

Research profile for applicants

Name of DKFZ research division/group:	<i>Vascular Oncology and Metastasis</i>
Contact person:	<i>Prof. Dr. Hellmut Augusti (h.augustin@dkfz.de)</i>
Group homepage: <i>Visit this website for further information on current research and recent publications.</i>	<i>www.augustinlab.de</i>

RESEARCH PROFILE AND PROJECT TOPICS

The Augustin lab has contributed to pioneering the angiocrine signaling paradigm, i.e., the notion that blood vessels are not just a responsive barrier between the circulation and the different organ compartments, but a strategically located interface that acts as an instructive gatekeeper of organ function. These developments have occurred at a time when high resolution multiomics approaches increasingly allow the structure-function analysis of the cells of the vessel wall at single cell resolution. Building on these concepts, we study the mechanisms and the organotypic vascular functional differentiation during the life cycle of a vasculature (blood vessel formation, assembly, maturation, quiescence, regression, aging) with a particular focus on tumor-vessel interactions that govern tumor progression and metastasis. Basic discovery research feeds translational research with the goal of identifying and validating novel therapeutic targets as well as laying the preclinical proof-of-concept for novel treatment modalities and therapeutic windows, including neoadjuvant and adjuvant therapy. The current focus is heavily on (i) Wnt-signaling regulated angiocrine signaling mechanisms in the lungs and the liver, (ii) bi-directional tumor-vessel interactions that control metastasis (pre-metastatic niche, metastatic niche, metastatic latency/dormancy), (iii) mechanisms and consequences of vascular aging, and (iv) neurovascular signaling during tumor progression and metastasis.



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