

## Publications and Presentations

### *Published Manuscripts*

1. 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*, 2022, 17(4), 840–853. (\* equal contribution).
2. 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.
3. 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.
4. 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.
5. 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.
6. Dey SK, Jaffrey SR. **RIBOTACs: Small Molecules Target RNA for Degradation.** *Cell Chemical Biology*, 2019, 26 (8), 1047-1049.
7. 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.
8. 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.
9. 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  $\text{Zn}^{2+}/\text{Mn}^{2+}$  heterobinucleation.** *FEBS Letters*, 2017, 591 (13), 2003–2010.
10. Mack S\*, Fouz MF\*, Dey SK\*, Das SR. **Pseudo-ligandless Click Chemistry for Oligonucleotide Conjugation.** *Current Protocols in Chemical Biology*, 2016, 8, 83–95. (\* equal contribution).
11. 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. (\* equal contribution).
12. 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.

13. Averick SE\*, Paredes E\*, Dey SK\*, Snyder KM, Tapinos N, Matyjaszewski K, Das SR. **Autotransfecting Short Interfering RNA through Facile Covalent Polymer Escorts.** *Journal of the American Chemical Society*, 2013, 135 (34), 12508-12511. (\* equal contribution).
14. 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.

### ***Manuscripts in preparation***

1. Dey SK, Wu J, Jaffrey SR. **Plug and play fluorophores for Squash aptamer allows mRNA imaging in multiple colors.** (Target journal: *Nature Communications*)
2. Dey SK, Pickering BF, Jaffrey SR. **Simple and efficient RNA tagging and affinity purification with the FS2 tag.** (Target journal: *Cell Chemical Biology*)
3. Dey SK, Mack S, Paredes E, Ransey E, Corbo R, Evans M, Macbeth M, VanDemark AP, Peteanu LA, Das SR. **Backbone Branched RNA II: Lariat Debranching Enzyme Responses to 2'-branch modifications.** (Target journal: *Nucleic Acids Research*).
4. Dey SK\*, Pettersson JR\*, Sakipov S, Mack S, Zalewski J, VanDemark AP, Kurnikova M, Das SR, Peteanu LA. **Backbone Branched RNA III: Conformational Analyses by Single-Molecule FRET and Molecular Dynamics Simulations** (Target journal: *Nucleic Acids Research*, \* equal contribution).

### ***Patents***

1. Das SR, Averick SE, Dey SK, Matyjaszewski K. **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.

### ***Research Publications presented in Conferences***

1. Dey SK, Peteanu LA, Das SR. **Analysis of the lariat debranching enzyme (Dbr1p) using dual-fluorescently labeled branched RNA substrates.** Biophysical Society 60<sup>th</sup> Annual Meeting, March 2016, Los Angeles, CA.
2. Mack S, Dey SK, Das SR. **Synthesis of backbone branched RNA and the biochemical investigation of lariat debranching enzyme.** Abstracts of Papers of the American Chemical Society, 252<sup>nd</sup> American Chemical Society National Meeting & Exposition, August 2016, Philadelphia, PA.
3. Averick S, Dey SK, Das SR, Matyjaszewski K. **Synthesis of DNA block copolymers using AGET ATRP.** Abstracts of Papers of the American Chemical Society, 248<sup>th</sup> American Chemical Society National Meeting & Exposition, August 2014, San Francisco, CA.

4. Ransey EM, Dey SK, Das SR, Macbeth M. **Comprehensive Mechanistic Analysis of the RNA-Lariat Debranching Enzyme**. The FASEB Journal (2013) 27, 988.3-988.3.

### ***Oral presentations***

1. 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 1<sup>st</sup> 2013, Pittsburgh. PA.
2. 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 4<sup>th</sup> 2012, Champaign, IL.
3. Dey SK. **Biochemical and single molecule studies of backbone branched RNAs and the lariat debranching enzyme**. National Centre for Biological Sciences, Dec 19<sup>th</sup> 2017, Bangalore, India.

### ***Poster presentations***

1. Dey SK, Peteanu LA, Das SR. **Analysis of the lariat debranching enzyme (Dbr1p) using dual-fluorescently labeled branched RNA substrates**. Biophysical Society 60<sup>th</sup> Annual Meeting, March 2016, Los Angeles, CA.
2. Dey SK, Peteanu LA, Das SR. **Analysis of the debranching reaction with backbone-branched RNA substrates**. Rustbelt RNA Meeting, October 2015, Sandusky, OH.
3. Dey SK, Peteanu LA, Das SR. **Single Molecule Fluorescence Studies on Conformation of Backbone Branched RNA**. Rustbelt RNA Meeting, October 2014, Pittsburgh, PA.
4. 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.
5. 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.
6. 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.
7. Dey SK, Paredes E, Grahacharya D, Das SR. **Solid phase synthesis of lariat RNAs for RNA interference**. Rustbelt RNA Meeting, October 2012, Dayton, OH.