Epinecidin-1

Also called: Epinecidin; Epi-1; Epinecidin 1

What it is

Epinecidin-1 is a cationic, amphipathic, alpha-helical antimicrobial peptide (~21-25 amino acids) from the orange-spotted grouper (Epinephelus coioides) and a member of the piscidin family of fish antimicrobial peptides, first characterised in the mid-2000s. It disrupts microbial membranes (broad-spectrum antibacterial, antifungal, antiviral), binds endotoxin, kills cancer cells by multiple death pathways and promotes wound healing, usually studied as engineered variants (PMIDs 42782477, 41655938). It is a research peptide, not an approved medicine, and has never been given to people as a treatment.

Approval status

Research Chemical. Not a drug: Drugs@FDA and the openFDA label endpoint hold no record, and FDA GSRS and ChEMBL hold no approved-drug record for epinecidin-1 (searched November 7, 2026). It is a grouper (piscidin-family) antimicrobial peptide studied as an antibacterial, antifungal, anticancer and wound-healing lead and as an engineering scaffold, including agricultural antifungal use; there is no therapeutic development to market and no registered interventional trial of giving epinecidin-1 to people.

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

No established human dose

Epinecidin-1 is a grouper research peptide; it has not been given to people as a treatment. The work is in bacteria, fungi and cultured cells, often with engineered variants, 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:

• **Epinecidin-1 kills osteosarcoma cells by multiple death pathways** (In Vitro, 2026). Epinecidin-1 killed two osteosarcoma cell lines not by classical apoptosis but by pyroptosis in one and oncosis in the other, in both cases via mitochondrial damage and a redistribution of calcium into the cytosol; it also cleaved gasdermin D through caspase-1 and made the chemotherapy drug methotrexate more cytotoxic, including against cancer stem-like spheres (an in-vitro anticancer study). **PMID 42782477**

• **Epinecidin-1 variants enhance anticancer activity with doxorubicin** (In Vitro, 2026). Lysine-substituted epinecidin-1 variants were two-to-four times more cytotoxic to a panel of cancer cell lines than the native peptide while sparing normal kidney cells, acted through reactive oxygen species and apoptosis, and combined with doxorubicin to kill cancer cells at much lower drug doses — an in-vitro anticancer and docking study. **PMID 42484926**

Interactions

A PubMed search for interaction studies of this compound with any drug (November 7, 2026, 3 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 epinecidin-1 to people • As a membrane-active peptide, cytotoxicity and hemolysis to host cells are the central safety concern; engineered variants are designed specifically to spare normal cells (PMIDs 42484926, 41949677) — a research finding, not human data • Epinecidin-1 and its variants are cytotoxic to cancer cells by design (PMID 42782477); selectivity for tumour over healthy cells is an active research question • Material sold online as 'epinecidin' 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 for administered epinecidin-1 • It is a grouper research antimicrobial/anticancer peptide, not a treatment • Its membrane-active nature (cytotoxicity/hemolysis) warrants caution about effects on host cells in any use

Five questions to ask

1. Epinecidin-1 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 Epinecidin-1? 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 epinecidin-1 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.