

Publications and Presentations

Published Manuscripts

* Indicates authors who contributed equally.

1. Negi K, Pathak NK, Tripathy U, Dey SK, Sahu SK. **Two-photon NIR-responsive carbon dots incorporated into NMOFs for targeted photodynamic therapy.** *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 2024, 694, 134163.
2. Manna K, Dey S, Phukan, Dey SK, Pal S. **Alginate acid-based pH and thermo responsive reversible switched polymeric micelle via RAFT polymerization.** *Polymer*, 2024, 291, 126581.
3. VarnBuhler, B*, Moon JD*, Dey SK, Jaffrey SR. **Detection of SARS-CoV-2 RNA using a DNA aptamer mimic of green fluorescent protein.** *ACS Chemical Biology* (accepted).
4. Dey SK, Filonov GS, Olarerin-George AO, Jackson BT, Finley LWS, Jaffrey SR. **Repurposing an adenine riboswitch into a fluorogenic imaging and sensing tag.** *Nature Chemical Biology*, 2022, 18 (2), 180-190.
5. Truong L, Kooshapur H, Dey SK, Li X, Tjandra N, Jaffrey SR, Ferré-D'Amaré AR. **The fluorescent aptamer Squash extensively repurposes the adenine riboswitch fold.** *Nature Chemical Biology*, 2022, 18 (2), 191-198.
6. Moon JD, Wu J, Dey SK, Litke JL, Li X, Kim H, Jaffrey SR. **Naturally occurring three-way junctions can be repurposed as genetically encoded RNA-based sensors.** *Cell Chemical Biology*, 2021, 28 (11), 1569-1580.
7. Li X, Mo L, Litke JL, Dey SK, Suter SR, Jaffrey SR. **Imaging Intracellular S-Adenosyl Methionine Dynamics in Live Mammalian Cells with a Genetically Encoded Red Fluorescent RNA-Based Sensor.** *Journal of the American Chemical Society*, 2020, 142 (33), 14117-14124.
8. Dey SK, Jaffrey SR. **RIBOTACs: Small Molecules Target RNA for Degradation.** *Cell Chemical Biology*, 2019, 26 (8), 1047-1049.
9. Fouz MF, Dey SK, Mukumoto, K, Matyjaszewski, K, Armitage, BA, Das SR. **Accessibility of Densely Localized DNA on Soft Polymer Nanoparticles.** *Langmuir*, 2018, 34 (49), 14731-14737.
10. Dey SK, Pettersson JR, Topacio AZ, Das SR, Peteanu LA. **Eliminating Spurious Zero-Efficiency FRET States in Diffusion-Based Single-Molecule Confocal Microscopy.** *Journal of Physical Chemistry Letters*, 2018, 9 (9), 2259–2265.
11. Ransey E, Paredes E, Dey SK, Das SR, Heroux A, Macbeth MR. **Crystal structure of the *Entamoeba histolytica* RNA lariat debranching enzyme EhDbr1 reveals a catalytic Zn²⁺/Mn²⁺ heterobinucleation.** *FEBS Letters*, 2017, 591 (13), 2003–2010.
12. Mack S*, Fouz MF*, Dey SK*, Das SR. **Pseudo-ligandless Click Chemistry for Oligonucleotide Conjugation.** *Current Protocols in Chemical Biology*, 2016, 8, 83–95.

13. Averick SE*, Dey SK*, Grahacharya D, Matyjaszewski K, Das SR. **Solid Phase Incorporation of an ATRP Initiator for Polymer-DNA Biohybrids**. *Angewandte Chemie International Edition*, 2014, 53 (10), 2739-2744.
14. Tan X, Dey SK, Telmer C, Zhang X, Armitage BA, Bruchez MP. **Aptamers Act as Activators for the Thrombin Mediated-Hydrolysis of Peptide Substrates**. *ChemBioChem*, 2014, 15 (2), 205-208.
15. Averick SE*, Paredes E*, Dey SK*, Snyder KM, Tapinos N, Matyjaszewski K, Das SR (2013) **Autotransfecting Short Interfering RNA through Facile Covalent Polymer Escorts**. *Journal of the American Chemical Society*, 2013, 135 (34), 12508-12511.
16. Dey SK, Paredes E, Evans M, Das, SR. **The Diverse Active Sites in Splicing, Debranching and microRNA Processing Around RNA Phosphodiester Bonds**. *From Nucleic Acid Sequences to Molecular Medicine*. Editors: Erdmann VA and Barciszewski J. Springer Verlag, 2012, 475-501.

Patents

1. Averick SE, Dey SK, Grahacharya D, Matyjaszewski K, Das SR. **Functionalized Polymer Hybrids**. US Patent # US 9,765,169 B2
2. Jaffrey SR, Dey SK. **RNA sequences that induce fluorescence of small molecule fluorophores, molecular complexes, sensors, and methods of use thereof**. Provisional US Patent application # 63/282,347.

Oral presentations

1. Dey SK. **Plug-and-play fluorophores for Squash RNA aptamer allow live cell mRNA imaging in multiple colors**. International Conference on Optics Within Life Sciences (OWLS-17), IIT Bombay, November 21st, 2024.
2. Dey SK. **Marriage of native chemical ligation and click chemistry for synthesis of peptide-oligonucleotide conjugates and site-specific labeling of enzymes**. Summer Seminar Series, Department of Chemistry, Carnegie Mellon University, August 1st 2013, Pittsburgh. PA.
3. Dey SK, Holtermann J, Gangel H, Gramlich M. **Fast Relaxation Imaging: Heat Shock Response in living cells**. Center for Physics of Living Cell (CPLC) Summer School, University of Illinois at Urbana Champaign, August 4th 2012, Champaign, IL.
4. Dey SK. **Biochemical and single molecule studies of backbone branched RNAs and the lariat debranching enzyme**. National Centre for Biological Sciences, Dec 19th 2017, Bangalore, India.

Poster presentations

1. Dey SK, Jaffrey SR. **Repurposing riboswitch aptamers for RNA imaging and biosensor applications**. RNA Imaging and Intracellular Dynamics Workshop - Hosted by the NCI RNA Biology Initiative, NIH, April 26, 2022.

2. Dey SK, Peteanu LA, Das SR. **Analysis of the lariat debranching enzyme (Dbr1p) using dual-fluorescently labeled branched RNA substrates**. Biophysical Society 60th Annual Meeting, March 2016, Los Angeles, CA.
3. Dey SK, Peteanu LA, Das SR. **Analysis of the debranching reaction with backbone-branched RNA substrates**. Rustbelt RNA Meeting, October 2015, Sandusky, OH.
4. Dey SK, Peteanu LA, Das SR. **Single Molecule Fluorescence Studies on Conformation of Backbone Branched RNA**. Rustbelt RNA Meeting, October 2014, Pittsburgh, PA.
5. Dey SK, Grahacharya D, Das SR. **A general method for site-specific labeling and conjugation of enzymes - exemplified by the lariat debranching enzyme Dbr1p**. Rustbelt RNA Meeting, October 2013, Cleveland, OH.
6. Dey SK, Averick SE, Paredes E, Matyjaszewski K, Das SR. **Autotransfecting siRNA through covalent polymer escorts**. Molecular Recognition in Biological Systems Strategic Strength Research Symposium (The Many Lives of RNA), October 2013, Amherst, NY.
7. Dey SK, Averick SE, Paredes E, Matyjaszewski K, Das SR. **A self-transfecting siRNA-polymer hybrid nanomaterial**. International Conference of RNA Nanotechnology and Therapeutics, April 2013, Lexington, KY.
8. Dey SK, Paredes E, Grahacharya D, Das SR. **Solid phase synthesis of lariat RNAs for RNA interference**. Rustbelt RNA Meeting, October 2012, Dayton, OH.