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Creative Research Beyond Retirement Age: Günther Schütz Turns Seventy

Professor Dr. Günther Schütz, an internationally acclaimed molecular biologist, celebrates his 70th birthday on May 1, 2010. Schütz has been studying how biological signaling molecules regulate the activity of genes at the German Cancer Research Center (Deutsches Krebsforschungszentrum, DKFZ) since 1980. His work has also yielded important findings about how the nervous system develops, how processes of learning and remembering work and how drug addiction develops.

How do signaling molecules such as steroid hormones regulate the activity of genes? This question has always been in the center of Schütz's research in developmental biology. Steroid hormones, which include glucocorticoids such as cortisol and sexual hormones such as estrogen, bind to what are called nuclear receptors in the interior of the cell. Through this binding they regulate growth and differentiation of cells and tissue.

In order to characterize the tasks and functioning of nuclear receptors, Schütz and his co-workers silenced the genes of these receptors in mice. The researchers then studied the effects of this loss in the animals. However, since mice are often not viable if these important receptors are missing, Schütz developed sophisticated molecular-biological methods to switch off receptor genes very selectively only in specific cell types and under specific conditions.

Thus, Schütz was able to elucidate, among other things, how nuclear receptors regulate embryonic and neural development and how sexual hormones influence brain functioning. He has studied the molecular foundations of learning and remembering, drug addiction, and – in his most recent work – key molecules responsible for the development of brain tumors. "Our research continues to be very exciting," says Schütz, "because it often happens that we come across new, unexpected results."

Günther Schütz, born in 1940 in Bad Schwalbach in the German state of Hessia, studied medicine in Frankfurt, Bern and Giessen and received his doctoral degree at the Institute of Physiological Chemistry of Marburg University. In 1969, he was given the opportunity to go to New York's Columbia University with grants from the Deutsche Forschungsgemeinschaft (DFG) and the Fulbright Commission. From 1975 to 1980 he led a working group at the Max Planck Institute for Molecular Genetics in Berlin. In 1980, Günther Schütz was appointed head of the Division of "Molecular Biology of the Cell I" at the German Cancer Research Center (Deutsches Krebsforschungszentrum, DKFZ) in Heidelberg. In addition, Schütz has a position as molecular biology professor at Heidelberg University.

Günther Schütz has more than 360 highly recognized publications including numerous articles in renowned journals such as *Cell*, *Nature*, *Neuron* and *Genes & Development*. Among his numerous prestigious awards are the Gottfried Wilhelm Leibniz Award, the European Medal of the Society of Endocrinology and the Max Planck Research Award for International Cooperation. He is a member of a number of academies and international associations such as the "Academia Europaea", the American Association for Cancer Research (AACR) and the German Academy of Sciences Leopoldina.

Since 2008, Günther Schütz has been head of a working group for molecular biology of the cell at DKFZ as a "Helmholtz Professor" after reaching retirement age. Otmar D. Wiestler, DKFZ's Scientific Director, congratulated Günther Schütz and said: "Research in Germany cannot and must not afford losing creative brains like Günther Schütz, who are full of creative

energy and want to continue doing research on key questions of science. If we hadn't made this offer to him, he would have been lured away to the United States."

A picture of Günther Schütz is available on the Internet at:

http://www.dkfz.de/de/presse/pressemitteilungen/2010/images/guenther_schuetz.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 2,000 staff members, including 850 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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