

**Special Invited Lecture**  
**57<sup>th</sup> Annual Convention of Chemists (ACC) - Indian Chemical Society (ICS)**  
**Recent Trends in Chemical Sciences (RTCS 2020)**

**DNA and RNA Targets Synthesize Their Own Ligands**

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**Abstract:**

DNA and RNA secondary structures play key regulatory roles in biological system. Targeting these secondary structures by small molecules could provide new therapeutic strategies. In this talk, I would discuss our recent work on Target Directed Synthetic (TDS) approaches like in situ cycloaddition using DNA and RNA secondary structures like G-quadruplex, i-motifs and HIV-1 TAR RNA as templates to synthesize their own specific ligands (Figure 1). I will also discuss a strategy to screen selective quadruplex binding ligands by DNA nanotemplates.

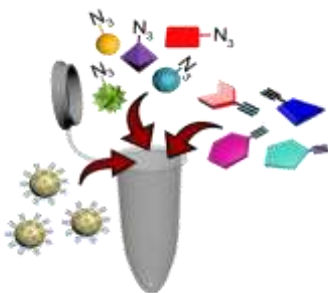


Figure 1. In situ cycloaddition using DNA i-motif nanotemplates.

**References and Notes:**

1. Paul, R. Dutta, D. Paul, R. Dash, J. *Angew. Chem. Int. Ed.* **2020**, DOI: 10.1002/anie.202003461 and 10.1002/ange.2020003.
2. Saha, P.; Panda, D.; Müller, D. Maity, A.; Schwalbe, H.; Dash, J. *Chem. Sci.* **2020**, *11*, 2058-2067.

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**Bio-Sketch of Speaker**

**Name: Jyotirmayee Dash**

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Dr. Jyotirmayee Dash has obtained her Ph.D. degree in Organic Chemistry from Indian Institute of Technology, Kanpur, India under the supervision of Professor F. A. Khan. She has been awarded Alexander von Humboldt postdoctoral fellowship to continue her research in the group of Professor H.-U. Reissig at Freie University, Berlin, Germany. She has joined the research group of Professor Janine Cossy at ESPCI, Paris, France as a postdoctoral research fellow and subsequently has been awarded Marie Curie postdoctoral fellowship in the research group of Professor Shankar Balasubramanian, University of Cambridge, UK. She has returned to join Indian Institute of Science Education and Research, Kolkata as an Assistant Professor in 2009. She is currently working as a Professor at the Indian Association for the Cultivation of Science-Kolkata. Her research interests include new organic transformations, structure and function of nucleic acid targets in therapeutics and nanotechnology.

**Awards and Honours**

Shanti Swarup Bhatnagar Prize, 2020

Fellow of the Royal Society of Chemistry, FRSC, 2020

Editorial Advisory Board Member, *ChemComm*, 2020

Selected for CRSI Bronze Medal, 2020

DBT/ Wellcome Trust Indian Alliance Senior Fellowship, 2020

Second Charusita Chakravarty Memorial Lecture, February 2019, CRSI India

SwarnaJayanti Fellowship for the year 2015-2016