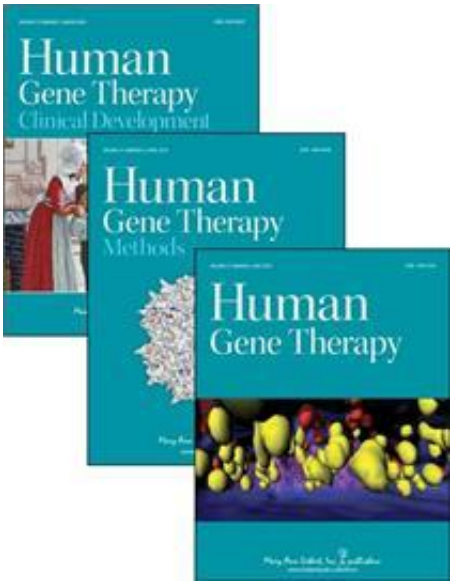
Newly identified host defense mechanism protects cells from viral infection

April 20 2016



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A new study to understand why viral particles tend to accumulate in a specific location around a cell's nucleus in the first several hours after viral infection has shown this phenomenon to be a novel defense mechanism used by cells to block nuclear entry and limit the infection. The implications of this sequestration of virions for use in new drug discovery and therapeutic gene delivery are discussed in an article in *Human Gene Therapy*.

Jude Samulski, Ping-Jie Xiao, Angela Mitchell, Lu Huang, and

Chengwen Li, University of North Carolina at Chapel Hill, used the chemotherapy drug Nocodazole to disrupt microtubule formation in cells and study how it would affect the previously observed accumulation of recombinant adeno-associated virus (rAAV) at the microtubule-organization center located near the nucleus. The researchers describe the fluorescence imaging technology that allowed them to analyze viral trafficking over time. They also propose how understanding this cellular defense mechanism could lead to improved strategies for rAAV-based gene therapy in the article entitled "Disruption of Microtubules Post-Virus Entry Enhances Adeno-Associated Virus Vector Transduction."

"rAAV has become one of the most important vector systems for human gene therapy. Understanding the mechanisms by which it delivers genes to the nucleus is critical to op-timizing its performance," says Editor-in-Chief Terence R. Flotte, MD, Celia and Isaac Haidak Professor of Medical Education and Dean, Provost, and Executive Deputy Chancellor, University of Massachusetts Medical School, Worcester, MA.

More information: Ping-Jie Xiao et al, Disruption of Microtubules Post-Virus Entry Enhances Adeno-Associated Virus Vector Transduction, *Human Gene Therapy* (2016). DOI: 10.1089/hum.2016.008

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