KINASE TOOLKIT FOR THE PRODUCTION OF PHOSPHORYLATED PROTEINS

Gale, Emily, Naegle, Kristen, Schaberg, Katherine, Sloutsky, Roman, Stoka, Kellie

Poranki, Deepika

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Background: Abnormal phosphorylation of proteins is associated with a number of human diseases including cancer, neurodegenerative disorders, and diabetes. Due to their role as phosphorlyators, kinases are popular drug targets. However, the difficulty of selectively phosphorylating a desired substrate makes understanding the mechanisms of related diseases and large-screening for therapeutics challenging.

Technology: Dr. Naegle has developed a kinase toolkit that can selectively and specifically phosphorylate substrates of interest. The kinase toolkit uses secondary kinase-substrate targeting approaches to control the precise phosphorylation of proteins.

Stage of Research: Generation of toolkit components and demonstration of phosphorylation of proteins *in vitro*

Applications:

- Research tool for studying protein phosphorylation
- High-throughput screening for therapeutics for phosphorylation associated diseases

Key Advantages:

- Fast, accessible, inexpensive method of producing phosphorylated and soluble proteins *in vitro*
- Capable of producing large variety of phosphorylated forms of proteins

Inventor: Dr. Kristen Naegle is an assistant professor of biomedical engineering at the University of Virginia. Her lab focuses on the regulation and function of tyrosine phosphorylation in complex networks. The Naegle lab employs computational and molecular approaches to model systems, test hypothesis, and develop new tools.

Patent: US Provisional

Website: Naegle Lab Website