



Therapeutic Target

Regulation of ERp5 as a Therapeutic Target in Autoimmune Diseases

Brief Description of Technology

A method preventing ERp5 modulation of immune cell function as a mechanism to inhibit MICA and MICB production, thereby decreasing immune cell activity in autoimmune diseases.

BUSINESS OPPORTUNITY

Exclusive license
Non-exclusive license
Sponsored research

TECHNOLOGY TYPE

Diagnostic
Therapeutic

STAGE OF DEVELOPMENT

Preclinical *in vitro*

PATENT INFORMATION

Patent pending

INVESTIGATOR

Thomas Spies, PhD
Veronika Groh-Spies, MD
Clinical Research Division

LEARN MORE

Tech ID: 07-027
partnering@fredhutch.org
206-667-4304

Technology Overview

Natural killer cells can be activated or inhibited through receptors expressed on T cells that modulate T cell antigen receptor complex-dependent responses. One such receptor is NKG2D, which interacts with major histocompatibility complex class I (MIC) A polypeptide or B polypeptide ligands. Although these ligands are absent from most normal cells, they can be induced through stress [e.g., epithelial tumors, microbial infections, and certain autoimmune lesions]. Drs. Spies and Groh have developed a method to prevent ERp5 modulation of immune cell function/development by inhibiting ERp5 function when expressed on immune cells. Targeting downregulation of ERp5 is therapeutically applicable to both autoimmune diseases as well as MIC-related cancers [e.g., those cancers associated with elevated levels of soluble MIC].

Applications

- Inflammatory disorders
- Autoimmune disease
- Tumors expressing membrane-bound MIC

Advantages

- Cell-specific targeting of activated T-cells, dendritic cells, and other immune cells
- Cell surface accessibility

Market Overview

In 2017, the global autoimmune disease therapeutics market was valued at USD 109.83 billion. However, with a CAGR of 4.2%, the market is projected to reach USD 153.32 billion by 2025. Several key factors are driving this growth, including wide availability of advanced therapeutics, a strong pipeline of late-stage drugs, and an increase in autoimmune disease prevalence [e.g., rheumatoid arthritis]. Although the market has multiple segments, the anti-inflammatory category held the largest share in 2017 and is due to have the greatest CAGR.