New treatment option for brain metastases associated with lung cancer

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Lung cancer is the world's most common cause of death from cancer. In Austria, around 4,000 people develop this type of cancer every year. One particular problem is the development of brain metastases in association with the lung tumour. Until now – other than surgery or radiotherapy – there have not been any treatment options available. Now, however, researchers at the MedUni Vienna have identified a possible new approach for treatment.

In a study by the Comprehensive Cancer Center at the MedUni Vienna (CNS Unit / Central Nervous Systems Tumours Unit) headed up by Matthias Preusser and Peter Birner, it was possible to demonstrate for the first time in collaboration with the University of Heidelberg that changes to the ALK gene are also demonstrable in the brain metastases of lung cancers – and not just in the lung tumour itself. The results have now been published in the highly respected journal *Lung Cancer*.

If the ALK gene is altered, the cell is no longer able to regulate it. It is then constantly active and "forces" the tumour cell to multiply in an uncontrolled manner. In cases of mutation, the ALK gene always pairs with a partner gene, and in this case it is usually the gene EML4.

ALK gene as a point of attack

"The results show that the point of attack for ALK-targeted therapies is also present in brain metastases. This could lead to an extension in therapy concepts for this complication of certain lung cancers," says Preusser, who is also the coordinator of the newly founded "Brain Metastases Platform" of the European cancer research organisation EORTC. Around 60 patients are affected by brain metastases in association with ALK-positive lung cancer in Austria every year.

Last year, the MedUni Vienna scored a high-profile success for the group led by Lukas Kenner in the treatment of aggressive lymphoma-type ALCL involving a treatment targeted at an ALK gene (NPM-ALK) with a specific PDGFR inhibitor.

At the front of the international field in the research of brain metastases

"The foundation of the CCC-CNS Unit has enabled the MedUni Vienna to put itself out at the front of the international field in the research of brain metastases within just two years," says Christoph Zielinski, Head of the Comprehensive Cancer Center. At the MedUni Vienna, cancer research / oncology is one the five research clusters in which more and more emphasis is being placed on fundamental and clinical research into their constituent specialist areas. The other four research clusters are Allergology / Immunology / Infectious Diseases, Vascular / Cardiac Medicine, Neurosciences and Imaging.

More information: Preusser, M. et al. ALK gene

translocations and amplifications in brain metastases of non-small cell lung cancer, *Lung Cancer* 2013 Feb 27. pii: S0169-5002(13)00055-X. doi: 10.1016