Melanotan II — Research Summary

Research Use Only. Not for human consumption. For laboratory/research reference purposes only.

Internal Research Use Only — Not Labeling or Marketing Copy. This document is for internal research reference. Content must not be copied to product pages, packaging, or customer-facing marketing without compliance review.

---

1. What It Is

Melanotan II (MT-II) is a synthetic cyclic analog of alpha-melanocyte-stimulating hormone (α-MSH), originally developed as a photoprotective/sunless-tanning research compound at the University of Arizona. It broadly activates melanocortin receptors, with notably higher MC1R (pigmentation receptor) affinity than its later-developed derivative, PT-141 (bremelanotide).

Regulatory status: Melanotan II has never completed FDA approval for any indication and remains unapproved for human therapeutic use in the United States, European Union, and most other jurisdictions. It is a research compound only — its clinical development did not proceed to marketing approval; its structural relative PT-141/bremelanotide did.

Important lab-identity note: Melanotan II (MW 1024.20, C-terminal -NH2) differs from bremelanotide/PT-141 (MW 1025.18, C-terminal -OH) by only 1 Dalton. Standard unit-resolution mass spectrometry cannot reliably distinguish the two — only high-resolution MS (TOF, Orbitrap) can. This is a genuine supply-chain/QC risk: research-market vials sold as one compound could plausibly be mislabeled as the other without higher-resolution testing.

---

2. Reported Effects in Research Literature

Reminder: Research Use Only. Not for human consumption. The following is a summary of published research findings, not a therapeutic claim.

- **Pigmentation:** MT-II's primary and best-established effect is stimulation of melanogenesis (skin pigmentation) via MC1R activation — this was its original research purpose (photoprotection/tanning).
- **Discovery of sexual effects:** During early clinical investigation, researchers observed unexpected spontaneous erections in male subjects receiving MT-II — an incidental finding that directly led to the development of the more MC4R-selective PT-141/bremelanotide as a dedicated sexual-dysfunction compound.
- **Cardiovascular profile:** MT-II's broader, less-selective melanocortin receptor activation (compared to PT-141) is associated with a different, generally regarded as less favorable, cardiovascular safety profile in the literature.
- **Human clinical development status:** Despite promising early pigmentation and libido-related signal, MT-II never completed the full FDA approval process for any indication. Its clinical development effectively ended, while its more receptor-selective derivative (PT-141) continued through to FDA approval as Vyleesi.

Research limitation to note: Because MT-II's clinical program did not proceed to completion, published controlled human trial data is considerably thinner than for its FDA-approved derivative, PT-141. Most of what's documented for MT-II specifically comes from earlier-phase and preclinical work, plus the mechanistic/receptor-binding literature shared with PT-141 research.

---

3. Clinical & Preclinical Study References

- Overview: Melanotan 2: Research Profile & Guide, Peptides Institute
- Comparative mechanism/identity reference: PT-141 (Bremelanotide): Complete Research Guide —

MC4R Mechanism (French Peptides) — covers the shared origin and receptor-selectivity distinction between MT-II and PT-141.
- QC/identity note: PT-141 — Evidence-weighted peptide profile, clearbatch.net

---

4. Reconstitution Process

For research/laboratory handling purposes only.

Keep out of reach of children. Not for use by pregnant or nursing individuals. For laboratory research use by qualified personnel only.

1. **Materials needed:** lyophilized (freeze-dried) Melanotan II powder, bacteriostatic water, alcohol swabs, syringe with needle.
2. **Bring the vial to room temperature** before reconstitution.
3. **Sanitize** the rubber stopper of both vials with an alcohol swab.
4. **Add the water slowly** down the *inside wall* of the vial, to reduce shear/foaming.
5. **Do not shake.** Gently swirl or roll between palms until fully dissolved.
6. **Inspect the solution** — should be clear and free of particulates.
7. **Label the vial** with reconstitution date and concentration.
8. **Storage:** refrigerate (2–8°C); avoid freeze-thaw cycles.

Reference: Bacteriostatic Water Volume by Vial Size

Vial Size	BAC Water Added	Resulting Concentration
5 mg	1 mL	5 mg/mL
5 mg	2 mL	2.5 mg/mL
5 mg	5 mL	1 mg/mL
10 mg	1 mL	10 mg/mL
10 mg	2 mL	5 mg/mL
10 mg	4 mL	2.5 mg/mL
10 mg	5 mL	2 mg/mL
10 mg	10 mL	1 mg/mL

Notes: Higher water volume = more dilute solution; lower volume = more concentrated. Always use bacteriostatic water (0.9% benzyl alcohol) for multi-draw vials; sterile water without preservative should be discarded within 24 hours.

Document created: July 16, 2026. **Revision 1:** July 29, 2026. Regulatory status (FDA compounding lists, WADA lists) is actively shifting; re-verify against current sources before any customer-facing use.
