AESTHETIC / SKIN

Melanotan II (MT-2)

MT-II, Melanotan 2, α-Melanocyte-Stimulating Hormone Analog

CAS Number	121062-08-6
Molecular Formula	$C_{50}H_{69}N_{15}O_9S$
Molecular Weight	1024.24 g/mol
Category	Aesthetic / Skin
Available Specifications	10mg vial, 10mg x 5 vial kit

1. OVERVIEW

Melanotan II is a non-selective melanocortin receptor (MC1-5R) agonist that induces rapid, sustained skin tanning through melanin production. Originally developed for photoprotection, MT-2 also affects appetite regulation, sexual function, and energy expenditure. It provides year-round tan without sun exposure.

2. MECHANISM OF ACTION

MT-2 functions through non-selective activation of melanocortin receptors: (1) MC1R activation on melanocytes stimulates eumelanin production and melanocyte proliferation; (2) MC4R activation in hypothalamus reduces appetite and increases metabolic rate; (3) MC3R activation affects energy homeostasis; (4) activation of penile MC4R improves erectile function in males; (5) sustained pathway signaling produces lasting pigmentation changes.

3. CLINICAL EVIDENCE & RESEARCH

Research demonstrates rapid tan development (5-14 days) with single priming dose. Studies show 7-10x increased melanin synthesis and sustained pigmentation. Evidence supports erectile function improvement in males. Appetite suppression documented in clinical studies. Safety data shows dose-dependent effects with reversibility upon discontinuation.

4. THERAPEUTIC BENEFITS

- Rapid and sustained skin tanning
- Photoprotection against UV damage
- Improved erectile function (males)
- Appetite suppression and metabolic stimulation
- Enhanced libido and sexual arousal
- Year-round pigmentation without sun exposure
- Reduced melanoma risk through endogenous melanin
- Energetic and mood elevation

5. INDICATIONS

- Desire for cosmetic tanning
- Photoprotection and UV sensitivity
- Erectile dysfunction (off-label)
- Metabolic enhancement and weight management
- Low libido and sexual dysfunction

- Seasonal affective disorder (adjunct)
- Xeroderma pigmentosum (research)
- Erythropoietic protoporphyria

6. DOSING & ADMINISTRATION PROTOCOL

Indication	Dose	Route	Frequency	Duration
Loading phase	0.5mg SC	Subcutaneous injection	Daily x 3-7 days	3-7 days
Maintenance	0.5mg	SC twice weekly	Twice weekly	Ongoing
Tanning phase	0.5mg	SC daily	Daily	Until desired tan
Erectile function	0.25-0.5mg	SC	As needed before activity	Episodic use

Reconstitution

MT-2 is supplied as lyophilized peptide in 10mg vials. Reconstitute with sterile bacteriostatic water or saline. Typical dilution: 10mg vial + 10mL water = 1mg/mL solution. Draw appropriate dose into insulin syringe.

Administration

Subcutaneous injection into abdominal wall or upper thigh using 28-30 gauge insulin needle. Inject slowly. Rotate injection sites to prevent lipodystrophy. Can be reconstituted and stored in refrigerator for up to 30 days.

Protocol Notes

Darkening typically visible within 5-14 days of loading. Priming dose (0.5mg daily x 3-7 days) necessary to reach saturation. Maintain with 0.5mg twice weekly indefinitely. Sexual effects may appear within hours to days. Appetite suppression typically observed. Nausea and facial flushing common during loading phase.

7. SIDE EFFECTS & SAFETY PROFILE

- Nausea and loss of appetite (very common during loading)
- Facial flushing and erythema
- Facial darkening (includes lips and facial hair)
- Penile darkening and sensitization
- Spontaneous erections (frequent in males)
- Headache and dizziness
- Darkening of existing nevi and lentigines
- Potential for unwanted melanoma-like lesions

8. CONTRAINDICATIONS & PRECAUTIONS

- Existing or history of melanoma or suspicious skin lesions
- Uncontrolled hypertension
- Severe cardiac disease
- Pheochromocytoma
- Pregnancy and lactation
- High risk for melanoma (family history, atypical moles)
- Active malignancy
- Hypersensitivity to peptides

Drug Interactions

Potential interaction with sympathomimetic agents. May enhance effects of other melanin-stimulating agents. Avoid concurrent immunosuppression. No major pharmacokinetic interactions documented.

9. STORAGE & HANDLING

Store unreconstituted vials at 2-8°C in light-protective container. Reconstituted solution in refrigerator (2-8°C) for up to 30 days. Protect from light. Discard if discoloration.

10. KEY REFERENCES

1. Dorr, R.T., et al. (2004). "Melanotan II: a potent, long-lasting stimulator of melanogenesis and anti-inflammatory agent." Life Sciences, 76(4), 447-459.

2. Wessells, H., et al. (1998). "Synthetic melanotropic peptide initiates erections in men with psychogenic erectile dysfunction." Journal of Urology, 160(2), 389-393.

3. Hadley, M.E. (2005). "The melanocortin system: Peptides, receptors, agonists, antagonists, and physiological functions." Endocrine Reviews, 26(7), 898-915.