Adenovirus Related to Oncolytic Replication (12084)

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Technology description

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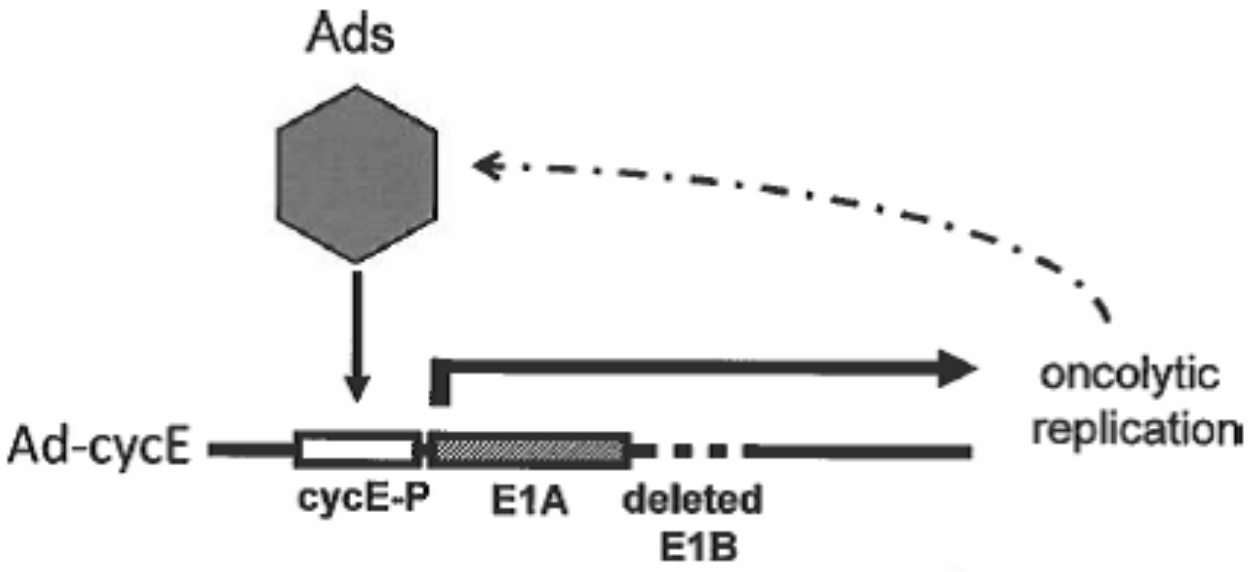
Researchers at the University of Louisville have developed a novel adenovirus vector. The novel adenovirus vector has an entire serial deletion of E1B gene, and the E1A gene is under the regulation of the cyclin E promoter, which generally elevates in cancer cells. The researchers found that the adenovirus infection further increases the cyclin E promoter (shown below). A key strategy to increase tumor-specific replication of Ads depends on the transcriptionally regulating one or more key viral regulatory genes with tumor-specific promoters. The cyclin E promoter is highly active in cancer cells and its activity is further augmented in cancer cells by Ads. Thus, the cyclin E promoter has unique properties for controlling Ad oncolytic replication. Researchers at U of L have constructed E1b-deleted Ad-cycE, in which the cyclin E promoter is used to control the essential Ad E1a gene. Ad-cycE has selectively replicated in and efficiently destroyed A549 human and Ed-1 mouse lung cancer cells but spared normal cells.



Markets Addressed

Oncolytic virotherapy has potential for treating cancer by targeting tumors and causing cancer cell lysis. This technology may have immediate application in animal studies. The field of research may be at the point in which pre-clinical studies can be started as a prelude to improvement in virotherapy clinical trials.

Application area

Fields of Use Available: All

Advantages

Ad-cyclin E vector may selectively terminate lung tumors but spare normal lung tissue.
Cyclin E is a key molecule that may be a molecular target in lung cancer therapy and prevention.
Ad-Cyclin E has been shown to selectively replicate in human and murine lung cancer cells in vitro.

Institution

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