduate symposium, Pittsburg State University, KS, 2014 (Poster).

4. "Introducing Soybean-Based Therapeutic Nanogels for the Treatment of Cancers and Soybean Diseases". Kansas Soybean Commission (KSC). Santimukul Santra.* KS, USA, 2013.

3. "Introducing Soybean-Based Anti-oxidant and Theranostic Nanogels for Human Health". Missouri Soybean Merchandising Council (MSMC). Santimukul Santra.* MO, USA, 2013.

2. "Designer Polymeric Nanotheranostics for the Detection and Treatment of Cancer". Blaze Heckert, Kalee Woody and Santimukul Santra. K-INBRE conference at Kansas City, MO, Jan 17th, 2014 (Poster).

1. "In the Age of Polymer Science: Polymeric "Nano-Bio" Theranostics to Solve the Environmental and Human Health Problems". Santimukul Santra.* ACS MWRM conference, Springfield, MO, Oct 16-19, 2013.

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* By invitation.