血管マトリクス生物学（木村　健一）

Vascular matrix biology (KIMURA Kenichi)

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細胞外マトリックスに着目した疾患病態の解明と治療戦略の探索

細胞外マトリックス（ECM）は、細胞の足場として組織構造を支えるだけでなく、細胞に多様なシグナルを伝えることで、増殖・分化・移動といった細胞機能を精密に制御しています。ECM の構造や力学的性質の変化は、細胞外環境全体の恒常性に影響を及ぼし、種々の疾患の発症・進行に深く関与します。私たちは、ECM 異常が関与する大動脈解離や変形性関節症などの疾患モデルマウスを用いて、病態進行に関与する細胞種の同定と機能解析を行っています。細胞と細胞外環境の関係の理解を通して、疾患病態の理解と治療戦略の構築を目指しています。

Elucidating Disease Pathogenesis with a Focus on the Extracellular Matrix

The extracellular matrix (ECM) not only provides structural support as a scaffold for cells, but also precisely regulates cellular functions such as proliferation, differentiation, and migration by transmitting diverse biochemical and biomechanical signals. Alterations in the composition and mechanical properties of the ECM can disrupt the homeostasis of the extracellular environment and are deeply involved in the onset and progression of various diseases. Our research focuses on identifying and characterizing disease-contributing cell populations using mouse models of ECM-related disorders, including aortic dissection and osteoarthritis. By elucidating the complex interactions between cells and their extracellular environment, we aim to deepen our understanding of disease mechanisms and to develop novel therapeutic strategies.