

Monoclonal NKG2D Antibodies for the Treatment of Autoimmune and Inflammatory Disorders

Business Opportunity

Non-Exclusive License

Technology Type

Monoclonal antibody

State of Development

Pre-Clinical In Vivo

Patent Information

Off patent

Investigator

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Tech ID

00202

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Brief Description

Two anti-human NKG2D monoclonal antibodies to specifically target and/or inhibit the NKG2D receptor on immune cells (e.g., CD4+ T cells).

Technology Overview

A precise balance of effector T cell activity is required to maintain effective immune surveillance without initiating an autoimmune reaction. NKG2D is an activating receptor that interacts with MHC Class I MICA and MICB glycoproteins. Drs. Spies and Groh made the surprising discovery that rheumatoid arthritis and other immunoproliferative disorders are often associated with abnormal expression of NKG2D receptor in immune cells (particularly CD4+CD28- T cells). These cells are cytotoxic, secrete large amounts of IFN-gamma and proliferate upon stimulation. The Spies Lab has developed two unique anti-human NKG2D monoclonal antibodies to specifically target the NKG2D receptor. Therapeutic immunomodulation can then be achieved through targeted cellular inhibition by contacting the cell with a cytotoxic agent (e.g., radioisotope, toxin, or drug).

Applications

- Rheumatoid arthritis and other autoimmune and inflammatory diseases
- Applicable for use in radioimmunotherapy and chemotherapy treatments

Advantages

- Cell-specific targeting
- stratifies patient populations through CD4+CD28- NKG2D+ cells and associated MIC ligands
- Compatible with cytotoxic agents for therapeutic purposes

Market Overview:

In 2017, approximately 54.5 million Americans (25% of the population) suffered from rheumatoid arthritis. By 2040, prevalence is expected to rise to 78 million. This disease progression is one of many facets spurring market growth forward with a predicted market value of USD 30.7 billion by 2025, up 4.5% from 2019.