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TRIM26 functions as a novel tumor suppressor of hepatocellular carcinoma and its down regulation contributes to worse prognosis

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Hepatocellular carcinoma (HCC) is the one of the most common malignancies worldwide and its prognosis is extremely poor. Tripartite motif (TRIM) proteins play crucial roles in cancer cell biology but the function of tripartite motif 26 (TRIM26) has not been investigated. We demonstrated that low expression level of TRIM26 in tumor samples was significantly correlated with worse prognosis in HCC patients. We also demonstrated its expression level was associated with several clinicopathologic features such as AFP level and T stage of HCC patients. Furthermore, we validated that TRIM26 was significantly down regulated in HCC tissue compared with normal liver tissue. To further clarify the functional role of TRIM26 in HCC, we confirmed that TRIM26 silencing will promote cancer cell proliferation, colony forming, migration and invasion *in vitro* with HCC cell lines HepG2 and Bel-7402. Then we utilized bio-informatic tool to predict gene influenced by TRIM26, showing TRIM26 could modulate gene sets about cancer cell metabolism. In conclusion, we prove that TRIM26 is a novel tumor suppressor modulating multiple metabolism related pathways in HCC. To our best knowledge, this is the first study to investigate the function of TRIM26 in cancer biology. Our findings provide useful insight into the mechanism of HCC origin and progression and TRIM26 may represent a novel therapeutic target for HCC.

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