*In vivo* Animal Models

# ALS

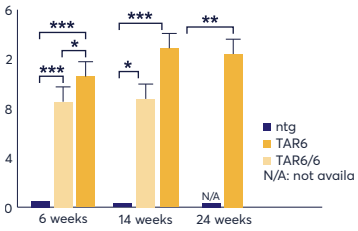
## TDP-43 Transgenic Mouse Model

This Amyotrophic Lateral Sclerosis (ALS) mouse model overexpresses the human wild type TDP-43 gene under the regulatory control of the murine Thy1 promoter.

- Neuronal TARDBP expression in the whole CNS
- Neuronal loss in the lumbar spinal cord
- Strong neuronal loss in the thalamus starting from very young age
- Neuroinflammation
- Early onset of motor deficits & anxiety, worsening over age
- Impaired emotional learning

### Hippocampus

Figure 1: A




### Spinal Cord

Figure 1: B

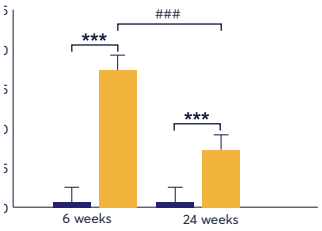
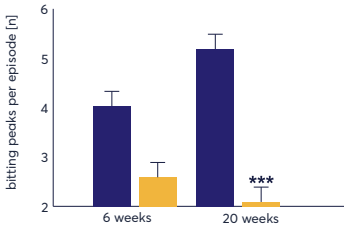



**Figure 1:**
Quantitative human TDP-43 expression in the hippocampus and spinal cord of 6, 14 and 24 week old TAR6/6, TAR6 and non-transgenic (ntg) mice. Densitometric analysis of human TDP-43 levels normalized to tubulin levels of hippocampal homogenates. Two-way ANOVA with Newman-Keul's multiple comparison test. Mean + SEM; n = 3 - 4; *p<0.05; **p<0.01; ***p<0.001.

### Pasta Gnawing

Figure 2: A




### RotaRod

Figure 2: B

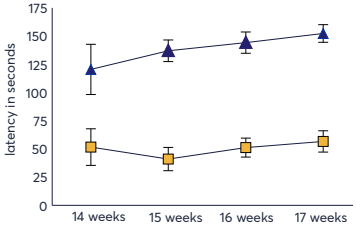



**Figure 2:**
Motor deficits of TAR6/6 transgenic mice. Biting peaks per episode in the pasta gnawing test **(A)** and latency to fall off the RotaRod **(B)** of TAR6/6 male animals compared to ntg littermates. n = 10-15; Two-way ANOVA with Bonferroni 's post hoc test; ***p<0.001.


Wils et al., TDP-43 transgenic mice develop spastic paralysis and neuronal inclusions characteristic of ALS and frontotemporal lobar degeneration. PNAS USA. 2010 Feb 23; 107(8):3858-63.



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