

**Technology**

Cell culture systems for screening compounds for muscle growth properties

**Inventor**

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**Key Features**

- Tool for rapid screening of drug candidates that promote muscle growth
- Provides specific measurements of anabolic properties
- Suitable for identifying agents that inhibit muscle loss and/or increases muscle mass or tone

**Stage of Development**

Reduced to practice

**Keywords**

Research Tool

- High-throughput screening
- Drug Screening
- Cell Culture
- Cell Lines

**Patent Status**

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## Screening Tools for Discovery of Novel Anabolic Agents (VA Reference No. 04-119)

*Novel cell culture tool for rapid screening of drug candidates for muscle growth properties*

**Technology**

The Department of Veterans Affairs has developed a set of cell culture systems for screening compounds for muscle growth properties. The technology represents a potential high throughput screening solution for companies attempting to identify novel therapies for muscle atrophy.

**Opportunity**

The developed technology utilizes cell lines that are engineered to express the human androgen receptor as well as reporter genes for measuring the expression of muscle growth factor IGF-1 and muscle degradation factor MAFbx. The MAFbx gene is expressed selectively in skeletal muscle and heart suggesting very specific functions in the biology of these tissues. In addition, disruption of the MAFbx gene in mice has been shown to greatly reduce rates of muscle loss. The developed technology could be used to identify agents that affect expression of the IGF-1 and MAFbx components of signaling pathways for both muscle protein synthesis and breakdown.

**Competitive Advantage**

By measuring the expression of IGF-1 and MAFbx, the developed cell culture systems provide a more detailed analysis of the anabolic properties of compounds than similar technologies.

This invention:

- Is compatible with a high throughput screening format, offering capabilities over other current assays for high throughput screening of anabolic agents.
- Can provide more specific measurements of the anabolic properties of androgens.
- Is suitable for identifying an agent that both inhibits (or selectivity inhibits) muscle loss and increases muscle mass.

**Status**

The Department of Veterans Affairs is looking for a partner for further development and commercialization of this technology through a license, and the VA inventors are available to collaborate with interested companies through a Cooperative Research and Development Agreement (CRADA).