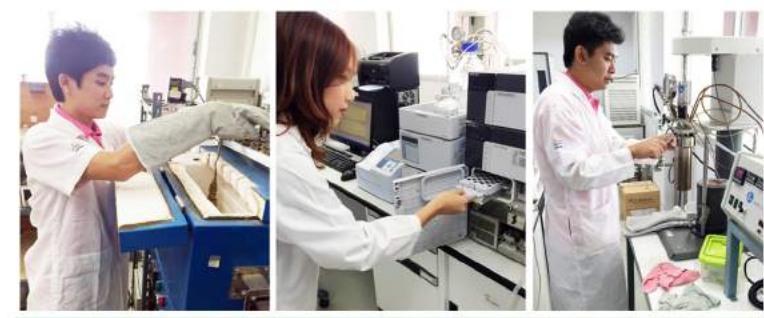
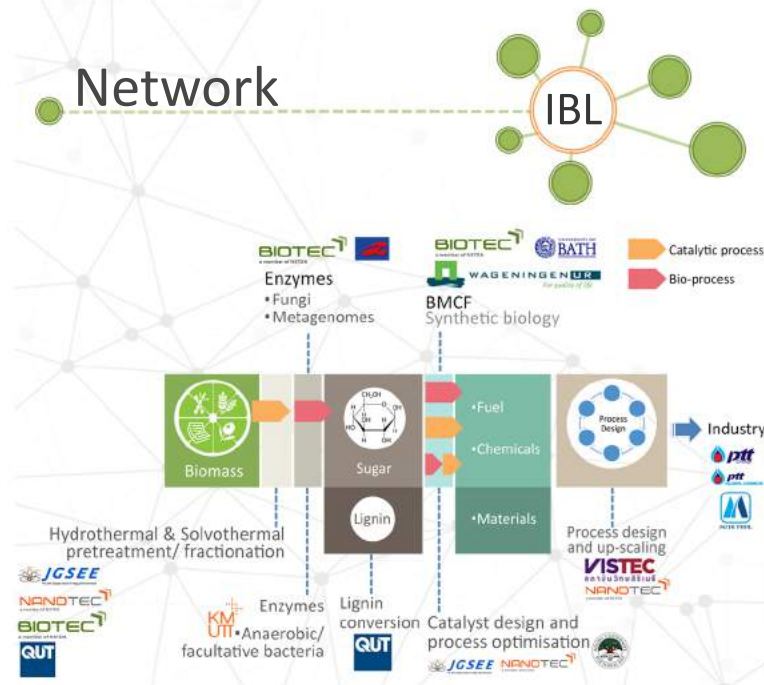
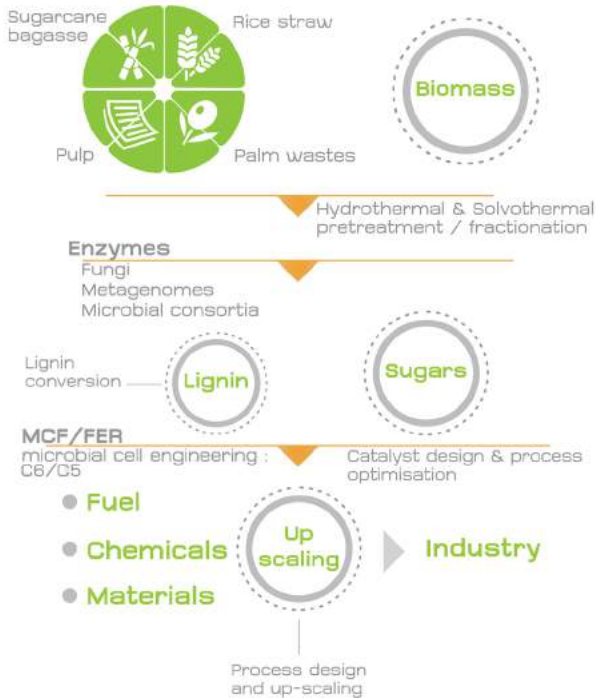


IBL has been established as a focal point for multi-disciplinary biorefinery research with the combined strength from BIOTEC and the Joint Graduate School of Energy and Environment (JGSEE), KMUTT with alliance in NANOTEC and networks of leading local universities and international institutions. This strategic lab focuses on development of platform technology on conversion of the underutilized agricultural biomass and sugars to valorized fuels and chemicals by bio- and chemo-catalytic processes and on translation of technology to industrial application through contract and collaborative projects with industries.



Contact:

Dr. Navadol Laosiripojana
 Joint Graduate School of Energy and Environment (JGSEE),
 King Mongkut's University of Technology Thonburi
 Tel: 02-872-9014 (ext 4146); Fax: 02-8726736
 E-mail: navadol@jgsee.kmutt.ac.th

Dr. Verawat Champreda
 National Center for Genetic Engineering and Biotechnology
 Tel: 0-2564-6700 (ext 3473); Fax: 02-564-6707
 E-mail: verawat@biotec.or.th

Integrative Biorefinery Laboratory (IBL)

: a multi-disciplinary R&D center for biomass conversion technology

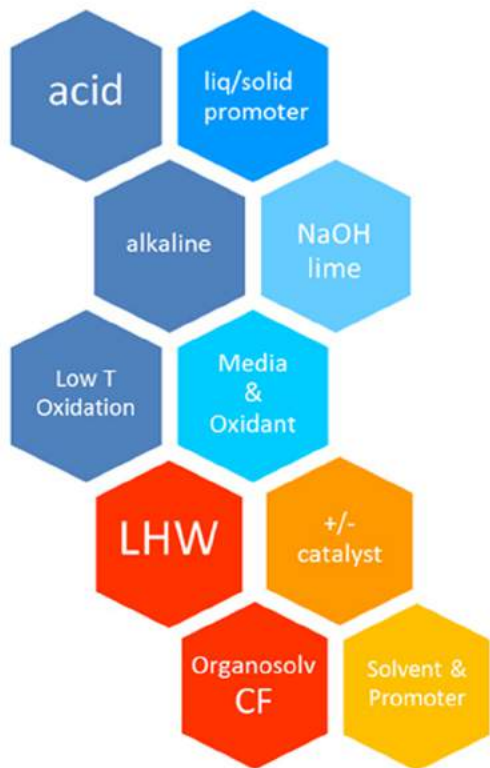


R & D Theme I

I

Biomass pretreatment and fractionation

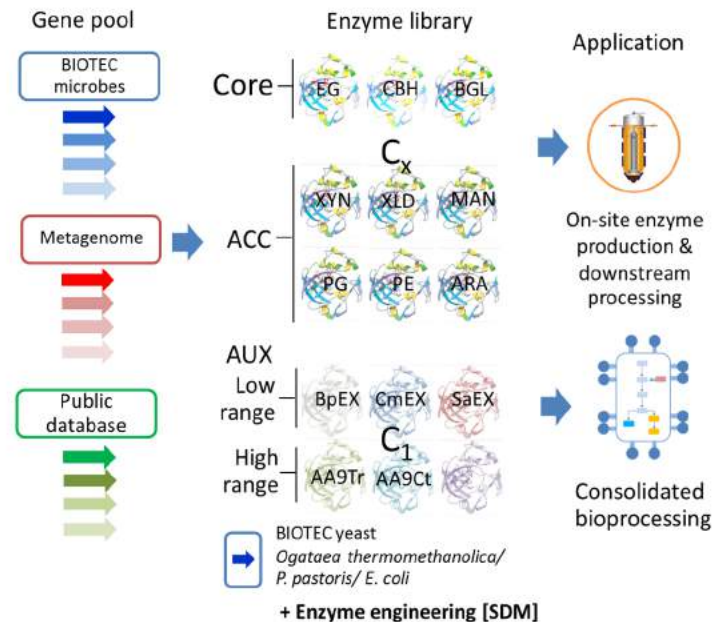
Our research aims to develop low energy pretreatment & fractionation processes with recoverable solvents and chemicals. The current technology focuses on hydrothermal and organosolv-based methods for improving digestibility of potent lignocellulosic biomass and separating its components for maximized valorization in integrative biorefineries.



R & D Theme II

II

Enzymes for biomass hydrolysis & modification



The work focuses on development of efficient lignocellulolytic enzyme systems for saccharification or modification of plant biomass. The research targets on systematic formulation of cellulases, hemicellulases, and ligninases, as well as non-catalytic components from our “enzyme library” which includes a variety of biomass degrading enzymes from the BIOTEC Culture Collection and environmental metagenomes as well as on development of enzyme hyper-producing strains.

R & D Theme III

III

Conversion of sugars and lignin to fuels and chemicals

Our research focuses on development of catalytic/bio-catalytic/or hybrid processes for conversion of sugars and lignin to biofuels (bioethanol, drop-in fuel, syngas) and commodity chemicals (furans, organic acids, phenols). The core technology is on catalyst design, biocatalyst synthesis, and genetic modification of microbial strains through our network.

