

**WORLDSymposium™**  
**Poster Presentation**  
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**AAVHSC Characterization for Developing Treatments for Human Genetic Diseases of the Nervous System**

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Adeno-associated viruses (AAVs) have emerged as key viral-based delivery vehicles for gene therapy in the nervous system due to their stable transgene expression in post-mitotic cells, neuronal tropism, lower risk of insertional mutagenesis and diminished immune response. We have previously reported the identification of AAVs derived from human hematopoietic stem cells (AAVHSCs) that map to AAV Clade F. Here, we set out to characterize the peripheral and central nervous system (PNS and CNS) tropism of 11 AAVHSCs dosed intravenously in non-human primates (NHPs) and outline a classification approach for capsid selection for human genetic diseases of the nervous system. Juvenile male cynomolgus macaques (*Macaca fascicularis*) received a single intravenous injection of recombinant self-complementary AAVHSC expressing enhanced green fluorescent protein (eGFP). By overlaying anti-eGFP staining obtained in the NHP cohorts for 11 AAVHSCs, we defined regional and cellular subtype preference in the macaque PNS and CNS. All 11 AAVHSCs showed anti-eGFP staining in the PNS and CNS, suggesting that they all successfully crossed the blood-nerve and the blood-brain barriers (BNB and BBB). Moreover, we identified significant differences in their regional tropism and levels of eGFP staining. These data demonstrate that AAVHSC capsids share a common capability in crossing of the BNB and BBB, but that differences in regional and cellular subtype tropism can be leveraged to identify capsids that display a natural biological profile for diseases of the nervous system. Indeed, we have recently shown preclinical data supporting the use of AAVHSC15 capsid for potential treatment of lysosomal disorders.