Christoph Harms

CH-Stroke

Clonal Haematopoiesis in Ischemic Stroke

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Stroke is one of the leading causes of death worldwide and often leads to lifelong disability. In this research consortium, we will explore a possible link between stroke and an age-related imbalance of circulating blood cells that occurs since proliferating hematopoietic stem cells mutate. People displaying this so-called clonal haematopoiesis are at higher risk for tumour development as well as strokes, heart attacks, and death. Specifically, we have recently shown that patients who have suffered a first ischemic stroke and display a hematopoietic Tet2 mutation are at higher risk for a second vascular event or death in the future. It is unknown, however, whether the mutated blood cells invade the brain and proliferate, thus damaging it after a stroke, and if patients with clonal hematopoiesis would benefit from an anti-inflammatory treatment. To tackle these questions, we will develop an experimental model to dose or «titrate» mutant cells and thereby establish a link between clonal haematopoiesis, stroke pathology, and outcome. Through a comprehensive analysis of both mutant cells and affected brain tissue, we will gain deep insights into the underlying mechanisms that can be targeted to interfere with the stroke pathology. Finally, we expect to establish the feasibility of therapeutic interventions. If successful, these findings will help to better prevent strokes and treat patients in the future.