



CLEAN SWEETNESS THAT SILENCES OFF NOTES

The Science of Clean, Quiet Sweetness

PRECISION SWEETNESS

Today's consumers expect high-protein, functional beverages to deliver big nutritional value and great taste. But pushing protein levels higher—especially toward the 40–50 gram mark—creates a well-known challenge: unpleasant off-notes. Whether the source is dairy, whey, plant proteins, or added functional ingredients, formulators face bitterness, grittiness, metallic notes, and lingering aftertastes that can undermine an otherwise great product.

MonkSweet™ LS4 was developed to solve exactly this problem. It combines two ultra-clean, high-purity sweeteners—Mogroside V (from monk fruit) and Rebaudioside M (a next-generation stevia glycoside)—to deliver powerful, sugar-like sweetness that naturally overwhelms and smooths out off-notes. These two components don't just sweeten; they work together in a synergistic way that enhances overall flavor, boosts sweetness perception, and harmonizes the entire profile of a beverage or food application.

The secret lies in how MonkSweet™ LS4 interacts with the body's taste receptors. Sweetness is detected through the T1R2/T1R3 receptor complex, while bitterness comes through a separate family of receptors. Because mogroside V and Reb M strongly activate the sweet pathway, that clean and pleasant signal becomes dominant—making bitter, harsh, or earthy notes far less noticeable. LS4 doesn't simply "cover" off-notes; it actively competes with them at the sensory level, reducing their impact.

Beyond receptor science, LS4 also provides a softer, more rounded sweetness curve than traditional high-intensity sweeteners. This gives formulators a smooth, sugar-like taste without spikes, highs, or lingering sweetness. In complex matrices—especially high-protein RTDs—LS4 helps bring everything into balance. The result is a significantly improved flavor experience that feels clean, natural, and consumer-friendly.

Whether you're formulating next-gen protein shakes, functional beverages, energy shots, bars, or reduced-sugar foods, MonkSweet™ LS4 delivers reliable masking performance with a clean sweetness that works across a wide spectrum of applications. It's an ideal tool for product developers who need to maintain great taste in demanding formulas—without sacrificing nutrition targets or label simplicity.

MonkSweet™ LS4: clean sweetness, reliable off-note control, and a powerful advantage in modern formulation.

Reach out to your Icon Foods representative for MonkSweet™ LS4, samples, documentation formulation and usage guidance.

Since 1999 Icon Foods has been your reliable supply chain partner for sweeteners, fibers, sweetening systems, inclusions and sweetness modulators.

Taste the Icon difference.



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FAST FACTS

Dual-sweetener system:

MonkSweet™ LS4 combines Mogroside V and Reb M for clean, sugar-like sweetness.

Powerful off-note

masking: Effectively reduces bitterness, astringency, and harsh protein notes in complex formulas.

Synergistic performance:

Mogroside V and Reb M work together to enhance sweetness perception beyond what either delivers alone.

Ideal for high-protein

RTDs: Helps smooth flavor in beverages containing 30–50 grams of protein per serving.

Receptor-driven

masking: Strong activation of sweet taste receptors naturally diminishes the perception of bitter compounds.



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FAQ

- 1. How does the mogroside–steviol glycoside combination in MonkSweet™ LS4 alter taste receptor activation compared to using either sweetener alone?**

Answer: Mogroside V and Rebaudioside M exhibit complementary binding affinities for the T1R2/T1R3 sweet receptor complex. When used together, their activation profiles overlap and amplify, producing a synergistic signaling effect that saturates the sweet pathway more effectively than single-compound exposure. This amplified receptor engagement competitively suppresses signaling from T2R bitter receptors, reducing the neural salience of protein-derived off-notes.

- 2. What mechanisms allow LS4 to reduce bitterness and astringency from high-protein matrices at the sensory level?**

Answer: Protein hydrolysates, plant proteins, and functional actives often introduce hydrophobic peptides and phenolic compounds that activate T2R receptors. LS4's intense T1R2/T1R3 activation provides a dominant sensory cue that overrides these signals. Additionally, both mogroside V and Reb M demonstrate steric and conformational interactions with bitter compounds in solution, reducing their binding efficiency at T2Rs and lowering perceived intensity.

- 3. How does LS4 influence overall flavor architecture in multi-component formulations beyond masking?**

Answer: LS4 modulates flavor perception through two pathways:

signal dominance and matrix harmonization. Its rounded sweetness curve smooths temporal discontinuities caused by rapid-onset or late-lingering compounds, reducing “flavor spikes” that amplify off-notes. This creates a more uniform sensory profile, enabling secondary flavors (vanilla, cocoa, coffee, fruit) to integrate more cohesively in high-protein systems.

- 4. Does the presence of lipids, fibers, or functional actives affect LS4's masking efficacy?**

Answer: LS4 remains highly stable and effective across diverse matrices. Lipids and fibers can sequester bitter compounds, reducing receptor availability; LS4's strong sweet-receptor activation compensates for remaining off-notes. In formulations with polyphenols or botanical actives, LS4's synergistic sweetness improves palatability without altering chemical stability, making it a robust sweetening system for complex functional beverages.

- 5. How does LS4 compare to other high-intensity sweeteners regarding temporal profile and sensory recovery?**

Answer: Unlike sweeteners with sharp onset (e.g., sucralose) or extended linger (e.g., some rebaudiosides), LS4's temporal curve closely mimics sucrose: clean rise, smooth midpoint, and rapid decay. This reduces sensory fatigue and prevents off-notes from resurfacing during the flavor “recovery window.” The result is a balanced, sugar-like experience uniquely suited for protein-heavy or reduced-sugar formulations.



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