Ipamorelin / CJC-1295 — Research Summary

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1. What They Are

Ipamorelin and CJC-1295 are two distinct synthetic peptides, frequently paired together in research contexts because they act on complementary growth-hormone (GH) release pathways rather than supplying GH directly.

Ipamorelin - **Class:** Selective growth hormone secretagogue (a ghrelin/GHS-R1a receptor agonist). - **Structure:** A pentapeptide (Aib-His-D-2-Nal-D-Phe-Lys-NH2), CAS 170851-70-4. - **Origin:** Developed by Novo Nordisk A/S in Denmark, first described in 1998. It was identified from a series of growth hormone-releasing peptide (GHRP)-1 derivatives by removing the central Ala-Trp dipeptide, a modification that preserved GH-releasing activity while improving receptor selectivity. - **Distinguishing feature:** Noted in the literature for its selectivity — it stimulates GH release without significantly elevating cortisol, prolactin, ACTH, FSH, LH, or TSH, even at doses far above the effective GH-releasing dose.

CJC-1295 - **Class:** Growth hormone-releasing hormone (GHRH) analog. - **Structure:** A 29-amino-acid modified GHRH analog. The “DAC” (Drug Affinity Complex) version covalently binds to serum albumin after injection, extending its half-life from the ~7-minute half-life of native GHRH to roughly 5.8–8.1 days in humans. A non-DAC version (also called Modified GRF 1-29) has a much shorter half-life. - **Mechanism:** Acts on the GHRH receptor at the pituitary to stimulate GH release, distinct from ipamorelin’s ghrelin-receptor pathway.

Why they’re studied together: GH release is regulated by two separate signaling systems — GHRH and ghrelin — that amplify each other while the body’s somatostatin system provides a natural brake. CJC-1295 engages the GHRH pathway; ipamorelin engages the ghrelin pathway. Combining them is studied as a way to stimulate both signals while remaining within physiologic (pulsatile) GH release patterns, rather than delivering a flat, supraphysiologic dose the way exogenous HGH does.

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2. Reported Effects in Research Literature

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The following are findings reported in published research on the individual peptides. High-quality clinical trial data on the *combination specifically* is limited — most controlled human data exists for each peptide separately.

CJC-1295 (human trials): - A single injection produced dose-dependent increases in plasma GH concentrations (2- to 10-fold) sustained for 6 or more days, and increases in IGF-1 concentrations (1.5- to 3-fold) lasting 9–11 days. - With multiple doses, mean IGF-1 levels remained elevated above baseline for up to 28 days, suggesting a cumulative effect. - A separate trial found CJC-1295 preserved the body’s natural pulsatile GH secretion pattern (rather than flattening it), while significantly raising trough (baseline) GH levels and overall mean GH and IGF-1 levels. - No serious adverse reactions were reported in these trials, particularly at the 30–60 µg/kg dose range studied.

Ipamorelin (preclinical + limited human data): - In vitro and animal studies (rat, swine) report GH-releasing potency and efficacy comparable to other GH secretagogues like GHRP-6, without the accompanying rise in ACTH or cortisol seen with other agents in its class. - Preclinical studies report stimulation of longitudinal bone growth and effects counteracting glucocorticoid-induced reductions in bone formation, in animal models. - The most rigorous human clinical trial to date is a Phase 2

randomized, controlled, proof-of-concept study (n=87) evaluating ipamorelin for postoperative ileus (bowel motility recovery) after colorectal surgery — a therapeutic application unrelated to anti-aging or GH-elevation use. - Human pharmacokinetic modeling studies describe GH peak timing and clearance patterns following ipamorelin administration.

General research limitations to note: - No large-scale, long-term human trials exist for either peptide; the longest published CJC-1295 trial ran 49 days. - There is no published long-term safety data, and the theoretical long-term risk most often raised in the literature is chronic IGF-1 elevation and its uncertain relationship to cancer risk. - Commercial pharmaceutical development of CJC-1295 was discontinued in the 2000s; a trial participant's death was reported during Phase 2 development, though it was determined to be unrelated to the study drug. - Neither peptide is FDA-approved for any indication. Both are commonly sold and studied as research-use peptides, which is a distinct regulatory category from an approved or investigational new drug. - Growth hormone secretagogues, including both peptides, are banned by the World Anti-Doping Agency (WADA), relevant for any customers in competitive/tested athletic contexts.

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3. Clinical & Preclinical Study References

CJC-1295 — primary human trials: - Teichman SL, Neale A, Lawrence B, Gagnon C, Castaigne JP, Frohman LA. "Prolonged stimulation of growth hormone (GH) and insulin-like growth factor I secretion by CJC-1295, a long-acting analog of GH-releasing hormone, in healthy adults." *J Clin Endocrinol Metab.* 2006;91(3):799-805. PMID: 16352683 - Ionescu M, Frohman LA. "Pulsatile secretion of growth hormone (GH) persists during continuous stimulation by CJC-1295, a long-acting GH-releasing hormone analog." *J Clin Endocrinol Metab.* 2006;91(12):4792-4797. PMID: 17018654

CJC-1295 — preclinical/mechanistic: - Alba M, Fintini D, Sagazio A, Lawrence B, Castaigne JP, Frohman LA, Salvatori R. "Once-daily administration of CJC-1295… normalizes growth in the GHRH knockout mouse." *Am J Physiol Endocrinol Metab.* 2006;291(6):E1290-4. PMID: 16822960 - Sackmann-Sala L, Ding J, Frohman LA, Kopchick JJ. "Activation of the GH/IGF-1 axis by CJC-1295… results in serum protein profile changes in normal adult subjects." *Growth Horm IGF Res.* 2009;19(6):471-477.

Ipamorelin — foundational and human studies: - Raun K, Hansen BS, Johansen NL, Thøgersen H, Madsen K, Ankersen M, Andersen PH. "Ipamorelin, the first selective growth hormone secretagogue." *Eur J Endocrinol.* 1998;139(5):552-561. PMID: 9849822 - Gobburu JV, Agersø H, Jusko WJ, Ynddal L. "Pharmacokinetic-pharmacodynamic modeling of ipamorelin, a growth hormone releasing peptide, in human volunteers." *Pharm Res.* 1999;16(9):1412-1416. PMID: 10496658 - Johansen PB, et al. "Ipamorelin, a new growth-hormone-releasing peptide, induces longitudinal bone growth in rats." *Growth Horm IGF Res.* 1999;9(2):106-113. PMID: 10373343 - Beck DE, et al. "Prospective, randomized, controlled, proof-of-concept study of the ghrelin mimetic ipamorelin for postoperative ileus." *J Gastrointest Surg.* 2008;12(7):1223-1231. (A related, larger 2014 Phase 2 RCT, n=87: PMID: 25331030)

Reference / overview: - CJC-1295 overview: Wikipedia — CJC-1295 (secondary source; use primary citations above for research documentation)

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4. Reconstitution Process

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1. **Materials needed:** lyophilized (freeze-dried) peptide powder, bacteriostatic water (preferred over sterile water for multi-use vials, due to the antimicrobial preservative), alcohol swabs, syringe with needle.
2. **Bring vials to room temperature** before reconstitution to reduce peptide degradation from condensation/temperature shock.
3. **Sanitize** the rubber stopper of both the peptide vial and the bacteriostatic water vial with an alcohol swab.
4. **Draw the bacteriostatic water** into the syringe.

5. **Add the water slowly**, directing the needle stream down the *inside wall* of the vial rather than injecting it directly onto the lyophilized powder — this reduces mechanical shear/foaming that can degrade the peptide.
6. **Do not shake the vial.** Instead, gently swirl or roll it between your palms until the powder is fully dissolved into a clear solution.
7. **Inspect the solution** — it should be clear and free of particulates. Discard and do not use if cloudy or discolored.
8. **Label the vial** with the peptide name, reconstitution date, and concentration for tracking.
9. **Storage:** refrigerate the reconstituted solution (typically 2–8°C); avoid freeze-thaw cycles, which degrade peptide integrity. Use within the timeframe indicated by your quality/stability documentation.

Peptide-specific handling notes: - CJC-1295 (DAC) is reported to be somewhat more stable in solution than many shorter research peptides due to its larger, albumin-binding structure, but should still be handled with the cold-chain and light-protection practices above. - Ipamorelin, as a small pentapeptide, follows standard short-peptide handling practices — protect from light and avoid excess agitation during mixing. - If supplying these as a pre-blended combination product, note reconstitution consistency (uniform mixing) becomes more important, since uneven distribution in solution could affect consistency between draws for research use.

Reference: Bacteriostatic Water Volume by Vial Size

Vial Size	BAC Water Added	Resulting Concentration
5 mg	1 mL	5 mg/mL
5 mg	2 mL	2.5 mg/mL
5 mg	5 mL	1 mg/mL
10 mg	1 mL	10 mg/mL
10 mg	2 mL	5 mg/mL
10 mg	4 mL	2.5 mg/mL
10 mg	5 mL	2 mg/mL
10 mg	10 mL	1 mg/mL

Notes on selecting a volume: - A higher BAC water volume produces a more dilute solution, which allows for finer-grained volume adjustments when using a 1 mL (100-unit) insulin syringe for measurement, at the cost of requiring more storage volume per vial. - A lower BAC water volume produces a more concentrated solution, useful when minimizing solution volume per use is preferred. - Some suppliers pre-mark vials with a fill line; if provided, follow the vial-specific instructions from that supplier’s Certificate of Analysis (COA) or product insert over generic guidance. - Always use bacteriostatic water (containing 0.9% benzyl alcohol) rather than plain sterile water for multi-draw vials, as it inhibits bacterial growth across repeated punctures. Sterile water without a preservative should be used within 24 hours of reconstitution and discarded thereafter.

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