

How to design a cancer-killing virus

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One new way to treat individuals with cancer that is being developed is the use of viruses that infect and kill cancer cells while leaving normal cells unharmed. These viruses are known as virotherapeutics. In a new study, David Kirn and colleagues at Jennerex Biotherapeutics, San Francisco, have described the development of a new virotherapeutic with antitumor effects in both mice and rabbits.

After selecting a highly potent strain of poxvirus that was able to traffic to tumors when administered intravenously to mice the authors engineered the virus such that it would target only specific cancer cells — those with increased expression of a protein known as E2F and/or activation of signaling downstream of a protein known as EGFR.

Further engineering to enable the virus to produce the soluble factor GM-CSF was designed to enhance the induction of anti-tumor immune responses. In addition to its antitumor effects in mice and rabbits, the virotherapeutic showed high selectivity for cancer cells in tumor-bearing rabbits and in human tissue samples, leading the authors to suggest that this virotherapeutic should be tested in clinical trials for the treatment of cancer.

Source: Journal of Clinical Investigation

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