



**Figure supplementary 1. Experimental design for evaluating the effect of different doses of AAV vectors in synuclein pathology, neurodegeneration and motor impairment.** Wild-type male C57BL/6 mice were anesthetized and received the stereotaxic inoculation of different doses ( $10^{10}$ ,  $10^9$  or  $10^8$  vg/mouse) of AAV encoding human  $\alpha$ -Synuclein (AAV-h $\alpha$ Syn) or eGFP (AAV-GFP) under the control of the CBA promoter into the right substantia nigra (SN). After 12 weeks, the expression of GFP and h $\alpha$ Syn in the SN and striatum (Str) were evaluated by immunofluorescence (IF), tyrosine hydroxylase (TH) positive cells were quantified by immunohistochemistry (IHC) in the SN, and the motor performance was evaluated by the beam test. The number of mice in each experimental group is indicated in parenthesis. \* indicates groups where one mouse died before the analyses. Each analysis indicates in parenthesis the number of Figure from the body of the paper where the corresponding results are shown.