In vivo Animal Models

AD / Tauopathy

PS19 Tau Transgenic Mouse Model

PS19 mice (JAX# 008169) express the T34 isoform and 4 microtubule binding repeats (1N4R) of the tau protein with P301S mutation under the regulatory control of the murine prion promoter (Prnp).

Animals present the following phenotype:

- Neuronal accumulation of phosphorylated tau and paired helical filaments (PHF) in different brain regions at 6 months (Yoshiyama et al., 2007)
- Cerebral atrophy and neuron loss at 12 months (Yoshiyama et al., 2007)
- Neuroinflammation observed as activated microglia and astrocytosis at 6 months and older (Yoshiyama et al., 2007; Lopez-Gonzalez et al., 2015)
- Muscle weakness and neurogenic muscular atrophy at 3 months (Yoshiyama et al., 2007)
- Reduced anxiety at 9 months (Briggs et al., 2017)
- Learning and memory deficits at 6 months (Takeuchi et al., 2011)
- Reduced survival (Yoshiyama et al., 2007)

Results from published efficacy studies show that many of these symptoms are partly reversible by different compounds:

- Survival, neuroinflammation, tau phosphorylation (Yoshiyama et al., 2007)
- Axonal dystrophy, learning and memory (Brunden et al., 2010)
- Brain atrophy, survival, nest building (DeVos et al., 2017)

The phenotype described above, relevant for AD and other neurodegenerative disorder, makes the PS19 mouse a perfect model for your drug testing.

Yoshiyama Y; Higuchi M; Zhang B; Huang SM; Iwata N; Saido TC; Maeda J; Suhara T; Trojanowski JQ; Lee VM. 2007. Synapse loss and microglial activation precede tangles in a P301S tauopathy mouse model. Neuron 53(3):337-51

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