pH-sensitive liposomal cisplatin improves peritoneal carcinomatosis treatment without side-effects

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Scientists at the Oswaldo Cruz Foundation and Federal University of Minas Gerais, led by Dr. Andréa Teixeira-Carvalho and Dr. Mônica Cristina de Oliveira, have developed and characterized a circulating and pH-sensitive liposome containing cisplatin (SpHL-CDDP) aiming to promote the release of cisplatin near the tumor as well as decreasing toxicity. The development of analog drugs and new formulations are current strategies for increasing the effectiveness and safety of cisplatin as an anti-peritoneal carcinomatosis drug. The results, which appear in the August 2012 issue of *Experimental Biology and Medicine* demonstrate that the treatment of initial or disseminated Ehrlich ascitic tumor-bearing Swiss mice with SpHL-CDDP improved the antitumor efficacy and decreased renal and bone marrow toxicity of cisplatin-based therapy.

"Peritoneal carcinomatosis is a serious concern in the treatment of abdominal tumors such as hepatic, gastric and gynecological tumors", says Dr. Oliveira. "The strategy of local chemotherapy is interesting due to the possibility to increase the therapeutic efficacy while minimizing systemic side-effects. SpHL-CDDP treatment was able to reduce cancer cell proliferation and increase survival, in the animal model, with no known toxicity clinical signs found in the free CDDP treatment." says Dr. Maroni.

These results open the possibility of future use of SpHL-CDDP in chemotherapy of peritoneal carcinomatosis. "New studies are underway

in our research group to investigate the signaling pathways of cell death as well as use of high doses of SpHL-CDDP for the treatment of peritoneal carcinomatosis", says Dr. Teixeira-Carvalho.

Dr. Steven R. Goodman, Editor-in-Chief of Experimental Biology and Medicine, said " This very interesting study has utilized a new pH-sensitive circulating liposome containing cisplatin formulation which decreased cancer proliferation and drug toxicity in a mouse model. This provides the basis for further translational testing of this formulation leading to clinical trials aimed at more effective treatment of abdominal tumors".

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