香港浸會大學
HONG KONG BAPTIST UNIVERSITY

School of 中醫藥學院
Chinese Medicine

Natural Product Synthetic Biology : From Bacteria to Plant

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Date	:	11 May 2018 (Friday)
Time	:	4:30 pm – 6:00 pm
Venue	:	SCM 809
Language	:	English
Facilitator	:	Prof. Bian Zhao Xiang

Biography

Prof. Wang obtained his Ph.D. degree of biochemical engineering from East China University of Science & Technology, China in 2004 and was trained as a post-doctoral fellow at Department of Chemical and Biological Engineering in Tufts University, USA during Feb 2005 to Aug 2008. His research is centered on the design and assembly of recombinant microorganisms for the production of complex natural products. A particular focus is the elucidation of design principles for the production of unnatural natural compounds within the framework of the nascent field of synthetic biology. Major Research Areas: Synthetic Biology; Metabolic Engineering; Biochemical Engineering; Bioprocess Engineering. More than 70 papers have been published.

Abstract

Natural products (NPs) are important drug pools for human disease prevention and treatment. The great advances in synthetic biology have greatly revolutionized the strategies of NPs development and production. However, attempts to produce complex natural products with synthetic biotechnology, have been hampered until now by the limited characterized parts, parts incompatible and products tolerance. To address these problems, in the past years, we made specific efforts to identify and characterize more parts from various resources, develop tools and methodologies for parts assembly and modulation, engineer transporters to improve the compounds production. Lots of parts related to the natural products biosynthesis were collected and characterized for the further design. *In silico* tools and system biology-based methodology were developed for parts design and optimization. We got different representative natural products, such as terpenoids, polyketides and phenylpropanoids, produced successfully in the engineered *E. coli* or *Nicotiana benthamiana* systems. Some of the products and technologies have been getting started the industrial research collaborated with the enterprise. This talk entitled with design and construction of artificial biological systems for complex NPs biosynthesis. It mainly introduces the progresses in pathway/module design based on synthesis of biological parts, mining novel synthetic parts of NPs from nature, and the assembly of the artificial biological modules followed by adaption to the chassis systems.

~ All are welcome ~