Targeting DGAT1 enzyme for treatment of MS

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Technology description

The purpose of this invention is to prevent or treat autoimmune and inflammatory diseases 'such as multiple sclerosis (MS)" using inhibitors of diacylglycerol O-acyltransferase-1 (DGAT1).
Researchers at Stanford have identified a new target, diacylglycerol-O-acyltransferase-1 (DGAT1), for treating multiple sclerosis (MS). MS is an autoimmune disease of the central nervous system that affects 2 million people worldwide. The cause of MS is unknown, but an immunological mechanism is believed to be involved. In MS, myelin reactive T cells enter into the brain and spinal cord and mediate dysfunction and eventual paralysis. Currently, there is no cure for MS. Treatments exist to prevent or shorten exacerbations and relieve symptoms, however these treatments are often ineffective and can have undesirable side effects. Thus, new therapeutics to treat MS are needed. To help meet this need, the inventors took advantage of recent work from their lab. Using a mouse model of MS (called EAE), they found that memory CD4 T cells that infiltrate the CNS during the disease express high levels of DGAT1. Further, they found inhibiting DGAT1 significantly attenuates EAE in mice. This technology provides a new therapeutic target to treat MS.

Application area

Treatment of autoimmune/inflammatory disease such as MS

Advantages

New therapeutic target for MS Potential to minimize side effects- may allow for selective targeting of pathogenic cells in CNS, but leave broader immune system function intact DGAT1 activity can be modulated with small molecules which can be formulated for oral administration Therapeutics targeting DGAT1 may be used in combination with existing therapies

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