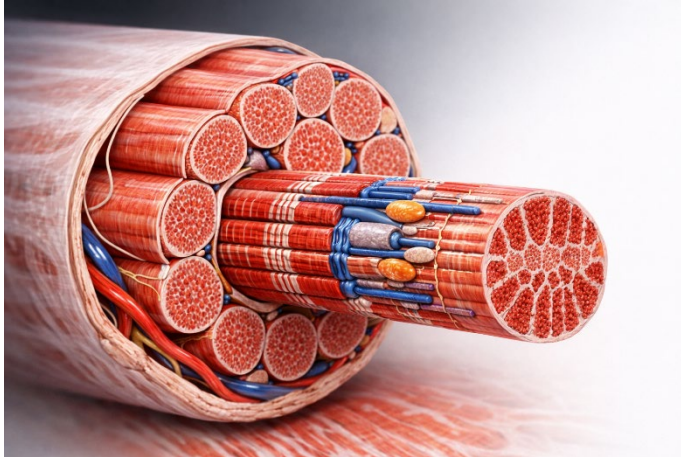


Products and methods for promoting myogenesis



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Description

The present technology relates to the use of the long non-coding RNA Cytor as a regulator of skeletal muscle growth, differentiation, and functional maintenance. Cytor is a conserved, exercise-responsive lncRNA expressed in mammalian skeletal muscle and associated with the regulation of myogenic differentiation and muscle fibre composition.

Modulation of Cytor expression influences the differentiation of myoblasts into fast-twitch (type II) myotubes, a muscle fibre type critical for strength, power generation, and functional capacity. Increasing Cytor expression in muscle precursor cells promotes myotube formation, increases myotube size and fusion, and enhances the expression of molecular markers characteristic of type II muscle fibres.

In aged mammalian muscle cells, increased Cytor levels enhance differentiation capacity and support the formation of mature myotubes. In vivo studies in ageing models further demonstrate that muscle-specific expression of Cytor improves muscle structure and locomotor function, indicating that Cytor activity can counteract age-related declines in muscle integrity and performance.

Advantages

- Promotes myoblast differentiation and formation of type II muscle fibers associated with strength and power.
- Improves muscle mass, structure, and functional performance, including in ageing contexts
- Potentially compatible with multiple therapeutic modalities

Applications

- Treatment of neuromuscular disorders or myopathies characterized by muscle weakness
- Treatment or prevention of age-related sarcopenia
- Therapies for muscle atrophy or wasting associated with chronic diseases
- Enhancement of muscle regeneration following injury or surgery