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IMMUNOGENIC PEPTIDES OF AQP4 FOR THE DIAGNOSIS AND TREATMENT OF NEUROMYELITIS OPTICA (NMO)

Tech ID: 24790 / UC Case 2010-074-0

INVENTION NOVELTY

This invention identifies the exact regions within AQP4 that trigger an immune response, which provide promising therapeutic potential for the diagnosis and treatment of Neuromyelitis Optica.

VALUE PROPOSITION

This novel invention can be used to develop therapeutics that specifically target the disease process of NMO and stop further progression of the disease.

TECHNOLOGY DESCRIPTION

In the last decade, it was determined that the key auto-antigen in NMO that erroneously activates the immune system, causing it to attack and destroy myelin, is aquaporin-4 (AQP4). Researchers at UCSF have recently determined the exact regions within AQP4 that trigger an immune response. The knowledge of these specific regions can be applied to the development of treatments to re-establish self-tolerance to AQP4, directly targeting the underlying cause of NMO. Unlike current treatments which mainly treat symptoms, this approach could stop progression of NMO and prevent any future attacks.

APPLICATION

- Diagnostics to test for NMO
- Diagnostics to distinguish NMO from multiple sclerosis and other disorders
- Development of NMO-specific therapeutics

LOOKING FOR PARTNERS

To develop and commercialize this technology as an effective method for drug delivery medical devices

STAGE OF DEVELOPMENT

Preclinical

RELATED MATERIALS

CONTACT

Ellen Kats
ellen.kats@ucsf.edu
tel: [415-758-1598](tel:415-758-1598).



INVENTORS

- ▶ Cree, Bruce A. C.
- ▶ Varrin-Doyer, Michel
- ▶ Zamvil, Scott S.

OTHER INFORMATION

KEYWORDS

Orphan disease, Aquaporin-4 (AQP4), Neuromyelitis Optica

CATEGORIZED AS

- ▶ **Medical**
- ▶ Diagnostics
- ▶ Therapeutics

RELATED CASES

2010-074-0

► Nelson PA, Khodadoust M, Prodhomme T, Spencer C, Patarroyo JC, Varrin-Doyer M, Ho JD, Stroud RM, Zamvil SS. Immunodominant T cell determinants of aquaporin-4, the autoantigen associated with neuromyelitis optica. PLoS One. 2010; 5(11):e15050

► Sagan, S. A., Winger, R. C., Cruz-Herranz, A., Nelson, P. A., Hagberg, S., Miller, C. N., ... & Levin, M. H. (2016). Tolerance checkpoint bypass permits emergence of pathogenic T cells to neuromyelitis optica autoantigen aquaporin-4. Proceedings of the National Academy of Sciences, 113(51), 14781-14786.

DATA AVAILABILITY

Under NDA/CDA

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,234,017	01/12/2016	2010-074

ADDRESS

UCSF

Innovation Ventures

600 16th St, Genentech Hall, S-272,
San Francisco,CA 94158

CONTACT

Tel:
innovation@ucsf.edu
https://innovation.ucsf.edu
Fax:

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