SEMINAR NOTICE

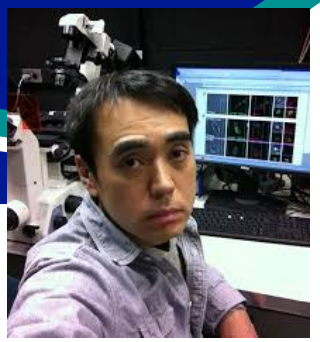
Macropinocytosis in PI3K-mTORC1 pathway

Speaker: **Sei YOSHIDA, PhD**

Professor, College of Life Sciences, Nankai University, Tianijn, China

Monday, 17th August, 2020 4:00 PM -5:00 PM

Taniguchi Memorial Hall (1F Integrated Life Science Bld)



Pre-registration

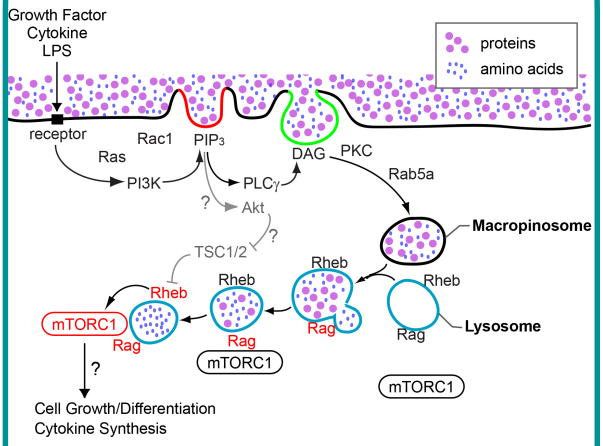
E-mail to: mimuro@biken.osaka-u.ac.jp (Hitomi MIMURO)

My research career has been devoted to understanding macropinocytosis, a large-scale endocytosis (1998-2006 at the Institute of Medical Sciences, the University of Tokyo, 2006-2020 at the University of Michigan Medical School, USA). A series of my paper showed that **macropinocytosis regulates PI3K-mTORC1 pathway**, one of the main signaling pathways of cell growth, suggesting that macropinocytosis has critical roles in cell metabolism (See References and Figure). Currently, as a PI, I am trying to develop this idea to the understanding of human health and disease by establishing three different projects. Thus, my lab is going to investigate the mechanism/role of macropinocytosis

1) in immunity focusing on macrophage,
2) in breast cancer development,
3) in **SARS-CoV-2 cell entry**.

The purposes of this seminar are to talk about my past research accomplishments and introduce the future directions. **This would be also an advertisement to recruit good postdocs from an excellent research institute such as RIMD.** If you are interested in my research/lab, please contact me (seiyoshi0327@yahoo.co.jp; https://www.researchgate.net/profile/Sei_Yoshida).

References: Journal of Cell Science. 2018. 131: jcs220517
Cellular and Molecular Life Sciences. 2018. 75: 1227-1239
Journal of Leukocyte Biology. 2017. 101: 683-692
Journal of Cell Biology. 2015. 211: 159-172.



After ligand stimulation, PI3K generates PIP3 in macropinocytic cups (red line), activating PLCγ and Akt. PLCγ generates DAG in the cup (green line), leading to PKC pathways that close the macropinosome. Extracellular nutrients internalized by macropinosomes are delivered rapidly into lysosomes. Nutrient transfer from macropinosomes to lysosomes induces Rag activation (black to red), followed by mTORC1 recruitment to lysosomes. Meanwhile, activated (phosphorylated) Akt inhibits TSC function, resulting in Rheb activation (black to red). Rheb directly activates mTORC1 (black to red).

Facilitator, contact

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The seminar will be held in English.
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