

Deciphering the role of endothelial cells in adipose tissue wasting during cancer cachexia

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Patients with advanced cancer often develop cachexia which refers to unintended weight loss. Cachexia dramatically decreases quality of life and survival. Currently, there is no pharmacological intervention available to reverse this condition. In recent years, there is growing evidence that tissues in one region of the body can respond to signals from tumors in another region. It has been suggested that this interaction is mediated by the inner blood vessel wall (the endothelium) that responds to these tumor-derived signals and induces changes on the tissue cells surrounding it. The scientists have identified a signaling program in the endothelium which can cause rapid deterioration of fat tissue leading to cachexia. However, the mechanism by which tumor-derived signals activate this program is not known, nor how the endothelium acts on adjacent cells within the fat tissue. To address these questions, they will combine the expertise from the Fischer (vascular and cancer biology) and the Sprinzak (live imaging and mathematical modeling) labs. Through a combination of unique experimental techniques, the scientists plan to identify the signaling molecules secreted by the tumor and sensed by the endothelium, as well as characterize the program within the endothelium that leads to deterioration of fat cells. The success of this project will allow developing and testing potential treatments that can prevent or reverse cancer cachexia.

Projektbeteiligte

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