SOD1 G93A Trangenic Rat Line 26H
Reference: Howland et al (2002) PNAS 99 (3), 1604-1609.

Transgenic Rat line 26H contains a high copy number of the G93A mutant human superoxide dismutase gene. Hemizygous transgenic rats develop motor neuron disease by approximately 4 months in age beginning as abnormal gait and hindlimb weakness and progressing to full paralysis within 1 to 2 weeks after disease onset.

The rats are hemizygous, given that disease occurs early (approx 4 months in age). We have not tried to generate homozygous rats as we did not prefer to see an earlier onset as the breeding age for rats starts between 7-8 weeks. An earlier onset would possibly severely narrow the open window for productive breeding of the line. We have confirmed in other lines that homozygosity can significantly accelerate disease onset.

We maintain the line by typically breeding hemizygous Tg male rats, starting at approx. 8 weeks old, to wild-type Sprague-Dawley females from Taconic (SD/Tac). You can however use female transgenics as breeders. Males have just been easier since they can be set up with multiple wt females. We do recommend that you stick with the Taconic SD strain for breeding and not SD from other vendors and not using littermate negatives in breeding. This will ensure the most consistent phenotype in your colony.

We recommend that you monitor age of disease onset in your colony routinely. We have noted that if not careful, this can drift to later ages, as has also been observed with transgenic SOD1 mice. This is best done by monitoring breeder Tg rats for eventual disease onset. We routinely choose to keep the progeny of breeder Tg rats that get sick "on time" (approx 4 months old). Some rare outlier breeder Tg rats can get sick much later (i.e. 7-8 months in age). The progeny of these should not be used as future breeders because they will invariably cause the phenotype to drift to later onset.