For Immediate Release: May 20, 2020

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New *SLAS Discovery* Auto-Commentary Available, "Controlling Phosphate Removal with Light: The Development of Optochemical Tools to Probe Protein Phosphatase Function"

Oak Brook, IL – Protein phosphatases play an essential role in cell signaling, yet due to a lack of appropriate tools, they remain understudied compared to protein kinases. In the latest auto-commentary from *SLAS Discovery*, "Controlling Phosphate Removal with Light: The Development of Optochemical Tools to Probe Protein Phosphatase Function," researchers from the University of Pittsburgh Department of Chemistry (Pittsburgh, PA, USA) explain the design principles considered in developing an optically controlled protein phosphatase, opportunities and limitations of the methodology.

Taylor M. Courtney, Ph.D., and Alexander Deiters, Ph.D., (University of Pittsburgh, PA, USA) describe the thought process behind their experiment, which was originally published in a 2019 issue of *Nature Communications*. (Optical Control of Protein Phosphatase Function. *Nat. Comm*. 2019, 10, 4384.) In recent years, the importance of phosphatases has become top of mind, yet not much is known about their role in disease management due to the complexity of studying this particular enzyme. Courtney and Deiters, however, took on the challenge and explored the role of phosphatases as drug targets.

In their research, they were able to develop two different approaches for rendering MKP3 (a dual-specific phosphatase, also termed DUSP6) activated by light. More specifically, Courtney and Deiters expressed the protein with strategically placed light-removable protecting groups in cells with an expanded genetic code. This allowed for the acute perturbation of the Ras/MAPK signaling pathway upon photoactivation in live cells, confirming that MKP3 does not act as a thresholding gate for growth factor stimulation of the extracellular signal-regulated kinase (ESRK) pathway.

In the balance of the auto-commentary, Courtney and Deiters detail their study and discuss their predictions for how the two new approaches can be used to better understand future protein-protein interactions in drug discovery.

Read the complete *SLAS Discovery* auto-commentary at journals.sagepub.com/doi/full/10.1177/2472555220918519 through July 13. For more information about SLAS and its journals, visit www.slas.org/journals.

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SLAS Discovery: *2018 Impact Factor 2.192. Editor-in-Chief Robert M. Campbell, Ph.D., Eli Lilly and Company, Indianapolis, IN (USA).* SLAS Discovery *(Advancing Life Sciences R&D) was previously published (1996-2016) as the* Journal of Biomolecular Screening (JBS).

SLAS Technology: *2018 Impact Factor 2.048. Editor-in-Chief Edward Kai-Hua Chow, Ph.D., National University of Singapore (Singapore).* SLAS Technology *(Translating Life Sciences Innovation) was previously published (1996-2016) as the* Journal of Laboratory Automation (JALA).

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