



Innovative, interdisciplinary, international: these three words summarize what makes the University of Tübingen special. But also the beautiful town itself invites its visitors to stay.



Get in touch with us

iFIT

Cluster of Excellence

Visualizing and Targeting Cancer Stress

Excellent research made in Tübingen



As part of an interdisciplinary scientific environment, the iFIT Cluster of Excellence has close links to the Tübingen Research campus, a broad network of science institutions such as the Max Planck Institute for Biological Cybernetics, the Max Planck Institute for Intelligent Systems or the Werner Siemens Imaging Center, to name just a few.

So what are you waiting for? Join our team and help us to bring cancer research to a new level!



Imaging at its best: With the intravital multiphoton microscope we gain mechanistic insight in kinetics and function of immunotherapies at the cellular and whole-body scale.

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iFIT Cluster of Excellence

Within Tübingen's Cluster of Excellence (CoE) "Image-Guided and Functionally Instructed Tumor Therapies" (iFIT) more than 130 scientists strive to gain a deeper understanding of fundamental tumor biological processes in order to allow for a development of improved future cancer therapies. Scientists from the research areas "Functionally Instructed Molecular Therapies", "Immunotherapies", and "Molecular and Functional Multiparametric Imaging" are conducting boundless research.



Our highly intertwined and boundless research between the three research areas "Functionally Instructed Molecular Therapies", "Immunotherapies" and "Molecular and Functional Multiparametric Imaging" represents the basis for the development of next-generation image-guided and functionally instructed tumor therapies.

Prof. Dr. Lars Zender, Spokesperson of the iFIT Cluster of Excellence

One of our goals is the individual and customized development of cancer therapies through the use of personalized immunotherapy.

Prof. Dr. Hans-Georg Rammensee, Co-spokesperson of the iFIT Cluster of Excellence



Integrating three research areas in a unique way

Excellence Strategy

As a funding program of the federal and state governments in cooperation with the German Research Foundation (DFG), the program supports German universities in conducting and advancing internationally competitive top-level research. Within this program, iFIT is funded with 47.3 M € and represents Germany's only cluster of excellence in the field of cancer research. A unique feature of iFIT is the unprecedented level of entanglement and integration of the three involved research areas.



Cross-border collaboration and team work characterizes our job with the goal of finding new strategies in fighting cancer.

A / Functionally Instructed Molecular Therapies

Prof. Dr. Lars Zender and scientists from this research area take advantage of advanced platforms for high throughput functional genetic screening (in particular in vivo screens) to pinpoint new vulnerabilities in therapy resistant solid tumors. A major focus also lies on screens to identify potential targets in T-cells or tumor cells, which upon inhibition via small molecules increase the therapeutic efficacy of cancer immunotherapies. Proprietary small molecule inhibitors against prioritized therapeutic targets are developed in close collaboration with the Tübingen Center for Academic Drug Discovery and Development (TüCAD2).

B / Immunotherapies

How can innovative immunotherapies help to activate our defense system against tumor cells? Prof. Dr. Hans-Georg Rammensee, co-spokesperson of the cluster, and his team have performed pioneering work by elucidating the recognition mechanisms of T-cells. They recognize peptides, which are presented on special cell surface molecules. These peptides enable T-cells to detect pathological changes in the cells. Based on this, the concept of individualized cancer peptide vaccination was developed.

C / Molecular and Functional Multiparametric Imaging

How can multiparametric imaging be further developed to achieve a quantifiable visualization of functional, molecular and immunological mechanisms of tumors? Prof. Dr. Bernd Pichler, co-spokesperson of the Cluster, and his team are dedicated to develop novel target-specific tracers and MR biomarkers to image immune cells in vivo as well as cellular stress and related metabolic changes of tumor cells during tumor development and after therapy.

The combined use of novel imaging technologies enables us to develop and guide new cancer therapies and tailor them to the individual patient.

Prof. Dr. Bernd Pichler, Co-spokesperson of the iFIT Cluster of Excellence

