SEMINAR

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TEMASEK LIFESCIENCES LABORATORY

*Scan for location

20 Oct 2022 (Thur), 4pm

The Auditorium (Level 1)

Hosted by: Dr ONG Chin Tong

Mechano-chemical crosstalk in cell polarization

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Coordination between cell differentiation and proliferation requires the balance between asymmetric and symmetric modes of cell division. Here we show evidence in C. elegans that changes in the balance between two antagonizing PAR proteins can be sufficient to re-program the division modes from symmetric to asymmetric and vice versa. We propose that the balance between PAR proteins represents an intrinsic self-organizing cue for the specification of the two division modes during development.

Dr Fumio received his doctoral degree at the University of Tokyo. He pursued his postdoctoral work at RIKEN and Johns Hopkins University. He joined TLL and MBI, NUS as Principal Investigator in 2012 and held a joint appointment as Assistant Professor at DBS, NUS. In 2021, he was appointed as Professor at Institute for Genetic Medicine, Hokkaido University.

Recent Publications:

1. Lim, Y. W., Wen, F. L., Shankar, P., Shibata, T., & **Motegi, F**. (2021). A balance between antagonizing PAR proteins specifies the pattern of asymmetric and symmetric divisions in C. elegans embryogenesis. *Cell reports*, 36(1), 109326. https://doi.org/10.1016/j.celrep.2021.109326
2. Zhao, P., Teng, X., Tantirimudalige, S. N., Nishikawa, M., Wohland, T., Toyama, Y., & **Motegi, F**. (2019). Aurora-A Breaks Symmetry in Contractile Actomyosin Networks Independently of Its Role in Centrosome Maturation. *Developmental cell*, 48(5), 631–645.e6. https://doi.org/10.1016/j.devcel.2019.02.0123.
3. Ramanujam, R., Han, Z., Zhang, Z., Kanchanawong, P., & **Motegi, F.** (2018). Establishment of the PAR-1 cortical gradient by the aPKC-PRBH circuit. *Nature chemical biology*, 14(10), 917–927. https://doi.org/10.1038/s41589-018-0117-1