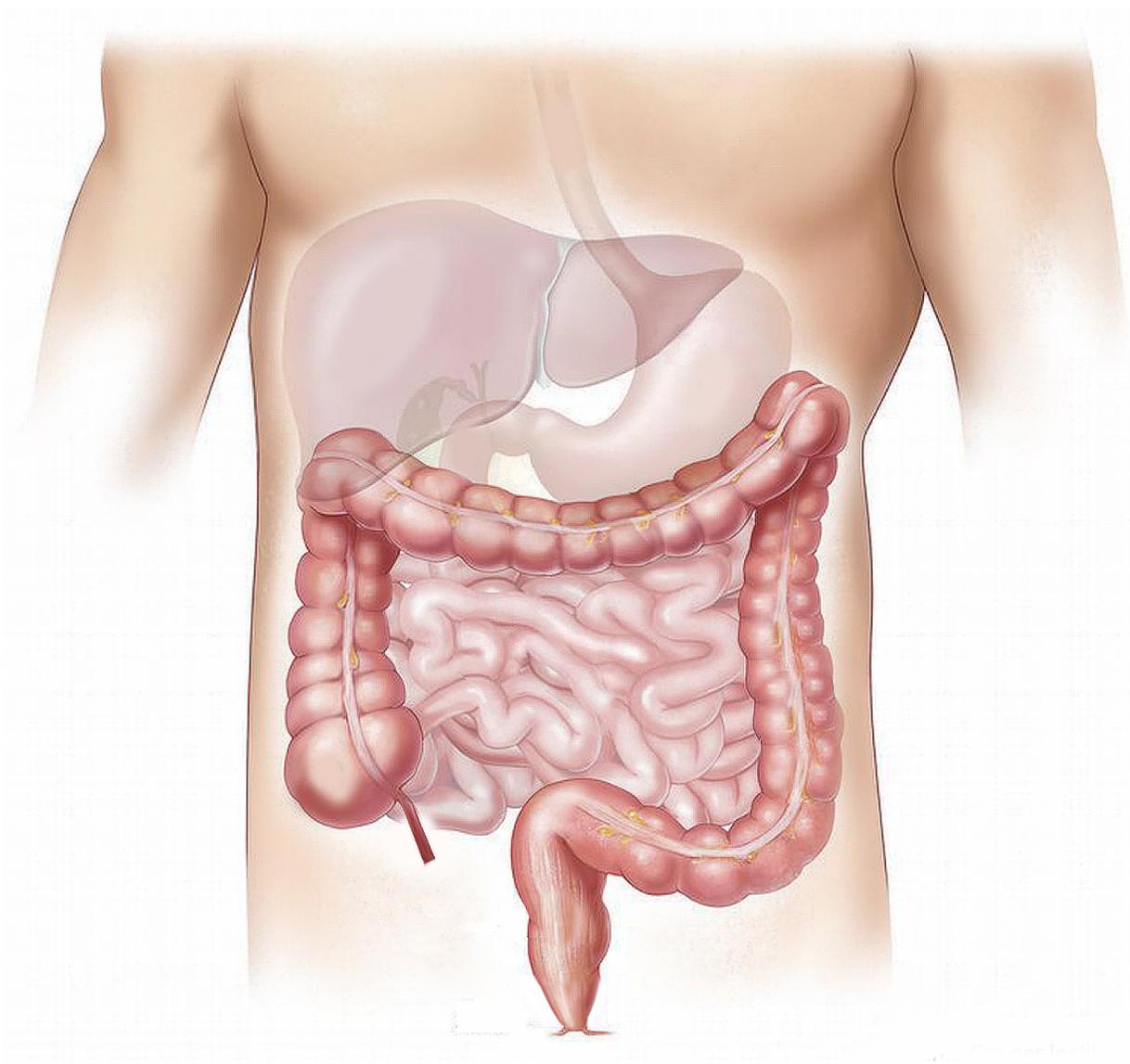


Liver cancer: Discovery of new biomarker for liver dysfunction following partial hepatectomy

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Postoperative liver dysfunction (failure) is the most serious complication that can occur following liver resection (full or partial hepatectomy) to remove liver tumours. Hitherto, the only tests available for preoperative risk stratification are both time-consuming and expensive. A MedUni Vienna research group has now shown that a particular microRNA signature has the potential to serve as a rapid and reliable predictor. The results of this study were recently published in the specialist journal *Hepatology*.

There is an urgent need for an easily accessible preoperative test to predict [postoperative liver](#) function recovery and thereby determine the optimal timing of [liver resection](#), particularly since the currently available methods are either costly, time-consuming or invasive.

For several years now, the groups led by Patrick Starlinger from MedUni Vienna's Department of Surgery and Alice Assinger from MedUni Vienna's Center for Physiology and Pharmacology have focused on the prediction of postoperative liver dysfunction and clinical outcomes that can be expected following liver resection. MicroRNA signatures represent a new approach in this research and are already known as potent diagnostic, prognostic and treatment response biomarkers for many different diseases.

The researchers have now identified particular microRNA signatures as biomarkers for liver failure. Using next-generation sequencing, 554 miRNAs were detected in preoperative plasma of 21 [patients](#) suffering from postoperative liver dysfunction (LD) following liver resection and 27 matched controls.

Subsequently, the researchers identified a miRNA signature (consisting of miRNAs 151a-5p, 192-5p and 122-5p), which strongly correlated with patients developing postoperative liver dysfunction following liver resection. The predictive potential for postoperative liver dysfunction was subsequently confirmed in an independent validation cohort of 98 patients.

The two miRNA ratios 151a-5p to 192-5p and 122-5p to 151a-5p were found to reliably predict postoperative liver dysfunction, severe morbidity, prolonged ICU and [hospital stay](#), and even mortality prior to surgery.

"We were able to achieve a remarkable degree of accuracy, thereby outperforming established markers," explains Patrick Starlinger, "This will help us in terms of individualised [patient care](#) and to tailor surgical strategies to the specific risk profile of the patient."

More information: P Starlinger et al. Predicting Postoperative Liver Dysfunction Based on Blood Derived MicroRNA Signatures. *Hepatology*. 2019 Feb 19. [DOI: 10.1002/hep.30572](https://doi.org/10.1002/hep.30572). [Epub ahead of print]

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