



# BIOLOGY COLLOQUIUM

Friday, 16 Jun 2017 | 4pm | DBS Conference Room 1

Hosted by Dr Wu Min and Dr Yusuke Toyama

## Synthetic Cell Biology: Toward Total Synthesis of cell function and its biomedical application



### By Takanari Inoue

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Signaling events in cells are localized and rapid. My scientific research career to date has focused on understanding how the complex signaling gives rise to intricate cellular functions in response to intrinsic and extrinsic cues. Toward this end, we have established a series of molecular sensors and actuators that enabled visualization and manipulation of target signal transduction at high spatiotemporal precision. Integrated use of these molecular probes toward multitask signaling molecules in different biological contexts “deconstructed” how cells achieve sophisticated information processing using a finite set of signaling molecules within a confined space. I will recapitulate these previous studies as well as ongoing works in an emerging field termed Synthetic Cell Biology where we explore “construction” of dynamic cell functions such as chemotaxis, phagocytosis, and stress granule formation, along with their biomedical application to develop a novel cell-based immune therapy.