

Caffeine energizes cells, boosting virus production for gene therapy applications

January 25 2011



Human Gene Therapy is published monthly in print and online by Mary Ann Liebert Inc., publishers. Credit: © 2010, Mary Ann Liebert Inc., publishers

Give caffeine to cells engineered to produce viruses used for gene therapy and the cells can generate 3- to 8-times more virus, according to a paper published in *Human Gene Therapy*, a peer-reviewed journal published by Mary Ann Liebert, Inc.

This simple and inexpensive strategy for increasing lentivirus production was developed by Brian Ellis, Patrick Ryan Potts, and Matthew Porteus, University of Texas Southwestern Medical Center, Dallas. In their paper, "Creating Higher Titer Lentivirus with Caffeine," they emphasize that

the timing of caffeine addition to standard lentiviral production protocols is important for achieving higher virus titers. Caffeine concentration is also critical, as too much caffeine was toxic to the [cells](#) and did not increase [virus production](#).

Lentivirus vectors are commonly used for transferring genes into cells for both research applications in the laboratory and, increasingly, for [gene therapy](#) procedures in clinical testing. The addition of [caffeine](#) "should significantly decrease the cost of lentiviral production for research and clinical uses," conclude the authors.

"It is ironic that the ingredient in beverages like colas and coffees that helps keep us awake and alert is also useful in jazzing up cells to produce more gene therapy vectors. An increase in vector production of 5-fold may prove critical in establishing the commercial viability of lentiviral based products," says James M. Wilson, MD, PhD, Editor-in-Chief, and Director of the Gene Therapy Program, Department of Pathology and Laboratory Medicine, University of Pennsylvania School of Medicine, Philadelphia.

More information: The paper is available free online at www.liebertpub.com/hum

Provided by Mary Ann Liebert, Inc.

Citation: Caffeine energizes cells, boosting virus production for gene therapy applications (2011, January 25) retrieved 9 April 2024 from <https://medicalxpress.com/news/2011-01-caffeine-energizes-cells-boosting-virus.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.
