



Cell-cell interactions at the vascular interface

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Abstract:

Cell-cell interactions play a pivotal role in the control of critical cellular functions, such as cell adhesion, cell migration as well as cell differentiation and proliferation. The scientific focus of our lab is on the mechanisms that regulate cell-cell interactions during scenarios, such as arterial or venous thrombosis, stem cell homing and differentiation, during inflammation as well as in cancer development and progression. To evaluate the interaction between different cell subsets in their physiological (micro-)environment, we have established novel imaging approaches that allow dissecting all the steps involved both in reductionist *in vitro* assays and *in vivo*. This includes the use of gene-targeted mice, in which distinct cellular lineages are genetically marked in combination with innovative imaging techniques, including intravital multi-photon microscopy. The *in vivo* approaches are complemented by sophisticated *in vitro* assays allowing investigation of cell-cell interactions on a subcellular and molecular level. The multimodal imaging approaches will contribute to a better understanding of the molecular mechanisms and the kinetic aspects of the dynamic process of cell-cell interactions under physiological conditions and in the disease states.

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