

Ph.D. Open Seminar

Department of Chemistry, IISER Bhopal

Title of thesis: “Towards the synthesis of Lariatins B: Synthesis of Macrocyclic framework and side chain”

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Venue: **AB-II, Room No. 401**

Abstract: Lasso peptides are natural products that are found throughout the bacterial domain and exhibit a versatile array of biological activities.¹ Two anti-mycobacterial peptides with a lasso structure, named Lariatins A and B were isolated from the culture broth of *Rhodococcus* sp. K01-B01711. They showed growth inhibition against *Mycobacterium smegmatis*.² These peptides consist of 18 and 20 amino acid residues in an internal linkage between the carboxyl group of glutamine and the alpha-amino group of glycine and the tail passes through the macrocyclic ring region.

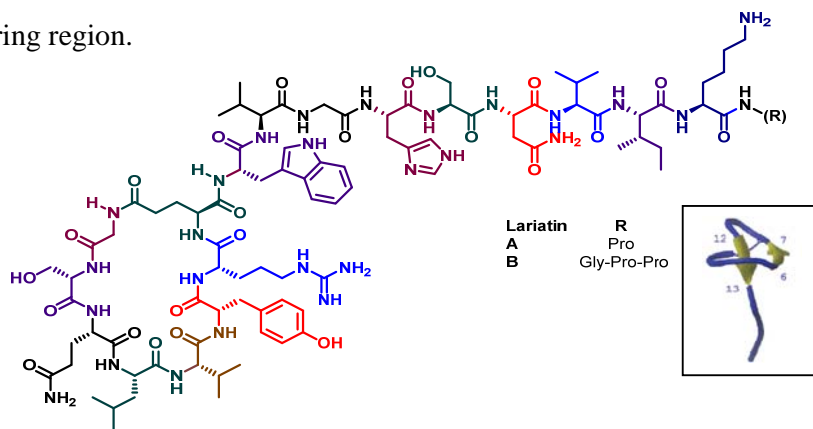


Figure 1: Schematic representation of Lariatins A and B.

During my graduate studies, I undertook a program towards the total synthesis Lariatins A & B. First part of the Thesis will be dedicated to the completion of synthesis of macrocyclic portion of the Lariatins (28-membered, 8 amino acids). The second part of the Thesis is focused on the synthesis of side chain framework of Lariatins B, which consists of 12 amino acids.³

References:

1. (a) Maksimov, M.; Pan, S. *Nat. Prod. Rep.* **2012**, 29, 996. (b) Iwatsuki, M.; Tomada, H.; Gouda, H.; Hirona, S.; Omura, S. *J. Am. Chem. Soc.* **2006**, 128, 7486.
2. Iwastuki, M.; Koizumi, Y.; Gouda, H.; Hironi., S.; Tomoda., H.; Omura, S. *Bioorg. Med. Chem. Lett.* **2009**, 19, 2888.
3. Mahapure, A. A.; Kapur, M. (*Manuscript under preparation*).