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Healthcare industry BW

Genome Analysis of Cancer Cells: Germany's Biggest Sequencing Unit Established in Heidelberg

Thorough examination of the genome of cancer cells is essential for a better understanding of the disease and to improve treatment. Therefore, the German Cancer Research Center (DKFZ), with the support of the German Cancer Consortium (DKTK), will invest in the Illumina HiSeq X Ten Sequencing System, the world's first and only platform to deliver full coverage human whole genome for less than 1000 Euros per genome with the power to sequence more than 18,000 genomes per year.

With the ten DNA sequencers, scientists will be able to identify all cancer-linked genetic variations in

the shortest possible time. This purchase marks the first example of a research platform operated within the context of DKTK and DKFZ in Germany.

When in autumn 1990 the human genome project was initiated, the genome analysis of one single human being took roughly thirteen years and cost several hundred million Euros. Thanks to rapidly progressing technological development, it is now possible to read out one person's complete genome within a few hours – at a price of less than a thousand Euros per genome. This is of particular importance for cancer patients since cancer is the result of many genetic errors that can cause healthy cells to degenerate and grow out of control. Identifying these genetic errors by means of DNA-sequencing will contribute to a better understanding of the early stages of tumor development and lead the way to more individualized treatments.

Already today, the National Center for Tumor Diseases (NCT) in Heidelberg and the seven DKTK partner sites use genome analysis to investigate tumors. "The newly established sequencing unit allows us to sequence the cancer genome of an additional 3,500 patients, annually", explains Professor Otmar D. Wiestler, the scientific director of the German Cancer Research Center and spokesperson of the DKTK. "It will provide new insights for research and make possible new options for personalized medicine." The sequencing unit can be used by scientists at the DKFZ as well as by researchers at DKTK. "This will open up whole new possibilities in personalized medicine at the partner site Munich. Some studies and research projects would not be possible without these big sequencing machines," believes Professor Wolfgang Hiddemann, spokesperson for the DKTK partner site Munich.

It is reasonable to assume that the genome analysis of cancer cells will result in new treatment options. To date more than 35 drugs have been approved that precisely target altered components of cancer cells. They can help to improve both, life quality and life expectancy for many cancer patients.

With this new research platform under guidance from Professor Stefan Wiemann and Dr Stephan Wolf, DKFZ, together with DKTK, will be one of the biggest genome research institutions in the world. Acquisitions of this size are made possible particularly by research associations with several excellent partners. With the six publicly funded German Centers for Health Research (DZG) university partner sites collaborate closely with non-university health research centers of the Helmholtz association. Together they want to combat the most common widespread diseases such as cancer, neurodegenerative diseases, diabetes, as well as cardiovascular, lung and infectious diseases. "An investment of this size and an establishment of such an infrastructure are unique for the German Centers for Health Research," says Professor Josef Puchta, who is the administrative-commercial director of DKFZ as well as DKTK.

Press release

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