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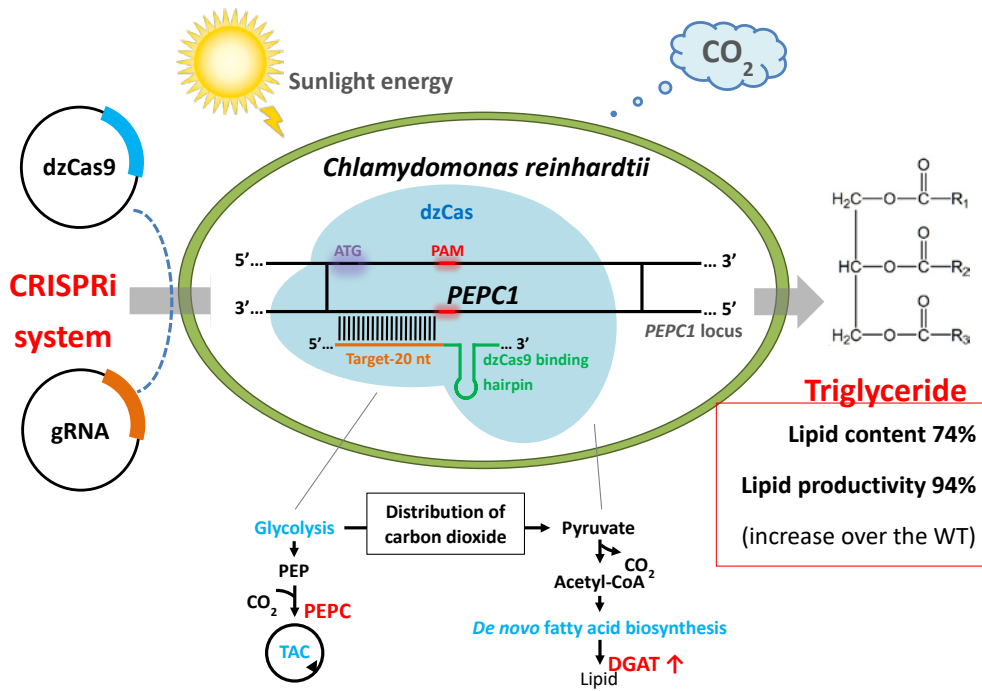
Research Interests

Our research interests focus on development of enzymes on emissions of bioenergy, biorefinery, bioremediation and functional bio-products. Aims to establish and discover the novel genes through proteomics approaches. The platforms are including whole genome sequencing and analysis, high throughput proteomic screening, genetic and protein engineering, and synthetic biology. Our current research topics include: (1) Use synthetic biology to accelerate the application of *Shewanella*; (2) Direct evolution of Carbonic anhydrase (CA) enhanced for carbon dioxide sequestration; (3) Genetic approach in improving production of valuable bio-products (4) Synthetic biology on sensing pollutants from the environment.

Representative Publications

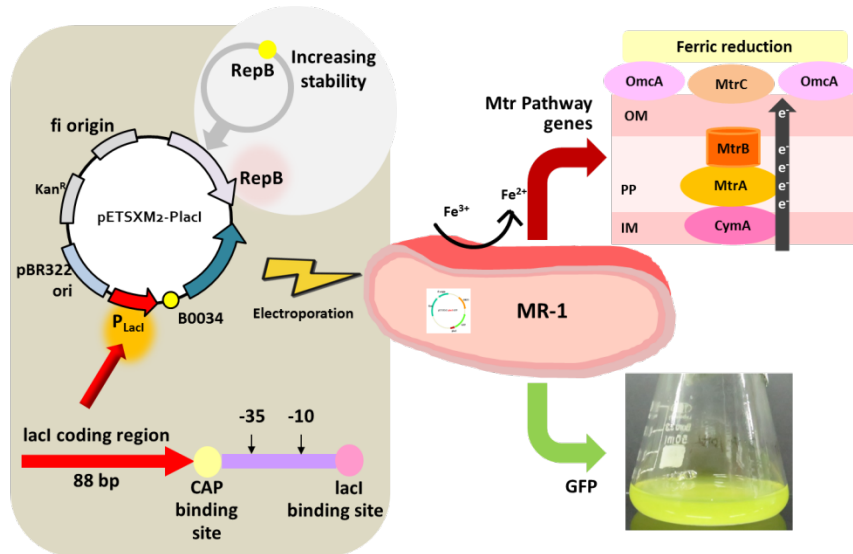
1. Pei-Hsun Kao, **I-Son Ng*** (2017) CRISPRi mediated phosphoenolpyruvate carboxylase regulation to enhance the production of lipid in *Chlamydomonas reinhardtii*. *Bioresource Technology*, 245:1527–1537. DOI: 10.1016/j.biortech.2017.04.111
 2. **I-Son Ng***, Tingting Chen, Rong Lin, Xia Zhang, Chao Ni, Dongzhe Shun. (2014) “Decolorization of textile azo dye and Congo red by an isolated strain of the dissimilatory manganese-reducing bacterium *Shewanella xiamenensis* BC01,” *Applied Microbiology and Biotechnology*, 2014, 98(5):2297-2308.
 3. **I-Son Ng***, You-Jin Yu, Ying-Chen Yi, Shih-I Tan, Bo-Chuan Huang, Yin-Lung Han (2017) Identification of gold sensing peptide by integrative proteomics and a bacterial two-component system. doi: 10.3389/fchem.2017.00127
 4. **I-Son Ng***, Ying-Hsin Hung, Pei-Hsun Kao, Yunli Zhou, Xia Zhang. (2016) CRISPR/Cas9 nuclease cleavage enables marker-free genome editing in *Escherichia coli*: A sequential study. *Journal of the Taiwan Institute of Chemical Engineers*, 68: 31-39
 5. **I-Son Ng***, Chengfeng Xue. (2017) Enhanced exopolysaccharide production and biological activity of *Lactobacillus rhamnosus* ZY with calcium and hydrogen peroxide. *Process Biochemistry*, 53:295-304.
 6. **I-Son Ng**, Shau-Wei Tsai, Yu-Ming Ju, Su-May Yu*, Tuan-hua David Ho* (2011) “Dynamic synergistic effect on *Trichoderma reesei* cellulases by novel beta-glucosidases from Taiwanese fungi,” *Bioresource Technology*, 102:6073-6081.
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Establish CRISPRi System in Microalgae



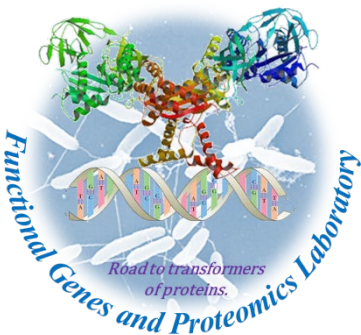
Use synthetic biology to accelerate the application of *Shewanella*

In the future,



We'll steer "From Heterologous over-expression of novel genes in *Escherichia coli*"

"To **Metabolic engineering of *Escherichia coli***"



Welcome to **Functional Genes and Proteomics Lab**

