

Setmelanotide

Setmelanotide is a synthetic cyclic eight-amino-acid melanocortin 4 receptor (MC4R) agonist. It is FDA-approved as Imcivree (2020) for chronic weight management in certain rare genetic forms of obesity affecting the leptin-melanocortin pathway.



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

Length	8 residues
Formula	C ₄₉ H ₆₈ N ₁₈ O ₉ S ₂
Average mass	1,117.31 g/mol
Monoisotopic mass	1,116.4858 Da
Evidence	Approved drug
US status	FDA-approved (Imcivree, 2020)
WADA	Check the current Prohibited List

Cyclic octapeptide amide closed by a Cys2–Cys8 disulfide.

Expected ions (monoisotopic)

[M+H] ⁺	[M+2H] ²⁺	[M+3H] ³⁺	[M+4H] ⁴⁺
1,117.4931	559.2502	373.1692	280.1287

What the COA should show

A certificate of analysis should confirm identity by mass spectrometry, with the observed mass matching the expected mass shown on this page for the disulfide-bridged, acetylated and amidated peptide, and report HPLC purity with the chromatogram. The most important compound-specific checks are complete disulfide formation, since the reduced form is 2 Da heavier, and absence of disulfide-linked dimers or oligomers. The HPLC method should resolve diastereomers at the D-Ala and D-Phe positions. Tryptophan oxidation products should be reported, and the counter-ion and net peptide content stated.

Storage and stability

Store lyophilized setmelanotide sealed at -20 °C or colder, protected from light and moisture, and let vials reach room temperature before opening. The disulfide bridge can undergo exchange or reduction under some conditions, so avoid reducing agents and high pH in buffers. The tryptophan residue is light- and oxidation-sensitive. Prepare solutions for lab use in sterile buffer, keep them refrigerated for short-term work, aliquot for longer storage at -20 °C or below, and avoid repeated freeze-thaw cycles.