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In vitro Models

Alzheimer's Disease

Aβ Seeding

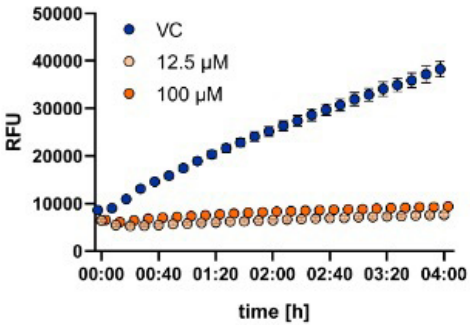
The pathological aggregation of amyloid-β (Aβ) peptides is one of the major causes for the progressive cognitive decline in Alzheimer's disease patients. The development of compounds that interfere with Aβ seeding or aggregation and that are thus able to rescue neurodegeneration is indispensable. For this purpose, fast and reliable assays are needed that can show direct effects of compounds on Aβ oligomer formation, seeding and aggregation.

To screen for developmental compounds, interfering with Aβ seeding and aggregation properties, kinetics of Aβ aggregation can be monitored over time by using Thioflavin T dye (ThT). The assay is based on the property of ThT dye in which fluorescence (Ex/Em=440/484 nm) is increased when bound to aggregated Aβ peptides. In addition, QPS Neuropharmacology exclusively provides a fast and reproducible screening assay, Amorfix Aggregated Aβ Assay (A4), that can specifically assess beneficial effects of your developmental compounds on the formation of Aβ oligomers.

Figure 1

Aβ RI1

A



Aβ TI2

B

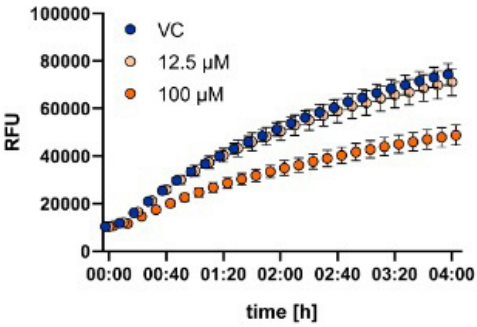


Figure 1:
Determination of Aβ aggregation and seeding in vitro by ThT Assay. Compounds were co-aggregated with Aβ1-42 and ThT and kinetics of Aβ aggregation are monitored over time as increase in green fluorescence. Data are presented as RFU (relative fluorescence unit). The reference item at both concentrations (A; RI, tannic acid) as well as the test item (B) at 100 µM, but not 12.5 µM, concentration were found to reduce Aβ aggregation. Mean ± SD; n=4-6.

Figure 2

A4 assay

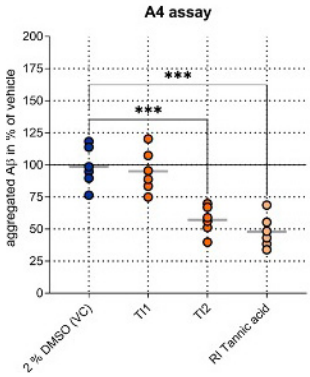


Figure 2:
Determination of Aβ oligomers in vitro by A4 Assay. Compounds were co-aggregated with Aβ1-42 for 48 h in vitro. Aggregated Aβ was separated from monomers through affinity interaction. After disaggregation, the originally aggregated Aβ was detected using an immunosorbent assay. Aβ levels were evaluated as % aggregated Aβ of vehicle control (VC). Mean ± SEM; n=6; One-way ANOVA with Bonferroni's post hoc test; ***p<0.001.

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Discovery

Important note:
Representative data are shown throughout this document. However, biological variability might cause deviations from shown data.

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