

Nanocatalytic drugs towards Alzheimer's disease

<https://neurodegenerationresearch.eu/survey/nanocatalytic-drugs-towards-alzheimers-disease/>

Name of Fellow

Institution

Funder

European Commission FP7-Seventh Framework Programme

Contact information of fellow

Country

EC

Title of project/programme

Nanocatalytic drugs towards Alzheimer's disease

Source of funding information

European Commission FP7-Seventh Framework Programme

Total sum awarded (Euro)

€ 230,810

Start date of award

01/06/14

Total duration of award in years

2.0

The project/programme is most relevant to:

Alzheimer's disease & other dementias

Keywords

catalysis | combinatorial chemistry | neurological disorders | nanochemistry | protein chemistry | peptidomimetics | polymer chemistry

Research Abstract

Here is proposed nano-scale synthesis and combinatorial screening of medium sized peptide-transition metal catalyst libraries with the aim of producing libraries for screening highly selective catalysts for development of nano-medicines. The implementation of catalytic molecules as

medicines is a new paradigm in treatment that can overcome a number of the difficulties with present drugs. As with real enzymes the enzyme capacity of these catalysts comes from productive and selective binding of the TS of reaction. The aim is to develop enzyme like molecules: Organozymes, characterized by high turnover as well as both high chemo- and high regio-selectivity. Novel ligands for transition metals containing functional groups will be synthesized and incorporated into encoded solid phase combinatorial libraries on bio-compatible resins. Encoding ensures extremely fast and simple structure/activity assessment. The screening of split-mix combinatorial libraries of organozymes will have the distinct purpose of developing of artificial proteases as drugs. This involves e. g. Fe, Zn and Cu peptide complexes and combinatorial FRET-substrate screening for proteolytic activity to identify artificial organozyme proteases that act as nano-medicine towards marker proteins in Alzheimers disease. Nano-container delivery of catalytic drugs to target tissue will be developed.

Types:

Fellowships

Member States:

N/A

Diseases:

Alzheimer's disease & other dementias

Years:

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