

Shedding light on mind; Optogenetics reveals mind-brain correlations

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Abstract

Optogenetics is a dramatically developing technology which uses light to control and/or measure neuronal activity. Wherever there is light, there is the potential for control and information. Optical developments such as 2-photon microscopy enables the activation and monitoring of single neurons even in living animals. This ability to precisely control and/or monitor selected neuronal circuits has deepened the understanding of the brain functions. We begin to connect the mind to the brain.

In this talk, through introducing very recent optogenetic studies, I will show how our mind is regulated by neuronal circuits, such as mood changes or memory acquisition. As the future direction, the impacts of the brain science to the other scientific fields, such as robotics and computation, will be discussed.

