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Towards Structural Studies of AAV8 by X-ray Crystallography. M. Lane[1], H.-J. Nam[1], E. Padron[1], E. Kohlbrenner[2], S. Zolotukhin[2], N. Muzyczka[2], M. Agbandje-McKenna[1], Dept. of [1]Biochem. and Mol. Biol. & [2]Mol. Genetics and Microbiol. Powell Gene Therapy Center, College of Medicine, Gainesville, FL, 32610.

The use of non-pathogenic viruses, such as the Adeno-associated viruses (AAV), to deliver corrective genes into the cells or a tissue of the target organism has gained momentum over the past few years. Structure information on virus capsid surfaces are valuable towards efforts to improve tissue specific targeting of viral vectors. AAV8 is an AAV isolated from rhesus monkey tissue[1], that is largely homologous to the other AAVs, but its liver cell transduction efficiency is reported to be far greater than those of all other AAVs. Our studies are aimed at deciphering the structural features of the AAV8 capsid that control its enhanced tropism in liver cells. Baculovirus expressed AAV8 particles have been purified, using gradient centrifugation and column chromatography, from infected SF9 insect cells. The particles have been crystallized and diffract X-rays to at least 3.4 Å resolution at the Cornell High Energy Synchrotron source. The preliminary characterization of the diffraction data will be presented.

[1]Gao, G.P., et al. 2002. Novel adeno-associated viruses from rhesus monkeys as vectors for human gene therapy. PNAS, 11854-11859.