White paper presented by:



How do I choose the right Beta Glucan?

A definitive guide to choosing the right beta glucan for your immune health product

Immune health needs are driving interest in beta glucans

Maybe it was this year's flu season, or maybe people are just sick and tired of being sick and tired, but **immune support has risen to be the second-most desired health benefit consumers want from products**.¹

With the increased interest in immune health, consumers are becoming more familiar with beta glucans. While awareness is growing, confusion exists in the market about the different sources of beta glucans, the benefits each can provide, and how effective they can be – particularly for immune health.

So...what exactly is a beta glucan?

Simply put, it is a fiber. More technically speaking, it is a naturally occurring complex carbohydrate called a polysaccharide that is found in the cell walls of foods such as common baker's yeast, cereal grains (like barley, oats, rye, and wheat), and in many types of mushrooms. Because the body does not produce this fiber on its own, beta glucans are only available by consuming the sources identified above. And often times, to receive benefits, the beta glucans must be extracted from its source. Functional foods, beverages, and supplements are convenient formats in which to deliver beta glucans to consumers.

Sourcing beta glucans

When researching and evaluating beta glucans for use in immune health focused functional foods, beverages and supplements, it is important to understand that the variations in source, strain, and chemical structure all play a key role in the benefit they may provide. Importantly, when it comes to immune health benefits, not all beta glucans are created equal.

To help shed some light on the different types of beta glucans, in this white paper we:

- 1. Compare three types of beta glucans (those from cereal, mushroom, and yeast) to better understand and differentiate between them.
- 2. Examine baker's yeast beta glucan for immune health benefits and discuss why clinical research is vital.

¹ GlobalData global consumer survey, 2015



Different structures, different benefits

As mentioned, different benefits are associated with different sources of beta glucans. It is the chemical characteristics of each type of beta glucan that affect biological activity.

Each type of beta glucan is structured with a different molecular backbone and level of branching. The chart below shows the structure and biological differences between more common cereal, mushroom, and baker's yeast beta glucans.





The benefits of beta glucans

As the chart shows us, structure can impact the associated health benefits of beta glucans, but let's take a closer look at the differences including the role strain plays in biological activity.

1. Cereal beta glucans

Structure and benefits: The predominant cereal grain consumed for its beta glucan content is oats, which provides a beta glucan with a linear molecular structure of B-1,3/B-1,4.

The research: Unlike beta glucans from other sources, those derived from oats have not been shown to provide significant immune health benefits. Instead, studies have confirmed that certain oat beta glucans can help lower cholesterol levels and provide heart health benefits. The degree of cholesterol reduction depends upon the particular strain of beta glucan.

2. Mushroom beta glucans

Structure and benefits: The molecular structure of beta glucans derived from mushrooms is varied and inconsistent, making it difficult to characterize their efficacy. The most studied strain of mushroom beta glucan is lentinan, a substance derived from *Lentinus edodes* with a B-1,3-D-glucan backbone comprising very short B-1,6 side chains.

The research: Although mushroom beta glucans are associated with immune health benefits, research shows that their potency is lower than that of certain well-studied baker's yeast beta glucans. The chemical makeup of each type of mushroom varies, and it is likely that the biological activities of the various mushroom beta glucans depend on the chemical characteristics of each type of mushroom. Further clinical research is needed to fully understand how each type of mushroom beta glucan works.

3. Yeast beta glucans

Structure and benefits: Multiple strains of yeast produce beta glucans (i.e., baker's yeast, brewer's yeast). Each strain of yeast produces beta glucan with a distinct composition and linkage pattern. Beta glucan from baker's yeast (*Saccharomyces cerevisiae*) has a β-1,3 glucan backbone with long branches of β-1,6 glucan side chains.

The research: Numerous biomarker, mechanism-of-action, and clinical research studies have revealed that the beta glucans present in certain strains of baker's yeast are linked to immune health benefits. These health benefits are dependent on the specific strain and the body of evidence by which it is supported as well as the specific process used in the production of the beta glucan







What to look for in a baker's yeast beta glucan for immunity

Manufacturing processes and research are essential to determining efficacy

Beyond understanding the role source, structure and strain play on the benefits of a beta glucan, **the method(s) used to extract and manufacture beta glucans derived from a specific strain of baker's yeast is a key determinant in the impact it will have on the immune system.** This is because manufacturing process can impact the structure of a beta glucan and thus its health benefits.

What does this mean? This further emphasizes the importance of research. It means that when evaluating a baker's yeast beta glucan, you should look for clinical research that supports the ingredient's mechanism of action and provides biomarker, safety, and efficacy data that demonstrates its effectiveness. **This research must be specific to that ingredient (or strain) and its process of extraction, because as outlined, these attributes make a difference in efficacy.**

When sourcing a baker's yeast beta glucan for immunity-positioned foods, beverages, and supplements, the research behind it is what will bring quality to a product. Multiple peer-reviewed, published, high-quality clinical studies, with consistent outcomes on that particular baker's yeast beta glucan, are the gold standard.

Other questions to ask about beta glucans for immune health:

- What is the source and strain of the beta glucan?
- Has the mechanism of action been explained, defined, or published?
- What has the research found?
- Is it safe, and how has safety been verified?



What's the best source of baker's yeast beta glucan for immune health?

Wellmune®, the natural immune health ingredient.

Wellmune[®] is a yeast beta 1,3/1,6 glucan. Using a proprietary process, Wellmune is extracted from the cell wall of a proprietary strain of baker's yeast (*Saccharomyces cervisiae*). Highly purified, Wellmune is supported by an extensive body of research. More than a dozen clinical studies, along with additional safety and preclinical studies, have confirmed the safety and efficacy of this immune health ingredient. Research shows Wellmune is a highly effective yeast beta glucan for nutritional use in functional foods, beverages, and supplements, and demonstrates Wellmune's health benefits, including its ability to:

- Support overall immune function
- Help maintain overall physical health
- Protect against the harmful effects of stress
- Promote healthy energy levels and mental clarity





How does Wellmune work?

Wellmune's mechanism of action in the body has been well-documented in published, peer-reviewed research journals, and can be described as follows:



What's the difference between Wellmune[®] and other beta glucans for immune health?

- Unlike other beta glucans, Wellmune is extracted from a proprietary strain of baker's yeast (Saccharomyces cerevisiae) using proprietary processes.
- A patented ingredient, Wellmune's beta 1,3/1,6 structure and strain-specific efficacy have been well studied, providing a significant body of published, peer-reviewed research supporting its ability to help improve immune health in people of all ages.
- Research with Wellmune covers safety, mechanism of action, and human clinical studies, which allows for a greater understanding of how it works.
- A well-characterized ingredient, Wellmune is highly purified to offer consistent immune health benefits.
- Wellmune is a leading global brand recognized by consumers for its clinically proven immune health benefits, providing a simple-to-understand ingredient that makes purchase decisions easier.
- Wellmune can be formulated into a wide variety of food, beverages and supplement including taste sensitive products and clear beverage applications.

Looking for more information about Wellmune? Email us at **wellmune@kerry.com** to learn more about how Wellmune can differentiate your product and give your consumers the immune health benefits they desire.

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