

PEG-MGF

MECHANO GROWTH FACTOR

MOLECULAR FORMULA $C_{121}H_{200}N_{42}O_{39}$

MOLECULAR WEIGHT 4867

SEQUENCE Tyr-Gln-Pro-Pro-Ser-Thr-Asn-Lys-
Asn-Thr-Lys-Ser-Gln-Arg-Arg-Lys-Gly-Ser-Thr-
Phe-Glu-Glu-Arg-Lys

PROTOCOL



CONTENT & POTENCY

2 mg/mL subcutaneous injection
provided in a 5 mL vial.



SUGGESTED DOSAGE

Inject 0.1 mL subcutaneously once daily
5 out of 7 days of the week.

CLINICAL RESEARCH



Philippou A, Papageorgiou E, Bogdanis G. et. al. Expression of IGF-1 isoforms after exercise-induced muscle damage in humans: characterization of the MGF E peptide actions in vitro. *In Vivo* 2009 Jul-Aug;23(4):567-75.



Abstract: Different insulin-like growth factor-1 (IGF-1) isoforms, namely IGF-1Eb and IGF-1Ec (MGF), have been proposed to have various functions in muscle repair and growth. To gain insight into the potentially differential actions of IGF-1 isoforms in the regulation of muscle regeneration, we assessed the time course of their expressions at both mRNA and protein levels after exercise-induced muscle damage in humans. In addition, we characterized mature IGF-1 and synthetic MGF E peptide signalling in C2C12 myoblast-like cells in vitro. Ten healthy male volunteers were subjected to exercise-induced muscle damage and biopsy samples were taken from the exercised muscles before and 6 h, 2, 5 and 16 days post exercise. Muscle damage was documented by specific functional and biochemical responses post exercise. PCR-based analyses of muscle biopsy samples revealed a rapid and transient up-regulation of MGF mRNA expression which was followed by a prolonged increase of IGF-1Ea and IGF-1Eb mRNA expression ($p < 0.05$). Patterns similar to those for mRNA expression were detected for MGF and IGF-1Ea expression at the protein level. The action of synthetic MGF E peptide differed from that of mature IGF1 since its proliferative effect on C2C12 myoblast-like cells was not blocked by an anti-IGF-1 receptor neutralizing antibody and it did not phosphorylate Akt. Therefore, we conclude that the differential expression profile of IGF-1 isoforms in vivo and the possible IGF-1R- independent MGF E peptide signaling in skeletal muscle-like cells in vitro support the notion that tissue-specific mRNA expression of MGF isoform produces mature IGF-1 and MGF E peptides which possibly act as distinct mitogens in skeletal muscle regeneration.



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DESCRIPTION

MGF is a split variant of IGF-1 and differs from the systemically produced IGF-1. It is believed that IGF-1 is spliced towards MGF thereby possibly initiating muscle hypertrophy and repair of local damage. Studies show that MGF is expressed by mechanically overloaded muscle and may be involved in tissue repair and adaptation. MGF is PEGylated, in order to increase the half-life.

"This statement has not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease."



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