alpha-Melanocyte-stimulating hormone

α-Melanocyte-stimulating hormone	
Identifiers	
CAS number	581-05-5 [1] ✓
PubChem	16132636 [2]
ChemSpider	17289286 [3] ✓
ChEMBL	CHEMBL385886 [4] ✓
Properties	
Molecular formula	$C_{77}H_{109}N_{21}O_{19}S$
Molar mass	1664.884 g/mol
Pharmacology	
Elimination half-life	20 minutes[5]
✗ (verify) [6] (what is: ✓ / ✗ ?) Except where noted otherwise, data are given for materials in their standard state (at 25 °C, 100 kPa)	
Infobox references	

α-Melanocyte-stimulating hormone (**alpha-MSH**; **α-MSH**), also known as **alpha-melanotropin**, **alpha-melanocortin**, or **alpha-intermedin**, is a naturally occurring endogenous peptide hormone of the melanocortin family, with a tridecapeptide structure and the amino acid sequence Ac-Ser-Tyr-Ser-Met-Glu-His-Phe-Arg-Trp-Gly-Lys-Pro-Val-NH_2. It is the most important of the melanocyte-stimulating hormones (MSHs; also known as melanotropins) in stimulating melanogenesis, a process which in mammals (including humans) is responsible for pigmentation primarily of the hair and skin. It also plays a role in feeding behavior, energy homeostasis, and sexual activity.

α-MSH is a nonselective agonist of the melanocortin receptors MC_1, MC_3, MC_4 and MC_5, but not MC_2 [which is exclusive for adrenocorticotropic hormone (ACTH)]. Activation of the MC_1 receptor is responsible for its effect on pigmentation, whereas its regulation of appetite, metabolism, and sexual behavior is mediated through both the MC_3 and MC_4 receptors.

It is generated as a proteolyic cleavage product from ACTH (1-13), which is in turn a cleavage product of proopiomelanocortin (POMC).

A few synthetic analogues of α-MSH have been investigated as medicinal drugs due to their photoprotective effects against ultraviolet (UV) radiation from the sun. They include afamelanotide (melanotan) and melanotan II, the former of which is in phase-III clinical trials in the United States. Bremelanotide, another analogue of α-MSH, is currently under development not as a photoprotective agent, but instead for the treatment of sexual dysfunction. All of these drugs have significantly greater potencies than α-MSH, along with improved pharmacokinetics and distinctive selectivity profiles.

References

[1] http://www.commonchemistry.org/ChemicalDetail.aspx?ref=581-05-5

[2] http://pubchem.ncbi.nlm.nih.gov/summary/summary.cgi?cid=16132636

[3] http://www.chemspider.com/17289286

[4] https://www.ebi.ac.uk/chembldb/index.php/compound/inspect/CHEMBL385886

[5] Langan EA, Nie Z, Rhodes LE (September 2010). "Melanotropic peptides: more than just 'Barbie drugs' and 'sun-tan jabs'?" (http://onlinelibrary.wiley.com/resolve/openurl?genre=article&sid=nlm:pubmed&issn=0007-0963&date=2010&volume=163&issue=3&spage=451). *The British Journal of Dermatology* **163** (3): 451–5. doi:10.1111/j.1365-2133.2010.09891.x. PMID 20545686. .

[6] http://en.wikipedia.org/wiki/Special%3Acomparepages?rev1=477348553&page2=%3AAlpha-Melanocyte-stimulating+hormone

Article Sources and Contributors

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