PhD position Sydney, Australia - Zebrafish model glioblastoma

Project
A glioblastoma zebrafish model to understand the molecular mechanisms underpinning the growth and invasiveness of brain cancers

Introduction
Glioblastoma multiforme is the most common and deadliest form of brain cancer and is highly resistant to therapeutic strategies. Glioblastomas are known to contain a high number of microglia/macrophages. This microglial/macrophage invasion supports tumour growth and the infiltration of surrounding brain tissue by glioma cells. Importantly, the presence of macrophages/microglia positively correlates with glioma grade and prognosis. However, the exact nature of microglia/macrophage-glioma interactions is not well understood but our experimental design provides a unique opportunity to study the cellular and molecular mechanisms that promote malignant glioma growth.

In this project we will establish the first zebrafish model in Australia to study glioblastoma growth and invasiveness in real-time in the living brain. Our team has established a collaboration with the University of Edinburgh to study microglia-brain tumour cell interactions in vivo in the larval zebrafish brain. We will be using state-of-the-art fluorescent labelling and visualisation techniques that allow us to track tumour progression and the impact of microglia to regulate that process. Targeting these microglia interactions may provide future therapeutic interventions to delay or even halt the progression of the tumour. In addition, our experimental system will provide unique insights into how microglia precursors may be used as a non-invasive route of access to the brain.

Hypothesis
Microglia and macrophages that have colonised the glioblastoma display pro-tumoral characteristics and interfering with the activation profile of these cells may delay tumour progression.

Outcome
We will establish the first glioblastoma model in zebrafish in Australia to test how microglia interact with human brain cancer cell lines. We hypothesize that manipulating microglia-tumour interactions will affect tumour progression. Understanding microglia-glioblastoma interactions will provide important insights into glioblastoma pathogenesis.

Candidate
We are seeking a highly motivated PhD candidate with either experience in zebrafish or cancer research.

The project is established in collaboration with Prof Helen Rizos, Macquarie University and may involve a lab visit in Edinburgh, Scotland.

Contact
Information about yourself should include your CV and a description of scientific interests and your motivation.

Please send your details to
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