Talin2 mediates traction force generation and matrix metalloproteinase secretion to regulate cell invasion

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Invadopodia, the key structures that cell invasion, are a therapeutic target for cancer metastasis. However, the molecular mechanism that regulates invadopodium maturation remains to be elucidated. Talin activates integrins and regulates cell migration, invasion and metastasis. Talin is localized to invadopodia and is essential for invadopodium formation. There are two talin genes, Tln1 and Tln2, which encode talin1 and talin2. It was widely believed that talin2 and talin1 function redundantly, but our recent studies show that talin2 regulates traction force generation, matrix metalloproteinase (MMP) secretion, invadopodium formation and cell invasion independently of talin1. In this talk, I will discuss how talin2 mediates traction force generation and MMP secretion and their role in invadopodium maturation and cell invasion. Our studies significantly advance our understanding of the molecular mechanisms by which traction force regulates cell invasion.

Speaker Biography

Cai Huang's research interest is to understand the signaling mechanisms that regulate cell migration and invasion, key steps in metastasis, that are highly dynamic processes requiring temporal and spatial regulation of integrin activation, traction force generation, focal adhesion dynamics and invadopodium formation. He has a broad background in the study of focal adhesions and cell migration, with expertise in protein phosphorylation, ubiquitination and live cell imaging.

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