

New approaches in targeted cancer therapy

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Precision medicine, which custom-tailors therapies to the needs of individual patients, is becoming more and more important in cancer therapy. Today, molecular-biological diagnostics can precisely identify alterations in tumor cells. A major aim of modern cancer therapy is to develop drugs that individually target these altered tumor cells, but do not impact the surrounding healthy cells.

Scientists in the working groups of Professor Roman Thomas and Professor Martin Sos at the Institute of Pathology and the Department of Translational Genomics of Cologne University Hospital have tested the effects of more than 1,500 substances on different kinds of [cancer cells](#). The testing procedure was carried out in cooperation with the Technical University of Dortmund, the Lead Discovery Center Dortmund, and other international groups.

The researchers were able to identify an inhibitor that specifically limits the growth of cells exhibiting a fusion of the proteins BRD4 und NUT. The resulting BRD4/NUT fusion genes are characteristic for so-called NMC tumours. NMC (NUT midline carcinoma) is a rare, aggressive type of cancer affecting the epithelial tissue of mucous membranes in the patient's pharynx and throat. To date there is no effective therapy for this cancer.

In the study, the scientists were able to shed light on the molecular mechanism responsible for the effectiveness of the inhibitor. Their insights are an important prerequisite for the development of new and improved therapies for NMC, which is lethal in most cases.

More information: Johannes Brägelmann et al, Systematic Kinase Inhibitor Profiling Identifies CDK9 as a Synthetic Lethal Target in NUT Midline Carcinoma, *Cell Reports* (2017). [DOI: 10.1016/j.celrep.2017.08.082](https://doi.org/10.1016/j.celrep.2017.08.082)

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