

The Arc of Balanced Immunity, guided by beta-1,3/1,6-glucans

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Introduction

A well-functioning immune system is one of nature's most sophisticated protective body defense mechanisms. Evolving over millions of years, it works continuously to maintain animal health by recognizing threats, neutralizing pathogens, and restoring balance after injury or stress.

Every pet begins life full of energy, curiosity and promise, yet challenges such as stress, ageing, environmental pressures, excess body weight, or underlying illness can gradually undermine immune resilience. The immune system is the first biological place where these pressures manifest, and when it becomes weakened or dysregulated, animals become more sensitive to pathogenic infections (e.g. viruses, bacteria, and parasites), chronic inflammation and flare-ups of allergies. Early signs often appear throughout the body in the form of digestive discomfort, recurrent skin problems, slower recovery after activity or stress, mobility sensitivities, and a general decline in vitality.

These visible signs arise from two central biological mechanisms that keep immunity balanced. Figure 1 shows that a healthy immune system sits in the optimal balance between being underactive and overactive: too little activity leads to infections and weak responses, while too much activity is related to inflammation and allergies. Maintaining this balance supports strong, stable immune function.

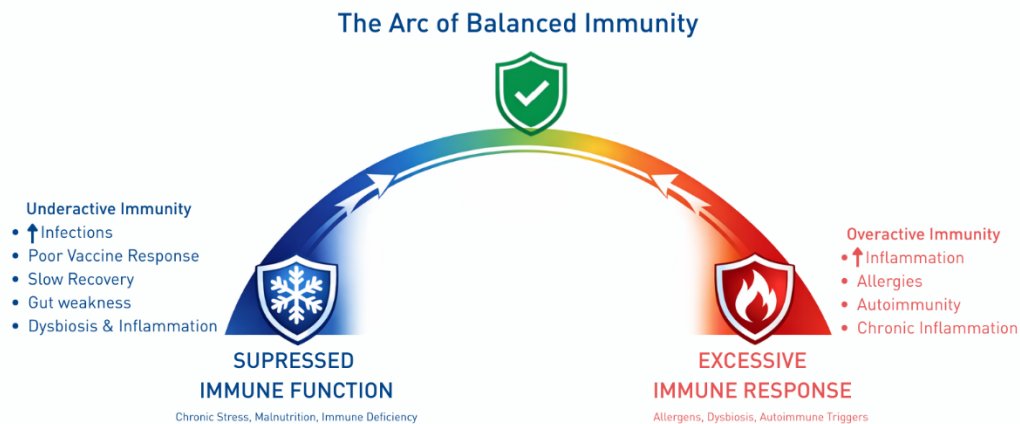


Figure 1: The science of balanced immunity

For decades, researchers have sought for natural compounds that can support the body defenses, allowing immune cells to react efficiently and appropriately, without triggering unnecessary inflammation. Among these solutions, purified yeast beta-1,3/1,6-glucans have consistently stood out as such a smart nutritional strategy.

Understanding the immune system

All animals rely on three fundamental immune principles: recognition, processing, and elimination of threats. Accordingly, the body's defenses consist of three main layers: physical barriers such as the skin, intestinal lining and mucous layers; innate immunity, which acts as the rapid and non-specific first responder; and adaptive immunity, which provides targeted and long-lasting protection.

More than 70% of all immune cells reside in the gut, where they continuously evaluate signals from food, microbes, and environmental stressors. True wellness therefore begins in the gut—and this is also where purified beta-1,3/1,6-glucans exerts its primary mode of action.

When immune balance is disturbed—whether through under- or over-responsiveness—susceptibility to infections, inflammatory skin problems, digestive instability and delayed tissue recovery increases. Purposefully supporting balanced immunity therefore helps maintain the resilience needed across a wide variety of pet health challenges.

What is a Beta-1,3/1,6-glucan?

Glucans are carbohydrate polymers made exclusively of glucose molecules, and their biological activity depends entirely on how these molecules are linked (*Figure 2*). While common glucans like starch (with alpha-1,4 bonds) or cellulose (with beta-1,4 bonds) offer no immune-modulating benefits, yeast-derived beta-1,3/1,6-glucans do.

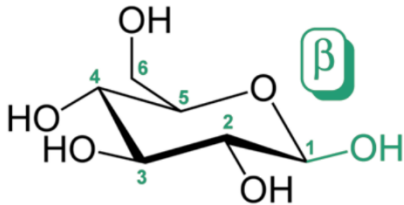


Figure 2: Structure of a glucose molecule, illustrating carbon-numbering notation and the beta-oriented linkage

The yeast cell wall of the *Saccharomyces cerevisiae* contains this specific beta-glucan structure: a beta-1,3-linked backbone with beta-1,6-linked side branches. The effectiveness of these glucans to modulate immune cells depends on the length of the beta-1,3 backbone, the frequency of branching, and especially the purity of the final molecule. When these structural characteristics are preserved, beta-1,3/1,6-glucans help innate immune cells react faster, stronger and communicate more effectively with cells of the adaptive immune system, enabling the body to regain balance more efficiently after challenges.

The importance of removing the mannan–protein layer

Not all yeast-derived products deliver true immune modulation. Many yeast cell-wall contain beta-1,3/1,6-glucans, however the components of the outer mannan–protein layer masks the underlying beta-glucan and alters its bioactivity (*Figure 3*).

Whole yeast cell walls typically contain this mannan-oligosaccharide, MOS-rich outer layer that can bind undesirable bacteria such as *Escherichia coli* and *Salmonella* as well as certain toxins. Although this provides valuable gut-level pathogen binding, it does not directly modulate immune cells.

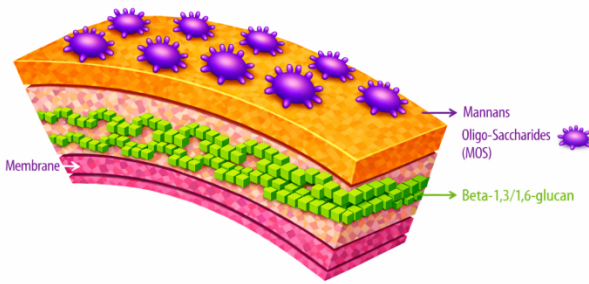


Figure 3: The mannan-oligosaccharide (MOS) layer covers the beta-1,3/1,6-glucan layer in whole yeast cell wall products

In contrast, gently purified beta-glucans—such as those in Excential Resilia—undergo carefully controlled processing that removes the mannan–protein layer, exposes the native beta-1,3/1,6-glucan structure, allows innate immune receptors to recognize it, enables the training of antigen presenting cells such as macrophages and dendritic cells, and preserves the structural integrity required for strong but balanced immune activation. This crucial distinction transforms a basic yeast cell-wall material into a truly functional immune-modulating bioactive compound.

How beta-1,3/1,6-glucans are recognized in the body

Innate immune cells, including macrophages, neutrophils and dendritic cells, serve as the body’s early-warning system. These cells carry receptors designed to detect external carbohydrate structures, including purified beta-1,3/1,6-glucans (*Figure 4*).

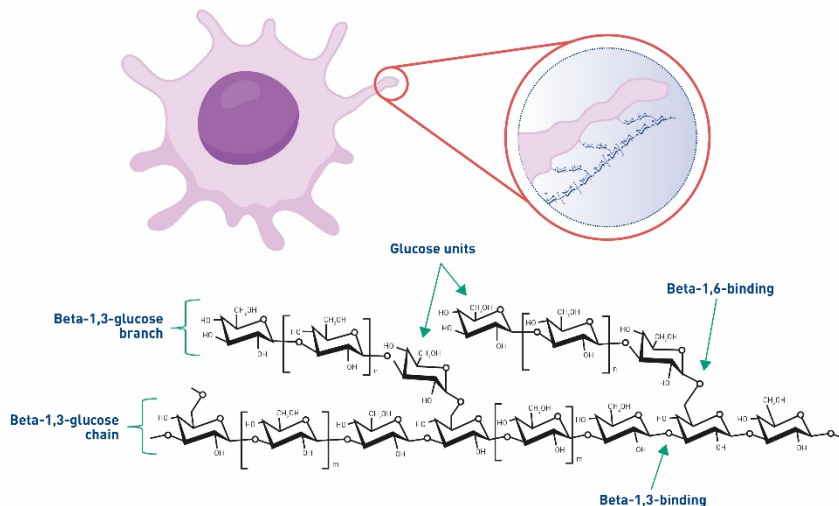


Figure 4: Recognition of the specific beta-1,3/1,6-glucan structure by immune cells

When these structures are identified, immune cells shift into a heightened state of readiness. Antimicrobial responses activate more quickly, cytokines coordinate downstream signaling, and adaptive immunity is primed more effectively. This form of non-inflammatory priming is often described as innate training or modulation of the immune system. It strengthens the body's defensive capacity without provoking excessive inflammation.

Excential Resilia: Modern, science-backed immune support

As the next generation of beta-glucan-based solutions, Excential Resilia integrates decades of scientific progress with improved purification, consistency, and biological performance. Its natural carbohydrate structure aligns with the performance levels documented in established scientific benchmarks.

A more prepared immune system is better able to neutralize challenges efficiently, maintain controlled inflammation, and quickly restore physiological balance. As immunity strengthens and the inflammatory baseline stabilizes, benefits become visible across the body: intestinal comfort becomes steadier, skin and coat health improves, oral tissues experience less inflammatory stress, weight management becomes more manageable due to reduced background inflammation, maternal and puppy immunity gain additional support, active dogs recover faster after exertion, and senior pets enjoy a better quality of life.



Conclusion

Beta-1,3/1,6-glucans are among the most extensively researched natural immune-support ingredients in animal nutrition. Their unique structure allows direct interaction with innate immune cells, strengthening immune readiness and supporting balanced inflammatory responses. The story of Excential Resilia demonstrates how a small, consistent daily dietary addition can meaningfully enhance immune balance, supporting resilience, health, and

vitality across life stages. With its refined purity and strong scientific foundations, Excential Resilia sets a new benchmark for achieving the arc of balanced immunity.