Mastoparan

Also called: Mastoparan-L; INLKALAALAKKIL-NH2; Vespula mastoparan

What it is

Mastoparan is a 14-amino-acid amphipathic wasp-venom peptide (Ile-Asn-Leu-Lys-Ala-Leu-Ala-Ala-Leu-Ala-Lys-Lys-Ile-Leu-NH2) from Vespula lewisii, named in 1979 as a mast-cell-degranulating peptide (PMID 540362). It directly activates heterotrimeric G proteins, mimicking an agonist-bound receptor (PMID 3129426), and as a membrane-active helix its variants are antimicrobial, antiviral and anticancer. It is a venom/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 mastoparan (searched November 7, 2026). It is a wasp-venom peptide used as a G-protein-signalling research tool and studied as an antimicrobial, antiviral and anticancer lead (often as engineered variants); there is no therapeutic development to market and no registered interventional trial of giving it to people.

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

No established human dose

Mastoparan is a wasp-venom peptide and research tool; it has never been given to people as a treatment. The work is in cells and animals, where synthetic peptide or its analogs are used 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:

• **Discovery: mastoparan, a mast-cell-degranulating wasp-venom peptide** (In Vitro, 1979). A new peptide was isolated from the venom of the wasp Vespula lewisii, its amino-acid sequence determined, and it was named mastoparan for its ability to degranulate mast cells — the founding description of the mastoparan family of wasp-venom peptides (a discovery study). **PMID 540362**

• **Mastoparan activates G proteins directly, mimicking a receptor** (In Vitro, 1988). Mastoparan increased the GTPase activity and nucleotide binding of purified heterotrimeric G proteins by promoting release of bound GDP — the same mechanism cell-surface receptors use — and pertussis toxin blocked this; in a lipid bilayer its structure resembled the cationic intracellular loop of a G-protein-coupled receptor, so it mimics an agonist-bound receptor from the inside (the classic mechanistic study). **PMID 3129426**

Interactions

A PubMed search for interaction studies of this compound with any drug (November 7, 2026, 15 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 mastoparan to people as a treatment • It is a mast-cell degranulator (histamine release) and a membrane-lytic peptide, so allergic-type and cell-damaging effects are intrinsic to its action — a biological fact, not a safety profile • Some mastoparan analogs can be hemolytic/cytotoxic; engineering (e.g. tryptophan substitution) is used to reduce this (PMID 40248899) — a design consideration, not human data • Material sold online as 'mastoparan' is an unregulated research chemical of unverified content and potent biological activity	• 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 mastoparan • It is a wasp-venom research peptide, not a treatment • Its mast-cell-degranulating and membrane-lytic activity makes uncontrolled exposure biologically risky

Five questions to ask

1. Mastoparan 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 Mastoparan? 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 mastoparan to people as a treatment?
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?

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