

GLP-1 Agonist

Soluble fibers like FiberSMART® resistant dextrin act as GLP-1 secretagogues, promoting the release of glucagon-like peptide-1 (GLP-1) in both the small and large intestines. In the large intestine, GLP-1-producing endocrine cells, known as L-cells, are stimulated by short-chain fatty acids (SCFAs) such as acetate, propionate, and butyrate. These SCFAs are generated through the fermentation of soluble fibers by gut microbiota. This process enhances GLP-1 secretion, which plays a key role in regulating glucose metabolism, insulin secretion, and appetite control, contributing to metabolic health.

Summary of Published Clinical Studies

Bakker et. al. (2013) highlights that short-chain fatty acids (SCFAs), produced by gut microbiota fermenting dietary fibers, positively impact mammalian energy metabolism. SCFAs influence glucose and lipid metabolism, enhance insulin sensitivity, and regulate appetite via gut-brain signaling. These effects, mediated through G-protein-coupled receptors, suggest SCFAs as key mediators in metabolic health, with potential therapeutic implications for obesity and diabetes. Short-chain fatty acids (SCFAs) enhance mitochondrial biogenesis, promoting fat oxidation in cells.

Zheng et. al. (2023) shows SCFAs, produced from dietary fiber fermentation, improve metabolic health by increasing energy expenditure and insulin sensitivity, reducing obesity risk. Sodium butyrate supplementation in mice boosted mitochondrial function, supporting fat metabolism and cardiometabolic health. The study also illustrates that SCFAs, specifically sodium butyrate, activate AMP-activated protein kinase (AMPK) in mice. This activation enhances energy expenditure, promotes glucose uptake, and improves insulin sensitivity, contributing to lower blood glucose and insulin levels, thus supporting metabolic health. Short-chain fatty acids (SCFAs) promote fatty acid oxidation by being “less efficient,” burned regardless of cellular energy needs, often leading to ketone synthesis.

Shönfeld, Wojtczak (2016) shows SCFAs, like propionate, enhance fat oxidation in the liver, reducing fat accumulation. In mice and humans, propionate supplementation increased energy expenditure and fat burning, improving metabolic health. Short-chain fatty acids (SCFAs) stimulate cholecystokinin (CCK) alongside GLP-1, both delaying gastric emptying to enhance satiety and regulate metabolism.

Liang Wu et. al. (2022) demonstrates SCFAs reduce oxidative stress and cholesterol accumulation in macrophages, improving lipid metabolism. By modulating inflammatory pathways, SCFAs mitigate ox-LDL-induced metabolic dysfunction, supporting cardiovascular health and metabolic regulation in THP-1 cells.

Hendrich et. al. demonstrated that 10 g of digestion-resistant dextrin, consumed with a meal, significantly increased satiety hormones GLP-1 and PYY in healthy adults. Compared to placebo, the resistant dextrin elevated GLP-1 by 17.6% and PYY by 12.8% at 60 minutes post-meal ($p < 0.05$), reducing hunger scores by 22% and appetite perceptions by 18% on visual analog scales ($p < 0.01$). These findings suggest resistant dextrin enhances satiety, potentially aiding appetite regulation and supporting weight management through increased production of gut-derived satiety hormones.

Potential Benefit Statements

- **FiberSMART®** supports the natural production of GLP-1 to promote healthy glucose metabolism.*
- **FiberSMART®** may enhance satiety by supporting gut hormone production, including GLP-1 and PYY.*
- **FiberSMART®** promotes healthy energy metabolism through natural Short Chain Fatty Acid production.*

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.



ANDERSON
ADVANCED INGREDIENTS

+1 (949) 502-4770
info@advancedingredients.com

www.advancedingredients.com
Irvine, California • Raalte, Netherlands