FIRST PRINCIPALS
Technology Transfer & Commercialization

GLYCOPROTEIN PRODUCTION & TRANSPORT

This opportunity enables the large-scale production of mammalian-like polysaccharides by recombinant DNA technology.

The technology overcomes many of the problems associated with the production of N-linked glycoproteins derived from humans and other mammals.

THE OPPORTUNITY

Using a transferase gene isolated from yeast (*Saccharomyces cerevisiae*), a process has been developed for efficiently producing an acidic sugar chain in large quantities and high purity.

The yeast cells are genetically-engineered with an MNN6-containing plasmid DNA. Its nucleotide sequence is a single-strand, having linear topology, and 1,380 base pairs in length.

Further, the method enables a marker to be produced to function as a label for transport of glycoproteins into mammalian lysosomes.

PATENTED TECHNOLOGY

The intellectual property protecting this technology includes:

***US Patent No.* 5,854,031**

Mannose-1-phosphate transferase gene from yeast and its use for producing phosphate-containing acidic sugars.

Main Patent Claim Features

- Yeast-based, isolated nucleic acid sequence described in Claim 1.
- Plasmid DNA comprising a mannose-1-phosphate transferase gene from yeast with the sequence of Claim 1.
- Efficient process for producing the glycoprotein side chain *in vivo* or *in vitro*.
- Mannose moiety removed by acid treatment which provides options for **liposomal and lysosomal drug delivery**.

The inventors have isolated and determined the structure of the mannose-1-phosphate transferase gene (*MNN6*). MNN6 is involved in the mannose-1-phosphate addition reaction that is a yeast-specific sugar chain reaction.

The gene can be used to produce acidic sugar chains, either in vivo or in vitro.

INTELLECTUAL CAPITAL

This technology was developed at AIST, Japan's premier, public research organization.

With research facilities and more than 3,200 employees across Japan, AIST is an organization that comprises 15 research institutes previously under the former Agency of Industrial Science and Technology in the Ministry of International Trade and Industry and the Weights and Measures Training Institute.

FOR MORE INFORMATION

AIST is seeking to license this technology and assist with its commercialization. A number of investment options are currently under consideration.

Consideration will be provided to a range of financial, strategic, and commercial investment partnerships.

For more information, contact:

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