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### **Award-winning finding in the cancer genome**

**Volker Hovestadt is being honored with the Helmholtz Doctoral Prize for Health Research. He receives the award for his PhD thesis, which he completed last year “with highest distinction” at the German Cancer Research Center (DKFZ). Hovestadt is a bioinformatics researcher who is analyzing the genome of pediatric brain cancer in order to find out which alterations drive cancer growth. In medulloblastoma, the most common type of childhood brain cancer, he discovered a new epigenetic regulatory mechanism that can lead to abnormally high levels of transcription of cancer-promoting genes.**

Volker Hovestadt receives the Helmholtz Doctoral Prize for his outstanding achievements in the field of health research. The Helmholtz Association awards its doctoral prizes to recognize academic achievements as well as to offer an incentive for talented young researchers to pursue a career in academia.

Hovestadt pursued research for his PhD thesis in Peter Lichter’s group at the German Cancer Research Center (Deutsches Krebsforschungszentrum, DKFZ) in Heidelberg. He achieved remarkable results in the analysis of epigenetic changes in medulloblastoma, the most common type of malignant brain tumor in children. Unlike most other forms of cancer, it exhibits very few mutations in growth-promoting genes. Thus the reasons for the aggressive growth behavior of medulloblastomas have been unclear. Hovestadt and his colleagues discovered that in medulloblastoma often the cancer-causing genes are transcribed at much higher levels than normal. This is due, among other things, to a novel epigenetic mechanism that regulates gene activity by chemical labels in the DNA.

This novel regulation system, which Hovestadt recently published in the journal “Nature”, is a finding of particular importance. The number of methylation groups found in the so-called promoter region, i.e., the region of DNA that stimulates the transcription of a gene, has been considered a crucial factor in gene activity. However, Hovestadt’s new results show that methyl groups within genes are also relevant to their activation. This type of gene regulation has never been observed, neither in other types of tumor nor in healthy tissue, at least not to such a marked extent.

By analyzing the epigenetic changes in the whole tumor genome, Hovestadt and his colleagues were able to obtain a comprehensive picture of gene-regulatory networks in medulloblastoma. They also identified molecular targets for new treatment strategies against this dangerous type of brain cancer.

Hovestadt, who completed his doctoral studies only a short while ago, already is author and co-author in over 30 specialist publications in the field of cancer genome analysis. After earning his PhD in December 2014, he has continued his research at the DKFZ. In February 2016, he will start pursuing research as a postdoc at the Broad Institute of MIT and Harvard University and Massachusetts General Hospital in the U.S.A.

The Helmholtz Association annually awards prizes in each of its six research fields. Each award is accompanied by a monetary prize of €5000. In addition, each award winner is granted an allowance of up to €12,000 for a six-month stay at a research institute abroad. The

President of the Helmholtz Association, Otmar D. Wiestler, will present the awards at the association's annual reception on January 27 in Berlin.

A picture of Volker Hovestadt is available at:

[http://www.dkfz.de/de/presse/pressemitteilungen/2015/bilder/Hovestadt\\_Volker.jpg](http://www.dkfz.de/de/presse/pressemitteilungen/2015/bilder/Hovestadt_Volker.jpg)

The German Cancer Research Center (Deutsches Krebsforschungszentrum, DKFZ) with its more than 3,000 employees is the largest biomedical research institute in Germany. At DKFZ, more than 1,000 scientists investigate how cancer develops, identify cancer risk factors and endeavor to find new strategies to prevent people from getting cancer. They develop novel approaches to make tumor diagnosis more precise and treatment of cancer patients more successful. The staff of the Cancer Information Service (KID) offers information about the widespread disease of cancer for patients, their families, and the general public. Jointly with Heidelberg University Hospital, DKFZ has established the National Center for Tumor Diseases (NCT) Heidelberg, where promising approaches from cancer research are translated into the clinic. In the German Consortium for Translational Cancer Research (DKTK), one of six German Centers for Health Research, DKFZ maintains translational centers at seven university partnering sites. Combining excellent university hospitals with high-profile research at a Helmholtz Center is an important contribution to improving the chances of cancer patients. DKFZ is a member of the Helmholtz Association of National Research Centers, with ninety percent of its funding coming from the German Federal Ministry of Education and Research and the remaining ten percent from the State of Baden-Württemberg.

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