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## Novel AAV phage-targeted gene therapy for targeting chemoresistant childhood brain tumors

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Medulloblastoma and diffuse intrinsic pontine glioma (DIPG) are malignant childhood brain tumors, the former being the most common and the latter being the most aggressive with no survival rate. Although the survival rate for medulloblastoma has slowly improved, the prognosis is still unfavorable and the treatment options are limited. Thus, novel therapeutic strategies are urgently needed to be more effective and to improve the current treatment regimens. Despite the challenges accompanying gene therapy, it has been always an attractive field for the treatment of cancer. Here we use cytokine gene therapy engineered hybrid adeno-associated phage-based vector to selectively bind tumor cells through  $\alpha\beta3$  integrins for cancer-selective delivery and transduction of therapeutic gene. This strategy will limit the damage to healthy cells and the toxicity caused by systemic delivery of pharmacological doses of proteins/cytokines. In this study, we show that the targeted phage-guided delivery of tumor necrosis factor (TNF- $\alpha$ ) induced the activation of caspase pathway and tumor cell killing in DIPG and medulloblastoma cell lines.

### Biography

Mariam Albahrani is a PhD student at the Division of Brain Sciences/Imperial College London, Department of Medicine. She holds a Master's degree in Biomedical Sciences from Drexel University school of Biomedical Engineering, Sciences and Health System and a Bachelor's degree in Medical Laboratory Sciences from Kuwait University.

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