



INSTITUTE OF LIFE SCIENCES

(An Associate Institute of University of Hyderabad
Supported by Dr. Reddy's)



An Advanced Course
in
**Stereoselective
Organic Synthesis (SOS)**

Period: 36hrs over 6 days

Schedule: December 6-11, 2010
(Monday - Saturday)

Number of Available Seats **50**

(Note: we have a limited number of seats and these will be filled on a first-come-first basis)

Fee to Attend this Course

INR 1,00,000.00 per participant

Please contact the SOS course coordinator at the following address if you are interested in attending this course:

Dr. Arvinth Pradheep Shanmugam

Head, Corporate Development & Project Management

Institute of Life Sciences

(An Associate Institute of University of
Hyderabad Supported by Dr. Reddy's)
University of Hyderabad Campus,
Gachibowli, Hyderabad - 500046. India
Phone : Off (40) 66571500
Mobile: 9908833122
E mail: soscoordinator@ilsresearch.org

Institute of Life Sciences
(An Associate Institute of University of Hyderabad
supported by Dr. Reddy's)
University of Hyderabad Campus,
Gachibowli, Hyderabad - 500 046. INDIA
Tel: +91 40 6657 1500
Fax: +91 40 6657 1581



The Institute of Life Sciences, an Associate Institute of University of Hyderabad, is organizing an advanced, 36hrs teaching course in "Stereo-selective Organic Synthesis (SOS)".

The course aims to reach the pharmaceutical medicinal and process chemistry communities interested in sharpening their knowledge and skills in several directions dealing with the advanced organic synthesis topics.

The course will be given 6hr/day over a 6 day period (December 6-11, 2010, Monday-Saturday) and will cover the following topics:

- Basic principles in stereochemistry and asymmetric synthesis (6hr)
- Stereo- and enantio-selective carbon-carbon and carbon-hetero atom bond forming reactions using asymmetric carbanion chemistry (12hr)
- Stereo- and enantio-selective oxidative and reductive reactions (6hr)
- Stereo- and enantio-selective various cycloaddition reactions (6hr)
- Applications of stereo - and enantio-selective organic reactions in total synthesis of bioactive natural products (6hr)

What this course has to offer to pharmaceutical medicinal and process chemistry communities:

The growing interest in the modern drug discovery arena is challenging the organic, medicinal and process chemistry communities to access a wide arsenal of novel small molecules in highly efficient and practical manners. In particular, the post-genomic drug discovery demands an access to highly unique small molecules that could function as selective modulators of protein-protein interactions and as selective dissectors of signaling pathways. To keep up with this demand our chemical community needs to be well-equipped with the modern knowledge and skill-sets to come-up with highly innovative, clever, and cost-effective approaches to access small molecules. The course in SOS is designed to prepare our industrial medical and process chemistry communities (at MS and PhD levels) to undertake these challenges. In addition to attending this course, the participants will also receive the detailed course material with well-cited literature references as hard and electronic copies.

The course instructor, Professor Prabhat Arya has several years of experience in the North American University System in teaching this course material to highly advanced students at MS and PhD levels and is known to deliver the material effectively through an extensive use of molecular models.

During a short stay at ILS, the attendees will also have an excellent opportunity to interact with eminent scientists, Professors Javed Iqbal, Director, ILS, and Goverdhan Mehta, FRS either through their participation to teaching or through the scientific discussions.

Course Instructor

Professor Prabhat Arya

Leader, Chemical Biology Program, ILS
Dean, Academic Affairs, ILS
Adjunct Professor, Biochemistry, McGill Univ
Member, Ottawa Institute of Systems Biology



<http://www.ilsresearch.org>

(see: chemical biology @ ILS)

Prabhat Arya moved back to India in July 2009 to establish a Chemical Biology Program at the Institute of Life Sciences after spending 22 years with National Research Council of Canada and Ontario Institute for Cancer Research. With an objective to explore a new chemical space, his research aims to develop novel methods leading to high-throughput generation of natural product-inspired small molecules to thoroughly explore their value in a hunt for chemical modulators of signaling pathways related to cancer and metabolic disorders. Over the years, his team has written several authoritative articles on the need to strengthen the advanced organic chemistry efforts to produce natural product-inspired chemical probes to explore their utilization in the signaling biology arena. To date, he has published 75 peer reviewed research articles, presented 96 invited talks and trained more than 50 post-doctoral fellows and several graduate and undergraduate students. He has served at various committees at the national and international levels dealing with science policies, research grants, strategic research programs, and has won several awards.

Selected References from Arya Group:

1. Prabhat Arya and Huiping Qin. Advances in Asymmetric Enolate Methodology. *Tetrahedron* (Tetrahedron Report 514), 2000, 56, 917-947.
2. Prabhat Arya, Doug T. H. Chou and Myung-Gi Baek. Diversity-based Organic Synthesis in the era of Genomics and Proteomics. *Angew. Chem. Int. Ed.*, 2001, 40, 339-346.
3. Prabhat Arya and Myung-Gi Baek. Natural Product-like, Chiral Derivatives by Solid Phase Synthesis. *Curr. Opin. Chem. Biol.*, 2001, 5, 292-301.
4. Prabhat Arya, Reni Joseph and Doug T. H. Chou. Toward High-throughput Synthesis of Complex Natural Product-like Compounds in the Genomics and Proteomics Age. *Chemistry & Biology*, 2002, 9, 145-156.
5. Prabhat Arya, Reni Joseph, Zhonghong Gan and Bojana Rakic. Exploring New Chemical Space by Stereocontrolled Diversity Oriented Synthesis. *Chemistry & Biology*, 2005, 12, 163-180.
6. Ayub Reayi and Prabhat Arya. Natural Product-like Chemical Space: Search for Chemical Dissectors of Macromolecular Interactions. *Curr. Opin. Chem. Biol.*, 2005, 9, 240-247.
7. Jyoti P. Nandy, Michael Prakesch, Shahriar Khadem, P. Thirupathi Reddy, Utpal Sharma and Prabhat Arya. Advances in Solution and Solid Phase Synthesis toward the Generation of Natural Product-like Libraries. *Chem. Rev.* 2009, 109(5), 1999-2060.