



Biothera: The Immune Health Company

At first glance, Biothera, Eagan, MN, looks and sounds like a sophisticated biotechnology company that caters to the pharmaceutical market. But upon closer inspection, while all of this is true, it is also a dedicated supplier of immune support ingredients to the dietary supplement, functional food and nutritional beverage industries.

Founded in 1997, Biothera was known as Biopolymer Engineering, a company focused on developing natural complex carbohydrates for a range of health indications. A few years later, for various reasons, the company decided to hone in on the immune support market specifically.

Rich Mueller, president and CEO, has been at the helm since 2001. He has witnessed some of the company's major transitions and achievements. Right now he says all of the company's revenues are coming from the "Health-care" side of the business, the unit responsible for serving the needs of dietary supplement and functional food manufacturers. This revenue is being used to fund research on the "Pharmaceutical" side of the business, which is developing pharmaceuticals for multiple cancer applications.

Wellmune WGP, Biothera's immune health star, comes from the layer of the cell wall in a proprietary strain of baker's yeast. Numerous clinical and pre-clinical studies have demonstrated its ability to activate key human immune cells, including macrophages and neutrophils, to more quickly recognize and kill foreign challenges. To date, Mr. Mueller claims the company has invested \$250 million to ensure the ingredient is safe and that it works. And though costs have been steep in securing the intellectual property around this ingre-

dient, Mr. Mueller sees Wellmune's research portfolio as a differentiating factor in the market.

Most recently, Biothera achieved some significant milestones, as it completed four clinical trials on Wellmune in the last two years. Three used a double-blind, placebo-controlled model, while another used a single-blind, random crossover model. One study, conducted on 75 marathon runners (35



men, 40 women) ages 18 to 53 (mean age 36 years), showed that taking 250 mg of Wellmune increased vigor (22%), reduced fatigue (48%), tension (38%) and stress-related confusion (38%). Further, 66% fewer subjects in this study reported upper respiratory tract infection (URTI) symptoms.

In another study, a total of 150 people (45 men and 105 women ages 18-65), categorized as leading highly stressful lives, received either Wellmune WGP or a placebo daily for four weeks. The study measured both stress-related incidence of URTI symptoms (i.e. cold, flu) and psychological well-being, including levels of vigor, tension, mental clarity and fatigue. High-stress subjects taking 250 mg of Wellmune WGP daily report-

ed a 41% increase in general health when compared with the placebo group over the four-week study period.

The latest study featuring Wellmune was conducted on 54 wildland firefighters who were given Wellmune WGP or placebo for 14 days, followed by a three-day washout period and another 14-day treatment period. During the course of treatments, subjects kept daily health logs recording cold and flu symptoms and overall feelings of well-being. There was a strong statistical trend favoring the use of Wellmune WGP for the prevention of URTIs. While 48% of the firefighters on placebo experienced a URTI, only 37% taking Wellmune WGP actually had a URTI.

A key difference between Wellmune and other immune support ingredients is the duration of use. "This is something we recommend to be taken on a daily basis because a strengthened immune system is a year-round benefit," said Mr. Mueller. "If you are priming the immune system, which is what our products do, key immune cells will be more efficient when they encounter foreign cells and take care of that challenge."

For the future, Mr. Mueller sees immune health as a major consumer concern. "The consumer today understands that it is very important to have a strong immune system as a key to overall health," he said. "I see ingredients that safely strengthen the immune system as being a cornerstone in the immune support market and as key ingredients used in the food and beverage industry." —R.W.

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