

## Hosting group information for applicants

Name of DKFZ research division/group:  
**Division of Stem Cells and Cancer (A010)**

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Group homepage: **[www.dkfz.de/en/stammzellen-und-krebs/index.php](http://www.dkfz.de/en/stammzellen-und-krebs/index.php)**  
and: **[www.hi-stem.de](http://www.hi-stem.de)**

Please visit our website for further information on our research and recent publications.

### RESEARCH PROFILE AND PROJECT TOPICS:

Stem cells are essential for maintaining regenerative tissues and are critical components of repair in response to tissue injury and infection (Scognamiglio et al., 2016 Cell; Cabezas-Wallscheid et al., 2017 Cell). Moreover, genetic alterations of stem cells and their progeny can lead to the generation of leukemic and solid cancer stem cells (LSCs & CSCs) that drive tumorigenesis and metastasis in hierarchically organized cancer entities (see also Cancer Stem Cell and Metastasis group). Due to their remarkable resistance to chemotherapy, LSCs are responsible for tumor re-occurrence and therapy resistance .

We perform fundamental and translational cancer research using state-of-the-art technologies, including omics analysis (epigenome, methylome, transcriptome, proteome), gene editing, single cell technologies and advanced microscopy in vitro and in vivo. We also use genetically engineered mouse models, primary clinical samples, patient derived xenografts as well as primary cells and organoids derived from these to mechanistically identify the basis of self-renewal and cancer stem cell function. For leukemias we have the goal to develop innovative strategies to detect and target leukemic stem cells in primary disease as well as in minimal residual disease and relapse (Raffel et al., Nature 2017; Bahr et al., Nature 2018). Work on solid cancers include (1) therapy resistance mechanism in pancreatic cancer (Noll et al., Nature Medicine 2016), (2) single cell analysis of breast cancer circulating tumor cells and metastasis (Bacelli et al., 2013 Nature Biotechnology). The lab is also embedded in the Heidelberg Institute for Stem Cell Technology and Experimental Medicine (HI-STEM; [www.hi-stem.de](http://www.hi-stem.de), check out the video).



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