Medical Xpress

New biomarkers for colorectal cancer

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For colorectal cancer (CRC), early detection and classification is important, as not all Stage II patients benefit from chemotherapy. Identifying patients at risk for recurrence during the early course of the disease might help clinicians. However, there are still too few prognostic markers for colorectal cancer known so that too many patients still suffer needlessly from side effects of the chemotherapy without having real benefits.

An interdisciplinary team composed of experimental and computational scientists from the University of Luxembourg has recently discovered a promising biomarker for colorectal cancer. In early stages, such markers might allow classifying patients into high and low risk groups. Such a classification may help oncologists choose adequate treatment regimens for a given patient. "The strength of the study lies in the concerted effort and the interdisciplinary approaches, involving bioinformatics and state-of-the-art experimental techniques," explains Dr. Elisabeth Letellier, principal investigator in the MDM group.

Using a previously established meta-analysis of publicly available gene expression data, the research team identified the protein family Myosin and the protein MYO5B as potential prognostic marker in the context of CRC. Members of this family are known to play a major role in cellular trafficking and polarisation of cells and have recently been reported to be closely associated with several types of cancer.

The meta-analysis as well as an independent patient cohort study revealed that the concentration of MYO5B decreases as the disease

progresses. CRC patients with low MYO5B expression had significantly lower chances of disease- and metastasis-free survival. Altogether, the data collected from the Molecular Disease Mechanisms (MDM) group identify MYO5B as a powerful prognostic biomarker in CRC in early stages (stages I and II), which might help in stratifying patients with stage II for adjuvant chemotherapy.

In this research project, the MDM group analysed the value of a biomarker in a Luxembourgish colorectal cancer (CRC) collection. Indeed, they have established a CRC collection that includes tissue samples from patients. This collection is of high value as it allows, for example, the identification of new prognostic biomarkers for CRC as highlighted in the present project.

More information: Elisabeth Letellier et al. Loss of Myosin Vb in colorectal cancer is a strong prognostic factor for disease recurrence, *British Journal of Cancer* (2017). DOI: 10.1038/bjc.2017.352

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