Treatment of malignant brain tumor in children gets closer

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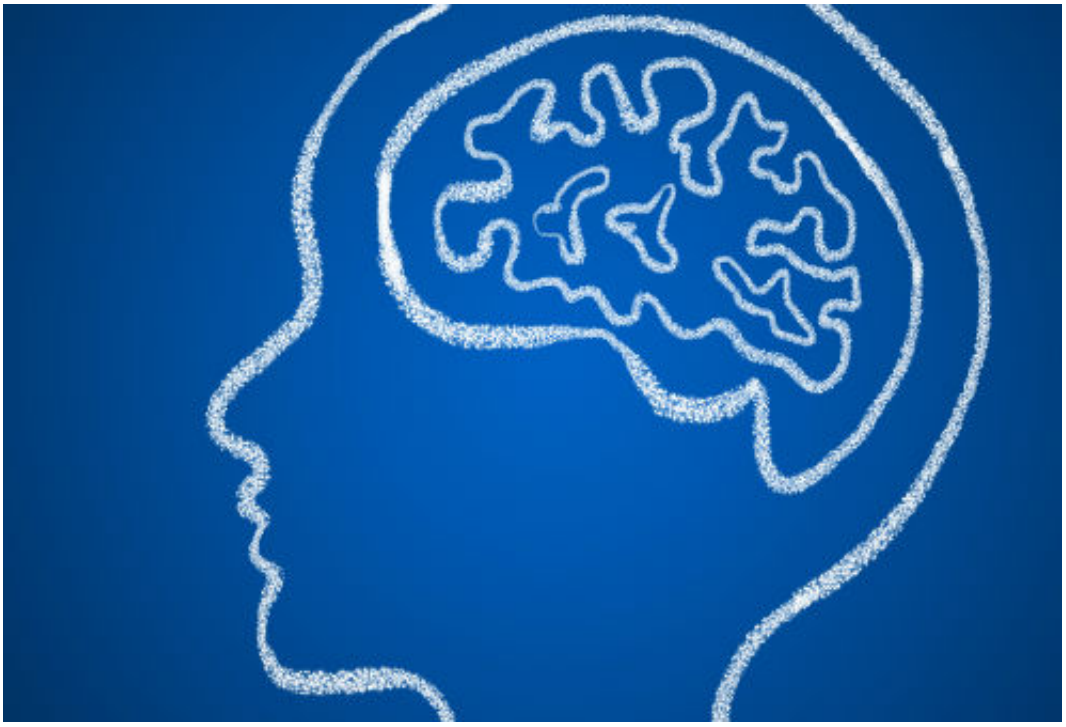

Credit: University of Copenhagen

Researchers at the University of Copenhagen have identified important mechanisms underlying how a special type of malignant brain tumor arises in children. Not only do these discoveries give researchers important information about the tumor but they could also result in possible treatment.

DIPG (Diffuse Intrinsic Pontine Glioma) is a rare malignant cerebral tumour in children. It has only a 1% 5-year survival rate, amongst other things because it is not possible to operate because the tumour is located in the brain stem. Danish researchers have now just published a study in an international journal, *Nature Medicine*, in which they have investigated the molecular mechanisms that could be the reason why the malignant tumour arises and develops.

"DIPG is a terrible disease with very poor survival. Before we can identify a treatment, we need to understand the mechanisms underlying the formation and growth of the tumour. We have now made a major step forward and we also have ideas for possible treatment," says Prof. Kristian Helin, Director of the Biotech Research and Innovation Center.

Hope for clinical trials in the near future

DIPG tumours are a type of cancer in which there are mutations in the so-called histone proteins. One of these is the H3K27M protein that could be the cause of the malignant brain tumour. In order to identify the specific mechanisms, researchers created a special mouse model based on the same genetic changes found in the brain tumour. This enabled them to gain a general understanding of the behaviour of the tumour and also to test possible treatments.

"We have identified a possible method for treating this type of tumour. We know of a substance that is being trialled right now for another type of tumour. This substance is a so-called inhibitor for the EZH2 protein. We have tested the inhibitor on the mouse models and on cell lines from human tissue samples and have seen efficacy in both. The next step will be to collect preclinical data so that we can make a start on clinical trials," says Kristian Helin.

The research team, including the lead author of the study, postdoc

Faizaan Mohammad, has already established a collaboration with an American biotech company which is currently testing the inhibitor in a Phase II trial on B-cell lymphomas. The researchers hope to collect sufficient preclinical data next year to be able to start on clinical trials.

More information: *Nature Medicine*, DOI: 10.1038/nm.4293