生化学・腫瘍学（Carl-Henrik Heldin）
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Mechanism of signaling via TGFβ receptors

Our aim is to elucidate molecular mechanisms involved in TGFβ signaling in normal and malignant cells. TGFβ has both tumor suppressor (inhibits growth and induces apoptosis) and tumor promoting (stimulates invasiveness and metastasis) effects in cancer cells. In addition, TGFβ exerts pro-tumorigenic effects in the tumor micro-environment, since it stimulates angiogenesis and the development of cancer associated fibroblasts, and inhibits immune surveillance. TGFβ binding to type I and type II receptors (TβRI and TβRII, respectively), induces signaling via Smad transcription factors which affects the transcription of specific genes, as well as via non-Smad pathways, including MAP-kinases, PI3-kinase, the tyrosine kinase Src, and liberation of its own intracellular domain (ICD). We are interested in elucidating the mechanism by which TGFβ induces pro-tumorigenic and tumor suppressive pathways. Our goal is to develop selective TGFβ inhibitors which inhibits the pro-tumorigenic pathways, while leaving the tumor suppressive pathways unperturbed.