

MOTS-c

MOTS-c is a 16-amino-acid peptide encoded within the mitochondrial 12S rRNA gene, described in 2015 as a regulator of metabolic homeostasis. Research is mainly in cell and rodent models, with limited human data.



■ Hydrophobic
 ■ Acidic
 ■ Basic
 ■ Polar
 ■ Gly, Pro, Cys
 ■ Non-standard

Length	16 residues
Formula	C ₁₀₁ H ₁₅₂ N ₂₈ O ₂₂ S ₂
Average mass	2,174.59 g/mol
Monoisotopic mass	2,173.1077 Da
Evidence	Early clinical studies
US status	Not FDA-approved; PCAC recommended 503A listing (July 2026), FDA action pending
WADA	Check the current Prohibited List

16 residues, encoded in the mitochondrial 12S rRNA gene.

Expected ions (monoisotopic)

[M+H] ⁺	[M+2H] ²⁺	[M+3H] ³⁺	[M+4H] ⁴⁺
2,174.1150	1,087.5611	725.3765	544.2842

What the COA should show

A MOTS-c certificate of analysis should confirm identity by mass spectrometry against the expected mass shown on this page and report HPLC purity with a chromatogram. Key pitfalls are oxidation of the two methionines and the tryptophan, which give +16 Da and related species, and deletion or truncation sequences that are common in a 16-residue synthesis. The salt form and net peptide content should be stated; because the peptide has several basic residues, it can carry multiple counterions, which lowers peptide content per milligram.

Storage and stability

Store lyophilized MOTS-c sealed at -20 °C or below, protected from light and moisture. With two methionines and a tryptophan, the peptide is vulnerable to oxidation, so limit air and light exposure and avoid long storage in solution. Allow vials to warm before opening, aliquot any prepared solution, and avoid repeated freeze-thaw cycles. Cationic peptides can adsorb to some plastics and glass at low concentrations.

Full entry, references and latest research: <https://peptidewiki.net/compounds/mots-c/>
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