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Hyperthermia adds to chemotherapy suppress peritoneal metastasis from colorectal cancer and enhance the chemotherapeutic sensitivity of raltitrexed by downregulating Hsp90

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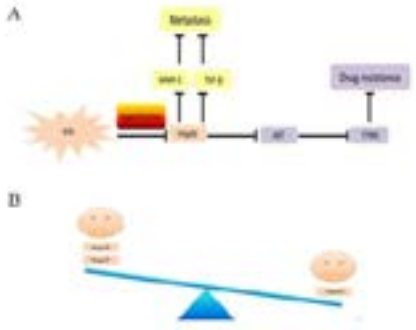
The poor prognosis of colorectal cancer (CRC) with peritoneal metastasis has not been improved up to now. Over the last few years, the therapy of hyperthermic intraperitoneal chemotherapy (HIPEC) following macroscopic surgery has been safely used in clinic. The aim of this study is to clarify the mechanism of peritoneal carcinomatosis suppression and the enhancement of chemotherapeutic sensitivity by the administration of HIPEC. Specifically, we build a peritoneal metastatic xenograft model to analyze the effect of HIPEC. Peritoneal injection was performed that CRC cells in phosphate-buffered saline solution were injected into the intraperitoneum of mice. Interestingly, we find the metastasis is efficiently inhibited and the number of metastatic nodules is remarkably reduced by HIPEC therapy compared with conventional chemotherapy. The Hsp90 is down-regulated by treating with hyperthermia after raltitrexed (RTX). In particular, the metastasis inhibition is indicated by the suppressing of TGF-β and MMP-2 and the chemo-sensitivity enhancement is shown by the attenuating of Akt activation and the expression of thymidylate synthase (TYMS). The overexpression of Hsp90 reverses the enhanced effects of the addition of hyperthermia. And the pharmacologic inhibition of Hsp90 enhances the effects. Together, our study provides a preclinical proof for better evaluation of combined hyperthermia and chemotherapy for peritoneal metastatic carcinoma treatment.



Biography

Yueqi Li is pursuing her PhD since 2013 at East China University of Science and Technology. Her research work mainly focuses on "The administration of hyperthermic intraperitoneal chemotherapy". She tries to explore the biochemical targets for the treatment of peritoneal carcinomatosis from colorectal cancer.

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