Fraunhofer

ITEM

PERSONALIZED TUMOR THERAPY

From molecular analysis to personalized tumor therapy

Fraunhofer ITEM in Regensburg has special expertise in the comprehensive characterization of disseminated or circulating cancer cells. These can be collected as circulating tumor cells (CTCs) by taking ordinary blood samples (also referred to as "liquid biopsy") from patients, or they can be isolated from lymph node tissue or bone marrow as disseminated cancer cells (DCCs). Our expertise also includes the analysis of cell-free, tumor-derived blood components (circulating tumor DNA, microvesicles) and innovative tissue-based analytical methods (tissue biopsy).

With our expert knowledge in the fields of cellular and molecular diagnostics, innovative molecular technologies and biomarker discovery, preclinical therapy models, disease modeling, and high-throughput drug and target discovery, we work on a broad variety of topics in the fields of liquid biopsy and rare cell populations. Our in-house data management and comprehensive bioinformatics enable custom-fit analysis of the generated data. As part of the ongoing enhancement of the Division of Personalized Tumor Therapy, a tissue bank with corresponding logistics for sample storage is being set up in addition.

Key topic

We are committed to doing research on metastatic disease, to understanding a patient's individual condition, to establishing appropriate diagnostics, and to advancing prevention and therapy optimization.
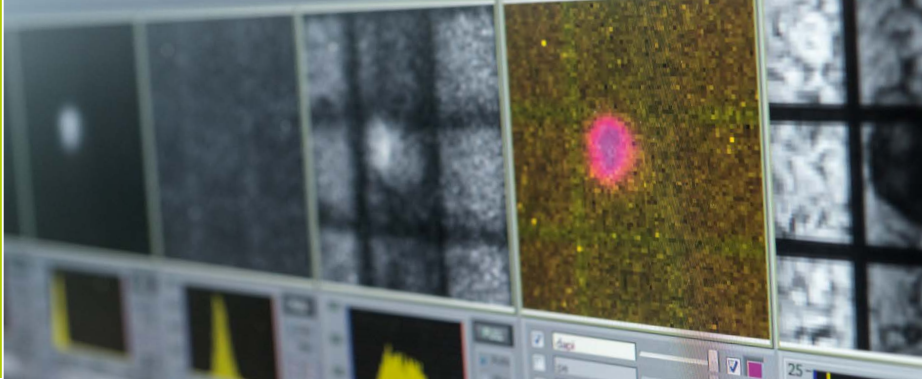
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ISO 9001
Certified
Quality Management System

www.tuv-sud.com/ms-cert

Fraunhofer ITEM in Regensburg is DIN ISO 9001:2015 certified.

Our services and expertise

- Marker-dependent and marker-independent enrichment of rare cell populations

- Different methods for isolation of single cells from different types of tissue

- Single-cell whole-genome and whole-transcriptome amplification

- High-throughput molecular analysis of single cells

- Bioinformatic data analysis, evaluation, and consultancy

- Mathematical modeling

- In-vitro and in-vivo expansion of rare cancer cell populations, establishment of preclinical models

- Comprehensive molecular and cellular characterization of the established models

- In-vitro and in-vivo drug testing

- Generation of double-humanized mouse models

- Automated platform for cultivation of primary tumor cells and optimization of growth conditions

- High-throughput screening of substance and RNAi/CRISPR libraries to identify active agents and targets in established preclinical models

Your benefits

- Access to a broad range of methods, customized solutions, and validated test systems

- Expertise in the handling of low-input samples (even single cells)

- Direct access to a sample biobank generated from single CTCs/DCCs of patients with different tumor entities

- Comprehensive biomarker research and target validation; for many samples a correlation with the clinical follow-up can be established

- Constant supply of clinical samples, forming the basis for the development of new preclinical models

- Perfect environment for translational research within clinical studies

- As a non-university research institution we can be your partner in applying for public funding

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The Fraunhofer Institute for Toxicology and Experimental Medicine ITEM is one of about 70 institutions of the Fraunhofer-Gesellschaft, Europe's leading organization for applied research. Protecting man from health hazards in our industrialized world and contributing to the development of novel therapeutic approaches are the aims Fraunhofer ITEM is pursuing with its contract research with a focus on airway research.

The Regensburg-based division is dedicated to personalized tumor therapy including development of diagnostic tests to enable early detection of disseminated cancer cells and prediction of the response to therapy of metastatic progenitor cells.

Personalized tumor therapy

- Single-cell analysis
- Innovative tumor models
- Mathematical modeling and bioinformatics