

Histone deacetylase 6 inhibition enhances oncolytic viral therapy

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Gliomas are extremely aggressive brain tumors that are resistant to standard cancer therapeutics. Oncolytic viral (OV) therapy, which uses engineered viruses to infect and target tumor cells for destruction by the immune system, is currently being explored for use in refractory cancers.

A new study in the *Journal of Clinical Investigation* indicates that inhibition of histone deacetylases (HDACs) improves the ability of oncolytic [herpes simplex virus](#) type 1 (oHSV-1) to kill glioma cells.

Antonio Chiocca and colleagues at Brigham and Women's Hospital showed that oHSV-1 enters glioma cells through endocytosis and traffics to lysosomes where it is degraded.

However, treatment of cells with HDAC inhibitors, especially HDAC6 inhibitors, increased shuttling of oHSV-1 to the nucleus where the virus could replicate and initiate tumor cell death. Importantly, HDAC inhibition increased the oHSV-1 levels both in a mouse glioma model and in glioma stem-like cells from patients.

These data suggest that the efficacy of OV therapies may be enhanced when used in combination with inhibitors of HDACs or other proteins that modulate cellular trafficking of these therapeutic viruses.

More information: Histone deacetylase 6 inhibition enhances oncolytic viral replication in glioma, *J Clin Invest*. DOI: [10.1172/JCI8071](https://doi.org/10.1172/JCI8071)

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