Preparation and Tumor Cell Uptake of Folate-Poly(ethylene glycol)-adenovirus

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Adenoviruses are potent gene delivery vectors, but the Adenoviruses are limited by their propensity to provoke strong innate and adaptive responses. Then an alternate approach to protecting the virus has been studied in which polyethylene glycol (PEG) is conjugated onto the viral capsid. And polyethylene glycol (PEG) modification of adenovirus can protect the vectors from preexisting and adaptive immune responses by reducing protein–protein interactions. However, the PEGylation of Adenoviral vectors leads to loss of infectivity due to steric hindrance by PEG chains. To overcome the decreased efficiency of infection of PEGylated Adenoviral vectors, we have developed vectors containing Folate on the tip of PEG. They has been shown to enable their rapid endocytic uptake by folate receptor expressing cancer cells. Consequently, the folate conjugation could promote PEGylated Adenoviral gene expression. Furthermore, these data suggest that Folate-PEG-Adenovirus vectors can reduce innate immune responses without reducing transduction.

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