

## Pressemitteilung

### Max-Delbrück-Centrum für Molekulare Medizin (MDC) Berlin-Buch

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## Protection Against Heart Enlargement

When the heart is weakened, it tries to compensate for its impaired pumping function through an enlargement of the heart muscle cells. Physicians speak in this case of cardiac hypertrophy, abnormal enlargement of the heart. Heart enlargement can occur, for instance, as a result of high blood pressure. Now, a group of scientists at the Max Delbrück Center for Molecular Medicine (MDC) Berlin-Buch has demonstrated in animal experiments that a certain hormone, called CNP for short, can protect the heart muscle from thickening abnormally. The research work of Dr. Thomas Langenickel, Jens Buttgereit, and Prof. Michael Bader of the MDC in collaboration with researchers of the Charité - University Medical School Berlin, the Free University of Berlin, and the University Clinic Giessen has just been published in the early online edition of the Proceedings of the National Academy of Sciences (PNAS)\* on Monday March 13, 2006.

The researchers studied natriuretic peptides - hormones that regulate the body's water balance and, thus, influence the cardiovascular system by reducing blood pressure. One of these hormones is C-type natriuretic peptide, abbreviated CNP. The researchers showed in cell culture experiments that CNP protects against hypertrophy by binding to the natriuretic peptide receptor NPR-B and thus activating it. However, still very little is known about this receptor and its function in the heart. The researchers studied the effects of this process on living organisms using transgenic rats. They determined that the binding of CNP to the B receptor is indeed a crucial factor protecting the heart from abnormal enlargement. When the NPR-B receptor was blocked, the animals developed hypertrophy.

Cardiac hypertrophy in transgenic rats expressing a dominant negative mutant of the natriuretic peptide receptor B

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