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Oncolytic HSV-1 therapy for Cancer

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Oncolytic HSV-1 derived vectors hold promise for treating cancer patients. Deletion of specific viral genes renders the virus able to efficiently replicate in malignant cells but not in normal cells. This has the potential to lead to lytic destruction of cancers with minimal damage to surrounding non neoplastic tissue. Consequences of viral genes frequently attenuated in vectors currently being tested in patients will be discussed. Arming Oncolytic viruses with gene therapy delivering a therapeutic payload is another investigational strategy which has shown promise in multiple preclinical studies. This approach is particularly advantageous when therapeutic payload is secreted and can affect infected and uninfected cells. Here we will also discuss the biology of brain angiogenesis inhibitor 1, and its extracellular fragment called vstat120. Expression of Vstat120 in tumors reduces angiogenesis and tumorigenesis. We have created second and third generation viruses that are capable of delivering Vstat120 thus countering tumor angiogenesis while leading to its lytic destruction. Therapeutic implications for this approach will be discussed.

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