Our current research interests involve identifying novel pharmacological and/or cell-based therapies that can limit the pathophysiology of hypertension and stroke. Associated with the development of hypertension is the accumulation of macrophages in the arterial wall leading to fibrosis and vascular stiffening. Whilst current antihypertensives are effective at lowering blood pressure, they don’t necessarily target vascular stiffening and new therapeutics are sought. Hence, we are studying the impact of chemokines released from macrophages on fibrosis and collagen generation, which may lead to the development of more effective therapies of hypertension.

Currently there are few treatment options available for stroke patients, thus identifying new stroke therapies is vital. Excitingly, stem cells have been shown to improve recovery post-stroke. However, most stem cells have either ethical issues or concerns regarding tumorigenicity. Conversely, human amnion stem cells don’t have these limitations, hence we are investigating whether these placenta-derived stem cells can improve stroke outcome.

Research Projects

1. Exploring the profibrotic actions of CCL18 in the cardiovascular system
2. Role of the inflammasome in the pathogenesis of pulmonary hypertension
3. Using human amnion stem cells to improve stroke outcome

Selected significant publications:


Coronal brain sections from vehicle (saline-right) and stem cell treated (left) mice after stroke.