“GUARDIAN” BRAIN PEPTIDES AS AUTOIMMUNE THERAPEUTIC

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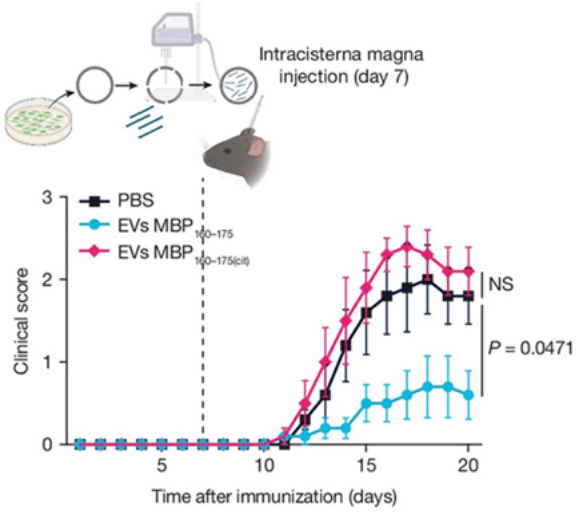
Value proposition: *New therapeutic modality that uses CNS self-peptides to treat autoimmune diseases, reducing neuroinflammation damage in an organ-specific manner.*

Technology Description

Autoimmune diseases continue to debilitate countless individuals, increasing healthcare burden while decreasing quality of life. Current interventions, thus far, have focused on non-specific immunosuppressive therapies that come with substantial side effects. In addition, these treatments are mostly for treating symptoms/managing relapse.

Researchers at Washington University in St. Louis have developed a method to suppress experimental autoimmune encephalomyelitis (EAE) or other neuroinflammatory conditions by leveraging indigenous self-peptides to enhance suppressor T cell activity through their interactions with associated immune tissues. The method involves identifying specific amino acid sequences from CNS-expressed proteins (e.g. MBP160-175) that are depleted in autoimmune diseases and subsequently re-introducing them via vesicle delivery, allowing the brain to “recalibrate” itself towards a healthy state.



Stage of Research

Confirmed in murine neurodegeneration models. In an inducible EAE model, mice injected with functional guardian peptides (MBP160-175) has significantly ameliorated disease with a corresponding increase in suppressor T-cells & immunosuppressive capacity. Mice receiving sham or non-functional peptides (citrullinated MBP160-175) display visible hindlimb paralysis. Other regulatory self-peptides

have been identified and are actively being tested. These peptides, unlike existing therapies, are exhibiting organ specific, not body global, immune regulation.

Applications

- Treatment and prevention of experimental autoimmune encephalomyelitis (EAE) or other neuroinflammation conditions.
- Strategy generalizable to other immune privileged organs such as the eye.

Key Advantages

- Pre-emptively suppresses neuroinflammation-induced damage

Patents

PC, in nationalization phase.

Related Web Links – Jonathan Kipnis Profile; Kipnis Lab