大阪大学グローバル COE 「オルガネラネットワーク医学創成プログラム」

Organelle Network Biology Seminar Series

Understanding Wnt Signaling and the Wnt Morphogen in Development and Disease

Prof. Xi He

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Wnt signaling is essential for development, stem cell regulation and human diseases. Our research attempts to elucidate the key mechanisms of Wnt signal transduction in vertebrate embryonic patterning, and their involvement in human diseases including cancer and osteoporosis. Canonical Wnt/beta-catenin signaling initiated by the action of the Frizzled (Fz) receptor and its coreceptor LDL receptor-related-protein 6 (LRP6) or LRP5. Wnt signaling induces LRP6 phosphorylation at conserved PPPSPxS motifs, which serve as docking sites for the scaffolding protein Axin, thereby allowing the Wnt receptor complex to engage the Axin complex to inhibit beta-catenin phosphorylation and degradation.
I will discuss our molecular and structural studies on the regulation of LRP6 phosphorylation, and the assembly of the LRP6-Axin supercomplex (signalosome) in the initiation and amplification of Wnt signaling at the plasma membrane, and their implication to human diseases associated with abnormal Wnt signaling. I will also describe a novel transmembrane protein, TIKI1, which is required for anterior-posterior patterning in vertebrate embryos and regulates the Wnt morphogen in a novel and unexpected manner.

日　時 | **9月28日(水) 17:00～18:30**

場　所 | **医学系研究科　共同研究棟**
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