A Novel Method of Preventing or Treating Secondary Infections by Inhibition of Membrane Type I Matrix-Metalloproteinase-1 (Yeda)

code: T4-1790

Irit Sagi, Biology, Biological Regulation

Summary

A novel method of preventing secondary infections, by inhibition of membrane type I matrix-metalloproteinase-1 (MT1-MMP), which reduces degradation of the extra-cellular matrix. Pathogens that infect the respiratory system are the cause of some of the most dangerous infections, especially for vulnerable populations such as children and seniors. This is due to the host immune response which can damage the lung tissue, serving as a prime target for secondary infections. Consequently, there is a need for a method that provides better control over inflammatory response and reduces tissue damage caused by the host immune response to an infection.Prof. Irit Sagi's research team has discovered that by specifically inhibiting MT1-MMP they can limit tissue damage in the lungs of mice, help prevent secondary infections, and subsequently improve overall survival rates.

Applications

Limiting tissue damage for the prevention and treatment of secondary infections.

Advantages

Novel mechanism - targeting MT1-MMP to limit inflammation due to an immune response, rather than targeting the pathogen directly. **Usage of an antibody for prophylaxis or treatment Synergism** - possibly combined with an anti-pathogen agent to assist in treatment. **Better outcomes** - reduction of tissue damage and inhibition of secondary infections improves overall survival rates.

Technology's Essence

The research team of Prof. Irit Sagi has shown a novel mechanism of treating and preventing secondary infections by inhibition of MT1-MMP using an anti-MT1-MMP antibody. The team used mice as an infection model. They performed in vitro experiments on extracted mice lungs to characterize MT1-MMP's role in the infection pathology. They also calculated survival rates following both primary and secondary infections of mice, with and without inhibition of MT1-MMP. Which showed that the inclusion of the anti-MT1-MMP antibody improved overall survival rates in the infected mice.

Contact for more information:

Yael Klionsky ✉, Licensing Officer, +972-8-9344095

Yeda Research and Development Co. Ltd. - Technology Transfer from the Weizmann Institute. P.O. Box 95, Rehovot,76100, Israel. Tel: +972-8-947-0617