Metabolic Engineering of Osmoprotectant Accumulation in Bacteria and Higher Plants
Asst Prof Rungaroon Waditee-Sirisattha
Department of Microbiology, Faculty of Science, CU

Plants, bacteria and animals accumulate a variety of organic solutes (known as osmoprotectants) that improve their ability to combat abiotic stresses. Among them, glycine betaine appears to be the most potent osmoprotectant found in nature. It is synthesized by either choline oxidation or glycine methylation. Here, we present selected examples of metabolic engineering for glycine betaine in transgenic model species. Accumulation of glycine betaine in these species improves salt tolerance. The challenges and opportunities provided by recently developed functional tools for the development of salt-tolerant species will be also discussed.