2008-211 Peptide for Induction of Immune Tolerance as Treatment for Systemic Lupus Erythematosus (SLE)

Published date: Aug. 28, 2019

Technology description

SUMMARY
UCLA investigators have invented the D form of an artificial synthetic peptide to induce suppressive T cells that prevent anti-DNA production in mice. The L form of the peptide is administered by injection; however, the new D form of the peptide is designed to be administered orally.
BACKGROUND
Systemic lupus erythematosus is a disease characterized by the production of autoantibodies that react with native cells and tissues, causing inflammation, pain, and damage throughout the body. Increased production of autoantibodies causes immune complex deposition in the kidney, which can result in irreversible renal damage and failure. Edratide, a peptide drug in Phase II clinical trials, is injected subcutaneously in patients to help induce regulatory and suppressive T cells which both downregulate autoimmune responses. Now, however, UCLA investigators are able to orally administer the D form of the peptide.
INNOVATION
UCLA researchers have identified the D form of a peptide called “D-pCons” for the D form of pConsensus. When the L-form of this autoantibody-based peptide is administered to a mouse model of SLE, it induces regulatory T cells to prevent autoantibody production and nephritis. In vitro, the L form also expands regulatory T cells in patients with SLE. The D form of the peptide should be resistant to degradation by acid and proteases, so oral administration is possible. The route of administration and safety should have an advantage over the injected L form of the peptide. Recent studies using the D form show intravenous expression significantly reducing α-DNA production. Additionally, studies demonstrating the efficacy of D-pCons are underway.

Application area

Treatment for systemic lupus erythematosus by inducing regulatory and suppressive T cells to downregulate autoimmune responses

Advantages

- Oral route of administration with increased ease and increased safety
- D form of peptide is resistant to acid and protease degradation

Institution

University of California, Los Angeles

Inventors

Antonio La Cava
Adjunct Associate Professor
MED-RHEUM