

Preface

Enzyme engineering involves both fundamental and applied enzymology, biocatalysis, molecular modelling, structural biology, random mutagenesis and immobilization on nanostructure materials. The overall goal is to develop new sustainable processes or modify existing processes for the production of useful naturally occurring enzymes at industrial scale and ultimately reduce its cost. *National Institute for Biotechnology and Genetic Engineering (NIBGE)* has established a strong infrastructure to carry out cutting edge research related with this promising field. The "Industrial Enzymes & Biofuels" (IEBF) and "Nanobiotechnology" (NBT) at NIBGE are dynamic and active groups, equipped with the most sophisticated, advanced & state of the art research facilities. Here at NIBGE, IEBF is developing *energy-efficient, thermostable and eco-friendly biocatalysts* for various industrial processes, whereas, NBT group focus on *synthesis, characterization and properties/applications* of nanomaterials. Being as National institute, its our responsibility to share our knowledge in a meaningful way at National level. In this connection, we are pleased to announce a 3rd National Training Workshop at NIBGE to share and develop expertise in the area of Enzyme Engineering. The workshop will include lectures, demonstrations, and hands-on training through helpful critique and practical sessions on **strain development; Bio-safety** assessment; Toxin analysis on LCMS etc. The characterization techniques for nanomaterials will include; **Field Emission Scanning Electron Microscopy (FESEM), Atomic Force Microscopy (AFM), Transmission Electron Microscopy (TEM), Zetasizer nano** and other complementary techniques. This workshop would be immensely beneficial for scientific/researchers community, interested in enzyme engineering research in Pakistan.

Course Outlines:

- Concepts of Enzyme Engineering
- Microbial Strain development by Genetic engineering *i.e.* Rational design and Random mutagenesis
- Enzyme immobilization on nanostructure materials
- Synthesis & characterization of nanostructure supports by: FESEM, AFM, Dynamic Light Scattering (Zetasizer), Surface Area and Porosity Analyzer



National Institute for Biotechnology and Genetic Engineering (NIBGE) was established in 1992 for state-of-the-art research in the area of life sciences. It is one of the affiliated center with International Center of Genetic Engineering and Biotechnology (ICGEB), Italy. In addition, it is serving as **Center of Excellence in Biotechnology** in the country for the advancement of basic and applied research in four major research areas *i.e.* agriculture, health, environment and industry. During the span of time, highly sophisticated research facilities have been developed in order to accelerate R & D activities. Some of these Hi-Tech equipment's include Biolistic Gene Gun, Lab & pilot scale Fermenters, DNA Sequencers, Transmission Electron Microscope, Field Emission Scanning Electron Microscope, Atomic Force Microscope, GCMS, and LCMS. One of the salient features of NIBGE is M.Phil and PhD program through which scientific excellence is being integrated with education and training of the young researchers and this has led to the raised scientific stature of NIBGE. The M.Phil & PhD degrees are conferred by NIBGE through its affiliation with *Pakistan Institute of Engineering and Applied Sciences (PIEAS)*. Besides, research facilities and expertise are available to private and public sector in terms of specialized training courses for researchers, university students and teachers.



Industrial Enzymes & Biofuels
Industrial Biotechnology Division

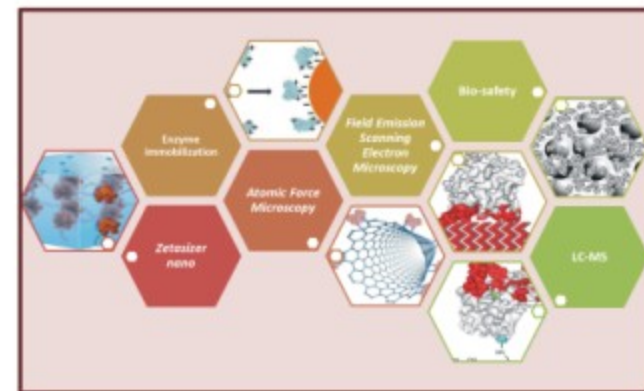
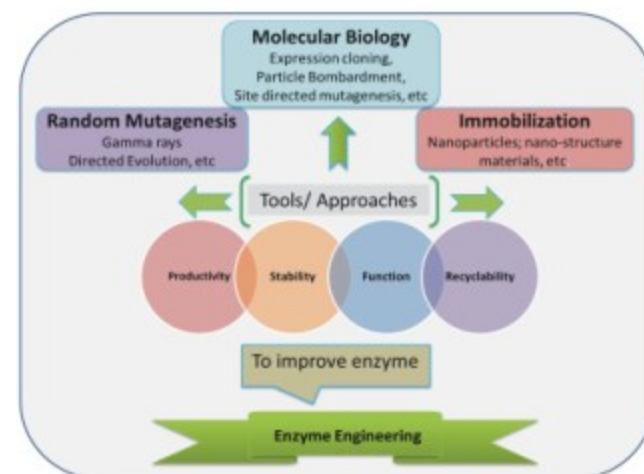


3rd National Training Workshop

On
Enzyme Engineering

An Efficient Tool to Improve Properties of
Industrial Biocatalysts

January 22-24, 2018



Chair of the Organizing Committees

Dr. Shahid Mansoor, S.I. Director NIBGE

Advisory Committee

Dr. Nayyer Iqbal Director A & B, PAEC

Dr. Shahid Mansoor, S.I. Director, NIBGE

Dr. M. Afzal Ghauri DCS, NIBGE

Organizers

Dr. M. Hamid Rashid DCS, NIBGE

Dr. Hazrat Ali Sr. Scientist, NIBGE

Dr. Sadia Zafar Bajwa Sr. Scientist, NIBGE

Dr. Ayesha Ihsan Sr. Scientist, NIBGE



Fermenter (20L)



GC-MS



Atomic Force
Microscope



FESEM



Zetasizer nano



LC-MS

Course Faculty

Dr. M. Hamid Rashid, Dr. Hazrat Ali, Dr. S.Z. Bajwa,
Dr. A. Ihsan, Dr. Z. Mukhtar, Dr. I. Amin, Dr. Mazhar Iqbal,
Dr. Niaz Ahmad.

Who should participate

Researchers/Scholars under 45 years of age from academics, R & D organizations and industrial laboratories with background in Biotechnology, Chemistry, Biochemistry, Life Sciences, Nanotechnology, Materials Science. Preference will be given to individuals /employees who are planning to initiate work in this area.

Participants : 30

Registration Fee

For Students Rs. 1,500/- (Mandatory)

For Employees Rs. 3,500/- (Mandatory)

Accommodation and Meals

(Rs. 750 / Person / Day, Optional)

Note

All dues should be paid at the time of registration by the selected participants in the form of Cash.

Registration Closing Date

January 15, 2018

Please send complete application form and CV to:

**Dr. Muhammad Hamid Rashid
Dr. Hazrat Ali**

Industrial Enzymes & Biofuels Group

Industrial Biotechnology Division

National Institute for Biotechnology &

Genetic Engineering (NIBGE),

P. O. Box. No. 577, Jhang Road, Faisalabad

☎ +92-41-9201316 to 20, Ext. 303

Cell# 0321-6683188

Email: hamidcombh@gmail.com

Application forms can be downloaded from:

www.nibge.org

Application Form

Name _____

Date of Birth _____

Gender _____

CNIC No. _____

Affiliation: _____

Institute: _____

Designation: _____

Address: _____

Phone: _____

Fax: _____

Email: _____

Research/Training Experience: _____

Accommodation Required: _____

YES/NO

Applicant's Signature: _____

Head of Department: _____

(Signature with Official Stamp)

*Note: Please attach one CNIC copy, CV and two photographs with this form.
Scanned copy of the form may be send as advance copy.*