

Hosting group information for applicants

Name of DKFZ research division/group:

Microbiome and Cancer (F220)

Contact person: **Prof. Eran Elinav, MD PhD: e.elinav@dkfz.de, eran.elinav@weizmann.ac.il**

Group homepage: **www.dkfz.de/en/mikrobiom-und-krebs/index.php**

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

RESEARCH PROFILE AND PROJECT TOPICS:

The impact of the intestinal microbiota on health and disease has become increasingly clear in the last decade, and microbial imbalances are considered highly relevant for a variety of diseases including autoimmunity, metabolic disorders and cancer.

The microbiome research division focuses on the interplay between the mammalian host and its microbial counterparts. The vast majority of cancers are not caused by germline mutations, but rather by acquired somatic mutations and environmental factors. The microbiome has emerged as one such environmental factor, shedding light on previously unexpected mechanistic connections between microbial colonization and neoplastic transformation. For instance, selected commensals can colonize solid tumors, and the 'tumor microbiome' can influence the local immune milieu essential for anti-tumor immunity or malignant transformation. The efficacy of anti-cancer treatment is also influenced by the intestinal microbiome and its metabolite, especially in the cancer treatment areas such as immune checkpoint blockade or CAR-T cell therapy.

The research division Microbiome and Cancer, a bridging division between DKFZ Heidelberg and the Weizmann Institute of Science, Israel, headed by Professor Eran Elinav studies the cross-talk between cancer cells, immune cells, microbial colonization, and other environmental factors. We investigate how individual bacteria, microbial consortia or microbial perturbations through diets or xenobiotics interplay with metabolic disruption, chronic inflammatory responses to impact on carcinogenesis or metastasis in a variety of preclinical models. We also study the longitudinal cross-talk of cancer therapies with the gut microbiota in patients and in mouse models to investigate causal relations, e.g., by direct bacterium-host cell interactions or via microbial metabolites.

Our science is performed in a translational context, and is thus an excellent opportunity for talented young postdocs who strive to discover new mechanisms and routes of microbes in tumorigenesis and cancer therapy.



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