Cite this as: Qiong ZHAO, Luwen ZHANG, Qiufen HE, Hui CHANG, Zhiqiang WANG, Hongcui CAO, Ying ZHOU, Ruolang PAN, Ye CHEN. Targeting *TRMT5* suppresses hepatocellular carcinoma progression via inhibiting the HIF-1α pathways[J]. Journal of Zhejiang University Science B, 2023, 24(1): 50-63.
http://doi.org/10.1631/jzus.B2200224

Targeting *TRMT5* suppresses hepatocellular carcinoma progression via inhibiting the HIF-1α pathways

Key words: tRNA methyltransferase 5; Hepatocellular carcinoma; Hypoxia-inducible factor 1α

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Research Summary

This study mainly concentrated on the function and molecular mechanism of TRMT5 on HCC progression in the following areas:

- **TRMT5 expression levels in tumor and normal liver tissues of HCC patients.**
- **Effect of TRMT5 on HCC progression *in vitro* and *in vivo*.**
- **Roles of TRMT5 on energy metabolism in HCC cells.**
- **RNA sequencing and HIF-1α signaling pathway.**
- **Effect of TRMT5 on the drug susceptibility to HCC cells.**

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Innovation points

- **TRMT5 was upregulated in HCC and correlated with poor prognosis.**
- **Knockdown of TRMT5 inhibited HCC progression both *in vitro* and *in vivo*.**
- **Silenced TRMT5 inhibited HCC progression by preventing HIF-1α stabilization.**
- **Inhibition of TRMT5 sensitized HCC to doxorubicin.**

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Figure 4

Innovation points

TRMT5 regulates hepatocellular carcinoma progression via the HIF-1α pathways.

Fig 1 | TRMT5 was upregulated in HCC and this correlated with poorer overall survival.

Fig 2 | Knockdown of TRMT5 inhibited cell proliferation and cell cycle progression in HCC cells.

Fig 3 | TRMT5 deficiency-induced metabolic reprogramming in HCC cells.

Fig 4 | Knockdown of TRMT5 inhibited both the migration and invasion of HCC cells *in vitro*.

Fig 5 | Silencing TRMT5 suppressed HCC progression and metastasis *in vivo*.

Fig 6 | Knockdown of TRMT5 blocks the HIF-1 signaling pathway through increasing the cellular oxygen content.

Fig 7 | Inhibition of TRMT5 sensitizes HCC to doxorubicin by adjusting HIF-1α stabilization.

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