Gomesin

Also called: AgGom; Cyclic gomesin; Gomesins

What it is

Gomesin is an 18-residue cationic beta-hairpin antimicrobial peptide from the haemocytes of the Brazilian tarantula Acanthoscurria gomesiana, first described by Silva, Daffre, Bulet et al. (2000) and structurally similar to the horseshoe-crab tachyplesins. It binds and breaks the membranes of bacteria, fungi, parasites and cancer cells by inducing membrane protrusion and laceration rather than classic pores (PMIDs 31510749, 39771584), and its serum-stable cyclic analogs enter cancer cells, clear biofilms and carry drugs (PMIDs 32979382, 36171717). Gomesin is a research peptide, not an approved medicine, and has never been given to people as an approved treatment.

Approval status

Research Chemical. Not an approved drug: Drugs@FDA and the openFDA label endpoint hold no record, and FDA GSRS and ChEMBL hold no approved-drug record for gomesin (searched November 7, 2026). It is a tarantula-haemocyte antimicrobial peptide studied as a broad-spectrum antibacterial, antifungal, antiparasitic and anticancer lead and as a drug-delivery scaffold; its cyclic analogs are investigational, not approved, and there is no registered interventional trial of giving gomesin to people as an approved treatment.

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

No established human dose

Gomesin is a spider research peptide; no gomesin is an approved treatment, and its cyclic analogs are investigational scaffolds. The work here is in microbes, cultured cells and animals, often with engineered analogs, at experimental amounts that do not carry over to people, so no amount is printed here.

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:

• **How gomesins kill melanoma cells: the glycosphingolipid pathway and cholesterol** (Animal, 2025). Using lipidomics, CRISPR screening, biophysics and a melanoma xenograft, spider gomesins (AgGom and HiGom) were shown to disrupt melanoma membranes with a specific phospholipid and cholesterol makeup; their toxicity ran through the glycosphingolipid pathway (ST3GAL5), and cholesterol-poor melanoma cells were most sensitive — mapping a route to targeted melanoma therapies (a preclinical study). **PMID 41271646**

• **Gomesin-like peptides with more selective antifungal activity** (In Vitro, 2024). Natural gomesin-like peptides were mined and produced recombinantly; a short, histidine-rich spider analog (DsGom) matched natural gomesin's antifungal activity against Candida while being much less toxic to human cells and remaining stable, making it a promising antifungal lead (an in-vitro study). **PMID 39771584**

Interactions

A PubMed search for interaction studies of this compound with any drug (November 7, 2026, 1 record) 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 approved-treatment human safety data exist for gomesin • Natural gomesin is toxic to some human cells at active concentrations; engineered analogs (DsGom, D-amino-acid cyclic gomesin) are designed to reduce that toxicity (PMIDs 39771584, 32979382) — research findings, not approved-drug data • Its activity against cancer cells is being explored deliberately (PMID 41271646), which also means effects on host cells must be weighed in any development • Material sold online as 'gomesin' is an unregulated research chemical of unverified content	• Not an approved medicine: no FDA application or label, and no approval anywhere • No approved human dosing, interaction, pregnancy or long-term safety data exist for gomesin • It is a spider-haemocyte research antimicrobial/anticancer peptide, not a treatment • Its membrane-disrupting, cell-entering nature warrants particular caution about effects on host cells

Five questions to ask

1. Gomesin 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 Gomesin? 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 approved-treatment human safety data exist for gomesin?
4. Do any of the cautions on this sheet apply to me, such as: Not an approved 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.