

Virus attacks childhood cancers

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Researchers from Yale University are looking to a virus from the same family as the rabies virus to fight a form of cancer primarily found in children and young adults. They report their findings in the September 2011 issue of the *Journal of Virology*.

Soft tissue sarcomas are cancers that develop in tissues which connect, support, or surround other structures and organs of the body. Muscles, tendons, fibrous tissues, fat, blood vessels, nerves, and synovial tissues are types of soft tissue. While relatively rare in adults, they represent approximately 15% of pediatric malignancies and result in death for approximately one-third of patients within 5 years of diagnosis.

[Vesicular stomatitis virus](#) (VSV) is a rhabdovirus, which is the same family of viruses as rabies, and causes a disease similar to [foot and mouth disease](#) in cattle. Recent research has discovered that this virus also is oncolytic, meaning it seeks out and destroys cancerous tumors. Previous studies have already shown VSV to be promising in treating [brain tumors](#) in mice.

In this study the researchers investigated the potential of VSV and an oncolytically enhanced version of the virus (VSV-rp30a) to effectively target and kill 13 different sarcomas. Both of the viruses efficiently infected and killed 12 of the sarcomas. The resistance of the one surviving sarcoma line was eventually overcome by pretreatment with compounds that antagonize interferon signaling.

Additionally they looked at the ability of VSV-rp30a to infect and arrest tumor growth in mice.

"A single intravenous injection of VSV-rp30a selectively infected all subcutaneous human sarcomas tested in mice and arrested the growth of tumors that otherwise grew 11-fold," say the researchers. "Overall, we find that the potential efficacy of VSV as an oncolytic agent extends to nonhematologic mesodermal tumors and that unusually strong resistance to VSV oncolysis can

be overcome with interferon attenuators."

More information: Paglino, J.C. and van den Pol, A.N. 2011. Vesicular stomatitis virus has extensive oncolytic activity against human sarcomas: Rare resistance is overcome by blocking interferon pathways. *Journal of Virology*. 85:9346-9358.

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