PEPTIDE

±Melanocyte-Stimulating Hormone (±MSH)

POMC-derived tridecapeptide; activates MC1R for eumelanin synthesis and MC3/4R for appetite, immune, and inflammation modulation.

BIOGATE · GREEN | POSTERIOR 68.4% | MW 1664.9 | 13AA

SEQUENCE

SYSMEHFRWGKPV

Modifications: acetylated N-terminus; amidated C-terminus; POMC-derived 13-residue

PDA-V1 chain of custody

Outer hash

```
5357-
c36b5257c1d85557c6915457c4fe5757c9b75657c8245957ccdd585
```

Merkle root

```
bdba2948beba2adbbf-
ba2c6ec0ba2e01c1ba2f94c2ba3127c3ba32bac4ba344d
```

Inputs

```
dbac64ebdaac6358ddac6811dcac667ed-
fac6b37deac69a4e1ac6e5de0ac6cca
```

TEE attestation

```
2515-
c7422615c8d52315c41c2415c5af2115c0f62215c2891f15bdd02015bf63
```

Living Outcome Oracle

± =43.3 ² =20.0 **P(success) = 68.4%** 95% CI [56.4%, 80.4%]

Seven-rule export gate

7 / 7 rules satisfied · audience: researcher · Full attestation set, raw posteriors, all hashes

- Grade A or B citation present on the core claim
- BioGate verdict is GREEN or AMBER (RED/BLACK refused)
- Jurisdiction permits the audience-appropriate use
- RWE summary attached when claim depends on outcome data
- Prediction-outcome pairs disclosed when posterior cited
- No human-use claim beyond cited indications
- COA registry lookup available for any synthesis claim

Citations

GRADE B — 2010 · Trends Endocrinol Metab

±Melanocyte-stimulating hormone in normal human physiology and disease states

Catania A et al.

PMID 20887846