Adeno-associated virus serotype-5 delivery to the rat trigeminal ganglion

March 21 2014

Today during the 43rd Annual Meeting & Exhibition of the American Association for Dental Research, held in conjunction with the 38th Annual Meeting of the Canadian Association for Dental Research, Lauren Roper, University of Texas - San Antonio / Health Science Center, San Antonio, will present research titled "Adeno-Associated Virus Serotype-5 Delivery to the Rat Trigeminal Ganglion."

The objective of this study was to evaluate transduction efficiency of adeno-associated viruses (AAV) serotype-5 in trigeminal sensory system following a direct injection into the rat trigeminal ganglion (TG) by way of the infraorbital (IO) foramen at different survival times. Sections from TG, IO nerve and trigeminal sensory nuclei (TSN) from rats with AAV-5/CMV/chicken-beta-actin hybrid promoter with enhanced-Green Fluorescent Protein (GFP) transgene (Vector Biolabs; Philadelphia, PA) injected animals were evaluated with indirect immunofluorescence method and confocal microscopy following staining with GFP antibody.

Rats survived 2, 6 and 10 weeks (n=2/group). Viral particles delivered = 3x109 for 2 week subjects; 1.5x1010 for 6 and 10 week subjects. AAV-5 transduction, as detected by GFP staining, was present in the trigeminal system including TG sensory neurons, IO nerve peripheral processes and in central processes throughout the TSN, including the main sensory nucleus and trigeminal spinal nucleus, in 6 and 10 week survival subjects, but not in 2 week survival subjects.

Direct delivery of AAV-5 into TG sensory neurons can be accomplished

by IO foramen injection and results in sensory neuron transduction including presence of protein (i.e. GFP) in peripheral and central processes. These results support the use of AAV-5 based gene therapy approaches to evaluate the role of target proteins and as a possible future treatment approach in trigeminal pain disorders.

More information: This is a summary of abstract #1280, "Adeno-Associated Virus Serotype-5 Delivery to the Rat Trigeminal Ganglion," which will be presented on Friday, March 21, 2014, 3:30 p.m. – 4:45 p.m. at the Charlotte Convention Center, Exhibit Hall AB.

Provided by International & American Associations for Dental Research

Citation: Adeno-associated virus serotype-5 delivery to the rat trigeminal ganglion (2014, March 21) retrieved 24 April 2024 from https://medicalxpress.com/news/2014-03-adeno-associated-virus-serotype-delivery-rat.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.