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Chemical Biology Seminar

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Chemical Tools that IMPACT Lipid Signaling

The fidelity of intracellular signaling pathways requires that cells control the production of signaling agents in space and in time. Phosphatidic acid (PA) is both a central phospholipid biosynthetic intermediate and a multifunctional lipid second messenger produced at several discrete subcellular locations. The modes of action of PA differ based on upstream stimulus, biosynthetic source, and site of production. How cells regulate the local production of PA to direct diverse signaling outcomes remains elusive. To unravel these questions, we have significantly expanded the toolkit for visualizing and perturbing cellular PA production. These approaches have revealed new functions of spatiotemporally defined pools of PA in response to physiological and pathological stimuli. Our work highlights the power of combining bioorthogonal chemistries, chemoenzymatic tagging, directed evolution, and optogenetics to shed light on cell signaling pathways.

Tuesday, April 12, 2022 | 4:00pm |Zoom

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