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In vivo Animal Models

Parkinson's Disease



AAV2 hA53T-a-syn Induced Mouse Model

Wild type mice that receive a single, unilateral injection of AAV2 hA53T-a-syn (human a-synuclein with A53T mutation) into the substantia nigra show selectively increased hA53T-a-syn protein levels in the substantia nigra as well as in the caudate putamen of the injected brain hemisphere. Contralateral to the injection side, hA53T-a-syn is not measurable.

hA53T-a-syn expression leads to increased activated microglia as marker of neuroinflammation and even strongly decreased tyrosine hydroxylase (TH) levels in the injected substantia nigra.

- hA53T-α-syn in ipsilateral substantia nigra and caudate putamen
- · Activated microglia in ipsilateral substantia nigra
- · Reduced TH levels in ipsilateral substantia nigra

Figure 1:

hA53T-a-syn immunoreactive area (IR) in the substantia nigra (A) and caudate putamen (B) of contra- and ipsilateral hemispheres after unilateral AAV2 hA53Ta-syn injection into the substantia nigra of the ipsilateral hemisphere. Animals were euthanized 9 weeks after injection and brains evaluated using a human-specific a-syn antibody. n = 5 / group; unpaired t-test; Mean ±SEM. ***p<0.001.

Figure 2: Iba1 (A) and TH (B)

immunoreactive area (IR) in the substantia nigra of contra- and ipsilateral hemispheres after unilateral AAV2 hA53Ta-syn njection into the substantia nigra of the ipsilateral hemisphere. Animals were euthanized 9 weeks after injection. n = 5 / group; unpaired t-test; Mean ± SEM. *p<0.05; **p<0.01.

Sybstantia Nigra Figure 1: A



Sybstantia Nigra



Caudate Putamen

Figure 2: B



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