UC RIVERSIDE

BCH 252 Seminar Series

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Seminar Title: "Improving the output of Phosphoenolpyruvate carboxylases in Zea mays"

Abstract: Phosphoenolpyruvate carboxylase (PEPC) catalyzes the fixation of HCO3- to PEP to form oxaloacetate, which is a key precursor for many different biochemical pathways. Studies have shown that C4 photosynthetic PEPCs have evolved from the C3 isoform and are responsible for carbon fixation for synthesis of glucose. C4 PEPCs have increased activity and are less sensitive to the feedback inhibitors malate and aspartate, which bind to C3 PEPCs to reduce activity.

Previous work has identified three alr mutants in Arabidopsis PEPC that increase Al resistance as a result of increased malate production. Those alr mutants cause single amino acid change in PEPC in highly conserved regions. My study focuses on Zea mays, which has both C3 isoform PEPC (PEP7 in roots) and the C4 isoform PEPC (PPC1 in shoots). In vitro enzymatic assays have shown the alr mutants in PPC1 have improved enzymatic efficiency and are less inhibited by malate. alr Transgenic maize would be available soon to test the effect of alr mutants in vivo.

ZOOM Link: https://ucr.zoom.us/j/97233953239?pwd=U2w1VVdtcDI4WW8rRXdTUVp2WWp4dz09
Meeting ID: 972 3395 3239
Passcode: 609143

Tuesday, February 22nd, 2022
12:00 p.m. - 12:50 p.m.

Host: Dr. Paul Larsen