LIMOD - Laboratory for Integrative Metabolism and Oxygen Dynamics

Mission statement

The Laboratory for Integrative Metabolism and Oxygen Dynamics (LIMOD) investigates how metabolic processes interact with oxygen availability, transport, and utilization under physiological conditions and in experimental models of hypoxia. The laboratory focuses on integrative mechanisms linking metabolism, oxygen dynamics, and tissue function across systemic, organ-level, and cellular responses, using complementary in vivo and in vitro preclinical models.
LIMOD employs a broad experimental platform, including indirect calorimetry, treadmill-based exercise testing, cardiovascular and hemodynamic assessments, isolated organ perfusion, and advanced microcirculatory analysis, combined with cellular and molecular approaches. These methods enable detailed evaluation of metabolic performance, exercise capacity, and endurance, as well as the underlying mechanisms of adaptation to altered oxygen availability.
In addition to its research activities, LIMOD contributes to student education within the Department of Pathophysiology 3FM CU, supporting teaching and training in experimental and integrative biomedical sciences. The laboratory maintains close collaboration with several research groups, participating in joint projects that integrate physiological, biochemical, and molecular methodologies. The overarching goal is to advance mechanistic understanding of disease processes and support the development of novel therapeutic strategies in metabolic disorders.

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