New clues for the early detection of colorectal cancer

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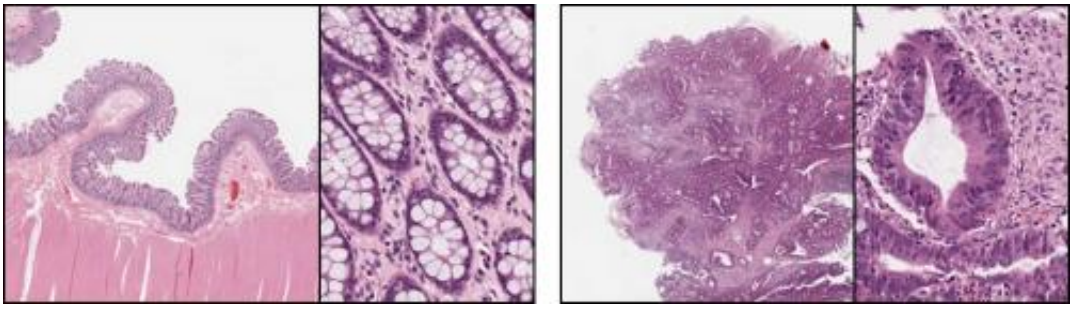

Histological comparison between normal colon tissue (both images on the left) and colon tumor tissue (both images on the right) collected in Luxembourg and in which the expression of the SOCS proteins was assessed. Credit: University of Luxembourg

Researchers at the University of Luxembourg have identified potential new ways to test for the first signs of one of the most deadly types of cancer: colorectal cancer. They have found new "biomarkers": molecules whose increased presence or absence in tissue suggests the development of tumorous cells. These indicators could help detect colorectal cancer at an early stage, predict its severity or even offer new treatments.

"Colorectal cancer is still one of the most frequent and deadliest cancers worldwide. But diagnosed in time it can be cured in 9 out of 10 cases", said Professor Serge Haan from the Life Science Research Unit at the University of Luxembourg. "Thus it is highly important to identify more

sensitive and specific markers to improve early diagnosis as well as therapeutic strategies".

The research team around Prof. Serge Haan and Dr. Elisabeth Letellier studied over 800 detailed results of tissue-analysis of both patients with various stages of colorectal cancer and healthy individuals. They completed this study with original analysis of patient material from the Ontario Tumor Bank in Canada and the Integrated Biobank of Luxembourg.

The Luxembourg-based team were the first to see a significant reduction in certain proteins (specifically SOCS2 and SOCS6) in pre-cancerous and cancerous colorectal cells. They concluded that especially SOCS2 could be a very sensitive, early diagnostic biomarker. Further analysis also revealed that this protein could even give an early prediction of the cancer's severity.

SOCS stands for "Suppressor Of Cytokine Signalling", regulatory proteins which are essential for normal cell growth. There is increasing evidence that the loss of SOCS proteins plays a role in many cancers as this induce uncontrolled cell growth and tumour development. This study additionally strengthens the case for those proteins having tumour repressive potential.

These findings have been published in the renowned *British Journal of Cancer*. The research team included several Luxembourg biomedical research institutions: The National Health Laboratory, the Santé Public Research Centre and the Integrated Biobank of Luxembourg. This study was financed by the Luxembourg Cancer Foundation. Further work is now needed to expand on these findings before they can be used clinically.

More information: E Letellier, M Schmitz, K Baig, N Beaume, C

Medical Xpress

Schwartz, S Frasquilho, L Antunes, N Marcon, P V Nazarov, L Vallar, J Even and S Haan: "Identification of SOCS2 and SOCS6 as biomarkers in human colorectal cancer". *British Journal of Cancer* (2014) 111, 726–735. DOI: 10.1038/bjc.2014.377

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