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Funding Source: Other

Oral lysine treatment of experimental autoimmune encephalomyelitis

Charlotte Best & Habib Zaghouani

Multiple sclerosis (MS) is an inflammatory disease of the central nervous system (CNS). The disease is considered autoimmune in nature and is marked by destruction of the myelin sheath, or the protective coating surrounding nerve fibers, by cells of the immune system such as T lymphocytes. The myelin sheath's major function is to insulate nerves and allow for electrical impulses to be carried to and from the brain, so once it is damaged, the various symptoms of MS such as motion impairment and muscle paralysis manifest. To date there is no cure for MS and the efficacy of existing treatments is completely dependent on the individual. Preliminary clinical trials in humans with oral lysine have shown promising results. Oral lysine was shown to suppress relapses of multiple sclerosis. We decided to study the effects of oral lysine on a murine model of MS, Experimental Autoimmune Encephalomyelitis (EAE). SJL/j mice were induced for EAE with PLP1 peptide and treated with high doses of oral lysine. Preliminary results show that mice treated with oral lysine had lower disease scores and showed suppression of the disease. Future studies will be focused on determining the mechanism of suppression with oral lysine treatments.

This project was completed to fulfill a Capstone requirement.