SynAging Product Sheet 12

Mouse Novel Object Recognition (NOR) Assay for Cognition Enhancement in Alzheimer's Disease

SynAging uses proprietary amyloid-β oligomer (AβO) preparations to induce Alzheimer's disease in mice following icv injection of 50 pmol.

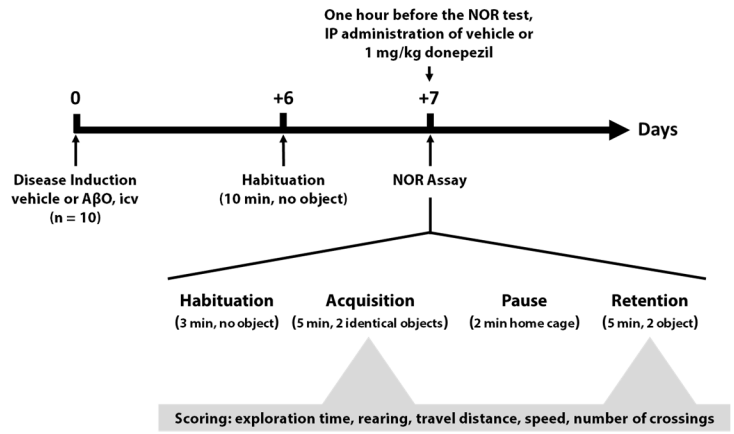
SynAging's AβO preparations induce full cognitive deficiency within days which remains stable over multiple months. SynAging has verified the cognitive deficiency of AβO injected mice in the following assay formats:

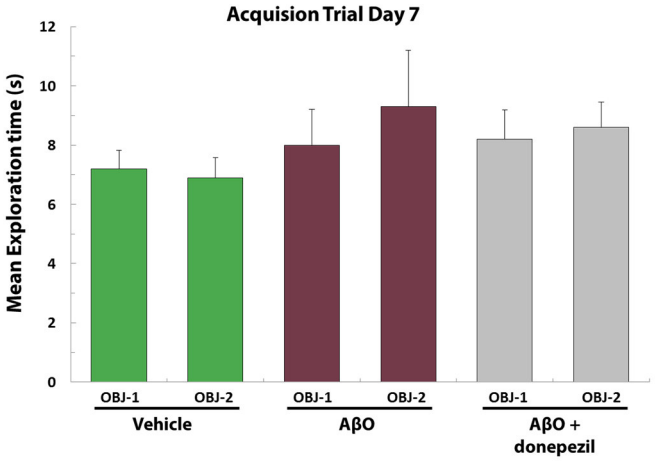
- Y-Maze (pre-frontal cortex)
- Novel Object Recognition (perirhinal cortex)
- Morris Water Maze (hippocampus)
- Spatial Recognition Test (hippocampus)

Object recognition is mediated by the perirhinal cortex. AβOs reduce it's function quickly and at extremely low doses. As a consequence, mice lose the ability to distinguish between novel and known objects.

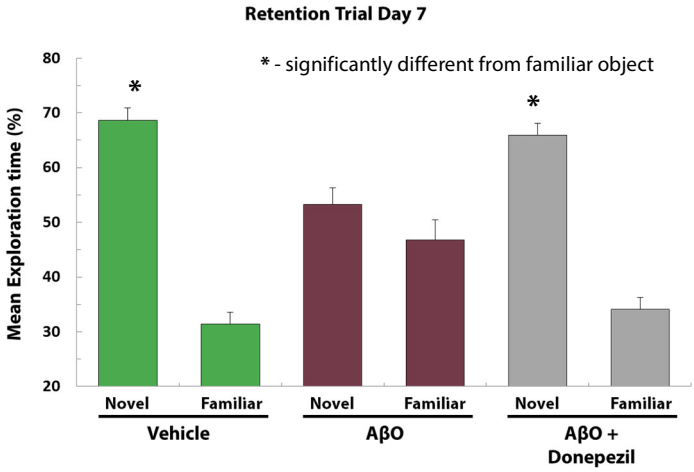
Evaluation of test compound mediated improvement of perirhinal cortex function is performed in the Novel Object Recognition (NOR) assay: mice are injected icv with vehicle or AβO (day 0) while test compound treatment starts e.g. on day -1. The NOR assay is performed on day 7 or later, documenting drug-induced improvements during treatment.

Experimental Design:





Seven days after icv injection of vehicle or AβO, mice are exposed to two identical objects and the time exploring each object is measured. No significant differences are observed.



In the retention trial, 2 min later, mice are exposed to the known object and a novel unknown object. Normal mice will explore the novel object significantly longer than the familiar object (green bars). Memory impairment of AβO injected mice results in no significant time difference between exploring both objects (red bars). Donepezil can fully reverse this effect in this model.

The NOR assay can be repeated in longitudinal studies after a week and e.g. without acute compound dosing, to evaluate disease modifying effects.

SynAging SAS: *Your partner in naturally induced phenotypic models, accelerating drug discovery for proteopathic CNS diseases*

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