



Press Release

New approaches to cancer treatment

Tübingen researchers head key cancer research in two government-sponsored projects, collaborate on two more

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Tübingen scientists working within the German Consortium for Translational Cancer Research (DKTK) are to receive more than €2.6m for cancer research projects. Tübingen is one of eight DKTK locations where the German government sponsors such groundbreaking, supraregional studies. The Tübingen researchers head two of the newly-sponsored projects, which will each receive funding for three years.

Professor Alfred Nordheim of the Interfaculty Institute of Cell Biology in Tübingen is working with Professor Peter Lichter (German Cancer Research Center, Heidelberg) and Professor Dirk Schadendorf of the Essen Dermatology Clinic on a project with the title "Identifying and understanding non-coding mutations in cancer genomes." In it, researchers from across Germany will investigate certain mutations found in cancer cell genomes, aiming to find out more about the causes of mutations which lead to each particular type of cancer.

The genetic tumor analyses focus on mutations which lead to changes in the genome and resulting proteins. This project goes a step further, seeking mutations in uncoded regions of cancer cell genomes - which are known to alter the cancer gene's activity. The researchers are conducting their studies on malignant cancers of the skin (melanoma) and the human brain (glioblastoma).

"We are excited about the latest findings from our colleagues in Heidelberg and Essen, whose work is being watched around the world and has revealed the importance of non-coded mutations," says Professor Nordheim. "Working together to be able to find and analyse this new kind of mutation provides us with a major opportunity to arrive at a deeper understanding of the causes of cancer."

The second project is called IVacALL. Professor Peter Lang of the University Children's Hospital Paediatrics Department, Professor Hans-Georg Rammensee (Interfaculty Institute for Cell Biology, Tübingen) and

Professor Stefan Pfister of the German Cancer Research Center in Heidelberg aim to run a clinical study using tumor vaccines for young leukaemia patients. Relapses following chemotherapy and stem cell treatment are a big problem when the patient is a child. Tailor-made vaccines could open up new treatment options, as they train the patient's immune system to recognize and attack tumor cells.

"We start by analysing the genome in tumors and in normal tissue in order to identify the typical cancerous alterations in a patient," Professor Lang explains, "We then vaccinate each patient with a cocktail of the individually-adapted proteins." As part of the study, the researchers plan to develop a tumor database for designing the peptide vaccine; it will be linked with another DKTK study, which aims to analyze the genomes of all children in Germany whose cancer returns - and to identify the relevant mutations and possible treatments to tackle them.

Professor Hans-Georg Rammensee, who develops personalized immunotherapies at the University of Tübingen Hospitals, is convinced that the work will improve the treatment options for children in the long-term: "The clinical study will pave the way for a general treatment concept. The technical progress in genome sequencing over the past ten years makes high-throughput data analysis possible in more and more patients, and can possibly be used for individual treatments."

Tübingen researchers are involved in two further new DKTK projects, involving treatments for rare cancers and better clinical imaging for diagnosing prostate cancer.

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