

●主催：神戸大学グローバルCOEプログラム「次世代シグナル伝達医学の教育研究国際拠点」

“Regulation of VEGF-induced angiogenesis by receptor endocytosis”

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第17回シグナル伝達医学 グローバルCOE学術講演会

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管理棟3階 共同会議室



●Abstract

In development, tissue regeneration or certain diseases, angiogenic growth leads to the expansion of blood vessels and the lymphatic vasculature. This involves endothelial cell proliferation as well as angiogenic sprouting, in which a subset of cells, termed tip cells, acquires motile, invasive behaviour and extends filopodial protrusions. While it is already appreciated that angiogenesis is triggered by tissue-derived signals, such as VEGF family growth factors, the resulting signaling processes in endothelial cells are only partially understood.

We show that ephrin-B2, a transmembrane ligand for Eph receptor tyrosine kinases, promotes sprouting behaviour and motility in the angiogenic endothelium. We attribute this function to a crucial role of ephrin-B2 in the VEGF signalling pathway, which we have studied in detail for VEGFR3, the receptor for VEGF-C. In the absence of ephrin-B2, the internalisation of VEGFR3 in cultured cells and mutant mice is defective, which compromises downstream signal transduction.

Our results show that full VEGFR3 signalling requires receptor internalisation. Ephrin-B2 is a key regulator of this step and thereby controls angiogenic and lymphangiogenic growth.

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