



# Innovations in Regenerative Medicine



**Monday, 1.7.2024, 13:00 – 14:00**

**WAD P-106, Wagistrasse 12 (9<sup>th</sup> floor), 8952 Schlieren**

## **Dr. Mohamad El Amki**

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### **The Brain Vascular function: from the pial vasculature to the delicate capillaries**

Our goal is to understand how blood flow dynamics are regulated in the complex of the brain vascular network in health and disease. A human brain is powered by ~650km of blood vessels which are compartmentalized into arteries, capillaries, and veins. This immensely complex network can easily fail during disease such as stroke and Alzheimer's disease. We examine hemodynamic responses at the level of individual arterioles, and throughout the pial vascular connectome in response to increased neuronal activity in the somatosensory cortex.

Moreover, we focus on the regulation of brain fluid dynamics with a special emphasis on blood flow recovery after ischemic stroke. Recently, our group has shown that pial collaterals are key components regulating reperfusion after stroke. Moreover, we uncovered that microvascular failure after stroke is due to capillary stalls by neutrophil plugging.

Our group have been building novel imaging tools to study how to resolve obstructions in large vessels as well as in the microvasculature. We strive to find novel approaches to improve macro and microvascular function in order to keep the brain's circulatory system functional.