Drug Discovery & Development

Thioamide Analogues Of Peptide Antigens

View U.S. Patent Application Publication No. US-2025-0092087 in PDF format.

WARF: P230415US02

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The Invention

UW-Madison researchers have developed a method of stabilizing short antigenic peptides that act as vaccines against infectious disease or cancer. Peptides that bind major histocompatibility complex I (MHC I) stimulate T cell activity against the peptide. Thus, any cell or organism that expresses that peptide sequence will be targeted for removal by T cells once the T cell is initially exposed to that antigenic peptide. Peptide vaccines need to be stable enough to withstand protease degradation in the bloodstream. The researchers converted backbone amide groups into thioamide groups. This change resulted in resistance to protease degradation while maintaining the ability of the peptide to bind MHC I and activate T cells in culture.

The inventors tested this modification in two well-studied MHC I antigens, GILGFVFTL (GIL(1-9)) and ELAGIGILTV (ELA)). They tested various positions in the peptide and found that some positions could be changed while modifying other positions negatively impacted activation of T cells. They found that in order to protect the peptide from protease degradation, they needed to change at least a couple of positions, close to one of the ends and in the middle. If they modified amino acids too close to the ends, the peptides lost MHC I binding affinity.

Additional Information

For More Information About the Inventors

- Samuel Gellman

Tech Fields

- Drug Discovery & Development : Drug production & design

For current licensing status, please contact Rafael Diaz at rdiaz@warf.org or 608-960-9847