Research profile for applicants

Name of DKFZ research division/group:	***Division of Pediatric Glioma Research (B360)***
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Group homepage: *Visit this website for further information on current research and recent publications.*	***https://www.dkfz.de/en/pediatric-glioma-research***

RESEARCH PROFILE AND PROJECT TOPICS

Gliomas are the most common brain tumors in children, accounting for half of all CNS tumors in 0-19 year olds. Two major categories are usually distinguished: Low-grade gliomas (LGG) are defined by genetic alterations in the MAPK pathway and are considered benign tumors with good overall survival. Quality of survival is often poor, however, with effects of the tumor and treatment creating a heavy burden on patients and their families. Our research aims to learn more about the biology and unusual growth behavior of LGG, to identify treatments that are more tailored to individual tumor biology. High-grade gliomas, in contrast, carry an extremely dismal prognosis. Combined disruption of multiple cellular processes leads to rapidly dividing and diffusely infiltrating cancers with an almost universally fatal outcome. Our research aims to identify the most important patterns of alterations in the cellular machinery. We then recapitulate these changes in model systems, particularly via increasing use of human iPS-derived neural organoid culture, to test new therapies in a rationally targeted manner.
The Division uses cutting-edge (epi)genomic (DNA/RNA-seq, DNA methylation, ChIPseq), and functional technologies (CRISPR/Cas9, somatic gene transfer models) to enhance our understanding of pediatric brain tumors. A further important focus is the translation of this research into practical applications for patient benefit, with close engagement to international molecular diagnostic programs (INFORM and MNP2/MNP-IntR) and cooperation with clinical colleagues.

We are looking for candidates who are highly motivated, detail-oriented, and capable of leading projects independently within a supportive and friendly team environment. Projects are available in different aspects of basic and translational research in the field of low- and high-grade pediatric gliomas, as well as bridging the gap between bioinformatics and biology. Good background knowledge of neurodevelopment and/or brain tumors would be highly beneficial. Depending on the specific project, candidates with experience in molecular biology and cell culture and/or with bioinformatics and computational oncology/genomics expertise will be preferred. For functional/translational projects, a willingness to work with mouse models is strongly desired.