

# ButyraGen™: A Direct Butyrate Generator for Gut Health and Beyond

The next generation of prebiotics

## Whole Body Wellness Begins in the Gut

### You've heard of the gut-brain axis

- ✓ What happens in the gut affects the cognitive performance of the brain

### Now meet the gut-body axis

- ✓ Gut bacteria affect organs and functions across the body
  - Metabolic, endocrine, immune function and more!

- Butyrate, a signaling molecule, makes the connection

- Butyrate directly interacts with the brain and/or nervous system as a signaling molecule

- Nearly all cells in the body have butyrate receptors, demonstrating the widespread effects and full body benefits of butyrate

### Microbiome is Top of Mind

**\$1.6 billion<sup>1</sup>**

Estimated global market size by 2028

### Synbiotics Surge<sup>2</sup>

**\$978 million**

Estimated U.S. sales 2021

**10.4%**

Estimated growth 2021



## The Importance of Butyrate

### Butyrate is a

- ✓ Short-chain fatty acid
- ✓ Postbiotic
- ✓ Signaling molecule – 90% of the cells in the body have butyrate receptors

### Most people don't get enough butyrate

- ✓ The human body can't make it on its own
- ✓ Typically generated via the foods we eat and fermentation in the gut



### Benefits of ButyraGen™

ButyraGen™ is an innovative, low-dose tributyrin-based prebiotic that generates high levels of butyrate directly in the colon.

### ButyraGen™ is unique

- ✓ Directly generates butyrate in the gut
  - No microbiome activity needed → Anyone can benefit, no matter the state of their microbiome
- ✓ Delivers benefits as a stand-alone ingredient
- ✓ Works synergistically with probiotics to accelerate butyrate generation
- ✓ Contains the highest levels of tributyrin in a powder form
- ✓ Patent pending

## Low-dose, High-impact

ButyraGen™ requires a significantly lower dose than other commonly used prebiotics such as inulin and XOS, with less gas production.

ButyraGen™ requires a fraction of the dose when compared to common prebiotics like inulin and XOS

### How it works

Tributyrin is broken down in the gut



High levels of butyrate postbiotic are generated



Butyrate is available to the receptors in the cell membranes



Butyrate signals and activates cells in other organs, increasing and regulating their activity

Butyrate plays an important role in intestinal barrier function and gut health



ButyraGen™ works synergistically with probiotics to accelerate butyrate generation

## ButyraGen™ is beneficial for:

- ✓ Gut health
- ✓ Brain and nervous system support
- ✓ Metabolic syndrome
- ✓ Oxidative stress
- ✓ Immunity
- ✓ Inflammation
- ✓ Mood and sleep
- ✓ Cardiovascular health
- ✓ Skin health



### The Science of ButyraGen™

In human stool studies: Human equivalent doses (HED) of ButyraGen™ were compared with inulin and XOS



### After 48 hours

- ✓ A low dose of ButyraGen™ performs as well as larger doses of common prebiotics XOS and Inulin
- ✓ Gas production from ButyraGen™ fermentation was significantly lower than that of inulin and XOS fermentation
- ✓ Butyrate production from XOS and inulin was highly variable, whereas consistently high levels of butyrate were generated from ButyraGen™

## By itself, ButyraGen™ is highly effective in generating butyrate – at a low dose!

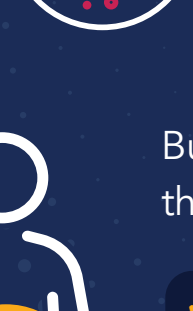


Studies have shown combining ButyraGen™ with probiotics leads to an even greater increase in butyrate generation – with an enhanced synbiotic effect

- ✓ In a scientific study, ButyraGen™ was combined with 1 of 2 probiotics to examine synergies
- ✓ A significant increase in butyrate generation was measured with each
- ✓ ButyraGen™ leads to a more acidic environment in the gut
- ✓ A more acidic environment encourages the growth of these probiotics
- ✓ This creates a better overall microbiome
- ✓ A well-balanced microbiome produces more butyrate

## Formulating with ButyraGen™

Low dose powder format



Use as a stand-alone ingredient

or



Synergistically with probiotics or prebiotics



ButyraGen™ can enhance any product designed to benefit the gut-organ axis including:

- ✓ cognitive
- ✓ digestive
- ✓ immune
- ✓ cardiovascular
- ✓ anti-aging
- ✓ liver
- ✓ anti-inflammatory
- ✓ metabolic
- ✓ thermogenesis
- ✓ oxidative stress
- ✓ lung health
- ✓ overall health and wellness

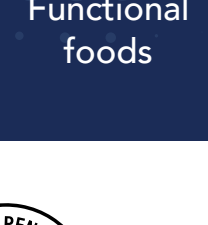
Appropriate for:



Capsules



Tablets



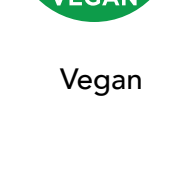
Functional foods



Animal health products



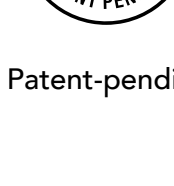
Gluten-free



Vegan



Allergen-free



Patent-pending



Produced with sustainably sourced RSPO palm oil



Non-GMO

For more information:



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ButyraGen™ is part of an exclusive portfolio of proprietary ingredients and is a trademark of NutriScience Innovations LLC

### Reference:

1. MarketsAndMarkets Human Microbiome Market by Product <https://www.marketsandmarkets.com/Market-Reports/human-microbiome-market-37621904.html>
2. Nutrition Business Journal 2021 Condition Specific Report <https://store.newhope.com/products/2021-condition-specific-report>