

# Useful markers to predict response to chemotherapy in patients with liver cancer

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A study led by the researcher at the Institute of Biomedical Research (IDIBELL), Isabel Fabregat, could serve to select patients with hepatocellular carcinoma unresponsive to most frequently used drug in liver cancer: sorafenib. The study, published in the *International Journal of Cancer* describes how tumor cells that have a less differentiated phenotype (mesenchymal) and expresses CD44, do not respond to Sorafenib action.

## Difficult treatment

Hepatocellular carcinoma is one of the cancers with the worst prognosis and more difficult treatment. Surgery is only possible when the tumor is well located and the protocol for liver transplantation requires specific requirements for number and size of tumor nodules.

However, there is a drug used in advanced stages of [hepatocellular carcinoma](#): Sorafenib. It is a [tyrosine kinase inhibitor](#) which has an extremely specific action. As explained Isabel Fabregat "Sorafenib could act not only on tumor cells by inhibiting the growth and inducing cell death but also on cells accompanying the tumor, the stroma, by their ability to inhibit the formation of blood vessels to provide nutrients to the tumor cells. Sorafenib treatment induces a delay in tumor process but generally fails to produce the patient's recovery. "

Therefore, many laboratories are currently working on the study of the

action of this drug to improve therapy either attaching different drugs or selecting patients.

In this sense, the study of the research group in Biological Keys Invasive and Metastatic Phenotype led by Fabregat analyzed the phenotypic and molecular characteristics of several cell lines and in animal models and their response to Sorafenib.

## Resistance biomarkers

"We have observed that the cells which exhibit a mesenchymal phenotype (where the tumor cells are less differentiated and are potentially more aggressive) and which express CD44, a marker of tumor-initiating cells, are resistant to Sorafenib".

The study proposes CD44 as a potential marker that could be used clinically to select patients who will not respond to treatment and thus spare them the side effects.

"Moreover," says Fabregat "the proposal of this paper is twofold. Also opens the door to designing joint therapies with Sorafenib and CD44 inhibitors as we have shown that genetic inhibition of this marker in

**More information:** Fernando J., Malfettone A., Cepeda EB, Vilarrasa-Blasi R., Bertran E., Raimondi G., Fabra A., Alvarez-Barrientos A., Fernández-Salguero P., Fernández-Rodríguez CM, Giannelli G., Sancho P., Fabregat I. A mesenchymal-like Phenotype and expression of CD44 PREDICT lack of apoptótica response to sorafenib in liver tumor cells. *International Journal of Cancer* 2014 Jul 23 doi: 10.1002 / ijc.29097.  
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