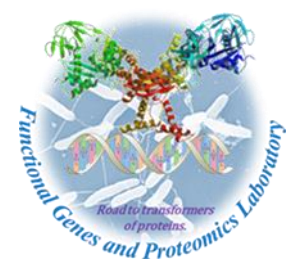


Curriculum Vitae

Associate Professor **I-Son Grace Ng** is devoted to the synthetic biology, genetic and enzymatic engineering, which to apply in bioenergy and biorefinery. She received her Ph.D. from National Cheng Kung University (NCKU), Taiwan in 2005 and joined Academia Sinica in 2006 and Xiamen University as Associate Professor in 2010. She has been working with several top researchers in the areas of biofuel, biorefinery and bioremediation to develop a robust and efficient approach in exploring the novel and functional enzymes by genetic and proteomics of microorganisms. She has published more than 60 SCI papers and been awarded with the best young teacher in Xiamen University. She joined in the Department of Chemical Engineering in National Cheng Kung University since 2014. She has also established the first iGEM team in NCKU since 2015 and led the team to award the gold prize for 3 times (2016, 2017 and 2018), “Best Environmental Project” in 2017 and 2018, and “Best Presentation” in 2018.



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Education:

PhD, Department of Chemical Engineering, NCKU (2002-2005)

Master, Department of Chemical Engineering, NCKU (1996-1998)

Bachelor, Department of Chemical Engineering, NCKU (1992-1996)

Presentation and Summary

How does Synthetic Biology involve in Chemical Engineering?

Do you know synthetic biology? Do you know CRISPR/Cas9 system? Over decades, chemical engineers used to refine fossil oil into petroleum, polymer, pharmaceuticals and many kinds of chemicals. Till now, energy supply is the critical problem which facing to the depletion of fossil oil and environmental issues. Today, I'll introduce “Synthetic Biology” which is a new approach to biotechnology and potentially to solve part of problem in chemical industry. Synthetic biology means combining different living elements (call as biobrick) into a genetic circuit and achieves a programmable, particular and novel function in the cell. On the other hand, CRISPR/Cas9 system which is an advanced tool for genetic editing has emerged as a rapid, easy to operate, high efficiency in genome engineering. Herein, a proof-of-concept and proof-of-function by CRISPR technology to enhance the lipid production by microalgae will be presented.