Research profile for applicants

Name of DKFZ research division/group:	**Division of Translational Medical Oncology / B340**
Contact person:	**Prof. Stefan Fröhling | Phone: +49-6221-6990 | E-mail: stefan.froehling@nct-heidelberg.de**
Group homepage: *Visit this website for further information on current research and recent publications.*	https://www.dkfz.de/en/translationale-medizinische-onkologie/index.php
Eligibility:	• ***DKFZ Postdoctoral Fellowships*** • ***Dr. Rurainski Fellowship at DKFZ***

RESEARCH PROFILE AND PROJECT TOPICS

Multidimensional tumor characterization for precision oncology: Our ambition is to improve the way we practice oncology towards a more rational and personalized approach. Our division engages in all aspects of the translational research process, including one of the most comprehensive molecular diagnostics programs in oncology worldwide (DKFZ/NCT/DKTK MASTER, https://www.nct-heidelberg.de/master), clinically guided exploratory research projects, and the implementation of innovative clinical trials. Within the MASTER program, we have analyzed more than 5,000 tumor samples by whole-exome/genome and RNA sequencing, genome-wide DNA methylation profiling, and, more recently, (phospho)proteomics and discovered previously unrecognized recurrent molecular alterations in various tumor types. Postdoctoral scientists will have the opportunity to explore these discoveries in the laboratory, study the functional and mechanistic consequences of molecular alterations identified in human cancer patients, and, in select cases, feed the results back into the clinic. Furthermore, we are very interested in intratumoral heterogeneity as a cause of treatment failure, and we have made it our mission to advance our understanding of this phenomenon and develop strategies to address it therapeutically as part of a new consortium established as part of the National Decade Against Cancer (https://bit.ly/3DHS3X6). To help realize the promise of personalized oncology based on scientific inquiry and biology-guided clinical decision-making, we seek highly motivated candidates with a passion for applied cancer research.

Selected recent publications:

- Schöpf J, … , Fröhling S,* Scholl C.* Multi-omic and functional analysis for classification and treatment of sarcomas with FUS-TFCP2 or EWSR1-TFCP2 fusions. Nat Commun 15:51, 2024.
- Mock A, … , Horak P,* Glimm H,* Fröhling S.* NCT/DKFZ MASTER handbook of interpreting whole-genome, transcriptome, and methylome data for precision oncology. NPJ Precis Oncol 7:109, 2023.

- Kreutzfeldt S, Horak P, Hübschmann D, Knurr A, Fröhling S. National Center for Tumor Diseases Precision Oncology Thesaurus for Drugs: A curated database for drugs, drug classes, and drug targets in precision cancer medicine. JCO Clin Cancer Inform 7:e2200147, 2023.
- Jahn A, … , Fröhling S,* Glimm H,* Schröck E,* Klink B.* Comprehensive cancer predisposition testing within the prospective MASTER trial identifies hereditary cancer patients and supports treatment decisions for rare cancers. Ann Oncol 33:1186-1199, 2022.
- Möhrmann L, … , Fröhling S,* Glimm H.* Comprehensive genomic and epigenomic analysis in cancer of unknown primary guides molecularly-informed therapies despite heterogeneity. Nat Commun 13:4485, 2022.
- van der Graaf WTA, … , Fröhling S. Biology-guided precision medicine in rare cancers: Lessons from sarcomas and neuroendocrine tumours. Semin Cancer Biol 84:228-241, 2022.
- Horak P, … , Glimm H,* Fröhling S.* Comprehensive genomic and transcriptomic analysis for guiding therapeutic decisions in patients with rare cancers. Cancer Discov 11:2780-2795, 2021.
- Ronellenfitsch MW, … , Steinbach JP,* Reuss DE,* Glimm H,* Stenzinger A,* Fröhling S.* Targetable ERBB2 mutations identified in neurofibroma/schwannoma hybrid nerve sheath tumors. J Clin Invest 130:2488-2495, 2020.
- Gröschel S, … , Glimm H,* Schlesner M,* Fröhling S.* Defective homologous recombination DNA repair as therapeutic target in advanced chordoma. Nat Commun 10:1635, 2019.
- Heining C, … , Fröhling S,* Glimm H.* NRG1 fusions in KRAS wild-type pancreatic cancer. Cancer Discov 8:1087-1095, 2018.
- Chudasama P, … , Fröhling S. Integrative genomic and transcriptomic analysis of leiomyosarcoma. Nat Commun 9:144, 2018.