Tachyplesin

Also called: Tachyplesin I; Tachyplesin II; Tachyplesin III; Tachyplesins

What it is

Tachyplesin is a small (~17 amino acid), highly cationic antimicrobial peptide from the hemocytes of the horseshoe crab (Tachypleus tridentatus), first isolated by Nakamura et al. (1988). Two disulfide bonds lock it into a rigid beta-hairpin; variants include tachyplesin I, II and III. It disrupts microbial membranes (broad-spectrum antibacterial, antifungal, antiviral), binds endotoxin, and is a notable anticancer and anti-inflammatory lead and engineering scaffold (PMIDs 39032840, 39560721). Tachyplesins are research peptides, not approved medicines, and have never been given to people as a treatment.

Approval status

Research Chemical. Not drugs: Drugs@FDA and the openFDA label endpoint hold no record, and FDA GSRS and ChEMBL hold no approved-drug record for tachyplesin peptides (searched November 7, 2026). They are horseshoe-crab antimicrobial peptides studied as antibacterial, antifungal, anti-inflammatory and anticancer leads and as engineering scaffolds; there is no therapeutic development to market and no registered interventional trial of giving a tachyplesin to people.

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

No established human dose

Tachyplesins are horseshoe-crab research peptides; none has been given to people as a treatment. The work is in bacteria, cultured cells and animals, often with engineered, cyclised or gene-delivered forms, at experimental amounts that do not carry over to people.

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:

• **A simplified linear tachyplesin analog with antibacterial and anti-virulence activity** (In Vitro, 2025). Synthetic analogs of tachyplesin I with the cysteines (and, in one, arginines) deleted kept potent antibacterial activity against Staphylococcus aureus and Pseudomonas aeruginosa while being simpler to make; the cysteine- and arginine-deleted analog disrupted membranes and also bound bacterial quorum-sensing regulators and down-regulated virulence genes — a dual bactericidal and anti-virulence profile (an in-vitro study). **PMID 41071843**

• **Tachyplesin II wound-healing hydrogel for infected wounds (rats)** (Animal, 2025). Tachyplesin II incorporated into a methacrylated-gelatine hydrogel gave the dressing antibacterial and antioxidant activity with good biocompatibility and self-healing properties, and in a rat infected-wound model it reduced inflammation, boosted collagen and accelerated healing — a preclinical wound-dressing result. **PMID 39985891**

Interactions

A PubMed search for interaction studies of this compound with any drug (November 7, 2026, 10 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 adverse-event data exist: no published study has administered a tachyplesin to people • As membrane-active peptides, hemolysis and cytotoxicity to host cells are the central safety concern; analog and spider-homolog design explicitly aims for low hemolysis (PMIDs 39770850, 41071843) — a design issue, not human data • Tachyplesin and its cyclic/engineered forms are cytotoxic to cancer cells by design (PMIDs 39032840, 38691208); selectivity for tumour over healthy cells is an open research question • Material sold online as a 'tachyplesin' is an unregulated research chemical of unverified content	• Not medicines: no FDA application or label, and no approval anywhere • No human dosing, interaction, pregnancy or long-term safety data exist for administered tachyplesins • They are horseshoe-crab research antimicrobial/anticancer peptides, not treatments • Their membrane-lytic nature (hemolysis/cytotoxicity) warrants caution about effects on host cells in any use

Five questions to ask

1. Tachyplesin 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 Tachyplesin? 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 adverse-event data exist: no published study has administered a tachyplesin to people?
4. Do any of the cautions on this sheet apply to me, such as: Not medicines: 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.