


An Abundance of Biotics

Engaging brands and consumers on the definitions and diverse benefits of pre- and postbiotics

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What a difference a prefix can make!

- Probiotics**
 - Defined by the World Health Organization in 2001
 - Defined by the International Scientific Association of Probiotics and Prebiotics (ISAPP) in 2014
 - Live microorganisms that when taken in sufficient amounts can provide health benefits. Sometimes – but not always – they are similar to microbes that normally colonize our bodies.
 - FDA Issues Draft Guidance on the Labeling of Dietary Supplements Containing Live Microbials (2018)
- Prebiotics**
- Postbiotics** Less history and still ongoing definition debates

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Definitions Matter

- Prebiotics**
 - Defined by ISAPP in 2017
 - “Substrates that are selectively utilized by host microorganisms conferring a health benefit. Simply put, they are food for beneficial microbes that live on or in us.”
 - Previous definitions:
 - “A non-digestible food ingredient that beneficially affects the host by selectively stimulating the growth and/or activity of one or a limited number of bacteria in the colon and thus improves host health” (Gibson and Roberfroid, J Nutr 1995)
 - “A nonviable food component that confers a health benefit on the host associated with modulation of the microbiota” (FAO (Food and Agricultural Organization of the United Nations), 2006).
 - Definitions for prebiotics and what specific outcomes define a prebiotic effect have been challenged almost since the concept was introduced, now especially as phages are now being marketed to brands as prebiotics.
- Postbiotics**
 - Defined by ISAPP in 2021
 - A preparation of inanimate microorganisms and/or their components that confers a healthy benefits on the host
 - Previously definitions:
 - Any factor resulting from the metabolic activity of a probiotic or any released molecule capable of conferring beneficial effects to the host in a direct or indirect way (Tsiligianni and Rescigno, Benef Microbes 2013)
 - Definitions for postbiotics vary widely between metabolites and inanimate cells

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What message is the end consumer receiving?

Prebiotics, probiotics, postbiotics. What's the difference?

There's widespread confusion about these biotics—including what they are, where to find them, and what they can or can't do.

Are Prebiotics Important for Gut Health?

Do They Work?

But there also isn't enough evidence showing that prebiotics are beneficial when treating conditions like irritable bowel syndrome or diarrhea, she said, so she has some recommended prebiotic supplements to try patients.

The Scoop/Down

Making sense of prebiotics, probiotics and postbiotics

Are these claims true? Should you be taking them? Current evidence says probably not, on both counts.

With probiotics and postbiotics... it's impossible to legitimately make generalized health claims.

If you want to take any "biotic" supplement or modified food for a spin, know this: **any product worth buying would have demonstrated health benefits from human clinical trials**, and the company should be able to provide for documentation of that health benefit.

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Forbes HEALTH

Prebiotics vs. Probiotics vs. Postbiotics: What's The Difference?

What Are Prebiotics?

Prebiotics are the non-living ingredients found by the fermentation process, and are certain sugars like inulin and FOS, as well as oligosaccharides that serve as growth food for probiotics, and are even found in many healthy eating items you find every day like "gut" in their names and if the name "gut" probiotics is written.

Altogether Symbiotic

is a clinically studied prebiotic probiotic combination to support intestinal gut health.

(butyrate)

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What message are brands getting?

Postbiotics — when simplification fails to clarify

Postbiotic promise: Consensus among industry players needed before policymakers and consumers can help fulfill potential - experts

From Pro- and Probiotics to Post-Biotics: A Narrative Review

Postbiotic Study Shows Promise in Gut Health

Researchers in final supplements attracted some interest

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Strategies to market pre- and postbiotics to brands and end consumers

Brands want what end consumers want:

- Education
 - Both brands and consumers want to learn more about what is new in the microbiome field and how to utilize biotics to their benefit
- Claims
 - Both brands and consumers want ingredients with substantiated, research-backed claims. Trustworthy ingredients with benefits a consumer can experience.
- Ease of Use
 - Brands want ingredients that are easy to formulate with.
 - Consumers want ingredients that are easy to take, and still gravitate toward edible/functional food type delivery formats over supplements.

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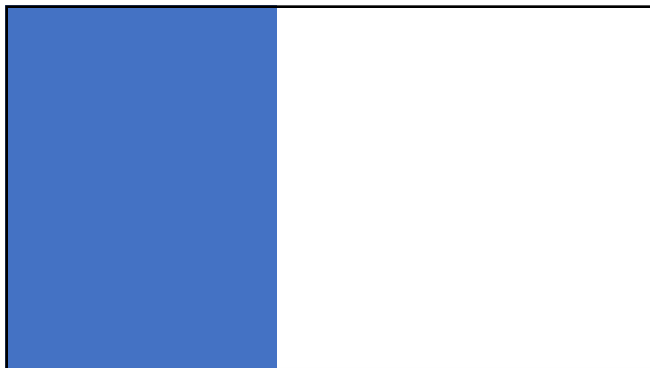


Bimuno® (prebiotic) and LBiome™ (postbiotic)

- Education
 - At Stratum Nutrition we seek to educate our industry on not only these two ingredients, but the overall fields of prebiotics and postbiotics as a way to raise overall awareness and get discussion to happen. We provide a variety of resources to our customers to help them educate the end consumer in a variety of ways, based on how much space they have for education (label, website, influencers, etc.)
- Claims
 - Stratum Nutrition chose to include Bimuno and LBiome in our ingredient portfolio based on the wealth of published scientific data each ingredient has to support health claims (20+ clinical studies support use of Bimuno for various benefits in adults and children/ 12+ clinical studies supporting LBiome supplementation for digestive health in adults and pediatrics.)
- Ease of Use...



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Introducing Bimuno®



- Bimuno is a prebiotic fiber containing a unique mixture of galactooligosaccharides (GOS), produced through a proprietary process
- Bimuno feeds and stimulates the growth of beneficial bacteria in the gut. It can increase levels of beneficial bacteria, specifically bifidobacteria within just 7 days

Bimuno has a multi-pronged impact on health:



Gastrointestinal Health



Immune Health




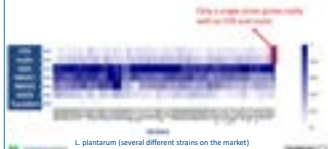
Cognitive Health



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

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GOS and Other Prebiotics






Synthetic matrix making using Lactiplantibacillus plantarum. Michael Theodorsson, Wageningen University, Probiotic International Barcelona 2013

- FOS:** Fructooligosaccharides occur naturally in plants
 - chicory
 - Up to 15 g/day¹
 - Inulin: a fermentable fiber commonly extracted from chicory root
 - 7 to 17 g/day¹
- GOS (Bimuno):** Galactooligosaccharides produced through the enzymatic conversion of lactose
 - 1.8 to 3.6 g/day¹
- IMOS:** isomalto-oligosaccharide are made from maltose
 - 5 to 10 g/day²
- AXOS:** arabinoxylian oligosaccharides are derived from arabinoxylians, complex carbohydrates found cereals.
 - 2.5 to 5 g/day³
- Fucoidan:** Fucoidans are derived primarily from brown algae
 - 2 to 6 g/day⁴

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Bimuno® Claims and Published Clinical Research





Claim	Published Clinical Research
1.8 g/day Bimuno	<ul style="list-style-type: none"> Improves well-being in post-1990s... Improves mood in healthy young adults... Improves mood and quality of life in... Improves mood and quality of life in...
3.6 g/day Bimuno	<ul style="list-style-type: none"> Improves mood and quality of life in... Improves mood and quality of life in... Improves mood and quality of life in... Improves mood and quality of life in...
1.8 g/day Bimuno	<ul style="list-style-type: none"> Improves mood and quality of life in...
1.8 g/day Bimuno	<ul style="list-style-type: none"> Improves mood and quality of life in...
3.6 g/day Bimuno	<ul style="list-style-type: none"> Improves mood and quality of life in...
1.8 g/day Bimuno	<ul style="list-style-type: none"> Improves mood and quality of life in...

Bifidogenic effect confirmed in all clinical trials when possible.

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LBiome™
PIONEER IN POSTBIOTICS


Researched in Postbiotic Form for Over 100 Years

- 40+ published studies
- Significant efficacy within days of use
- Human-derived strains
Compared to yeast- or food-derived strains
- The most clinically researched postbiotic for pediatric digestive health
- The most clinically researched postbiotic for digestive health
- Final product includes all cells and metabolites
- Standardized ingredient
Intact cell count

Supplement Facts				Supplement Facts			
Serving Size	Amount Per Serving	%DV		Serving Size	Amount Per Serving	%DV	
LBiome™ (Postbiotic LB)	300 mg (20 billion cells)	**		Probiotic (Postbiotic X)	40 mg (20 billion CFUs)	**	




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- With the **abundance of biotics (and definitions)** available, various difficulties arise in the arenas of ingredient supplier, supplement brand, and end consumer. This is especially true for **postbiotics**, which have only recently been defined, or in the case of prebiotics, recently brought back into debate.

In the end, it all comes down to what the end consumer decides, so the best we can do on every level is get clear on what we are providing and **give the end consumer the education they seek (without mixed messages), guiding them toward pre- and postbiotics with extensive clinical research supporting end user benefits.**

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Thank you for your time.

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