

Hosting group information for applicants

Name of DKFZ research division/group:

Division of Redox Regulation (A160)

Contact person: **Tobias Dick (t.dick@dkfz.de)**

Group homepage: **www.dkfz.de/en/redoxregulation**

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

RESEARCH PROFILE AND PROJECT TOPICS:

Both healthy and tumor cells need to balance reductive and oxidative processes. These are intimately connected to metabolism and dynamically coupled to micro-environmental conditions. Research in recent years has started to reveal how cells sense subtle redox changes in order to trigger rapid adaptation and lasting cytoprotection. Tumor cells exploit such mechanisms to survive episodes of metabolic imbalance and oxidative stress. Our research group aims to fundamentally understand the relevant sensing and signaling pathways, all the way from the basic chemistry to the cellular and organismal level. Eventually we want to understand how tumor cells take advantage of these protective pathways and find ways to prevent them from doing so.

- Use of genome editing to study oxidant sensing and signaling in tumor cells
- Development of novel real-time biosensors for intracellular redox processes
- Whole genome analysis of redox signaling networks
- Identification and study of drugs that disrupt redox metabolism in tumor cells
- The role of sulfur metabolism in protecting tumors against oxidant-induced cell death



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