

Afamelanotide

Afamelanotide is a synthetic 13-amino-acid analogue of α -melanocyte-stimulating hormone, [Nle4, D-Phe7]- α -MSH, that activates the melanocortin 1 receptor. It is FDA-approved as Scenesse (2019) for erythropoietic protoporphyria.



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

Length	13 residues
Formula	C ₇₈ H ₁₁₁ N ₂₁ O ₁₉
Average mass	1,646.85 g/mol
Monoisotopic mass	1,645.8365 Da
Evidence	Approved drug
US status	FDA-approved (Scenesse, 2019)
WADA	Check the current Prohibited List

[Nle4, D-Phe7]- α -MSH: 13 residues, acetylated and amidated.

Expected ions (monoisotopic)

[M+H] ⁺	[M+2H] ²⁺	[M+3H] ³⁺	[M+4H] ⁴⁺
1,646.8438	823.9255	549.6194	412.4664

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, and report HPLC purity with the chromatogram. A key distinction is from native α -MSH and from melanotan II: native α -MSH contains methionine 4 and L-Phe7, giving a different mass, while melanotan II is a shorter cyclic lactam. The HPLC method should resolve the L-Phe7 diastereomer, which has the same mass. Tryptophan oxidation and deamidation or truncation products should be reported, and the counter-ion and net peptide content stated.

Storage and stability

Store lyophilized afamelanotide sealed at -20 °C or colder, protected from light and moisture, and allow vials to reach room temperature before opening. The norleucine substitution removes the methionine oxidation risk present in native α -MSH, but the tryptophan residue remains light- and oxidation-sensitive. Prepare solutions for lab use in sterile water or buffer, keep them refrigerated for short-term use, aliquot for longer storage at -20 °C or below, and avoid repeated freeze-thaw cycles.

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