

**Vinit Kumar**

Assistant Professor

Specialization: Nucleic acid nanotechnology, Nanomachines, Drug delivery, Nanomedicine, Development of new bioimaging probes and cancer therapeutics**Email: vkumar25@amilty.edu**

Dr. Vinit Kumar did his PhD from Indian Institute of Technology Roorkee (IITR) and later he did his postdoctoral research for 5 years at Frontier Institute of Biomolecular Engineering and Research, Kobe, Japan and National Cancer Institute, Aviano, Italy. Back to India, he Joined Amity Institute of Molecular Medicine and Stem Cell Research (AIMMSCR) as Assistant Professor in 2016, where he heads 'Nucleic Acid Nanotechnology' Laboratory. His research interest lies in Nucleic acid nanotechnology, Drug delivery, Nanomedicine, development of new bioimaging probes, Smart functional materials, effect of cell mimicking conditions (molecular crowding) on structural and functional properties of DNA and RNA, kinetics and their exploitation for cancer therapeutics. He is among the first to demonstrate that in addition to possessing codes for gene expression, RNA can be used to create advance nanomaterials with tailored properties for various bioapplications such as biosensing and drug delivery. Dr. Kumar has also unraveled the novel behavior of RNA switch in cell mimicking conditions. He has published several papers on different aspects of RNA/DNA nanotechnology in International journals of high impact. His long-term vision is development of nucleic acid-based device that can track, fix and destroy diseased cells in biological system.

Honours and awards:

1. Postdoctoral research funded by Italian Ministry of Education, Italy (2014)
2. Postdoctoral research funded by MEXT, Japan (2011)
3. CSIR-JRF Fellowship by UGC-CSIR, India (2004)

Ongoing research project:

SERB-DST funded research project entitled "Engineering DNA Origami-Based Nanodevice for Bio-applications and Multiplex Analysis".

Selected important publications:

1. Bayda S, Hadla M, **Kumar Vinit**, Palazzolo S, Ambrosi E, Pontoglio E, Agostini M, Bendetti A, Riello R, Corona G, Toffoli G, Rizzolio F, (2017) A bottom-up synthesis of carbon nanoparticles with better doxorubicin efficacy. *J. Control. Release*, 248, 144-152. [IF- 7.78]
2. **Kumar Vinit**, Palazzolo S, Bayda S, Corona G, Toffoli F, Rizzolio F, (2016) DNA Nanotechnology for Cancer Therapeutics. *Theranostics*, 6, 720-725. [IF - 8.80]
3. Kumar A, **Kumar Vinit**, (2014) Biotemplated Inorganic Nanostructures: Supramolecular Directed Nanohybrids of Semiconductor/Metal with Nucleic Acids and their properties. *Chem. Rev.*, 114, 7044-7078. [IF - 37.36]
4. **Kumar Vinit**, Endoh T, Murakami K, Sugimoto N, (2012) Dehydration from conserved stem regions is fundamental for ligand dependent conformational transition of the adenine-specific riboswitch. *Chem. Commun.*, 48, 9693-9695. (Front Cover of the Journal). (This article is also part of the RSC Themed Issue of Nucleic Acids: New Life, New Materials). [IF - 6.56]
5. Kumar A, **Kumar Vinit**, (2009) Supramolecular –Directed Synthesis of RNA–Mediated CdS/ZnS Nanotubes. *Chem. Commun.*, 5435-5437. [IF - 6.56]