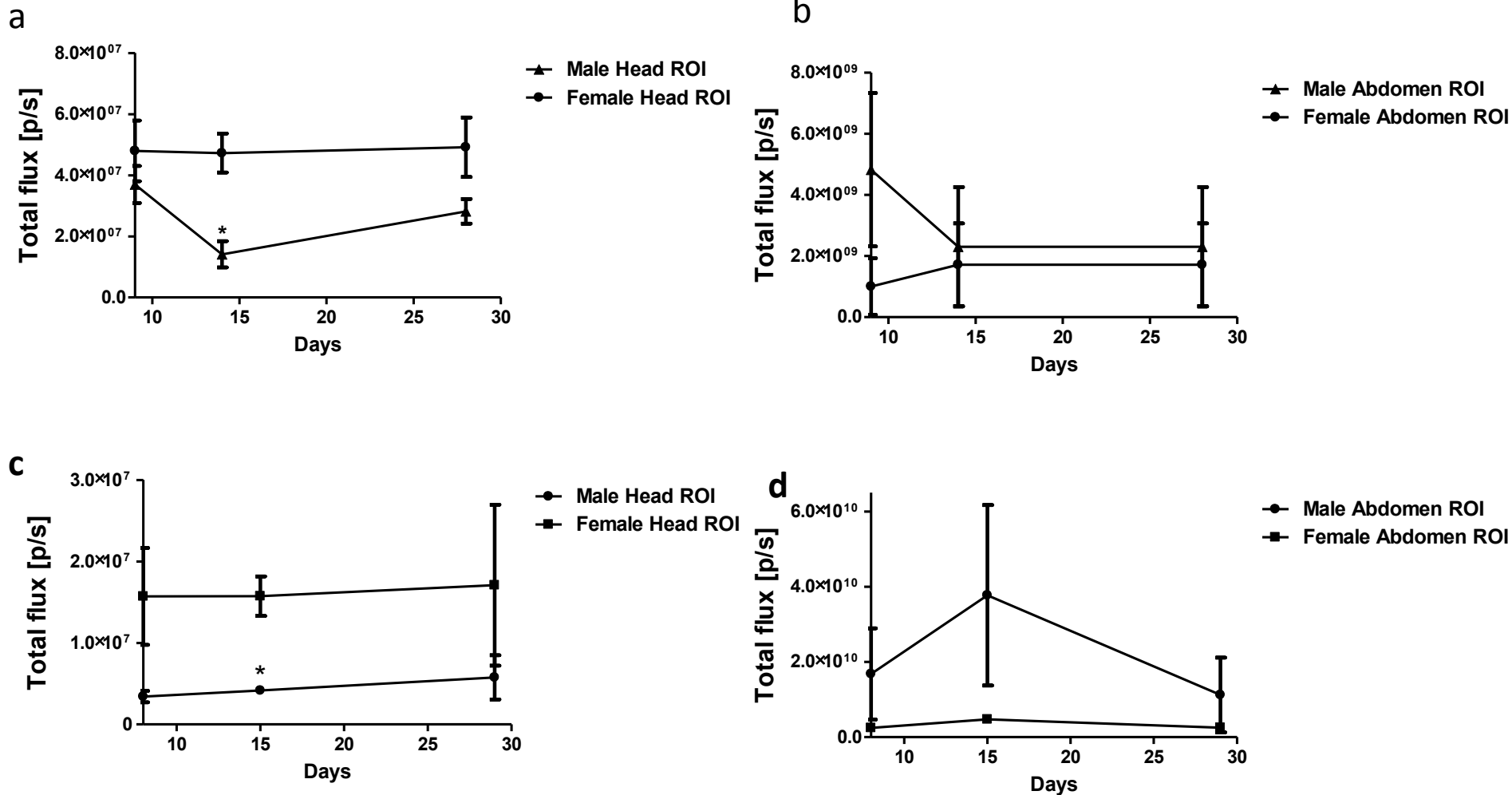
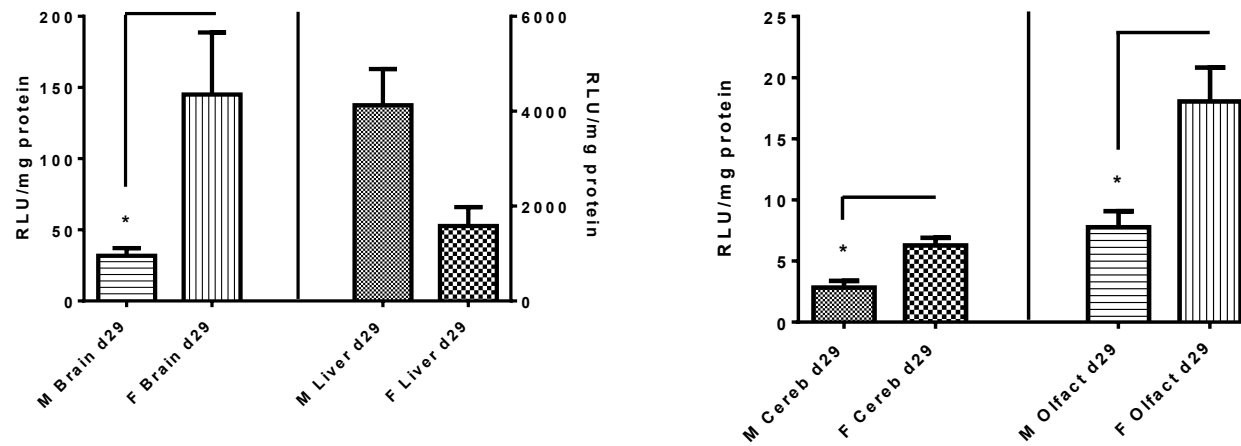


Supplementary Figure S1. Bioluminescent signal in the abdomen region of male and female mice injected systemically with AAV9-Fluc. Male and female nude (**a**) and C57BL/6 (**b**) mice were injected via the tail vein with 1.5×10^{12} g.c./kg of AAV9-Fluc vector. Seven and 14 days later, mice were injected with D -luciferin and imaged for Fluc-associated light emission. At each time point, a representative mouse from each group ($n=5$ /group) is shown in the panel. Total flux was calculated post data collection by selecting a region of interest (ROI) around the abdomen (ventral view). M = male, F = female, d = day. * $p < 0.05$; $n=5$ /group). Experiments were repeated twice and similar results were obtained.

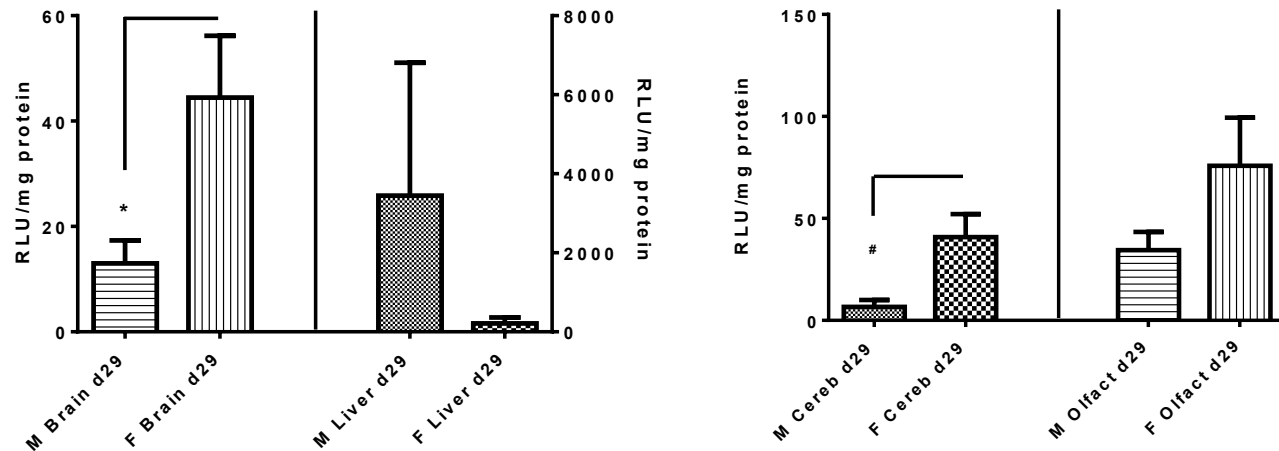


Supplementary Figure S2. Bioluminescence kinetic analysis in the head and abdomen region of mice injected with AAV9-Fluc. Nude (a, b) and C57BL6/N (c, d) mice were injected with 5×10^{12} g.c./kg of AAV9-Fluc and imaged at the time points depicted in the graph. Bioluminescence signal was quantitated in the head and abdomen region at each time point. * $p < 0.05$ (n=5/group).

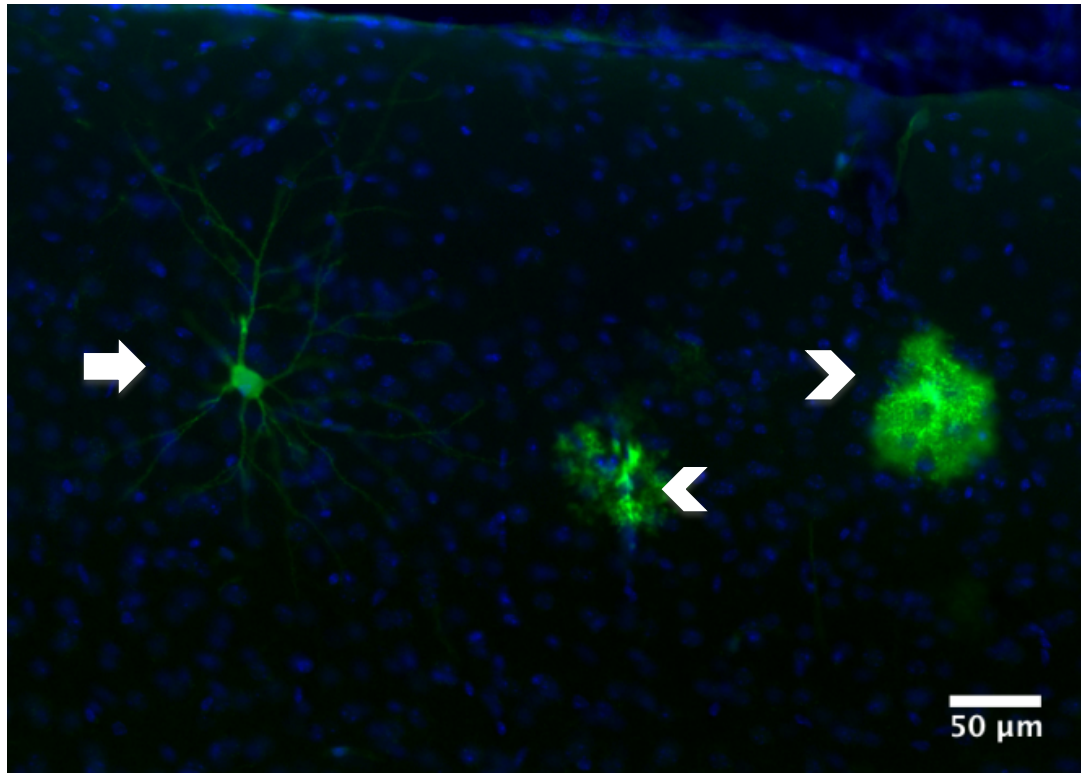
Nude mice



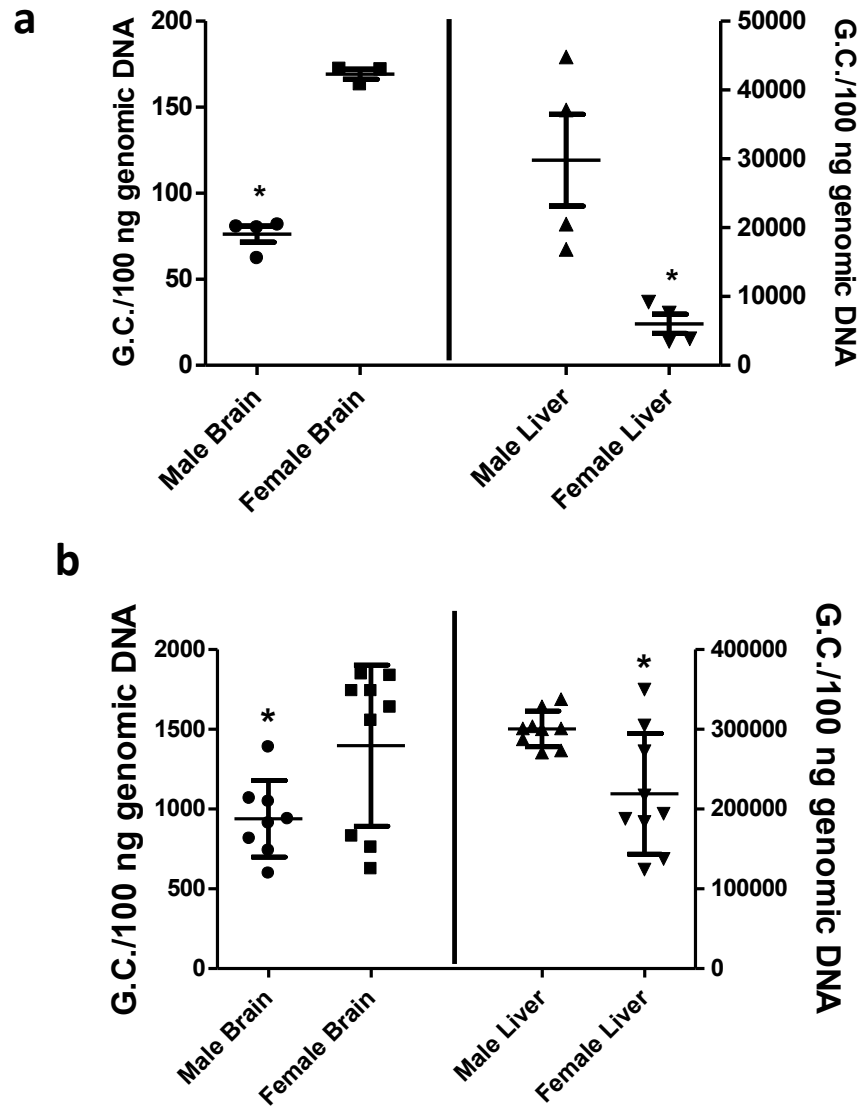
C57BL/6N mice



Supplementary Figure S3. Fluc activity in brain tissue homogenates in male and female mice injected i.v. with AAV9-Fluc. Male and female nude and C57BL/6N mice were sacrificed four weeks after i.v. injection of AAV9-Fluc (1.5×10^{12} g.c./kg). Tissues were harvested and homogenized. Biochemical assays were performed for Fluc expression and protein content was determined for normalization. Fluc levels in tissue homogenates of brain, liver, cerebellum and olfactory bulb of nude and C57BL/6N mice. All Fluc levels were normalized to total mg of protein in tissue homogenate (n=5/group). Experiments were repeated twice and similar results were obtained. M = male, F = female, d = day, RLU = relative light units. *p<0.05 (n=5/group). Experiments were repeated twice and similar results were obtained.



Supplementary Figure S4. AAV9 transduces primarily neurons and astrocytes in male and female mice upon systemic injection. Image of a section of cortex from female mice injected i.v. with AAV9-GFP represents the typical morphology of the brain cells transduced: the arrow points to a pyramidal neuron, and the arrowheads point to two astrocytes. Size bar, 50 μm .



Supplementary Figure S5. Quantitation of AAV9 genome copies in the brain of male and female mice after systemic vector injection. DNA was purified from homogenates of brain and liver from C57BL/6N mice injected i.v. with 5×10^{12} g.c./kg of AAV9-Fluc (a) and 5×10^{13} g.c./kg of AAV9-GFP (b), and analyzed by quantitative PCR to detect AAV genomes (100 ng template). * $p < 0.05$ ($n = 3$ /group).