Docket #: S22-002

Targeting Novel Epitopes on LAG-3 as Immune Checkpoint Inhibitors

Researchers at Stanford in collaboration with researchers at NYU have identified novel epitopes on Lymphocyte activation gene-3 (LAG-3) that regulate T cell activation. Blocking those LAG-3 epitopes has potential as a novel immune checkpoint inhibitor therapy.

Clinical studies have demonstrated that immune checkpoint receptors can be blocked therapeutically, resulting in immune recognition of cancerous cells and long-term remissions for cancer patients. While anti-PD-1 and anti-CTLA-4 antibodies have demonstrated activity in various cancers and cancer models, antibodies targeting other immune checkpoints have been less stellar, often requiring combination with anti-PD-1 or anti-CTLA-4 to demonstrate their effects.

The inventors' experiments indicate that targeting certain epitopes on LAG-3 checkpoint receptors could be therapeutically beneficial. Antagonistic monoclonal antibodies, peptides, or small molecules against these epitopes could lead to enhanced efficacy in cancer patients.

Stage of Development
in vitro – research

Applications

- Cancer immunotherapy
- Autoimmune diseases
- Infectious diseases

Advantages

- Applicable with multiple therapeutic modalities
- Differentiated target
- Multiple novel druggable sites

Publications

- Silberstein J., Du J., et al. (2024). *Structural insights reveal interplay between LAG-3 homodimerization, ligand binding, and function.* PNAS.

Patents

- Published Application: WO2023178201
- Published Application: 20250198990

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