Tau aggregation inhibiting peptides as a basis for future therapies for tauopathies

Reference No: B79054

CHALLENGE

A group of neurodegenerative disorders, including Alzheimer's disease, Pick disease and Progressive supranuclear palsy are associated with neurofibrillary tangles composed of the tau protein as well as toxic tau oligomers. Therefore, inhibitors or modulators of tau-protein aggregation are being extensively investigated as **potential new therapeutics.** Two hexapeptides within tau, PHF6* (275VQIINK280) and PHF6 (306VQIVYK311), are known to be essential for tau aggregation, though PHF6* has recently been described as the stronger driver.

INNOVATION

The technology describes PHF6* fibril binding peptides consisting of D-enantiomeric amino acids. D-enantiomeric peptides are extremely protease-stable and considerably less immunogenic than L-peptides, and the suitability of D-peptides for *in vivo* applications has already been clearly demonstrated. The most interesting peptide, designated **MMD3**, was additionally found in a selection against tau monomer. MMD3 and its retro-inverso form, designated **MMD3rev**, clearly inhibits PHF6* and full length tau fibrilization *in vitro*.

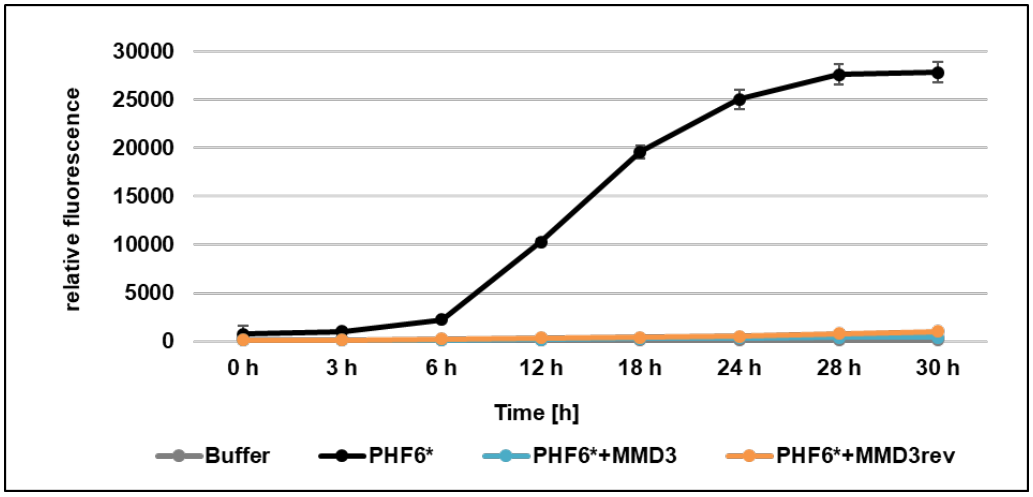

Figure: Thioflavin T-tests showing that MMD3 and MMD3rev inhibit the aggregation of PHF6*-fibrils.
Black line: PHF6* fibrillization was performed by incubating 100 µM PHF6* in NaPi buffer with 10 µM thioflavin T
Grey line: Negative control; 10 µM thioflavin T in Napi-buffer
Blue line / orange line: Peptides MMD3 or MMD3rev were added in concentrations of 1000 µM to 100 µM PHF6* samples
Fluorescence was measured at 490 nm in relative units (mean +/- standard deviations of results, three replicates per run).

COMMERCIAL OPPORTUNITIES

- Tau aggregation inhibiting peptides for future tauopathy therapies
- Capable of binding to monomeric and aggregates of tau-protein, in particular tau-fibrils

DEVELOPMENT STATUS

Currently seeking partners for further development and licensing options

BayPAT

HOCHSCHULE COBURG

Technology from
HOCHSCHULE COBURG

IP rights:
EP filed in 2019

Contact:
Dr. Katrin Bercht
+49 (0) 8954801 77-16
kbercht@baypat.de

Bayerische Patentallianz GmbH
Prinzregentenstr. 52
80538 München
www.baypat.de