Deltorphin

Also called: Deltorphin I; Deltorphin II; Deltorphin A; D-Ala2-deltorphin II; Dermenkephalin

What it is

The deltorphins (deltorphin, deltorphin I, deltorphin II) are amphibian heptapeptides from Phyllomedusa frog skin that are the most selective natural agonists of the delta-opioid receptor, unusual for a D-amino acid in position 2 (PMID 2542051). They cross the blood-brain barrier via a dedicated transporter (PMID 9256506) and produce delta-mediated analgesia (PMID 25844930). They are research peptides and delta-opioid probes, approved nowhere and never given to people as a treatment.

Approval status

Research Chemical. Not a drug: Drugs@FDA and the openFDA label endpoint hold no record for deltorphin (searched November 5, 2026). The deltorphins are amphibian research peptides with no therapeutic development and no registered trial; FDA GSRS and ChEMBL hold no drug substance record. Delta-opioid analgesia is pursued with investigational small molecules, not these peptides.

Dosing, as printed in the page's Recommended Dosing box

No established human dose

The deltorphins are amphibian research peptides, not treatments, and no human dose exists. They have been used only in laboratory and animal studies of the delta-opioid receptor, never given to people for any condition, and no regulator has approved a dose.

Educational information, not medical advice. None is a recommendation for you. An unapproved compound has no established safe or effective human dose, and products sold for "research use only" are not made or tested for people. Talk to a doctor before acting on anything on this site, including before you start, stop or change any medicine or dose.

Key human evidence

No human study is carded on the page; its 6 study cards are reviews, animal or cell work. The first 2:

• **Discovery of a delta-selective frog peptide** (In Vitro, 1989). Working from the dermorphin gene, the authors predicted and synthesised a related peptide; the version with D-methionine in position 2 bound the delta-opioid receptor with high affinity and selectivity in mouse vas deferens and rat brain, and the natural D-amino-acid peptide was then isolated from Phyllomedusa sauvagei skin. They named it deltorphin (Tyr-D-Met-Phe-His-Leu-Met-Asp-NH2). **PMID 2542051**

• **Crossing the blood-brain barrier** (Animal, 1997). Deltorphins penetrated the brain unusually well in vivo, and in isolated bovine brain microvessels they were taken up by a specific, saturable transport system distinct from those carrying amino acids or enkephalins. The uptake was blocked by naloxone but not by delta or mu receptor ligands and did not involve detectable opioid receptors on the vessels, defining a dedicated transport route into the brain. **PMID 9256506**

Interactions

A PubMed search for interaction studies of this compound with any drug (November 5, 2026, 59 records) found none in people. That is not evidence that it is safe to combine with anything.

Side effects and cautions

Reported side effects	Contraindications and cautions
• No human safety data exist: the deltorphins have not been administered to people • They are delta-opioid agonists; in animals delta agonists can lower seizure threshold at high doses (a class caution) • Effects in animals are blocked by delta-opioid antagonists, confirming receptor-mediated actions (PMIDs 25844930, 38779626) • Material sold online as 'deltorphin' is an unregulated research chemical of unverified content	• Not a medicine: no FDA application or label, and no approval anywhere • No human dosing, interaction, pregnancy or long-term safety data exist • They are amphibian research peptides and delta-opioid probes, not treatments for pain or any condition • Delta-opioid agonism is an active drug-discovery area, but with investigational small molecules, not these peptides

Five questions to ask

1. Deltorphin is listed here as "Research Chemical". What does the evidence on this sheet mean for someone in my situation, and is there an approved treatment I should consider instead?
2. Here are the medicines and supplements I take. Do any of them interact with Deltorphin? This sheet records none published, which does not mean none exist.
3. Which side effects should make me stop and call you, for example no human safety data exist: the deltorphins have not been administered to people?
4. Do any of the cautions on this sheet apply to me, such as: Not a medicine: no FDA application or label, and no approval anywhere?
5. What should we check before I start and while I am on it (blood tests, blood pressure, weight), and how often?

Grey Peptides is a vendor-neutral encyclopedia: it sells nothing and names no seller. This sheet is educational, not medical advice, and is not a prescription.