

Co-Optimization of Multicomponent Enzyme Mixtures and Saccharification Conditions

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Project Goals: Short statement of goals. (Limit to 1000 characters)

For the efficient production of sugars for platform chemicals and biofuels, lignocellulosic biomass is pretreated and subsequently hydrolyzed with a combination of enzymes to produce glucose and xylose. Although ionic liquids pretreat biomass very efficiently, the enzymatic hydrolysis of ionic liquid pretreated biomass has not been optimized. Moreover, enzymes for hydrolysis of pretreated biomass remain a major cost in the production of chemicals and fuels from lignocellulosic biomass. The goals of this research are to use the JBEI's jSALSA robotics platform to 1) determine the optimal operating temperature and pH of glycosyl hydrolases from thermophiles, 2) optimize synthetic multi-component enzyme mixtures for hydrolysis of several ionic liquid/substrate combinations.

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