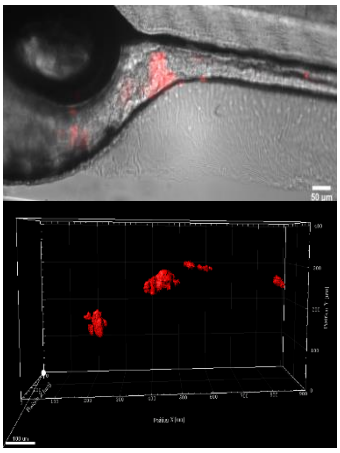
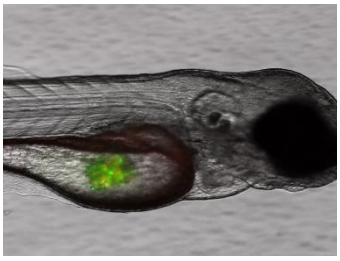
Master Thesis Opportunity

Evaluation of Bioactive Compounds in Zebrafish Model for Medulloblastoma Tumors





Summary: Pediatric brain tumors are highly prevalent and challenging to treat due to their aggressive nature and side effects of current therapies. Thus, current studies focus on development of more targeted therapies. This thesis will focus on evaluating the toxicity and efficacy of bioactive agents that target the interaction between the FRS2 adaptor protein and FGF receptors, which are abnormally activated in cancer. The study, done in collaboration with Kinderspital Zürich, will employ both in vitro methods and state-of-the art xenotransplantation model in zebrafish to track effect on tumor progression and invasiveness.

This thesis project offers a comprehensive learning experience in cutting-edge cancer research methodologies and the application of zebrafish models for biomedical research. Join us in advancing the field of pediatric cancer treatment.

Objective: To evaluate the toxicity and efficacy of new anti-cancer agents.

Methodology:

- Maintain human medulloblastoma cell lines
- Assess toxicity of agents in vivo, using a morphometric screen with a VAST BioImager system.
- Inject fluorescence-labeled tumorogenic cell lines into zebrafish embryos and monitor tumor size and spread until 5 days post-injection (dpi).
- Register progression with confocal imaging and assisted analysis.

Expected Outcomes:

- Identification of potent invasion inhibitors with low toxicity.
- Determination of non-toxic concentrations for new compounds.
- Assessment of tumor formation and persistence in zebrafish models.

Learning Objectives:

- Master in vitro cell culture techniques, with possibility to learn cell-based assays.
- Gain expertise in the animal model handling and maintenance.
- Gain proficiency in injection techniques and high-resolution fluorescence imaging.
- Analyze and interpret data on the toxicity and efficacy of anti-cancer agents.

Qualifications:

- Bachelor in Biology or Biomedicine or related fields.
- Experience with cell culture and/or animal models is advantageous but not required.
- Strong analytical skills, curiosity and attention to detail.

Application Process: Interested candidates should submit their CV and a letter detailing their interests and relevant experience.

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