

Speaker – Blake Rasor, NC State University

Title – Cell-free photosynthesis to study the past, present, and future

Abstract – Cell-free synthesis of proteins and other biochemicals uses the contents of cell lysates, exploiting biological machinery in the absence of growth or cellular regulation. The resulting cell extracts are extremely flexible systems with open reaction environments that enable greater control over variables than cell cultures for screening environmental variables, genetic parts, and metabolic pathways. The Rasor Lab implements cell-free systems both to inform the design of cellular production strains and to serve as standalone synthesis platforms. Here, I will discuss the ease with which diverse metabolic pathways can be studied using crude cell extracts, highlighting our projects focused on studying photosynthesis and CO₂ fixation as discrete modules in vitro.