

## Healthcare industry BW

### DKFZ and NCT: individualized cancer medicine

**Comprehensive genome analyses of cancer cells have shown that each tumor and cancer patient are unique and need to be treated individually. To pave the way, by 2015 the National Center for Tumor Diseases (NCT) Heidelberg aims to offer cancer patients at the NCT analyses of their individual cancer genomes to be used as the basis for personalized recommendations for treatment. This initiative from the DKFZ and NCT has been made possible by generous support from the Dietmar Hopp Foundation. The long-term goal is to facilitate the transition of research findings into applications and thus make individualized cancer treatment a part of standard clinical care. Leading technology companies including SAP, Molecular Health and GATC Biotech are collaborating in the project.**



The National Center for Tumor Diseases (NCT) Heidelberg was established by the DKFZ, Heidelberg University Hospital, the Medical Faculty of Heidelberg and German Cancer Aid (Deutsche Krebshilfe) and has developed into Germany's leading Comprehensive Cancer Center over the past 10 years. "Scientists from the DKFZ and the NCT have made essential contributions toward the development of individualized cancer medicine, particularly in the area of genome research," says Professor Otmar D. Wiestler, Chairman of DKFZ's Management Board. The DKFZ currently is home to the second-largest sequencing unit in Europe and is offering whole-genome sequencing of individuals' cancer cells to a growing number of patients at the NCT.

"In the future, individual differences in the molecular profile of tumors will increasingly serve as a basis for therapeutic decisions," says Professor Christof von Kalle, coordinator of NCT's board of directors. "This is the basis for a systematical development of individualized cancer medicine at the NCT and the establishment of a world-leading center in individualized cancer medicine."

By 2015, the DKFZ and Heidelberg University Hospital aim to offer individual genome sequencing that will be used to make treatment recommendations for every patient at the NCT. After initial clinical trials, the procedure will become a standard part of the care covered by a person's health insurance. "Thus, all cancer patients in our region and beyond will be given a chance to benefit from advances in individualized cancer medicine," says Dietmar Hopp. His extremely generous support for the project will amount to €15 million over the next five years. "Medical developments for the benefit of patients and their families are a major focus of my foundation's activities."

GATC Biotech AG, SAP AG Molecular Health AG and NCT are collaborating in the project



The overall aim of the project is to facilitate the transition of research findings into applications and thus make individualized cancer treatment a part of standard clinical care, at which point it should be approved and covered by health insurance companies. The DKFZ and the NCT are collaborating with leading technology companies to accelerate these developments.

GATC Biotech AG is collaborating in the project by generating genome sequencing data under certified conditions. "GATC has been a partner of the NCT for many years in the area of sequence analysis for clinical purposes," says Peter Pohl, CEO and co-founder of GATC Biotech. "Our quality standards and certifications make us a reliable partner of the NCT in its endeavors to introduce tumor profiling into standard care."

SAP AG is contributing its innovative in-memory technology SAP HANA for the real-time analysis and management of large amounts of patient data. Bernd Leukert, SAP's Application-innovation head and member of the Executive Board, states: "The SAP HANA platform has allowed us to develop applications that exactly meet the needs of the experts at the NCT Heidelberg. Together, we helped the technology leap forward with the NCT DataWareHouse, an innovative new platform for cancer research."

Molecular Health GmbH is using its software TreatmentMAPTM to carry out an individualized genomic analysis of each patient's tumor and provide an interpretation in the clinical context. The resulting recommendation will help physicians determine the best treatment. TreatmentMAPTM is the first registered medical product of its kind for individualized cancer medicine in Europe. "Cancer is a life-threatening disease whose diagnosis and treatment requires the utmost precision," says Dr. Friedrich von Bohlen, Chairman at Molecular Health. "Rapid and correct diagnosis, individual therapies and how they should be adjusted over time are essential to successfully fighting cancer. We provide information systems that swiftly help doctors make precise diagnoses and individual recommendations for treatment, at any time."

Initially, specific recommendations for treatment that are produced through this system will be issued to the physicians in charge and then will be examined in clinical trials. The first "proof of concept" trial will involve approximately 50 patients. Its aim is to ensure that data flow and interfaces used by collaborators in the project are working correctly and efficiently. A larger study involving about 1000 patients will follow, aiming to assess the clinical benefits and the potential economic impact of individualized cancer medicine.

The project will be carried out using two complementary approaches: Scientists at the DKFZ will sequence the whole genomes of cancer cells and examine them for alterations. At GATC Biotech, a selection of approximately 600 genes known to play a role in cancer will be examined for aberrations. Molecular Health's TreatmentMAPTM will interpret the results and make them comparable. "We want to find out whether there are further important alterations across the genome that not only have an impact on the onset and progression of a disease but are also relevant for treatment decisions," says von Kalle, explaining the motivation for the joint approach.

## Genomsequenzdaten dienen als Therapieempfehlung und als klinische Studie

Die zielgerichteten Therapieempfehlungen gehen an die behandelnden Ärzte und werden in

klinischen Studien überprüft. Die erste umfasst etwa 50 Patienten und ist als „Proof of Concept“ (Beobachtungs-Studie) geplant. Sie soll sicherstellen, dass die Datenflüsse und Schnittstellen zwischen den Projektbeteiligten korrekt und zeiteffizient verlaufen. Eine weitere größere Studie mit ca. 1000 Patienten soll anschließend den klinischen und gesundheitsökonomischen Nutzen der individualisierten Krebsmedizin beurteilen.

Dabei werden zwei sich ergänzende Ansätze verfolgt: Zum einen werden Wissenschaftler im DKFZ das gesamte Erbgut von Krebszellen sequenzieren und auf Veränderungen überprüfen. Bei GATC Biotech wird ein Panel von rund 600 krebswichtigen Genen im Erbgut auf Fehler untersucht. Molecular Health's TreatmentMAP™ wird die Ergebnisse interpretieren und vergleichbar machen. „Wir möchten herausfinden, ob sich im Gesamtgenom weitere wichtige Veränderungen befinden, die zum einen die Entstehung und den Verlauf der Krankheit beeinflussen, zum anderen aber auch für die Therapieentscheidung relevant sind“, erklärt Christof von Kalle das gemeinsame Vorgehen.

„Wir freuen uns, dass wir durch die großzügige Förderung der Dietmar Hopp Stiftung mit diesem innovativen Projekt unsere Ziele am Standort Heidelberg möglichst rasch umsetzen können und sind Dietmar Hopp zu großem Dank verpflichtet“, sagt Otmar D. Wiestler. „Damit eröffnen wir Tumorpatienten in der Metropolregion Rhein-Neckar und darüber hinaus im Rahmen des Deutschen Konsortiums für Translationale Krebsforschung (DKTK) auch bundesweit den Zugang zu einer maßgeschneiderten Therapie.“

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## Press release

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Source: Deutsches Krebsforschungszentrum (DKFZ) - 20.05.2014

The logo for the Deutsches Krebsforschungszentrum (DKFZ) is displayed in a large, bold, blue sans-serif font. The letters 'd', 'k', 'f', and 'z' are lowercase, while the 'z' at the end is uppercase. A solid blue circle follows the 'z' as a period, completing the 'dkfz.' logo.