

**Investment Brief for
Cyclic Peptides and Uses Thereof**

**NSW
AREA HEALTH
SERVICES**

Office of Commercialisation

**For further information under a Confidential Disclosure
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Cyclic peptides and uses thereof

Summary

SWAHS scientists have developed synthetic cyclic peptides useful in the treatment and/or conditions associated with T-cell activation or function, microbial infections and cancer.

Benefits

Our synthetic cyclic peptides with alternating D- and L- amino acids have improved efficacy and specificity compared to linear peptides, whilst lending the same, or greater, biological efficacy. By creating a cyclic peptide, oral delivery and pH stability are improved and enzyme degradation reduced, increasing the utility of the compound.

The cyclic peptides have been tested in vitro:

“Certain observations, when considered together with the cell viability and cell proliferation results, indicate that C1 is a very sensitive and potent inhibitor of T-cell activation under the normal antigen presenting system requiring the “macrophage” presenting the antigen to the T-cell of interest. Of all the activation systems tested, the antigen presentation mechanism is the closest representation of what actually occurs in an in-vivo environment. In this light, the fact that C1 inhibits IL-2 production demonstrates its potential for use as a treatment option for T-cell mediated conditions”.

In-vivo: The immunomodulatory effects of C1 in vivo were examined by using an adjuvant-induced arthritis model in Wistar rats and results showed effectiveness in reducing inflammation in this model.

Further, the cyclic peptides have also been very effective in antibacterial activity assays in cultures of organisms.

Technology Investment Brief

Industry: Human Therapeutics

Proposed Business: Development of human therapeutics using synthetic cyclic peptides

Team

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The Technology

SWAHS scientists have developed synthetic cyclic peptides useful in the treatment and/or conditions associated with T-cell activation or function, microbial infections and cancer. A vast number of diseases and conditions are associated with T-cell function or activation. Accordingly, there is an ever present need for medicinal agents with immunomodulatory activity capable of mediating the activation and/or function of T-cells.

Applications

Peptides of the present invention find application in the treatment or prevention of a variety of diseases and conditions. These include diseases in which inhibition of T-cell function is desirable, particularly auto-immune diseases and cancers, and may include neural diseases such as multiple sclerosis and Guillain Barre Syndrome; endocrine diseases such as diabetes, Hashimoto's disease and pernicious anaemia; skeletal diseases such as rheumatoid arthritis, ankylosing spondylitis, reactive arthritis and systemic lupus erythematosus; immune diseases such as transplant rejection syndrome, urticaria and drug allergy; dermal diseases such as pemphigus, eczema, contact dermatitis and psoriasis; gastrointestinal tract diseases such as ulcerative colitis and Crohn's disease; respiratory diseases such as asthma and pneumonitis; transplantation disease, cardiac diseases, vascular diseases and cancer.

Competitive Advantage

The present inventors have previously shown that a linear peptide, designated Core Peptide (CP), acts as an immunomodulatory agent and inhibits IL-2 production in T-cells following antigen recognition.

Our synthetic cyclic peptides with alternating D- and L- amino acids have improved efficacy and specificity compared to CP, whilst lending the same, or greater, biological efficacy as CP. By creating a cyclic peptide, oral delivery and pH stability are improved and enzyme degradation reduced, increasing the utility of the compound.

Market

A 2004 Frost and Sullivan report states that the global therapeutic peptides market is currently valued at around \$1 billion (€756m), with Europe contributing about \$300m of that total, and will increase at around 10.5 per cent a year between 2003 and 2010. This means that the European market for peptides will double in size by 2010 to \$605m.

IP Position

Sydney West Area Health Service (SWAHS) has lodged an Australian Provisional patent application # 2005906187, entitled "Cyclic Peptides and Uses Thereof".

Commercialisation

SWAHS is seeking a partner to fund further research, further clinical validation and/or license our technology for the manufacture, distribution, and sale of any potential products incorporating our novel cyclic peptides.