



Development of novel treatment strategies for childhood brain tumours

Brain Tumour Group, Children's Cancer Institute



UNSW AUSTRALIA

BRAIN TUMOUR GROUP

Brain Tumour Group is led by A/Prof David Ziegler who is a Paediatric Oncologist at Sydney Children's Hospital. The key research interest is in the development of novel targeted therapeutics that can be translated from the laboratory to the bedside to benefit children with cancer. Dr Ziegler has established an early phase clinical trials unit at Sydney Children's Hospital to facilitate the translation of laboratory findings to the clinic. The team consists of 2 senior scientists, 4 postdoctoral scientists, 5 Research Assistants, and 1 PhD student.

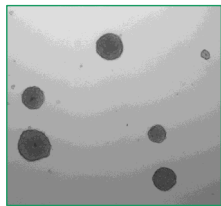
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RESEARCH PROJECTS – NOVEL THERAPIES FOR DIFFUSE INTRINSIC PONTINE GLIOMA (DIPG)

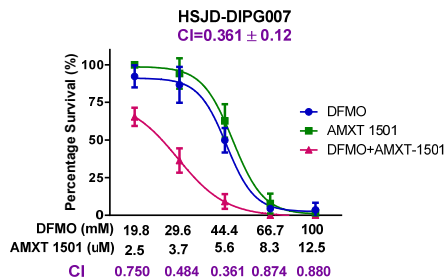
DIPG is the most aggressive and incurable cancer to affect children. It is a brain cancer that arises in the centre of the brainstem thus surgical resection is not a feasible option. We have initiated a national brain tumour donation program and have cultured the first DIPG cells ever grown in the laboratory, resulting in the identification of novel treatment strategies.

We are currently investigating novel therapies, anticancer potential & mechanism of action of:

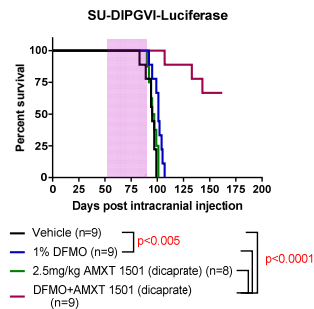
- cell cycle inhibitors in combination with other anticancer drugs
- agents that affect epigenetic pathways
- metabolic pathway inhibitors (e.g. polyamine, methionine)



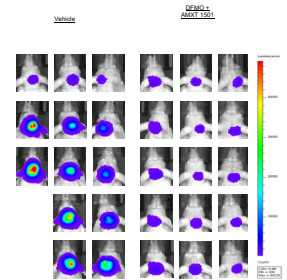
DIPG neurospheres



In vitro cytotoxicity assays



In vivo efficacy studies



INFRASTRUCTURE

The Institute has state-of-the-art laboratories that are fully equipped for molecular and genetic research studies..

- ACRF Drug Discovery Centre (high throughput screening)
- Microscopy
- Flow cytometry (cancer stem cell, apoptosis, cell cycle arrest)
- Real time PCR systems (genomic studies) and proteomics equipment.
- Facilities for tissue culture (*in vitro*) and *in vivo* work.
- Access to other UNSW facilities such as Ramacciotti Centre, Biomedical Imaging Facility (BMIF), Electron Microscopy Unit (EMU), Biological Resources Imaging Laboratory (BRIL).

