Cancer Therapeutic based on Stimulation of Natural Killer T-cell Anti-tumor Activity

Summary (1024-character limit)
Investigators at the National Cancer Institute''s Vaccine Branch have found that beta-mannosylceramide (Beta-ManCer) promotes immunity in an IFN-gamma independent mechanism and seek statements of capability or interest from parties interested in collaborative research to further develop, evaluate, or commercialize beta-ManCer.

NIH Reference Number
E-034-2010

Product Type
- Therapeutics

Keywords
- immunity
- antibody
- NKT activity

Collaboration Opportunity
This invention is available for licensing.

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Description of Technology

Natural killer T cells (NKT) are a unique lymphocyte population that has T-cell and NK cell functional properties in order to rapidly elicit an immune response. alpha-galactosylceramide (alpha-GalCer) is a potent NKT stimulator and induces of IFN-gamma release to promote immunity against tumors and infectious agents. Humans have natural antibodies against alpha-galactose, which may be one of the reasons why the human clinical trials of alpha-GalCer or KRN7000 were not very successful.

Beta-ManCer is a new class of NKT agonist that induces immune responses alone, through nitric oxide and TNF-alpha-dependent mechanisms, or synergistically with alpha-GalCer to enhance alpha-GalCer''s efficacy. Since beta-ManCer does not have alpha-galactose, which can be neutralized by natural antibodies, patients could be treated with multiple doses without negative side effects associated with

the loss of IFN-gamma production. Hence, beta-ManCer is a promising anti-cancer treatment either alone or in combinatorial therapies with alpha-GalCer to selectively induce immune responses.

Potential Commercial Applications

- Cancer therapeutics
- Potent stimulator of NKT activity

Competitive Advantages

- Induces tumor immunity through a novel mechanism
- Decreased possibility of neutralization by natural antibodies
- Synergize with alpha-GalCer

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Development Stage

- Discovery (Lead Identification)

Patent Status

- **U.S. Patent Filed:** U.S. Patent Application Number 61/313,508, Filed 12 Mar 2010

Therapeutic Area

- Cancer/Neoplasm
- Immune System and Inflammation