

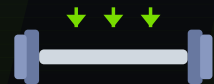
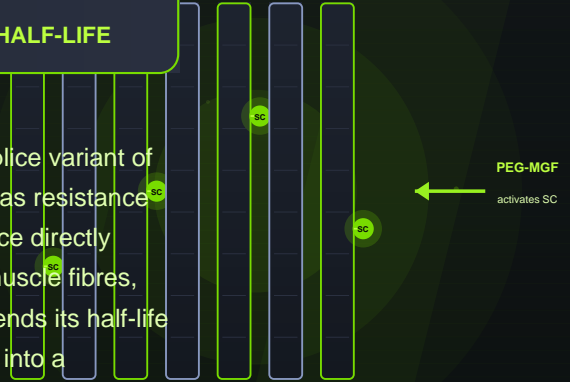
# PEG- MGF

Activate. Rebuild. Surpass.

The Satellite Cell Activator.

SATELLITE CELLS · HYPERTROPHY · REPAIR · EXTENDED HALF-LIFE

PEG-MGF (PEGylated Mechano Growth Factor) is a modified splice variant of **IGF-1** that is activated specifically by mechanical stress — such as resistance training or muscle damage. Its unique E-domain peptide sequence directly stimulates **satellite cells** to proliferate and fuse with damaged muscle fibres, driving repair and hypertrophy at a cellular level. PEGylation extends its half-life from minutes to **several days**, transforming a fragile local signal into a sustained systemic muscle-building agent.



**SC**

SATELLITE CELL TARGET

**1000x+**

HALF-LIFE EXTENSION

**IGF-1**

SPLICE VARIANT

**Systemic**

PEGYLATED ACTION

# What Is PEG-MGF?

From a fleeting mechanical signal to a sustained muscle-building force

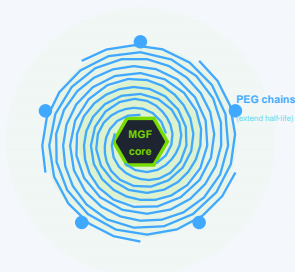
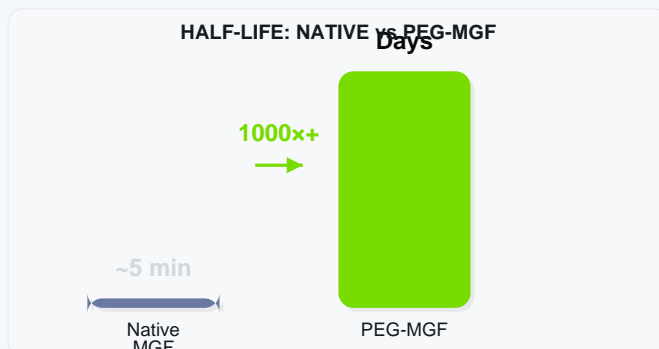
## Born from Mechanical Stress — A Muscle's SOS Signal

When a muscle fibre is damaged by mechanical load — a hard workout, a sprint, a heavy lift — it produces a locally-acting splice variant of IGF-1 called **Mechano Growth Factor (MGF)**. MGF's E-domain peptide immediately activates resting **satellite cells** — the muscle's own stem cells — prompting them to proliferate, migrate to the damage site, and fuse with injured fibres to rebuild them larger and stronger. In natural form, MGF has a half-life of just minutes. PEGylation — the attachment of polyethylene glycol chains — solves this limitation entirely, extending its active life to **several days** and enabling systemic distribution.

## PEGylation — Engineering Durability Into Nature's Signal

PEGylation is a well-established pharmaceutical technique that attaches inert polyethylene glycol (PEG) polymer chains to a peptide or protein. In PEG-MGF, these chains shield the MGF peptide from rapid enzymatic degradation, dramatically reducing renal clearance and increasing the hydrodynamic radius — tricking the body into retaining it far longer. The result is a peptide that can be injected once or twice weekly, maintaining satellite cell activation across multiple training sessions and enabling **cumulative muscle repair and hypertrophy** that native MGF could never sustain.

### The Engineering Advantage



#### Satellite Cell Selectivity

Unlike IGF-1 LR3 which acts broadly, the MGF E-domain specifically activates satellite cells — the muscle stem cells responsible for true hypertrophy beyond the myonuclear domain limit.

#### Distinct from IGF-1 LR3

PEG-MGF and IGF-1 LR3 act on different receptor populations. Used together they provide complementary anabolic signals — proliferating satellite cells (PEG-MGF) and promoting muscle protein synthesis (IGF-1 LR3).

#### No IGF Receptor Downregulation

Because PEG-MGF acts primarily via its E-domain rather than the IGF-1 receptor, it can be used without desensitising the IGF-1 receptor pathway — preserving responsiveness to other anabolic signals.

#### PEG Safety Profile

PEG polymers have an extensive safety record in FDA-approved drug products. PEGylation of MGF does not add biological activity — it solely extends

### ★ THE MUSCLE REPAIR MOLECULE — UNLOCKED

Natural MGF is brilliant but brief — a cry for help that fades before it can be fully answered. PEG-MGF is that same signal, sustained. By giving satellite cells days rather than minutes to respond, it transforms an acute repair event into a prolonged **anabolic window** — enabling levels of muscle growth and recovery that the body simply cannot achieve on its own.

# The Benefits of PEG-MGF

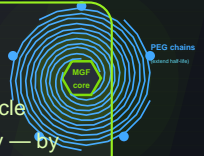
Sustained satellite cell activation — pushing the limits of muscle repair and growth

## 01 Superior Muscle Hypertrophy

By activating and sustaining satellite cell proliferation over days rather than minutes, PEG-MGF enables the addition of new myonuclei to muscle fibres — overcoming the myonuclear domain limit and allowing muscle growth beyond what IGF-1 or training alone can achieve.

## 02 Accelerated Muscle Repair

PEG-MGF dramatically speeds recovery from muscle damage — whether from training, injury, or surgery — by immediately and sustainably mobilising the satellite cells that rebuild damaged fibres. This reduces downtime and improves the quality of healed tissue.



## 03 Extended Anabolic Window Post-Training

A single injection of PEG-MGF after exercise maintains elevated satellite cell activity for several days, extending the post-workout anabolic window far beyond the few hours achievable naturally — allowing users to maximise the adaptive response to each session.

## 04 Preservation of Muscle During Cutting

During caloric restriction or aggressive cutting phases, PEG-MGF helps preserve existing muscle mass by maintaining satellite cell activity and signalling muscle fibres to maintain their structural integrity — preventing the catabolism that typically accompanies fat loss.

## 05 Complementary to IGF-1 LR3

PEG-MGF and IGF-1 LR3 act on different but synergistic pathways: PEG-MGF expands the satellite cell pool, while IGF-1 LR3 drives protein synthesis in existing muscle fibres. Used together in the post-workout window, they cover both critical dimensions of muscle anabolism.

## 06 Systemic Distribution via PEGylation

Unlike native MGF which acts only locally at the site of damage, PEGylation allows PEG-MGF to circulate systemically — reaching all muscle groups rather than just those immediately adjacent to the injection site, making it a whole-body recovery agent.

## 07 Nerve & Cardiac Muscle Repair

Emerging research suggests MGF's satellite-cell-activating properties extend beyond skeletal muscle — with evidence of beneficial effects on cardiac muscle repair after ischaemic injury and potential neuroprotective roles in peripheral nerve regeneration.

## 08 No Desensitisation of IGF-1 Receptor

Because PEG-MGF's primary mechanism is via the unique MGF E-domain rather than the classical IGF-1 receptor, it can be used in rotation or combination protocols without downregulating the IGF-1 receptor — maintaining the body's full responsiveness to growth signalling.

PEG-MGF is what happens when you take the body's own repair signal and give it the engineering it deserves — extending a fleeting molecular message into a sustained anabolic directive. For serious athletes, recovering patients, and anyone pushing the limits of what their body can rebuild, it represents a genuinely novel and powerful tool.

**Important:** PEG-MGF is a research peptide. It is not approved by the FDA or any regulatory authority for therapeutic or human use. All information is for research and educational purposes only. Use only under the supervision of a qualified healthcare or research professional.