Targeting 3-Repeat TAU for the Treatment of Neurodegenerative Tauopathy Disorders

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BACKGROUND

Neurodegenerative disorders with Tau accumulation are a common cause of dementia in the aging population. Alzheimer's Disease (AD), Pick's Disease (PiD) and Fronto-temporal lobar degeneration (FTLD) are examples of neurodegenerative disorders with Tau accumulation and are also jointly referred as "taupathies". Tauopathies are a group of neurodegenerative disorders with accumulation of three-repeat (3R) or four-repeat (4R) Tau. While 3R tau is found in Pick's disease and Alzheimer's disease (AD), 4R tau is more abundant in corticobasal degeneration, progressive supranuclear palsy, and AD.

TECHNOLOGY DESCRIPTION

Researchers at UC San Diego have taken the approach to selectively target 3R Tau aggregates for treatment of AD, PiD and other neurodegenerative disorders with 3R Tau accumulation. Single chain antibodies were developed that were shown to specifically recognize 3R Tau in tissue from patients with AD and PiD and designed to be capable of penetrating the brain for therapeutic use in humans. In addition, having gained access to the CNS the single chain antibodies were shown to reduce the accumulation of 3R Tau and related deficits in transgenic mouse models of taupathy and Pick's disease.

APPLICATIONS

Data based upon animal model studies suggest that these single chain antibodies can potentially be used for the treatment, amelioration, prevention or reduction of symptoms of neurodegenerative disorders and conditions characterized with 3R Tau accumulations.

STATE OF DEVELOPMENT

A transgenic mouse model (3R Tau is overexpressed) was developed to characterize single chain antibodies and validate that they specifically recognize 3R Tau and could penetrate the blood-brain barrier.

INTELLECTUAL PROPERTY INFO

A PCT patent has been submitted and the technology is available for licensing.

RELATED MATERIALS

- Spencer B, Brüschweiler S, Sealey-Cardona M, Rockenstein E, Adame A, Florio J, Mante M, Trinh I, Rissman RA, Konrat R, Masliah E. Selective targeting of 3 repeat Tau with brain penetrating single chain antibodies for the treatment of neurodegenerative disorders. Acta Neuropathol. 2018 Jul;136(1):69-87. 2018 Jun 14 doi: 10.1007/s00401-018-1869-0. Epub - 06/14/2018

PATENT STATUS

Country	Type	Number	Dated	Case
Patent Cooperation Treaty	Reference for National Filings	2018098315	05/31/2018	2016-200

CONTACT
University of California, San Diego
Office of Innovation and Commercialization
innovation@ucsd.edu
tel: 858.534.5815.

OTHER INFORMATION

KEYWORDS
Alzheimer's Disease, Pick's Disease, Fronto-temporal lobar degeneration (FTLD), 3R Tau, Tauopathies,neurodegenerative disorders, single chain antibody, blood-brain barrier

CATEGORIZED AS
- **Medical**
  - Other
- **Research Tools**
  - Antibodies

RELATED CASES
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University of California, San Diego
Office of Innovation and Commercialization
9500 Gilman Drive, MC 0910, ,
La Jolla,CA 92093-0910

Tel: 858.534.5815
innovation@ucsd.edu
https://innovation.ucsd.edu
Fax: 858.534.7345