

## **Combination of 2 drugs reverses liver tumors**

May 2 2012

The combination of two inhibitors of protein mTOR stops the growth of primary liver cancer and destroys tumour cells, according to a study by researchers of the Group of Metabolism and Cancer at Bellvitge Biomedical Research Institute (IDIBELL). The study results are been published on the online edition of the journal *Science Translational Medicine*.

Primary liver cancer or hepatocellular carcinoma is the fifth most common cancer and, due to its aggressiveness, is the third most deadly. It affects half a million people worldwide. Two of every three cases are related to <u>chronic alcoholism</u>, the exposure of <u>toxic agents</u> or infection with <u>hepatitis B</u> or C. The remaining third is related to non-alcoholic steatohepatitis, a disease related to obesity.

## **Promising candidates**

Currently, the antitumor <u>sorafenib</u> shows the better patient outcomes, but its effectiveness decreases over time. For this reason, it is necessary to find new therapies. Among the most promising candidates are the inhibitors of the mTOR signalling pathway, which is hyperactivated in half of those affected by hepatocellular carcinoma.

The study led by IDIBELL researchers compared the effects in mice of two inhibitors of mTOR. The first was a derivative of rapamycin, called everolimus (RAD001), which is already used as an <u>immunosuppressant</u> and to treat specific cancers. The second is a new generation drug that inhibits mTOR called BEZ235.



During the study, researchers found unexpectedly that the combination of the two drugs had a more potent effect than any of the two drugs separately. Coadministration of BEZ235 and RAD001 limits the development of tumour and causes the self-destruction of <u>tumour cells</u>.

Based on these results a clinical trial, funded by Novartis, has started in the United States to evaluate the efficacy of the combination of these two inhibitors of mTOR in humans. The study coordinator, Sara Kozma, noted that "because rapamycin and its derivatives are already approved for the treatment of other diseases, their combination to BEZ235, would be a rapid strategy to test the efficacy of this drug and fast track its approval for clinical use."

## **Metabolism and Cancer Group**

Dr. Kozma has recently joined the IDIBELL, along with Dr. George Thomas, who also participated in the study. The researchers, coming from the University of Cincinnati, have launched a new group of Metabolism and Cancer in IDIBELL.

The study published in *Science Translational Medicine* has been conducted in the University of Cincinnati, in collaboration with the Center for Cancer Research National <u>Cancer</u> Institute U.S. medical school at the University of California, Los Angeles, Cincinnati Children 's Hospital Medical Center and research institutes of Novartis.

More information: *Sci. Transl. Med.* April 25 2012 DOI: 10.1126/scitranslmed.3003923

Provided by Bellvitge Biomedical Research Institute



Citation: Combination of 2 drugs reverses liver tumors (2012, May 2) retrieved 27 April 2024 from <u>https://medicalxpress.com/news/2012-05-combination-drugs-reverses-liver-tumors.html</u>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.