

# **Technology Transfer Opportunity**

Promoter sequences for expression from human cells

### **OPPORTUNITY:**

Promoter sequences suitable for enhanced recombinant protein expression using human cell culture systems, in particular haematopoietic cell lines.

# **Description of Technology:**

The invention provides a selection of modified promoter sequences allowing for high, medium or low expression of recombinant protein in human cell lines.

# Value Proposition:

Molecular complexity and market requirements are key factors when deciding on an appropriate expression system for recombinant molecules. Most human proteins have some form of posttranslational modifications and are preferably therefore expressed in mammalian or even human cells.

Mammalian cell culture production with its strong regulatory track record is therefore the production process of choice in the biopharmaceutical industry. The production of human recombinant protein from human cell culture is of distinct advantage in that it enables proper modification, processing and folding of a biologically active product.

Effective expression systems rely on the right choice of cell line and a suitable promoter controlling expression of the recombinant protein. Depending on the nature of the protein a high, medium or low expression system might be desirable for optimal yield of an active product.

The series of modified promoter sequences developed in UCD are suitable for recombinant protein expression in human cell lines. The promoters were tested in human haematopoietic, endothelial, embryonic, and fibroblast cell lines and in primary aortic smooth muscle cells revealing distinct expression profiles.

The series of promoter sequences includes:

- A proprietary, universally strong promoter when compared to the commonly used CMV and SV40 promoters.
- Several promoter sequences with cell specific expression patterns allowing for low, medium or high expression depending on cell type versus promoter sequence.
- Promoter sequences which are particularly suitable for expression in megakaryocytes and stem cells.

#### Market:

Stem cell market and biopharmaceutical industry.

# Inventors:

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# Status:

A patent application number was filed in 2008 (PCT/EP2009/005822)

#### **Publication:**

Gannon AM and Kinsella BT (2008), *J. Lipid Res.* 49, 2590-604

#### **Opportunity Sought:**

Available for licensing.

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