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Selective inhibitor of histone deacetylase 6 (tubastatin A) suppresses proliferation of hepatitis C virus replicon in culture of human hepatocytes

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Abstract

Acetylation of α-tubulin was studied in cultures of human hepatocytes under the influence of selective inhibitors of histone deacetylases HDAC6 and SIRT-2 - tubastatin A and 2-(--phenethoxyphenylamino)benzamide, respectively. It was found that in hepatocyte cell line HepG2 acetylated α-tubulin is accumulated preferentially on inhibition of HDAC6 but not of SIRT-2. Under the same conditions, no acetylation of α-tubulin was observed in hepatocyte cell line Huh7. However, the inhibition of HDAC6 with tubastatin A led to hyperacetylation of α-tubulin and simultaneously to decrease in viral RNA concentration in hepatocyte cell line Huh7-luc/neo, which supports propagation of the full genome replicon of hepatitis C virus. The correlation between these two processes points to HDAC6 as a promising cellular target for therapy of hepatitis C. © 2014 Pleiades Publishing, Ltd.

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Keywords

acetylation of α-tubulin, HDAC6 and SIRT-2, hepatitis C virus replicon, human hepatocytes