

# MOTS-c

Mitochondrial-Encoded Peptide | 16 Amino Acids | AMPK Pathway Activator

## COMPOUND OVERVIEW

MOTS-c (Mitochondrial Open Reading Frame of the 12S rRNA-c) is a 16-amino-acid peptide encoded within the mitochondrial genome. It is notable as one of the few peptides capable of mitochondria-to-nucleus retrograde signalling, regulating nuclear gene expression in response to metabolic stress.

## MECHANISM OF ACTION

MOTS-c activates AMP-activated protein kinase (AMPK), a central regulator of cellular energy homeostasis. AMPK activation promotes glucose uptake in skeletal muscle, fatty acid oxidation, and mitochondrial biogenesis. MOTS-c also modulates the folate-methionine cycle, affecting one-carbon metabolism and contributing to systemic metabolic effects.

## RESEARCH APPLICATIONS

- Mitochondrial retrograde signalling studies
- AMPK activation and downstream metabolic pathway research
- Insulin sensitivity and glucose metabolism models
- Exercise mimetic compound research

## EVIDENCE STATUS & KNOWN LIMITATIONS

**Evidence Status:** Most published MOTS-c research is preclinical, predominantly in rodent models. Human trial data is early-stage and limited. Long-term effects, optimal research concentrations, and interactions with concurrent metabolic interventions require further investigation. Translation from murine to human physiology is not yet established.

## ANALYTICAL & STORAGE DATA

PURITY	>99.4% by HPLC/MS	PHYSICAL FORM	Lyophilised White Powder
STORAGE	2-8 C	SEQUENCE LENGTH	16 Amino Acids
RECONSTITUTION	Bacteriostatic Water (USP)	BATCH DOCS	Available on Request

## RECONSTITUTION NOTE

Introduce reconstitution solvent gently against the interior vial wall. Allow complete dissolution at rest without shaking. MOTS-c is sensitive to temperature fluctuations post-reconstitution; return to cold-chain storage immediately.

**REGULATORY CLASSIFICATION:** All BioUnfolding compounds are strictly intended for laboratory evaluation and in-vitro analysis. These materials are not intended for human consumption, veterinary use, or therapeutic application. Researchers are solely responsible for compliance with applicable local regulations including SAHPRA guidelines.

REQUEST BATCH DOCUMENTATION

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