MedicalXpress

Fatal glandular cancer will soon be possible to treat

September 28 2017

A new combination of existing drugs has been shown to block the cancer gene behind a fatal form of glandular cancer, adenoid cystic carcinoma. The findings from the Sahlgrenska Academy can lead to new treatment for patients with this disease relatively soon.

Adenoid cystic carcinoma is a slow-growing but fatal form of cancer originating from different glandular tissues in for example the head and neck, the breast, the prostate and lung.

The disease occurs in both younger and older individuals. If the tumors are detected early they can be successfully treated with surgery. However, for patients with metastatic and/or recurrent disease there are no effective treatments available.

"Neither chemotherapy nor radiation therapy has any significant effect on adenoid cystic carcinoma. So even though it is a slow-growing cancer, the mortality rate in the long-term is very high," says Mattias Andersson, researcher at the Sahlgrenska Cancer Center.

Together with professor Göran Stenman, he leads the group behind the new discoveries, which are presented in an article in the *Journal of the National Cancer Institute*.

The new treatment uses molecularly targeted drugs to block the cancer gene that drives the growth of this cancer. It is based on research that the group has been working on for many years.

As early as thirty years ago, Göran Stenman and his co-workers discovered that a certain chromosome change was recurrent and specific for adenoid cystic carcinoma. The alteration, which is sporadic and not inherited, results in a fusion of genetic material from chromosomes 6 and 9.

In 2009 the research team identified a new cancer gene, the MYB-NFIB fusion oncogene, generated by this chromosome change. They also demonstrated that this gene is present in almost all cases of adenoid cystic carcinoma. Consequently, they set out to develop a new treatment based on this discovery.

By studying activated signaling pathways in the cancer cells, the research team has now discovered a new way of turning off the MYB-NFIB fusion gene, the major driver of growth of this cancer. They have also developed a combination treatment that turns off both the cancer gene and two other critical signaling pathways, which strongly inhibits tumor growth in the laboratory as well as in animal experiments with human cancer tissues.

"Our strategy has been to search for existing drug candidates that are already in clinical trials. Such substances only need a few more years of evaluation before they can be used clinically to treat patients. This has sped up the process significantly and enables us to make our results available to patients much sooner than otherwise," says Mattias Andersson.

More information: Mattias K. Andersson et al. Targeting the Oncogenic Transcriptional Regulator MYB in Adenoid Cystic Carcinoma by Inhibition of IGF1R/AKT Signaling, *JNCI: Journal of the National Cancer Institute* (2017). DOI: 10.1093/jnci/djx017