

Ph. D. Open Seminar

Department of Chemistry, IISER Bhopal

Title of Thesis: **Modulating Antimicrobial & Drug Delivery Potential of Synthetic and Natural Polymers having Amine Pendants**

Speaker: **Mr. Prabhu Srinivas Yavvari**

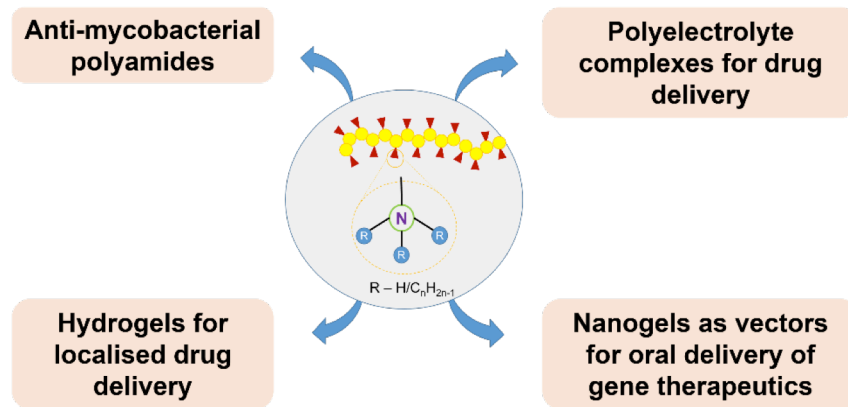
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Time: **4:00 PM**

Venue: **AB2-401**

Amine based molecular and supramolecular systems are being explored by researchers in developing drugs and novel materials for a variety of applications.¹ The chemical attributes of amines such as nucleophilicity, hydrogen bonding ability, and basicity are contingent upon the extent and the type of derivatisation. These attributes, in turn, strongly influence the solvation, aggregation properties, and interactions with cellular membranes of macromolecular systems endowed with amine functionalities. We were able to prepare a range of biologically-relevant systems such as anti-mycobacterial agents,² nano-sized drug delivering polyelectrolyte complexes,³ gene therapeutics and also robust hydrogels⁴ that can be used for localised anticancer drug delivery by carefully modifying the amine pendants on synthetic and natural polymers.



References:

1. a) Yan, Y.; Zhang, J.; Ren, L.; Tang, C. *Chem Soc Rev* **2016**, 45 (19), 5232–5263; b) Hu, X.; Zhang, Y.; Xie, Z.; Jing, X.; Bellotti, A.; Gu, Z. *Biomacromolecules* **2017**.
2. Targeting Intracellular Mycobacteria and its Biofilms using Cationic Polyamides, Yavvari, P. S.; Gupta, S.; Srivastava, A. Bajaj, A. (Manuscript submitted)
3. Fatima, M. T.; Chanchal, A.; Yavvari, P. S.; Bhagat, S. D.; Gujrati, M.; Mishra, R. K.; Srivastava, A. *Biomacromolecules* **2016**, 17 (7), 2375–2383.
4. Yavvari, P. S.; Srivastava, A. *J. Mater. Chem. B* **2014**, 3, 899–910.