



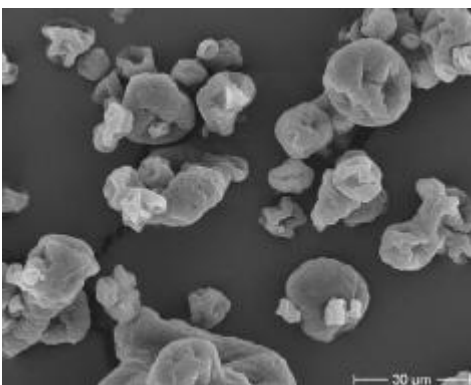
Which beta glucan?

Firstly there many different types of Beta-Glucan and only (1-3),(1-6) is an effective immuno modulator - other types can be laxatives and anti-cholesterols etc.. but first make absolutely sure you get type (1-3),(1-6) - if the product doesn't specify (1-3),(1-6) then it wont be!

To further complicate the issue there are several different beta glucan 1-3,1-6 products on the market. Some are shockingly poor, a few are reasonably good, and one or two are very good indeed. Each and every product, however, claims to be the best. To the scientist this sort of thing is a source of wry amusement – but it's not much fun for the consumer. If you have decided to use beta glucans to boost your own immunity, or that of your loved ones, you want to know you have purchased a reliable and effective product. So how do you do that?

It is very little to do with capsule weight, the total amount of yeast extract, or even the total amount of beta glucans. This might seem counter-intuitive, but the biological effectiveness of beta glucans depends on how many of these bio-active molecules can get to their target site (innate immune cells such as macrophages); and how efficiently they stimulate the macrophage's glucan receptor sites when they get there.

There are two key factors. To begin with, the beta glucan particles have to be in the 1 to 20 micrometer range. Particles of this size are rapidly absorbed after ingestion and taken up into the gut wall where they stimulate macrophages in the Gut-Associated Lymphoid Tissue (GALT). Once stimulated, the GALT system wakes up the whole innate immune system including populations of immune cells in the liver, kidneys and brain.



Particle size is also critical in determining how effective the beta glucan particles are in stimulating the macrophages. It is no coincidence that 1 to 20 micromillimeters is the effective size range because this corresponds to the size of many common pathogenic microorganisms.

This makes absolute sense, as macrophages would normally encounter beta glucans in the cell walls of pathogens. This is a picture of the beat glucans used in the Vitalize products.

The second key factor is the degree of branching of the beta glucan molecule. Together with particle size, this determines how effectively beta glucans 'fit' the macrophage's glucan receptors.

This is a complex issue, and what it effectively means is that the only reliable way of testing beta glucan preparations is to measure their impact on immune cell function. The cell used in almost every laboratory to do this is the phagocytic macrophage, numerically the most important cell in the innate immune system. And the three tests used are:

1. Release of free radicals
2. Synthesis of interleukin-8 (IL-8)
3. Synthesis of neopterin.

Together, these three tests give an accurate overview of innate immune function. Free radicals are involved in the inactivation and killing of pathogenic bacteria, IL-8 is responsible for drawing granulocytes from the bloodstream to the focus of infection, and neopterin is a good marker of the degree of immune activation.

In 2004, an independent research group at the Technical University of Berlin carried out a series of comparative tests ([click here for details](#)), measuring the overall immune-stimulating effects of 9 different commercially available beta glucan products.

The results showed vast difference between the different products. In the top group, showing high efficacy in all three tests, were the Glucasan product and one other. 4 products were in a significantly lower efficacy group, and three more were almost totally ineffective.

Frankly, there was little to choose between the two highest-scoring products; except that the Glucasan product was slightly more consistent and slightly cheaper. What was surprising, however, was that the bottom group included well-known US products containing high percentages of beta glucans.