

**Stem Cells and Cancer:
400 specialists from around the world convene at DKFZ**

For the third time, cancer researchers and stem cell researchers came together at the German Cancer Research Center (Deutsches Krebsforschungszentrum, DKFZ) in Heidelberg on October 3-5 to share new findings from both areas. About 400 experts from across the globe discussed the role of stem cells in the formation of tumors and possible use of these findings for therapies. The symposium is the sixth international conference at DKFZ which was funded in part by the Heinrich Behr Foundation.

“I am extremely pleased that the topic of stem cells and cancer meets with such response,” said DKFZ’s Scientific Director, Professor Otmar D. Wiestler, who was among the organizers of the conference. “Only four years ago, this was a field for just a few specialists; in the meantime, interest in this field has grown enormously!” Otmar Wiestler, head of DKFZ since early 2004, had brought the topic to Heidelberg from his time in Bonn and had established stem cell research as a new research area at the Center. He emphasizes the commonalities of cancer cells and stem cells: “Both are tremendously versatile and able to develop into a wide variety of directions. Genes regulating stem cells are often also involved in the formation of tumors, stem cells like cancer cells travel through the body, and there is mounting evidence to suggest that probably most human cancers develop from stem cells of the body.”

Many tumors have a small amount of immortal tumor stem cells, which continuously supply new cancer cells. Moreover, they are believed to be responsible for the dreaded onset of metastasis and, unfortunately, they are relatively insensitive to chemotherapy and radiotherapy. Therefore, they are also suspected to be responsible for the recurrence of tumors after seemingly successful treatment. Scientists in Professor Andreas Trumpp’s group at DKFZ are therefore convinced that cancer treatment can only be successful if this “root of all evil” is selectively eradicated. “We are searching for techniques to find the relatively rare tumor stem cells with sensitive methods and, subsequently, eliminate them in a targeted approach,” said Trumpp describing the goal of his research work. Andreas Trumpp is also director of HI-STEM gGmbH, the Heidelberg Institute for Stem Cell Technology and Experimental Medicine, which has set itself the goal of swift translation of results from basic research into clinical practice.

The organizers of DKFZ and the U.S. National Cancer Institute had intentionally invited stem cell researchers from different areas. Thus, for example, Professor Rudolf Jaenisch comes from Massachusetts Institute of Technology and is regarded a pioneer of reprogramming body cells into stem cells. He is primarily interested in what are called induced pluripotent stem (iPS) cells. These are generated in the culture dish from specialized body cells, such as skin cells, by adding a few factors. Since they can be said to develop backwards, scientists refer to this process as “reprogramming”. These iPS cells are just as versatile as the controversial embryonic stem cells and have the additional advantage that they can be obtained from the patients themselves without any ethical concerns. Thus, research on these cells opens up the possibility of developing customized treatments for individual patients. This is also the topic of the lecture delivered by Rudolf Jaenisch, who is a very recent recipient of the Federal Cross of Merit. He received the honor from the hands of German President Christian Wulff on Monday, October 4, in Berlin.

Equally well-known in Germany are stem cell researchers Professor Hans Schöler, Director of the Max Planck Institute for Molecular Biomedicine in Munster, who is also studying

induced pluripotent stem cells, and Professor Oliver Brüstle of Bonn, who hopes to find therapies to treat multiple sclerosis by studying human embryonic stem cells.

“We are proud to bring together the international elite of cancer cell, stem cell and tumor cell researchers in Heidelberg”, said Otmar Wiestler. “And we are convinced that their intensive discussion will lead to new impulses in cancer research that will also benefit cancer patients!”

A picture for this press release is available at:

www.dkfz.de/de/presse/pressemitteilungen/2010/images/krebsstammzelle.jpg

The German Cancer Research Center (Deutsches Krebsforschungszentrum, DKFZ) is the largest biomedical research institute in Germany and is a member of the Helmholtz Association of National Research Centers. More than 2,200 staff members, including 1,000 scientists, are investigating the mechanisms of cancer and are working to identify cancer risk factors. They provide the foundations for developing novel approaches in the prevention, diagnosis, and treatment of cancer. In addition, the staff of the Cancer Information Service (KID) offers information about the widespread disease of cancer for patients, their families, and the general public. The Center is funded by the German Federal Ministry of Education and Research (90%) and the State of Baden-Württemberg (10%).

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