



PROTEIN EXPRESSION

Siderocalin Fusions Improve Protein Production in Clinically Relevant Difficult-to-Express-Proteins

Brief Description of Technology

A biological method of rapidly producing fusion proteins for the high-throughput, screening, and large-scale production of difficult-to-express-proteins [e.g., knottins].

BUSINESS OPPORTUNITY

Exclusive license
Sponsored research

TECHNOLOGY TYPE

Diagnostic
Research tool
Manufacturing process

STAGE OF DEVELOPMENT

Preclinical *in vitro*

PATENT INFORMATION

Patent pending

INVESTIGATOR

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Technology Overview

Difficult-to-express-proteins [DTEPs], like those folded through interwoven disulfides, are highly desirable due to their extreme biochemical properties and unique clinical applications. Although chemical synthesis has previously been employed to facilitate DTEP production, the process is expensive, time consuming, and protein dependent. Eukaryotic protein expression platforms struggle to produce crucial clinically relevant DTEPs due largely to errors in protein folding. Drs. Strong and Correnti have developed a novel high-throughput, large-scale biological production method that agnostically fuses siderocalin to a multitude of protein types. Siderocalin fusion facilitates enhanced protein folding, facilitating rapid protein expression and has been validated in over 600 protein types including Fab fragments.

Applications

- Rapid development of a clinically relevant engineerable peptide library
- High-throughput expression and large-scale production of clinically significant proteins [e.g., Fab fragments, epidermal growth factors]

Advantages

- Functionalizes protein [e.g., radiospecific]
- Enhances functional properties of proteins [e.g., extreme resistance to temperature and proteolysis, increased half-life]
- Provides high-efficiency production and purification system

Market Overview

By 2025, the global protein expression market is estimated to reach USD 3.0 billion with a CAGR of 10.4%. Rising demand for insulin, monoclonal antibodies and antibody fragments, as well as vaccines and hormones are fueling the development and growth of the market. As such several key players in biotechnology and pharmaceutical research has shifted toward protein manufacturing as advanced protein therapeutics for severe chronic diseases [e.g., cancer, infectious disease, multiple sclerosis].