

R&D, Product Development & Science: Immune Health

The immune system is a highly complex combination of organs and specialized cells that act in concert to protect the body against invading organisms; however, immune dysfunction and dysregulation can adversely affect human health. Fortunately, a range of natural therapeutic ingredients offer benefits to immune health, even as consumers broaden their view of the category, opening potential to marketers.

by Heather Granato

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The immune system is a highly complex combination of organs and specialized cells that act in concert to protect the body against invading organisms. What problems occur when the immune system doesn't work properly? More importantly, what role do dietary supplements play in modulating the immune system? At SupplySide MarketPlace, Steven French, managing partner, Natural Marketing Institute (NMI), and Heath McAllister, N.D., resident physician, Southwest College of Naturopathic Medicine, provided insights on the role of dietary supplements and natural therapeutics in immune function and usage trends of relevant products, providing the basis for new opportunities and applications in this growing and opportunistic marketplace.

Dr. McAllister started the session, noting it was a struggle to get the necessary information into a 50-minute presentation, as immune health is a "huge topic" that is tough to manage. He started by reviewing the basic components and function of the immune system, which essentially can be boiled down to identifying "self" and "non-self" components, and keeping a memory of exposure to agents. From the innate side, McAllister focused on the thymus gland and gastrointestinal (GI) tract in particular, the largest and most complex immune organ in the body. He also discussed the components of adaptive, or acquired, immunity and the differentiation and activation of T cells; of note was his discussion of T-regulatory cells (T-regs), which tie in to autoimmune issues. "Self regulation is huge because if your immune system can't distinguish between you and what's not you, it will be attacking you indiscriminately," he said. "You need a system of checks and balances." He noted 90 percent of B cells and 95 percent of T cells react to self-antigens; but some self-reactive T cells can escape and set the stage for auto immune dysfunction.

This moved into a discussion of immune dysfunction, including the pathogenesis of autoimmunity. McAllister differentiated between the major categories of immune dysfunction: hypofunction, increased susceptibility to colds and increased inflammatory response from immune stimulation; and hyperfunction, such as allergies and asthma, related to increased inflammation from constant stimulation of the immune system. Autoimmunity can be considered a loss of self-tolerance; autoimmune diseases including type 1 diabetes, lupus and rheumatoid arthritis (RA) affect 50 million Americans. "This is a huge area that needs to be dealt with," he said, citing NIH data stating the category is a "public health crisis at levels comparable to heart disease and cancer."

In his final segment, McAllister looked at novel approaches to dealing with immune dysfunction, including therapeutic agents with some scientific substantiation. In the area of hyperfunction, he circled back to the T-reg cells, which are critical

to suppressing self-reactive T cells, and can be produced in the GI tract from naive T-cells. Among the agents that have the ability to influence T-regs are specific strains of probiotics, as well as DHEA. Another opportunity McAllister called out was the use of minute amounts of specific proteins to induce oral tolerance, such as the use of oral type 2 collagen in reducing RA. And in the area of hypofunction, he outlined various nutritional components that may increase innate immunity (e.g., Echinacea, mushroom extracts and Ashwaghandha), decrease viral loads (e.g., glycerhiza and hypericum), or improve sleep and stress management (e.g., phosphatidylserine, passiflora and L-theanine). Other less well-known—but possibly more powerful—immune-boosting botanicals McAllister called out were *Bacopa monnieri*, acai and *Prunella vulgaris*.

“Natural therapeutics offer incredible opportunities for both immune stimulation and immune modulation, and there are a great many under-utilized novel therapies when formulating for immune modulation,” he concluded, setting the stage for French to delve into consumer expectations and usage patterns of products.

Data for French’s presentation primarily came from NMI’s Health & Wellness

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Trends Database, which includes annual consumer research among a nationally representative sample of the U.S. population and 13 years of trended data. French noted a great opportunity in the immune health segment, as sales of “condition-specific” supplements has almost doubled from 2000 to 2011, with 42 percent of consumers purchasing such products. And the trend for immune health supplements has been on the rise over the past five years. “We’ve seen pretty good growth and continued growth in terms of consumer use of

supplements for immune support,” French said. “This could be anything from a condition-specific product to vitamin C or zinc.” In fact, approximately 32 million U.S. adults are using supplements for immune support.

Consumers are turning to certain nutrients to address perceived deficiency, some of which are associated with immune health. For example, 18 percent of consumers believe they are deficient in probiotics, up from 13 percent with that perception in 2005. At the same time, the association of probiotics with immune health has tripled from 6 percent of consumers in 2002 to 18 percent in 2011.

Some nutrients do continue to be on the front line for consumers in the more traditional immune category. For example, vitamin C, Echinacea, zinc and prebiotics are perceived by consumers are useful for cold and flu; similarly, consumers see vitamin C, antioxidants, prebiotics and supplements for detoxification and cleansing as products to boost immunity. However, French noted when talking with lapsed users

of products such as zinc, Echinacea, vitamin C and “supplements for immunity,” they state they only used them when needed, and they haven’t needed them lately. “It’s almost an OTC mentality in this area of the supplement market,” he said.

Instead, many nutrients that are not traditionally marketed for immune health carry an immune health halo (see Chart 1), which may open the door for marketers to develop combination formulas to add value to a condition-specific supplement. This could be important as immune supplement users are more likely than the general population (GP) to be managing issues such as sleeplessness, digestive issues and stress.

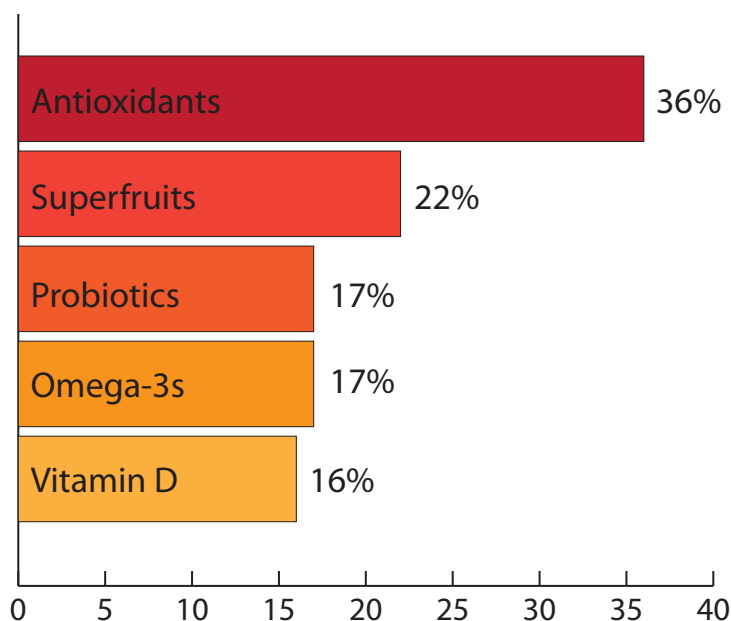
In addition, French noted, consumers are already seeing a connection between immune function and general well-being. For example, in 2011, 85 percent of consumers report they believe there is a direct link between the efficiency of their immune system and cardiovascular health, up from 66 percent in 2007—a 5-percent compound annual growth rate (CAGR).

Consumers are also increasingly looking for different delivery forms for these products, with 37 percent of supplement users reporting they prefer to get supplements in forms other than pills and capsules. This desire appears related to an expectation of improved bioavailability, particularly among users of immune supplements, with 58 percent of immune supplement users stating they are concerned that the body doesn’t absorb the nutrients in supplements, compared to 43 percent of the GP. According to French, this desire for different delivery formats and improved

CHART 1

Expanded Opportunities

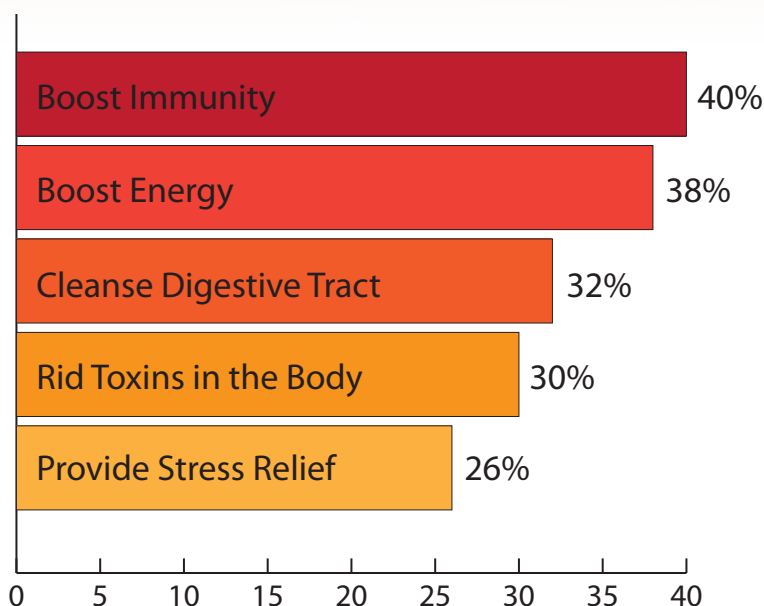
Consumers who associate the following nutrients with immune support (reported by %)



Source: NMI Health & Wellness Trends Database, 2011

CHART 2

Health Benefit Drivers of Food and Beverage Purchasing Decisions



Source: NMI Health & Wellness Trends Database, 2011

nutrient uptake can be seen in consumers seeking foods and beverages for immunity. In fact, two out of five consumers use immunity-boosting foods and seek foods/beverages to improve their body's natural defenses. There are several health drivers for food and beverage purchasing decisions related to immune health (see Chart 2).

The decision-making process is different, however, among different consumer segments. French broke out five segments including Well Beings (17 percent of GP), Food Actives (15 percent), Magic Bullets (23 percent); Fence Sitters (20 percent); and Eat, Drink & Be Merrys (25 percent). Immune supplement users index high against the Well Beings, the most health proactive segment with the greatest market influence, with immune supplement users indexing at 168 compared to GP and consumers who seek/use immune foods indexing at 204.

Whether via foods or supplements, marketers can look to new product formulation, new education opportunities and new launch strategies to grow the segment. "We see opportunities in terms of breaking through the consumer perception that immune health is really focused on cold and flu," he said. "There is an opportunity to expand consumer understanding." □

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