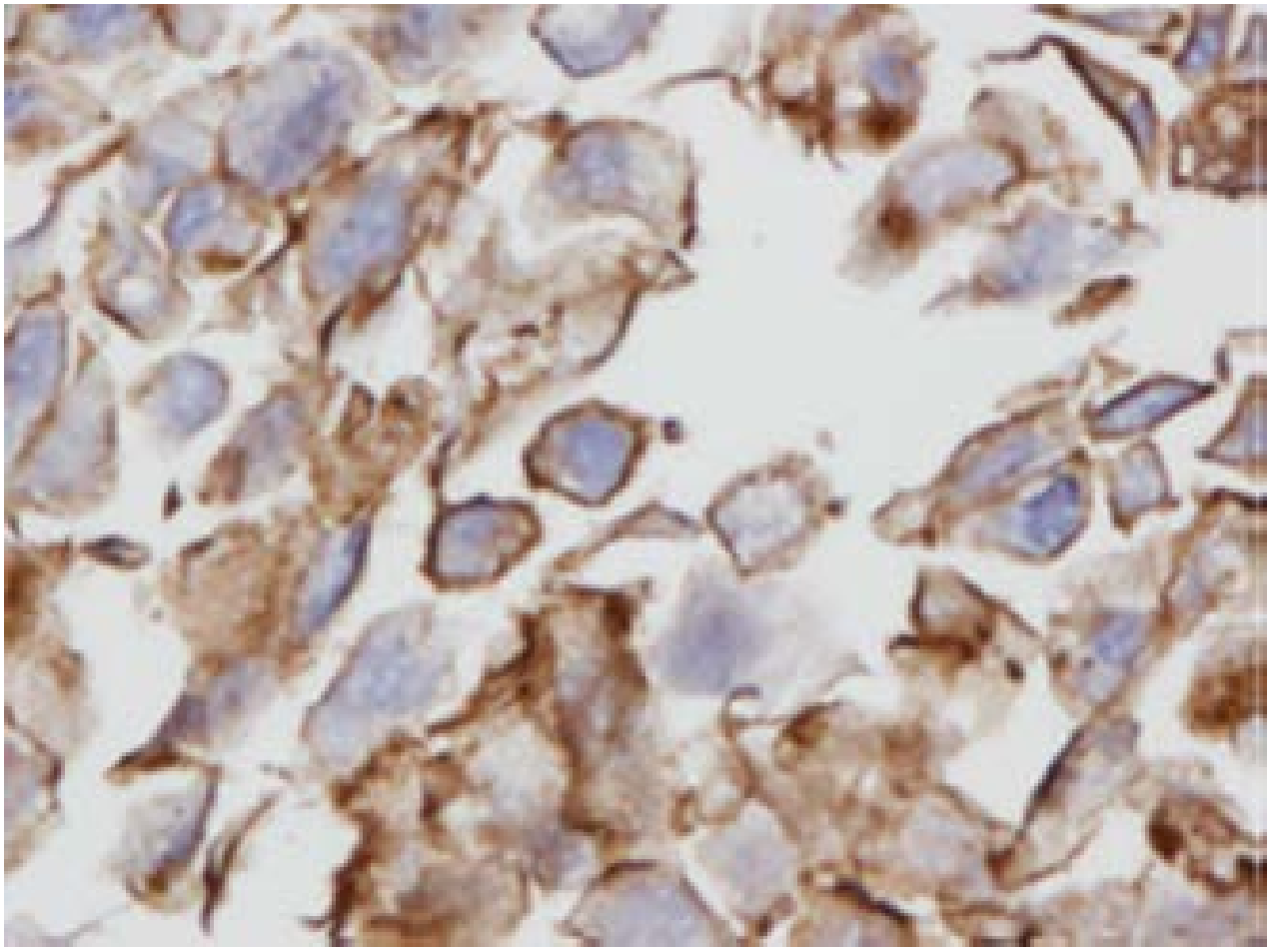
THE TECH TRANSFER OFFICE
UNIVERSITY OF COPENHAGEN

New Companion Diagnostic for Colon Cancer

- Treating the right patient at the right time with Irinotecan and other topoisomerase 1 inhibitors



Immuno staining of ABCG2 protein in a colorectal cancer cell-line resistant to Irinotecan . Sci Rep. 2016 Jun 3;6:26997

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Background

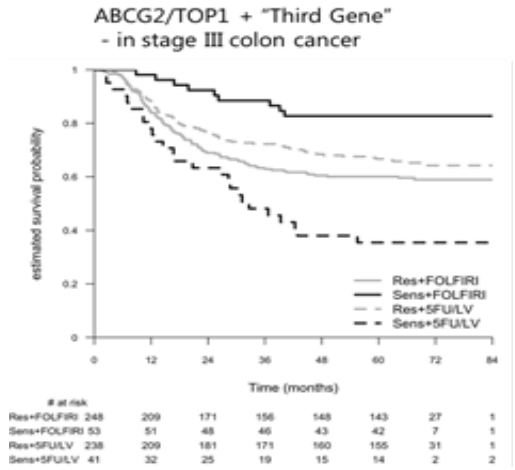
Surgery is still the most effective treatment of colorectal cancer. (CRC) However, patients with high risk stage II or stage III CRC are offered adjuvant treatment in order to reduce the risk of disease recurrence after surgical removal of all visible lesions. Many patients will experience disease recurrence/progression due to development of resistance the adjuvant treatment. Thus, there is an unmet demand for biomarkers that directs the right treatment to the right patient at the right time in the treatment of CRC and other cancer.

The Invention

Irinotecan resistant colorectal cancer cell lines have been developed and genes that have not previously been known to be associated with Irinotecan resistance has been identified using “omics” in clinical patient material. Measuring the expression level of the ABCG2 gene in combination with the expression level of TOP1 and a third gene, makes it possible to identity patients who will benefit from treatment with Irinotecan and other topoisomerase 1 inhibitors. The predictive power of ABCG2 and TOP1 may be strengthen even further by adding expression levels of other genes.

Key selling points

- Allows for personalized treatment approach
- Saves costs by only treating the right patients
- Avoids unnecessary side effects for patients
- Potential market expansion for topoisomerase 1 inhibitor drugs



Figur above. Addition of a “Third Gene” to the ABCG2/TOP1 profile can identify a subgroup of patients that appears to have significant benefit from treatment with FOLFIRI.

Development status

The combination of the three genes has been tested in the PETACC-3 study cohort. [1]The results showed that these three genes significantly divides the FOLFIRI patients into t wo groups regarding recurrence free survival and over-all survival while such a difference was not seen among 5FU only treated patients

Intellectual property rights

University of Copenhagen has filed a patent application a priority EP patent application was filed 4 October 2017covering ABCG2, TOP1 in combination with a third gene to be used to predict topoisomerase 1 inhibitor sensitive/resistance.

[1] J Clin Oncol. 2009 Jul 1;27(19):3117-25. doi: 10.1200/JCO.2008.21.6663. Epub 2009 May 18.