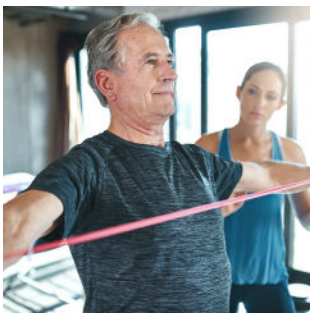
Reginator®
Advanced muscle activator





The Reginator® Breakthrough

Precision Metabolic Activation vs. Traditional Bulk Protein

Reginator® is a breakthrough in muscle science, engineered for active consumers, GLP-1 users, and anyone fighting muscle loss.

Developed by Dr. Robert R. Wolfe, PhD, and powered by $20 million in NASA and NIH research, Reginator® delivers 11 times the anabolic efficiency of whey protein per gram. A micro-dose of just 3.6 g triggers muscle protein synthesis within 30 minutes, yielding 10.4 g of net muscle protein, 2.5x more than a 40 g whey dose, with virtually zero metabolic waste or bloating.

- Athletes: Amplifies training results, with a 2.9x increase in specific anabolic markers when combined with resistance exercise.
- GLP-1 / weight management: Preserves lean muscle during caloric deficits, without adding bulk protein calories.
- Sarcopenia / older adults: At just 3.6 g, increased muscle-building rates (FSR) by 57% in older adults without exercise. At higher doses, it maintained muscle protein synthesis even during prolonged inactivity.

Reginator® is not just protein. It is precision metabolic activation, combining the exact amino acids the body needs with active cellular signaling for lean muscle preservation and growth.

Key Metric Comparison

Performance Metric	Traditional Whey Protein	Reginator® Micro-Dose	Advantage / Multiplier
Standard Serving Dose	30g - 40g	**3.6g**	>90% dose volume reduction
Net Muscle Protein Yield	4.13g (from 40g dose)	**10.4g** (from 3.6g dose)	**2.5x total yield**
Anabolic Efficiency (per gram)	Baseline (1x)	**11x Efficiency**	**11x Anabolic Multiplier**
Activation Time	60 - 120 minutes	**30 minutes**	Rapid systemic uptake
Metabolic Byproducts	High nitrogen waste & urea	**Virtually Zero Waste**	Virtually Zero GI distress or bloating
Mechanism of Action	Passive raw material	**Active Cellular Trigger**	Internal amino acid recycling

I. Executive Highlights: Commercial & Formulation Advantages

For dietary supplement brands, Reginator® offers a turnkey, highly efficient alternative to bulky protein commodities, boasting significant formulation and regulatory advantages.

Physiological & Delivery Highlights

- **Metabolic Muscle Activator**: Supports metabolic signaling pathways and cellular function traditionally associated with physical activity.
- **Comparable to 40g Whey**: Delivers powerful anabolic results without the bulk volume.
- **Precision Transportation**: Engineered amino acid profile aligns exactly with cellular requirements for muscle protein synthesis.
- **Rapid Activation**: Bypasses standard digestion to trigger muscle protein synthesis within just 30 minutes of consumption.
- **Metabolic Efficiency**: Exact stoichiometric ratios prevent oxidative "burn off" caused by unnecessary non-essential amino acids.
- **No Bloating**: Drastically minimizes nitrogen waste (urea) and gastrointestinal distress associated with large doses of traditional whey.
- **The Ultimate GLP-1 Companion**: Ideal for pairing with modern weight management and GLP-1 protocols. As consumers face extreme caloric deficits, this micro-dose provides a highly efficient mechanism to preserve lean muscle tissue without adding counterproductive bulk protein calories.

B2B & Commercial Highlights

- **FDA GRAS & Market Ready**: Regulatory compliance secured for immediate product integration.
- **Robust IP Portfolio**: Global intellectual property protection secured across multiple distinct formulations.
- **Lower Cost per Serving**: Highly efficient micro-dosing significantly reduces raw material volume requirements per finished unit.

II. The Efficiency Advantage: 11x the Anabolic Power of Whey

Standard whey protein relies on massive dosing, which leads to metabolic oxidation, urea production, and bloating because the body must process unnecessary non-essential amino acids. Reginator® bypasses this entirely through engineered precision.

- **2.5x the Total Muscle Production**: A single 3.6g micro-dose of Reginator® produces 10.4g of net muscle protein, whereas a comparable 40g dose of standard whey protein produces only 4.13g of muscle.
- **The 11x Anabolic Multiplier**: On a gram-for-gram basis, Reginator® is 11 times more efficient at triggering muscle protein synthesis (MPS) than standard whey protein.
- **Internal Amino Acid Recycling**: Instead of relying purely on ingested material, the 3.6g dose uniquely triggers the body to "recycle" its internal amino acid pool to build tissue—a biological feat that larger protein doses cannot match at this caloric level. The effect is due to more efficient utilization of amino acids released in the process of protein breakdown that are not in the composition, but are recycled or self produced.

III. The "Hardware + Software" Advantage: Substrate Meets Cellular Signaling

When evaluating non-exercise muscle preservation, R&D formulators traditionally view essential amino acids purely as "hardware" (the physical building blocks of tissue) while looking toward novel peptide hydrolysates to provide the "software" (the cellular signaling networks).

Reginator® disrupts this paradigm by delivering both. It provides the exact stoichiometric substrates required for complete protein synthesis while simultaneously acting as an active signaling network, a dual-action mechanism that standalone peptide ingredients cannot match without added bulk protein.



- **Upregulates Irisin** (The "Software"): Reginator® significantly increases levels of Irisin, a messenger hormone associated with the "browning" of white adipose tissue, supporting metabolic signaling pathways traditionally activated by physical activity.
- **Suppresses Myostatin** (Removing the "Brakes"): While standard protein merely feeds muscle, Reginator® actively decreases Myostatin A levels - a catabolic regulator that inhibits muscle growth -shifting the body into a state of active tissue remodeling.
- **The Substrate Guarantee** (The "Hardware"): Unlike standalone peptide ingredients that stimulate anabolic signaling but lack the raw amino building blocks required to finish the job, Reginator's 3.6g micro-dose provides the precise free-form amino substrates needed to physically yield 10.4g of net muscle protein.
- **Supports a Healthy Recovery Response**: Clinically shown to modulate TNF-α, supporting the body's natural, healthy cellular repair and recovery processes.
- **Amplifies Training Adaptations**: When paired with resistance exercise, the dual-action of Reginator's matrix significantly enhanced skeletal muscle protein synthesis compared to exercise alone, demonstrating a 2.9x increase in specific anabolic markers.

IV. Optimizing Body Composition Support

Traditional protein supplements add significant caloric load, making true body recomposition difficult. Reginator® optimizes fat metabolism while simultaneously building lean tissue at a fraction of the caloric footprint.

- **Optimizes Body Composition**: Participants utilizing the 3.6g twice-daily dose experienced enhanced fat metabolism and lean body mass support, even during periods of rest.*
- **Enhanced Fat Metabolism in Older Adults**: Non-exercising older adults utilizing the essential amino acid group demonstrated significantly enhanced fat metabolism and lean body mass support compared to the control group.*
- **Metabolic Turnaround:** With 3.6 g twice daily, Reginator® reverses the exercise-induced drop in muscle protein turnover observed with high-intensity interval training alone (from −1.04 to +1.01), driving a positive muscle flux.
- **Supports Healthy Lipid Metabolism**: Clinical trials demonstrated support for healthy triglyceride levels already within the normal range and promoted optimal hepatic (liver) metabolic function.

**Healthy weight management and body recomposition require a balanced diet and regular exercise.*

V. Preservation During Inactivity

Note: Requires a higher dosage for periods of prolonged physical inactivity or intense recovery.

Because Reginator® operates efficiently without physical stimulation, it supports lean tissue preservation during periods of limited mobility - scenarios where standard protein struggles to initiate synthesis.

- **Preservation During Prolonged Inactivity**: During 10 days of strict physical inactivity, older adults successfully maintained muscle protein synthesis rates with EAAs, avoiding the 30% decrease observed in the placebo group.
- **Accelerated Physical Recovery**: Following periods of intense physical stress or limited mobility, users experienced a 35% improvement in functional leg strength and a 64% greater functional strength recovery compared to the standard care group.
- **Energy Deficit Protection**: During a 30% reduction in total caloric intake, essential amino acid dosing effectively increased postprandial muscle protein synthesis and drove a more positive whole-body protein balance.

VI. Muscle Yield & Synthetic Rates by Dosage

Reginator®'s precise formulation maximizes muscle fractional synthetic rate (FSR) utilizing a remarkably small dosage.

- **Maximum Yield per Gram**: A single 3.6g dose of Reginator® produces an unparalleled 10.4g of net muscle protein. By comparison, a massive 40g dose of standard whey yields only 4.13g of muscle, while a 15g dose yields 3.36g.
- **Legacy Formulation Comparison**: The current optimized Reginator® matrix significantly outperforms older EAA formulations, as a 15g dose of the legacy formula without arginine produced only 5.67g of muscle.
- **High Anabolic Rate** (FSR): In a clinical trial involving older individuals (average age 67), a low 3.6g dose increased the muscle anabolic rate (FSR) by 57% over a three-hour period without exercise. This highly efficient biological signal matches and slightly exceeds the 56% FSR increase requiring a 40g dose of whey protein.

VII. The Scientific Legacy: Dr. Robert R. Wolfe

Reginator® is the culmination of decades of advanced research in human protein metabolism led by Dr. Robert R. Wolfe, PhD, alongside Dr. Arny Ferrando.

- **The Global EAA Authority:** Dr. Wolfe is internationally recognized as a pioneer of stable isotope tracer methodology, used to quantify human muscle protein synthesis and breakdown. His work redefined how the scientific community understands essential amino acids, challenging the stand-alone efficacy of BCAAs in favor of complete, precisely balanced EAA ratios.
- **From Extreme Catabolism to Space Research:** The research behind this ratio was supported by $20 million in NASA and NIH R&D funding. It was developed in the most demanding models of accelerated muscle wasting, including burn patients and astronauts facing prolonged zero-gravity exposure.
- **Academic Credentials:** Professor of Geriatrics and Director of the Center for Translational Research in Aging and Longevity at the University of Arkansas for Medical Sciences (UAMS). Continuously funded by the NIH throughout his career, he has published more than 450 peer-reviewed research articles.

VIII. Supporting Clinical Trial References

Backed by 9 clinical studies (2009–2026), including the key 3.6 g low-dose trial: Church, D. D., Ferrando, A. A., & Wolfe, R. R. (2024). Stimulation of muscle protein synthesis with low-dose amino acid composition in older individuals.

31 additional human studies in development or ongoing. Full reference list available on request.

