Seminar Notice

International Year of Chemistry - 2011 Seminar Series - 05

Department of Chemistry
Pondicherry University, Puducherry – 605 014

Organic Synthesis in Drug Discovery

By

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Director

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Date: 27th (Thursday) October 2011

Time: 3.30 pm

Venue: Seminar hall, Department of Chemistry, PU

Head of the Department Seminar Convener

Organic Synthesis in Drug Discovery

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ABSTRACT: Among the various classes of organic molecules being investigated in laboratories worldwide for wide-ranging therapeutic applications, peptides and peptidomimetics have found a renewed interest in recent years for their great potential as drug candidates which is evident from the ever-increasing number of reports on the development of constrained peptides using non-peptide scaffolds that confers them the much-needed stability towards the proteases. Newer concepts are emerging where synthetic organic chemists manifest their craftsmanship in creating de novo chemical entities, based on amalgamation of the fundamental building blocks used by nature like amino acids, sugars and nucleosides, with differentiated functional groups anchored on a single ensemble. It is now well known that the secondary structural motifs so common in proteins are not restricted to the α-peptide backbone alone, but can be seen in many designer peptides containing non-natural β-, γ- and δ-amino acids. We have developed, in our lab, many conformationally constrained hybrids like sugar amino acids, furan and pyrrole amino acids, which belong to the family of γ- and δ-amino acids. They have been extensively used by us as building blocks to synthesize many peptides that displayed interesting secondary structures and also useful properties like antimicrobial properties and binding with G-quadruplex. The presentation will give a brief overview of some of our latest results in these areas of research and showcase the strength of organic synthesis in creating many drug-like molecules.

References

(a) Pal, S.; Mitra, K.; Azmi, S.; Ghosh, J. K.; Chakraborty, T. K. *Org. Biomol. Chem.*, **2011**, *9*, 4806 - 4810; (b) Agarwal, T.; Roy, S.; Chakraborty, T. K.; Maiti, S. *Biochemistry* **2010**, *49*, 8388-8397; (c) Kumar, N. V. S.; Sharma, P.; Singh, H.; Koley, D.; Roy, S.; Chakraborty, T. K. *J. Phys. Org. Chem.* **2010**, *23*, 238-245.