thetrutides

MOTS-c

A mitochondrial-derived peptide studied in metabolic regulation

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MOTS-c is encoded not in the cell nucleus but in mitochondrial DNA — a genuinely unusual origin that drives most of the scientific interest in it. It drew the closest vote of the July 2026 PCAC hearing.

In Plain English

Mitochondria are the parts of your cells that turn food into usable energy, and they carry a small amount of their own DNA. MOTS-c is a short peptide written into that mitochondrial DNA. It appears to act as a signal that tells cells to switch into an energy-conserving, fat-burning mode — broadly the same switch exercise flips, which is why it is sometimes described as an exercise mimetic.

What people use it for. Metabolic support — body composition, insulin sensitivity, energy and endurance. It appeals particularly to people who train, because it appears to work on the same cellular switch that exercise does.

What to know before you buy. Dosing frequency is the thing most people get wrong. MOTS-c clears from the blood quickly, which tempts people into daily dosing, but it works as a trigger rather than a fuel — the downstream effects run for a couple of days after the peptide itself is gone. Intermittent dosing a few times a week is the pattern the research actually used, and daily flat dosing risks blunting the response. Human evidence so far is associative rather than interventional.

What It's Used For

GOAL	WHAT THAT RESTS ON
Metabolic health	Activates AMPK, the master energy sensor — the same switch exercise flips
Insulin sensitivity	Improved glucose handling reported in rodent models
Endurance and training capacity	Described in the literature as an exercise mimetic; associations reported between natural levels and fitness
Body composition	Protection against diet-induced obesity in animal models

The left column lists goals people commonly pursue with this compound; the right column states what that rests on. These are described uses and research findings, not proven outcomes or treatment claims. Individual results vary and no outcome is promised.

Pricing & Sizes

PRICING

10mg vial	$42
40mg vial	$100

Bulk pricing: 2-3 vials −5% | 4-6 vials −10% | 7-9 vials −15% | 10+ vials −20%

Ships sealed and lyophilized — stable for years at room temperature, reconstitute before use, or ask and it will be reconstituted free at the volume shown below. **Free shipping on every order, no minimum.** Third-party COA available for every batch — HPLC purity and mass spec verification.

Reconstitution — bacteriostatic water: 10mg vial at 2mL = 5mg/mL, so 10 units on a 100-unit syringe draws 0.5mg; **40mg vial** at 3mL = 13.3mg/mL, so 10 units on a 100-unit syringe draws 1.33mg. Concentrations are arithmetic from vial content and diluent volume, not a dosing recommendation.

At a Glance

CLASS	16-amino-acid mitochondrial-derived peptide encoded in the mitochondrial 12S rRNA region
MECHANISM	Activates AMPK, the cell's principal energy sensor; described in research as a metabolic regulator and exercise mimetic
PRECLINICAL	Insulin sensitivity, exercise capacity and metabolic models, predominantly rodent
HUMAN DATA	Observational associations reported; no completed randomised controlled trial
REVIEWED FOR	Obesity and osteoporosis
REGULATORY (US)	Not FDA-approved. PCAC recommended for 503A listing 23 July 2026; no FDA action taken
FORMAT	40mg vial

16	7-5-2	AMPK	0
AMINO ACIDS	PCAC VOTE — CLOSEST OF THE MEETING	PRIMARY TARGET	COMPLETED RCTS

REGULATORY STATUS — READ THIS FIRST

On 23 July 2026 the FDA Pharmacy Compounding Advisory Committee voted **7-5-2 to recommend** MOTS-c (free base and acetate) for the Section 503A bulk drug substances list. That vote is **advisory only.** As of 4 August 2026 the FDA has taken no action on it, has not opened rulemaking, and has not moved the substance to the interim Category 1 list. FDA's own scientific reviewers had recommended *against* all seven peptides; the committee voted against staff on six consecutive votes, so the usual assumption that a PCAC recommendation predicts the agency's decision is weaker here than normal. Several outlets have reported this as the FDA "clearing", "approving" or "adding" these peptides to the bulks list. That is inaccurate. Nothing has been added and nothing is legally cleared.

What the Research Shows

The core preclinical finding is AMPK activation, with downstream effects on glucose handling and fat metabolism reported in rodent models. Some studies report improved insulin sensitivity and protection against diet-induced obesity. Human work to date is largely observational — for example, associations between circulating MOTS-c levels and metabolic or fitness measures — which cannot establish that administering it produces a benefit.

On dosing frequency

MOTS-c has a short circulating half-life, but that is arguably the wrong variable to optimise around. It functions as a signalling trigger with downstream transcriptional effects that persist well beyond the peptide itself, which is the rationale behind the intermittent pulsed dosing patterns used in the published intermittent-administration models rather than flat daily dosing.

What Was Argued at the Hearing

MOTS-c drew the sharpest opposition of day one. The Partnership for Safe Medicines, Public Citizen and the Collaborative for Evidence-Based Medicine argued the substance is poorly characterised and that listing would amount to a large uncontrolled human experiment without adverse event reporting. Georgetown's Adrienne Fugh-Berman argued that market interest is a reason to study a substance, not to legalise it.

It passed 7-5 with two abstentions — the narrowest margin of the meeting.

THE BOTTOM LINE

Mechanistically the most interesting compound on the docket and the one with the clearest biological rationale, but the human evidence is associative rather than interventional. The 7-5-2 vote reflects a panel that found the rationale plausible and the evidence thin at the same time.

Also in the Range

Compare with **5-Amino-1MQ** and **NAD+** in the metabolic category. MOTS-c works through AMPK; the other two work through NAD+ availability.

 Sources: FDA PCAC meeting materials and briefing documents, 23-24 July 2026; Hyman, Phelps & McNamara FDA Law Blog, 24 and 28 July 2026; Mintz, 29 July 2026; Polsinelli, 22 April 2026.