INSL5

Also called: Insulin-like peptide 5; Insulin-like peptide-5; Insulin-like factor 5; Insulin-like peptide INSL5

What it is

INSL5 (insulin-like peptide 5) is a two-chain hormone of the insulin and relaxin family and the natural ligand of RXFP4 (PMID 15525639), made by enteroendocrine L cells of the colon and rectum (PMID 23128569) alongside GLP-1 and PYY (PMID 30104166). In mice its blood level rises with fasting and injections increase food intake through its receptor (PMID 25028498), while a later study in obese mice found no effect on weight or glucose control (PMID 31348991). Human studies only measured it: a bile acid enema raised plasma levels in volunteers and levels were higher in bile acid diarrhoea (PMID 40701790), and levels fell after weight-loss surgery (PMID 37297947). It has never been given to people.

Approval status

Research Chemical. Not a medicine: an endogenous human gut hormone studied in animals and measured in people. Drugs@FDA and the openFDA label endpoint return no record for INSL5 or insulin-like peptide 5, and ClinicalTrials.gov lists no study that gives it; the single registered study naming it measured it as a secondary outcome of a protein drink, NCT03136133 (November 3, 2026).

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

No established human dose

No study on this page gave INSL5 to a person. The human evidence is measurement and expression: the peptide and its receptor located in colon, rectum and tumour tissue, its chains read off human colonic samples by mass spectrometry, plasma and serum levels compared between groups of women with polycystic ovary syndrome, people before and after weight-loss surgery, patients with chronic diarrhoea and patients with nasopharyngeal carcinoma, and two studies that watched levels change after a bile acid enema or a glucose drink.

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 first 3 of the 12 human studies carded on the page (29 study cards in all):

• **A marker of hormone-making cells in the human large bowel** (Human, 2013). Staining of human colon placed the peptide exclusively in enteroendocrine cells of the mucosa, while the receptor appeared on the ordinary absorptive cells around them, which suggests local signalling between neighbours rather than a distant hormone. Both peptide and receptor also showed up in human neuroendocrine tumour tissue. Mice lacking the gene still developed their normal complement of these cells, and two chemically induced models of colitis did not change their number during the acute phase. **PMID 23128569**

• **Concentrated towards the rectum, and in rectal tumours** (Human, 2013). A second group reported the same restriction to colorectal hormone cells, with the density rising along the bowel towards the rectum, and noted that these cells carry little chromogranin A, the usual marker for the family. Every rectal neuroendocrine tumour they examined carried both the peptide and its receptor. Knockout mice had a normal distribution of chromogranin-positive cells, and adding the peptide to human colon cancer cell lines did not change how fast they grew. **PMID 23438439**

• **Blood levels tracked sex hormones and body fat** (Human, 2016). Serum was measured in 76 lean and obese men and women, and again in 14 men before and after weight-loss surgery. In obese men the level fell as testosterone and blood fats rose and climbed with cortisol; in obese women the clearest relation was an inverse one with C-reactive protein. After surgery the men's levels dropped while their testosterone recovered. The study is cross-sectional apart from the surgical arm, and its correlations differ by sex and by weight, so it describes associations rather than a mechanism. **PMID 27355242**

Interactions

A PubMed search for interaction studies of this compound with any drug (November 3, 2026, 0 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
• Injected into mice it increased food intake, an effect that required its receptor (PMID 25028498) • In mice it raised blood GLP-1, GIP, glucagon and PYY and shifted several cytokines (PMID 33519716) • Mice bred without the gene released less insulin with age, had smaller islets and were less fertile (PMID 22822165) • Given repeatedly at high levels to obese mice, it changed neither weight nor glucose control, so even its animal effects are inconsistent (PMID 31348991) • No study read gave it to a person, so its human safety is unknown	• Not a medicine: no INSL5 product is approved anywhere and none has been tested in people • Commercial immunoassays for it were reported unreliable, which is why one group built a mass-spectrometry method instead; published blood levels should be read with that in mind (PMID 28857318) • The four studies of women with polycystic ovary syndrome disagree, including on the direction of its correlations with body mass index and insulin (PMIDs 29956214, 40592474) • It was raised in nasopharyngeal carcinoma tissue and plasma and promoted growth and invasion in those cells, so its biology is not uniformly benign (PMID 32657028) • Any material sold under this name is outside a regulated supply, so its identity, purity and amount are unverified (1 more on the page)

Five questions to ask

1. INSL5 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 INSL5? This sheet records none published, which does not mean none exist.
3. Which side effects should make me stop and call you, for example injected into mice it increased food intake?

4. Do any of the cautions on this sheet apply to me, such as: Not a medicine: no INSL5 product is approved anywhere and none has been tested in people?
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.