

organic & wellness | immune response

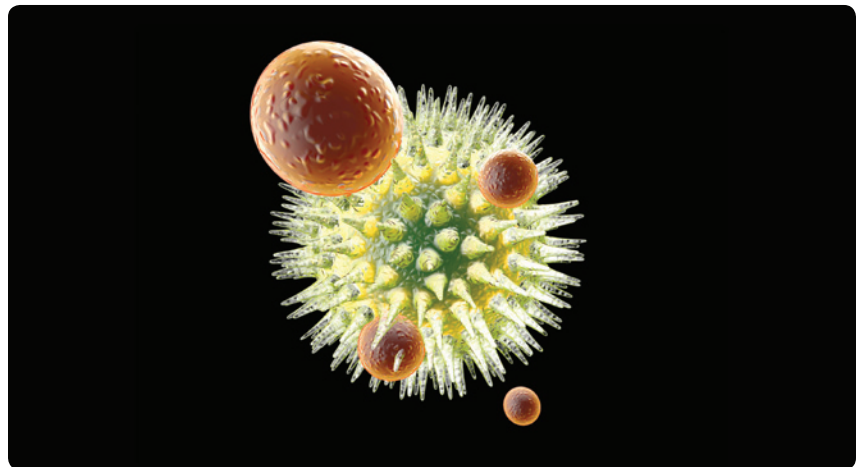
dendritic cells

IN THE ONGOING SEARCH FOR new technology and advanced formulations, the latest studies involving the immune system provide valuable insight into the treatment of a host of relatively new autoimmune conditions, which is reflected in several inflammatory skin conditions.

Since few other organ systems are as constantly confronted by potentially life-threatening infectious and chemical agents, it should not be surprising that many cutaneous protective systems have evolved, connecting both innate and acquired immunity. This year's Nobel Laureates have revolutionized our understanding of the immune system by discovering key principles of its activation.

Together, Bruce Beutler and Jules Hoffmann discovered receptor proteins that can recognize microorganisms and activate innate immunity, the first step in the body's immune response. A third scientist, Ralph Steinman, discovered the dendritic cells of the immune system and their unique capacity to activate and regulate adaptive immunity, the later stage of the immune response in which microorganisms are cleared from the body. Their work has opened up new avenues for the development of therapy and prevention against infections and cancer, as well as many inflammatory diseases, such as rosacea, acne, eczema and psoriasis.

The immune system has three important properties: It is specific, it re-



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members a previous exposure to an antigen and it tolerates the presence of its own molecular components. This function operates only when the body and/or skin is in relatively stable health and void of toxins.

The first line of defense, innate immunity, can destroy invading microorganisms and trigger inflammation that contributes to blocking their assault. If microorganisms break through this defense line, adaptive immunity is called into action. With its T and B cells, it produces antibodies and killer cells that destroy infected cells. After

successfully combating the infectious assault, our adaptive immune system maintains an immunologic memory that allows a more rapid and powerful mobilization of defense forces the next time the same microorganism attacks. These two defense lines of the immune system provide good protection against infections, but they also pose a risk. If the activation threshold is too low, or if endogenous molecules (caused by factors inside the organism) can activate the system, inflammatory disease may follow.

continues



TRY YOGA,
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Further studies by Steinman and other scientists went on to address the question of how the adaptive immune system decides whether or not it should be activated when encountering various substances. Signals arising from the innate immune response and sensed by dendritic cells were shown to control T cell activation. This makes it possible for the immune system to react toward pathogenic microorganisms while avoiding an attack on the body's own endogenous molecules.

But what activates excessive signaling of the dendrite cells? We are all exposed to enormous loads of environ-

mental toxins, which leads to attacks against the body by the immune system.

Our immune system is directly affected by what we eat, drink, breathe and put on our skin. The poorer our diet is, the greater the amount of toxins that accumulate in our body, and the more susceptible we are to infections, viruses and cancer. Our body is designed to process, metabolize and clear toxins naturally. However, we live in a time when the amount of toxins we take in on a daily basis far exceeds anything this planet has ever seen before. These toxins have overwhelmed the body's natural cleansing pathways, and the increase can lead to an attack against the body by the immune system. The following are suggestions on ways to reduce the responsiveness of dendrite cells, thus minimizing the assault on our bodies.

Tips for addressing autoimmune diseases

- Find a functional medicine doctor who can help you address autoimmunity.
- Get tested for mercury and other heavy metals.
- Get tested for celiac disease (an autoimmune reaction to wheat and other grains that contain gluten), which is the cause of more than 60 autoimmune diseases. And consider eliminating other inflammatory foods from your diet (e.g. dairy, eggs, corn and animal fats) for a few weeks to see if that helps symptoms improve.
- Take immune-balancing nutrients and supplements, including vitamin D, essential fats (like EPA/DHA and GLA) and probiotics. These nutrients should be applied topically to the skin, as they reduce the excessive signaling of dendritic cells.
- Practice some form of deep relaxation daily. Try yoga, meditation, biofeedback or anything else that reverses the stress response for you.

- Learn how to boost your own body's detoxification system.

By addressing the root causes of autoimmune disease, we can start getting well, feeling better and having healthy, vibrant complexions. The discoveries that earned the 2011 Nobel Prize have provided novel insights into the activation and regulation of our immune system. They have made the development of new methods for preventing and treating disease possible, with improved therapies against infections and the stimulation of the immune system to attack tumors. These discoveries also help us understand why the immune system can attack our own tissues, thus providing clues to the treatment of inflammatory diseases.

Being part of the skin care industry gives us an exciting opportunity to learn from the study of the immune system. We have been given a porthole into the biochemical process of inflammatory and autoimmune disorders, which provide a great foundation for the exploration of holistic therapies and formulas, thus broadening the scope of treatment and skin care options. ■



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