Graduate Program of Biotechnology and Pharmaceutical Industries

Protein engineering and enzyme biotechnology

My major studies are elucidating the structure-function relationship of protein or enzyme, improving their properties, and exploiting their new function and applications.

Techniques used in study

- Recombinant protein expression in bacteria or fungi
- Site-directed mutagenesis and directed evolution of protein
- Ultrahigh-throughput screening for protein engineering by droplet-based microfluidics
- Atmospheric and room temperature plasma mutagenesis
- GC and HPLC

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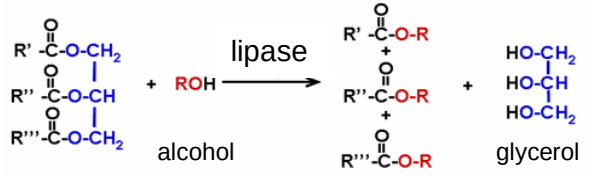
Background:

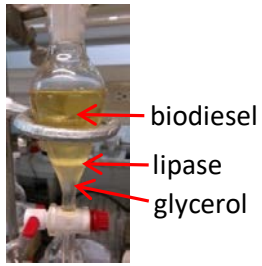
PhD in Biochemistry and Molecular Biology, National Yang-Ming University, Taiwan

Funding:

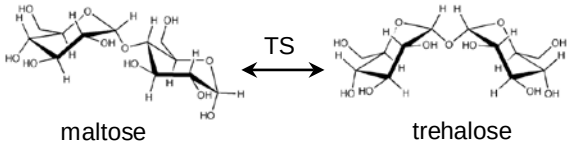
Ministry of Science and Technology
National Taiwan Normal University

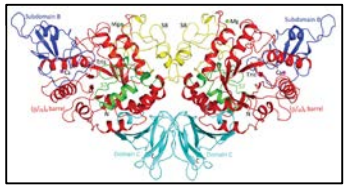
- Recombinant lipases are used as biocatalysts for the biodiesel production from low-cost non-edible oils.





- Determining the 3-D structures of the trehalose synthase (TS) and elucidating the catalytic mechanism of trehalose synthase.





Publications

- Conversion of crude *Jatropha curcas* seed oil into biodiesel using liquid recombinant *Candida rugosa* lipase isozymes. *Bioresour. Technol.* 2015, 192: 54–59.
- Structures of trehalose synthase from *Deinococcus radiodurans* reveal that a closed conformation is involved in catalysis of the intramolecular isomerization. *Acta Crystallogr. Sect. D-Biol. Crystallogr.* 2014, D70 (Pt 12): 3144–3154.
- Prebiotic Lactulose Ameliorates the Cognitive Deficit in Alzheimer's Disease Mouse Model through Macroautophagy and Chaperone-Mediated Autophagy Pathways. *J. Agric. Food Chem.* 2021, 69(8): 2422–2437.