Research profile for applicants

Name of DKFZ research division/group:	***Cancer Epigenomics (B370)***
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Group homepage: *Visit this website for further information on current research and recent publications.*	***https://www.dkfz.de/en/CanEpi/Cancer_epigenomics_main_neu.html***

RESEARCH PROFILE AND PROJECT TOPICS

Recurrent deletions in cancer genomes overlap with the chromosomal locations of tumor-suppressor (TS) genes. Knudson's two-hit hypothesis has successfully guided cancer biologists for the past fifty years in the identification of such TS genes. However, in many cases monoallelic loss can only explain haploinsufficiency of tumor-suppressor genes. We have preliminary data indicating that altered chromosome topology and epigenetic gene regulation are also affected by a deletion, resulting additionally in activation of an oncogene located outside of the deleted segment. We are planning to establish a novel paradigm to interpret (epi)genomic data in cancer. We postulate a novel concept for cancer biology and hypothesize that oncogene activation, in concert with haploinsufficient TS genes, deregulated because of a single genetic event, could lead to the discovery of novel intertwined oncogenic pathways.