αCT1 (Alpha Connexin Carboxyl-Terminus 1)

Also called: αCT1; alphaCT1; aCT1; ACT1; ACT1 peptide; Alpha Connexin Carboxyl-Terminus 1; alpha connexin carboxy-terminal peptide; Granexin; iNexin; connexin43 mimetic peptide; Cx43 carboxyl-terminal peptide

What it is

αCT1 (aCT1/ACT1, gel name Granexin) is a 25-amino-acid cell-penetrating peptide that copies the connexin43 carboxyl-terminus and blocks the Cx43/ZO-1 interaction, remodelling gap junctions to promote regenerative wound healing and reduce scarring (PMID 19317641). In human randomised trials the topical gel improved chronic venous leg ulcer (PMID 25072595) and diabetic foot ulcer (PMID 25703647) healing, and in a Phase I study made surgical-scar collagen resemble unwounded skin (PMID 34246197); the same mechanism reduced arrhythmia after heart injury in mice (PMID 21273554). It is investigational and not approved anywhere, and a pivotal Phase 3 diabetic-foot trial was terminated.

Approval status

In Clinical Trials. Investigational, not approved: Drugs@FDA and the openFDA label endpoint hold no approved application or label for αCT1 / Granexin (searched November 7, 2026). It has been tested in human randomised trials as a topical gel in chronic venous leg ulcers and diabetic foot ulcers and in surgical scarring, and as an eye drop (iNexin) for dry eye; a pivotal US Phase 3 diabetic-foot-ulcer trial (GAIT-1, NCT02667327) was terminated, while a Phase 2b/3 scar trial (NCT04331080) completed. Developed by FirstString Research and then Xequel Bio.

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

No established human dose

alphaCT1 has been given to people only inside clinical trials, as an investigational topical gel (Granexin) or eye drop (iNexin) applied under study supervision — for example Granexin gel at 100-200 micromolar in the surgical-scar trial (ClinicalTrials.gov NCT04331080) and 0.08-2.0% alphaCT1 eye drops in a dry-eye study (NCT05031806). Those are trial formulations tied to their protocols, not a self-administration dose: there is no approved product, no established regimen, and no amount is printed here as guidance.

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

The 3 human studies carded on the page (6 study cards in all):

• **Connexin43-based peptide heals chronic venous leg ulcers (RCT)** (Human, 2015). In a prospective multicentre randomised trial in India, adults with chronic venous leg ulcers received the connexin43-based peptide ACT1 as a gel plus standard compression care, or standard care alone. Adding ACT1 gave a significantly greater reduction in mean ulcer area at 12 weeks (79% vs 36%; p=0.02) and a shorter time to 50% and 100% re-epithelialisation — a positive human interventional result in chronic wound healing. **PMID 25072595**

• **Topical connexin43-based peptide augments diabetic foot ulcer healing (RCT)** (Human, 2015). A prospective multicentre randomised trial tested the connexin43 C-terminal peptide ACT1, added to standard of care, in adults with chronic neuropathic diabetic foot ulcers. ACT1 was associated with a significantly greater reduction in mean ulcer area over 12 weeks (72.1% vs 57.1%; p=0.03), a higher proportion reaching full closure and a shorter median time to closure, with no treatment-related adverse events and no detectable immunogenicity — a positive human interventional result. **PMID 25703647**

• **alphaCT1 makes surgical-scar collagen resemble unwounded skin (Phase I + models)** (Human, 2021). Building on Phase II data that acute alphaCT1 improved surgical scar appearance by about 47% at 9 months, this study compared alphaCT1- and vehicle-treated wounds within the same patients (Phase I biopsies at day 29) and in rat and guinea-pig models. The main effect on scar structure was that alphaCT1-treated scars had less-aligned collagen fibres — a feature of unwounded skin — explained by alphaCT1 reducing the directionality of fibroblast movement (a human clinical-trial study with supporting animal and computational models). **PMID 34246197**

Interactions

A PubMed search for interaction studies of this compound with any drug (November 7, 2026, 4 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
• In the diabetic foot ulcer randomised trial, no adverse events were reported as treatment-related and the peptide was not immunogenic (PMID 25703647) • The venous leg ulcer randomised trial likewise reported the gel as well tolerated alongside standard care (PMID 25072595) • Human safety data are limited to topical use in trials; a pivotal Phase 3 diabetic-foot trial was terminated, so late-stage efficacy and safety in that setting are not established (ClinicalTrials.gov NCT02667327) • There is no established safety profile for any non-topical or self-directed use; material sold online under peptide names is an unregulated research chemical of unverified content	• Not an approved medicine: no FDA application or label, and no approval in any country • No approved dose, and no studied use beyond the topical/eye-drop trial formulations • No human data support systemic or injected use; trial use was topical and supervised • Pregnancy, long-term and drug-interaction safety have not been characterised

Five questions to ask

1. αCT1 (Alpha Connexin Carboxyl-Terminus 1) is listed here as "In Clinical Trials". 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 αCT1 (Alpha Connexin Carboxyl-Terminus 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 in the diabetic foot ulcer randomised trial?
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 in any country?
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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