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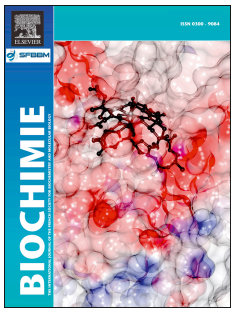

MiR-98 suppresses the effects of tumor-associated macrophages on promoting migration and invasion of hepatocellular carcinoma cells by regulating IL-10

Li Lei, Sun Pengfei, Zhang Chengsheng, Li Zongchao, Zhou Wuyuan

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Abstract

We aim to investigate the role of miR-98-mediated macrophage polarization in hepatocellular carcinoma (HCC) progression and to explore the underlying mechanism. A total of 25 paired HCC and matched adjacent normal tissues (ANTs) were collected. We incubated human blood monocytes isolated from healthy male donors with culture medium collected from HepG2 cells for 7 days. The mRNA and protein expression was detected by qRT-PCR and Western blot, respectively. Levels of cytokines secreted in culture medium were measured using the specific ELISA kits. The miR-98 mimic/inhibitor was transfected to explore the role of miR-98 in HCC-conditioned tumor-associated macrophages (TAMs). HepG2 cells were then cultured with condition medium from HCC-conditioned TAMs pretreated with miR-98 mimic/inhibitor, and cell migration and invasion assays were performed. Luciferase reporter assay was performed to analyze the interaction between miR-98 and interleukin (IL)-10. Our results showed that miR-98 was downregulated and IL-10 was upregulated in HCC tissues and HCC-conditioned TAMs. Further studies identified that IL-10 was a direct target gene of miR-98 in HCC-conditioned TAMs. Moreover, miR-98 regulated the levels of inflammatory cytokines in HCC-conditioned TAMs. HCC-conditioned TAMs pretreated with miR-98 regulated migration and invasion of HepG2 cells *in vitro*, and the effects were significantly reversed by IL-10. In conclusion, miR-98 not only regulated expression of inflammatory cytokines in HCC-conditioned TAMs, but also modulated the capacity of HCC-conditioned TAMs to regulate HepG2 cell migration and invasion, at least in