

Studies shed new light on early transmembrane signaling

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Two new studies by researchers at the University of Washington further our understanding of the molecular steps in the PLC cascade, a G protein-coupled receptor signaling mechanism that underlies a wide variety of cellular processes, including egg fertilization, hormone secretion, and the regulation of certain potassium channels. The studies appear online January 25 in the *Journal of General Physiology*.

Falkenburger et al. take advantage of recent progress in fluorescence technology -- which allows for analysis of biochemical events in single living cells—to perform a systematic analysis of the PLC signal transmission process.

According to Tamas Balla (National Institutes of Health) in a Commentary accompanying the articles, the new studies extend the kinetic model of the signaling cascade to cover the entire process, from the activation of the M1 muscarinic [receptors](#) to the regulation of the potassium channels. Specifically, Falkenburger et al. show the steps that link changes in PtdIns(4,5)P2 -- an important plasma membrane regulatory lipid—to changes in KCNQ [potassium](#) channel activity.

More information:

Balla, T. 2010. *J. Gen. Physiol.* [doi:10.1085/jgp.200910345](https://doi.org/10.1085/jgp.200910345), et al. 2010. *J. Gen. Physiol.* [doi:10.1085/jgp.200910344](https://doi.org/10.1085/jgp.200910344)

Falkenburger, B.H., et al. 2010. *J. Gen. Physiol.* [doi:10.1085/jgp.200910345](https://doi.org/10.1085/jgp.200910345)

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