



Genetic knockout of Cathepsin D using zinc-finger nucleases delivered by AAV vectors

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GRIN Verlag GmbH Okt 2013, 2013. Taschenbuch. Book Condition: Neu. 210x148x2 mm. This item is printed on demand - Print on Demand Neuware - Project Report from the year 2013 in the subject Biology - Neurobiology, grade: 1.0, University of Göttingen, language: English, abstract: Genetic engineering is known as a powerful technique for basic research and clinical applications. Recent progress in development of zinc-finger nucleases (ZFNs), which combine the DNA cleavage ability of Fok1 restriction enzyme with highly specific recognition properties of zinc-finger motifs, allows to improve efficiency and to broaden the field of use of genome editing. Here, we demonstrate our initial results in generating novel tools for Cathepsin D gene knockout in neurons based on ZFNs technology and mediated by adeno-associated virus (AAV) vectors. Pairs of AAV-ZFNs were produced and demonstrated the robust expression of nucleases in neuronal cell culture. Observed toxicity most likely was associated with heterodimerization but not homodimerization of ZFNs; cytotoxicity was greatly reduced when ZFN were provided at lower concentrations. Future studies evaluating efficiency of Ctsd knockout, off-target effects on molecular level and long-term outcomes in vivo can be performed. 24 pp. Englisch.

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