

MEDERA

NUTRITION

The Power of Vegan Butyrate for a Balance Microbiome and Beyond

ButyEra:

Nurture Your Gut with a Post-Biotic



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Introduction

Gut health has emerged as one of the most important areas of research in modern medicine. The gut microbiota is an intricate ecosystem that influences not only digestion, but also the immune system, neurological functions, and metabolic balance. A key component of this ecosystem is butyrate, a short-chain fatty acid (SCFA) produced from fiber fermented by gut bacteria. Butyrate plays a crucial role in strengthening the intestinal barrier, protecting against pathogens, reducing inflammation, and preventing metabolic diseases.

Recent scientific studies demonstrate that butyrate offers potential solutions for a wide range of health issues, including inflammatory bowel disease (IBD), obesity, diabetes, depression, and even colon cancer. A 2024 study published in the *Journal of Crohn's and Colitis* found that butyrate supplementation alleviates symptoms in patients with Crohn's disease and ulcerative colitis.¹ Similarly, a study published in *PMC* reveals that butyrate reduces the risk of colon cancer and promotes cell death.²

In light of these scientific findings, Medera Nutrition develops vegan butyrate supplements -ButyEra- backed by clinical data and scientific research, aiming to harness butyrate's potential in the most effective way possible. With Eurofins Scientifically-approved quality standards, high production capacity, and a diverse product range, Medera Nutrition strives to provide innovative solutions for gut health and metabolic balance.

This document offers a comprehensive overview of the scientific foundation of butyrate, its health benefits, Medera Nutrition's products, and the commercial opportunities available.

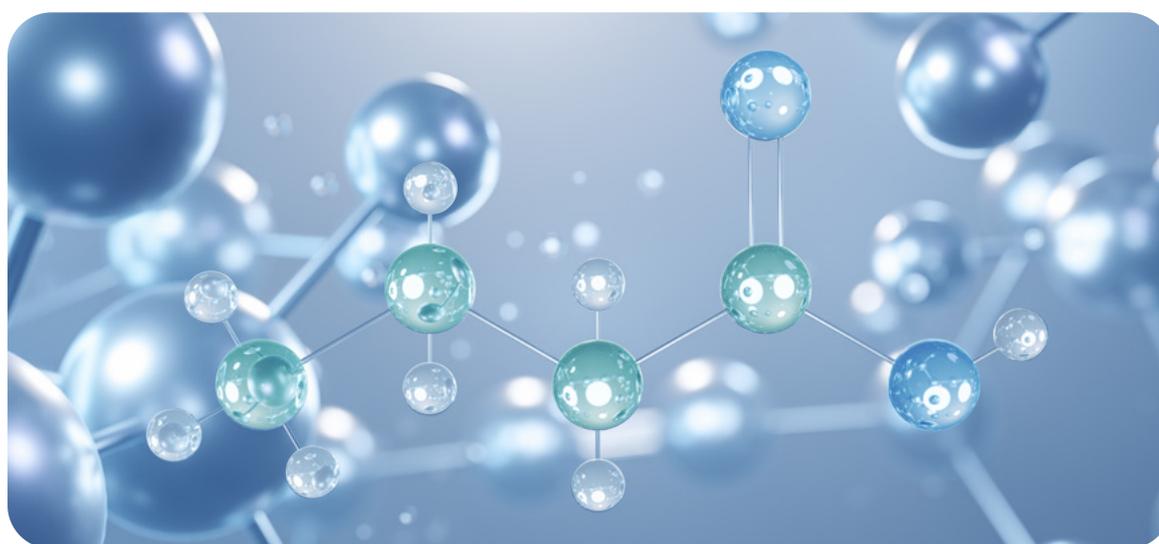
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Butyrate and its Scientific Basis

Butyrate, also known as butyric acid, is a four-carbon ($C_4H_8O_2$) organic compound from the class of short-chain fatty acids (SCFA). Butyrate, which is colorless, has a pungent odor and weak acid properties, is produced by microbial fermentation in human and animal intestines. This compound has important benefits on gut health, immune system, metabolism and neurological functions. In recent years, it has been intensively researched in the scientific world.



Butyrate,
butyric acid
 $C_4H_8O_2$

-  Carbon
-  Oxygen
-  Hydrogen

Chemical and Physical Properties:

Butyrate is a straight-chain, saturated carboxylic acid that is stable in the intestinal environment and systemic circulation. The table below summarizes the main properties of butyrate:

Feature	Value/Description
Molecular Formula	$C_4H_8O_2$
Chemical Structure	Straight chain, saturated carboxylic acid
pKa Value	-4.82 (weak acid, suitable for intestinal pH)
Water Solubility	Moderately, better soluble in lipids
Odor	Tangy, sour (similar to butter and old cheese)

Butyrate and its Scientific Basis

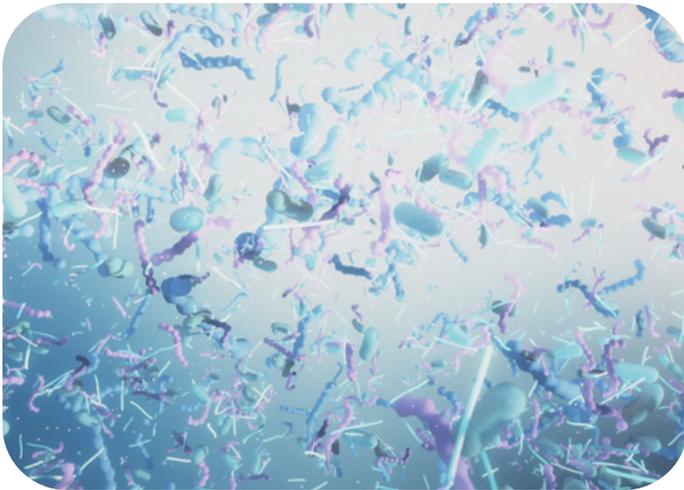
Metabolic Pathway and Production:

+ Production of Butyrate in the Body

Butyrate is produced in the human intestine by the gut microbiota through anaerobic fermentation. In this process, dietary complex carbohydrates and fermentable fibers are the main substrates for butyrate synthesis.

Main Substrates:

- Soluble fibers (such as pectin, beta-glucan, inulin)
- Resistant starches (cooked and cooled potatoes, unripe bananas, legumes, etc.)
- Prebiotics (fructo-oligosaccharides, galacto-oligosaccharides)



Anaerobic gut bacteria play a critical role in butyrate production. In particular, the following bacterial species are key producers in butyrate synthesis:

- Faecalibacterium prausnitzii
- Roseburia spp.
- Eubacterium rectale

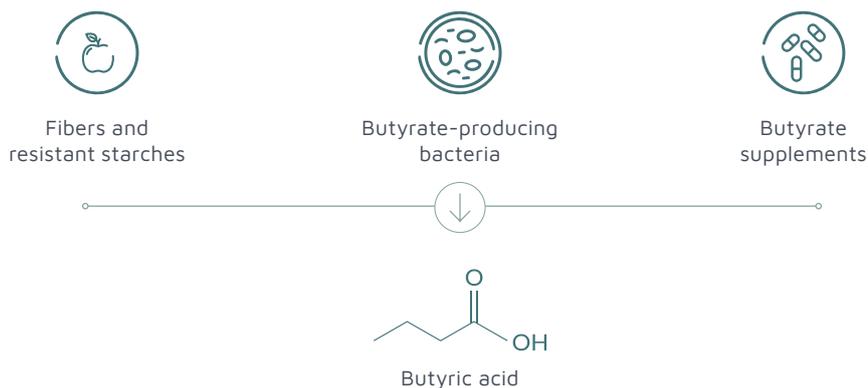
These bacteria ferment **resistant starch, soluble fibers and prebiotic compounds** to produce butyrate. A fiber-rich diet is essential for **maintaining gut health and increasing butyrate production**.

+ Butyrate in Animal Foods

Butyrate occurs naturally in some animal foods. **Milk and dairy products** are particularly rich in butyrate. For example, about 3 g/100 g in butter, 1-1.8 g/100 g in goat's cheese and about 0.1 g/100 g in whole cow's milk.³ These ratios are the result of microbial anaerobic fermentation of fibers such as cellulose in the digestive tract of ruminants.

+ Butyrate Production with Supplements

In addition to diet, butyrate production is supported by **natural prebiotic supplements** and products containing SCFA. Natural supplements increase butyrate production by the gut microbiota, resulting in a healthier and more sustainable effect.



The Benefits of Butyrate: Insights from Scientific Research

Butyrate, a short-chain fatty acid (SCFA) produced by gut bacteria through the fermentation of dietary fibers, offers profound and multifaceted effects on human health. Recent scientific studies have demonstrated the benefits of butyrate on gut health, metabolic balance, neurological function and the immune system.



Gut Health

Butyrate is an essential energy source for colonic epithelial cells and prevents leaky gut syndrome by maintaining intestinal barrier integrity. It promotes the growth of beneficial bacteria such as *Faecalibacterium prausnitzii* and suppresses harmful bacteria. Thus, it supports the alleviation of symptoms of Inflammatory Bowel Diseases (IBD) and Irritable Bowel Syndrome (IBS).

It reduces intestinal permeability by increasing mucus production and reducing zonulin levels. A study published in ScienceDirect in 2024 shows that butyrate reduces inflammation by supporting the intestinal barrier.⁴ In addition, butyrate is a critical biomolecule that supports digestive health by having positive effects on the gut-brain axis.

Metabolic Health

Butyrate improves insulin sensitivity by regulating energy metabolism and reduces the risk of type 2 diabetes. A study published in ScienceDirect reports that butyrate supplementation significantly improves insulin sensitivity and reduces body fat in obese individuals.⁵

It plays a role in combating metabolic syndrome, balancing appetite-regulating hormones such as leptin and ghrelin and supporting weight management. It also draws attention by inhibiting cholesterol synthesis in the liver, lowering serum cholesterol levels and reducing the risk of cardiovascular disease.



The Benefits of Butyrate: Insights from Scientific Research

Neurological Benefits

Butyrate supports neurological health via the brain-gut axis, strengthening the blood-brain barrier and reducing neuroinflammation. A study in PMC in 2024 states that butyrate alleviates symptoms of depression and anxiety and provides neuroprotective effects through Histone Deacetylase (HDAC) inhibition.⁶

It protects brain cells against oxidative stress by slowing disease progression in neurodegenerative diseases such as Alzheimer's and Parkinson's. A study in Frontiers in Pharmacology reveals that butyrate reduces neuron loss and exhibits neuroprotective effects in an Alzheimer's model.⁷ It also plays an important role in the production of GABA and serotonin, providing mental health support and managing anxiety and depression.



Immune System Support

Butyrate modulates immune responses and protects against autoimmune diseases by suppressing inflammatory cytokine production. A study published in PMC shows that butyrate balances the immune system and alleviates inflammatory diseases by increasing regulatory T cells (Tregs).⁸

It may also treat Crohn's disease and ulcerative colitis by suppressing inflammatory pathways such as NF- κ B and TNF- α . A study in Europe PMC reveals that butyrate boosts the immune response to intestinal infections and reduces inflammation.⁹ Butyrate, which supports systemic immune function by protecting the intestinal barrier, is an important protector against allergies and autoimmune diseases.



The Benefits of Butyrate: Insights from Scientific Research

Muscle Health and Regeneration

Butyrate may prevent muscle loss by promoting muscle regeneration after exercise. Butyrate increases muscle protein synthesis and improves muscle metabolism, says a study published in PMC.¹⁰

It also plays a protective role against muscle damage by reducing inflammation and accelerating muscle recovery after exercise. Thanks to these effects, butyrate is an important supportive ingredient for physical performance and maintenance of muscle health.



Skin Health

With its antioxidant effects, butyrate has the ability to reduce oxidative stress and alleviate skin conditions such as eczema and psoriasis. A study in PMC shows that butyrate reduces skin inflammation and improves skin health; this effect is due to the anti-inflammatory properties of butyrate.¹¹

Epigenetic Regulation

As a histone deacetylase inhibitor, it regulates gene expression and triggers apoptosis of cancer cells. In a study, it is stated that butyrate increases apoptosis in colon cancer cells and reduces cancer risk with its protective role on epigenetic mechanisms.¹²

These various benefits emphasize that butyrate has a wide range of effects in the body and the importance of supporting a healthy gut microbiota. Thanks to its products supported by this scientific data, Medera Nutrition offers innovative solutions to the needs in the field of gut health.



The Benefits of Butyrate: Insights from Scientific Research



Digestive System and Intestinal Health



Immune System and Inflammation Regulator



Obesity and Metabolic Health



Diabetes and Insulin Sensitivity



Anti-Cancer Effects



Intestinal and Liver Health



Heart and Vascular Health



Nervous System and Neurological Effects



Skin Health and Inflammatory Skin Diseases

ButyEra and its Uses

Medera Nutrition stands out with innovative and vegan butyrate supplements that support gut health and metabolic balance. Offered under the ButyEra brand, these vegan products regulate the gut microbiota, providing comprehensive benefits on digestive, immune, neurological and metabolic health.

Approved by Eurofins Scientific Laboratories, the formulation with high purity and bioavailability guarantee is produced in four different forms: Calcium Butyrate, Sodium Butyrate, Magnesium Butyrate and Potassium Butyrate.

The product range is designed for both adults and children, and offers various form options for different consumer needs.



**Calcium
Butyrate**



**Magnesium
Butyrate**



**Sodium
Butyrate**



**Potassium
Butyrate**



ButyEra and its Uses

ButyEra for Adults

Medera Nutrition is developing three products in four different forms of butyrate to support the gut, metabolic and neurological health needs of adults:



Capsule Form: A convenient formulation containing 900 mg of butyrate per daily serving (two capsules), with no taste or odor. Stomach acid-resistant herbal Lonza DRcaps are used.

Granulated Sachet Form: A portable and hygienic alternative containing 450 mg butyrate in single-use sachets. It provides dosage control for daily use.

Powder Form (Industrial Use - 15 kg): Developed for large-scale manufacturers and retailers and used in the production of functional foods and supplements.

ButyEra for Children

Specially formulated to support the sensitive digestive system of children, ButyEra Kids serie has three products in four different forms of butyrate:



Granule Sachet Form: Containing 225 mg butyrate in one dose, this form is designed to be easily consumed by children with its slightly sweet flavor.

Syrup Form: The liquid form containing 225 mg butyrate in one serving is ideal for children with swallowing difficulties.

Powder Form (Industrial Use - 15 kg Package): Developed for large-scale manufacturers and retailers.

Medera Nutrition and Production Process

Medera Nutrition produces high purity butyrate supplements from vegan sources with a science-based and sustainable approach. With high production capacity, various product forms and Eurofins Scientific approved quality, it aims to make a difference in the gut health and wellness market.



Production Process



Medera Nutrition and Production Process

Why Medera Nutrition?



High Production Capacity: With its high production volume, it appeals to both manufacturers and large-scale distributors.



Natural and Pure Production: Produced from all-natural raw materials such as olive oil or palm oil, butyrate is additive-free and maximizes bioavailability.



Various Product Types: Available in capsule, powder, granule, sachet and syrup forms, the products are offered for different age groups and usage needs.



Fast and Global Delivery: With its wide delivery network and expert team, it provides fast and reliable distribution; sustainability is prioritized with carbon-neutral logistics.



Proven Quality: Backed by certificates from Eurofins Scientific Laboratories, ISO 22000 and HACCP standards, the products are approved for purity and safety.

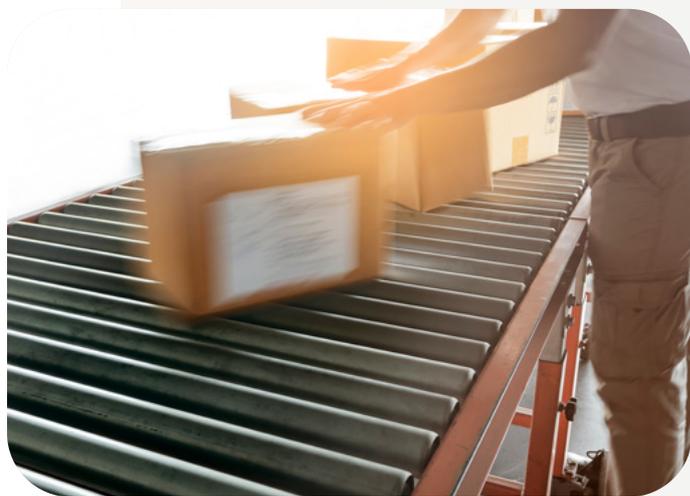


Lonza DRcaps Technology: Lonza DRcaps are gastric acid resistant vegetable (HPMC) capsules. The GMP, ISO and FDA-approved technology ensures controlled release of butyrate in the intestine, enhances efficacy and improves the consumer experience through taste-odor masking.

Medera Nutrition and Production Process

Production Process

Medera Nutrition follows a natural and innovative process in the production of butyrate that complies with food safety standards. Calcium Butyrate, Sodium Butyrate, Magnesium Butyrate and Potassium Butyrate forms are produced in all product categories with the following steps:



1

Raw Material Extraction:

Production starts with obtaining butyric acid from vegan sources such as olive oil or palm oil. These raw materials are sourced through sustainable agricultural methods and an environmentally friendly approach is adopted.

2

Salt Form Conversion:

Butyric acid is converted into salt form by combining it with naturally derived calcium, magnesium, sodium or potassium bases. This step increases the stability and efficacy of butyrate.

3

Formulation and Processing:

- **Powder (15 kg):** Butyrate in salt form is granulated and filled into liner bags in accordance with food standards under hygienic conditions. Ideal for large-scale use.

- **Capsules:** The granulated butyrate is filled into Lonza DRcaps capsules from Switzerland. These capsules are resistant to stomach acid and ensure optimal absorption in the intestine. Bottling is completed according to high quality standards.

- **Granulated Sachet:** Granulated butyrate is filled into portable sachet packs for practical and hygienic use.

- **Syrup:** Butyrate is converted into liquid syrup and filled into standard bottles; especially suitable for children.

4

Quality Control and Packaging:

Each batch undergoes purity, toxicity and bioavailability tests in Eurofins Scientific Laboratories. Packaging is carried out under hygienic conditions with biodegradable materials.

5

Preparation for Distribution and Shipping:

Products are packaged in accordance with quality standards and made ready for butyrate shipment on a global scale through a wide delivery network.

Business Partnerships and Market Opportunities

Medera Nutrition facilitates the market integration of post-biotic supplements by offering a wide range of partnership opportunities for manufacturers and retailers.

Thanks to its innovative approach based on scientific foundations, high production capacity and global distribution network, it provides its partners with sustainable and profitable growth opportunities.

The growing demand for gut health products and the emerging postbiotic segment offers partners early positioning and sustainable growth opportunities.



Business Partnerships and Market Opportunities

Market Positioning and Competitive Edge

Rising Market Demand: Demand for gut health-focused supplements is growing rapidly. The growth of the probiotic and prebiotic markets is creating a new area of opportunity for postbiotics such as butyrate. The digestive health and immunity trend is gaining traction, especially among health-conscious consumers.

Differentiated Product Positioning: While most digestive products focus on probiotics and prebiotics, butyrate is differentiated by its postbiotic category. This offers partners early positioning in a segment where there is not intense competition yet.

Scientific Support and Credibility: Butyrate is clinically proven to strengthen the intestinal barrier and offer anti-inflammatory effects. Its mechanism of action, acting directly on intestinal cells, offers a different value proposition than existing supplements.

Wide Application Areas: From supporting gut flora after antibiotics, to keto dieters and athletes; this diversity enables the products to appeal to different target audiences.

Product Quality and Production Capacity: The products, which offer high purity through all-natural processes, have a quality that exceeds global standards. The high production capacity makes Medera Nutrition one of the largest manufacturers in the industry.



Advantages of Partnering with Medera Nutrition

Medera Nutrition aims to add value to its business partners, not only as a supplier, but as a strategic partner for long-term growth and sustainable success. Companies that cooperate with Medera Nutrition gain significant advantages in production, sales and marketing processes.

Business Partnerships and Market Opportunities



1. Business Opportunities for Manufacturers

Medera Nutrition offers powdered butyrate from vegan sources to manufacturers, enabling you to bring your unique butyrate products to market quickly and effectively with the integration of this valuable ingredient into your own production lines.

Seamless Production Integration

The butyrate raw material in powder form can be seamlessly integrated into the existing production lines of manufacturing companies, paving the way for accelerated customized butyrate product development processes.

Reliable Supply and Strategic Partnership

Sourced from sustainable vegan sources such as olive oil and palm oil, powdered butyrate is delivered through a seamless supply chain, supporting the safe growth of production capacity with scalable volumes and long-term collaboration.



2. Strategic Advantages for Retailers

Medera Nutrition offers retailers solutions that can be placed directly on their shelves with vegan butyrate products such as capsules, granule sachets and syrups. It provides a competitive advantage in the market with products that appeal to a wide audience, suitable for both adults and children.

Multichannel Sales

The broad reach through pharmacies, health clinics, functional food stores and online platforms enables retailers to reach different customer groups in B2B and B2C segments.

Quality and Promotion Support

Reinforcing customer trust with Eurofins Scientific-approved quality standards, the products gain recognition through social media and digital campaigns conducted by Medera Nutrition across Europe, increasing consumer awareness and building long-term loyalty.



3. White Label Solution

Medera Nutrition enables partner companies to quickly and easily bring their existing butyrate products to market under their own label without the cost of product development.

Fast Market Access with Brand Labeling

Partners can offer Medera Nutrition's highly bioavailable ready-to-use products in capsule, tablet, granule sachet and powder form under their own brands, enabling an immediate response to market demands.

Uninterrupted Supply and Global Distribution

Thanks to its high production capacity, products are quickly available without waiting, while a global delivery network ensures that Eurofins Scientific-approved butyrate supplements are efficiently distributed worldwide.

Conclusion

Gut health is fundamental to overall well-being, influencing everything from digestion and immunity to metabolic balance and neurological health. The post-biotics play a vital role in this ecosystem as the primary energy source for intestinal epithelial cells. It offers a wide range of benefits including reducing inflammation, promoting microbiota diversity, strengthening the intestinal barrier and encourage GLP-1 hormone.

Medera Nutrition produces high-quality butyrate from vegan sources like olive oil and palm oil using DRcaps™ technology to ensure maximum efficacy in the gut. Manufactured in GMP-certified facilities and adhering to Eurofins Scientific-approved quality standards, ButyEra is supported by robust production capacity and a global distribution network, making it a trusted solution for the post-biotic supplement and wellness industries.

For those looking to build a future focused on gut health, Medera Nutrition offers sustainable growth opportunities for manufacturers, retailers, and business partners. By collaborating with Medera Nutrition, those committed to advancing gut health with vegan, science-backed, and reliable solutions can make a meaningful and lasting impact in this vital field.



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Balanced Microbiome for Improved Digestion

-  Manufacturer of vegan butyrate
-  High volume production capacity
-  Expert R&D competence
-  Global shipping network
-  Tailored partnership options

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