The Science of Immunity

Our body has an innate capacity to defend and heal itself. We are now in an age for understanding the inborn, self-regulating, natural ability of our immune system. Much as the earlier clinician examined the body with external stethoscope and otoscope, today we use the modern tools of the biochemical/molecular laboratory to exam the inner conditions of the body. Armed with high tech electron and photon microscopes for instance, we study specially stained cross tissue for cellular changes. Coordinated with clinical observation and the process for cellular and humoral integration and healing.

In a summary paper by bio-pathologist Dr. Reg McDaniel MD, a highly coordinated sequence of immune events can be traced: recognizing the flow of macrophage activation, an army of efficient immune molecules, T and B elements, cytokine immune messengers, gene activation, response of protein synthesis and cellular remodeling and appropriate feedback loops such a reset and gene suppression. Notable is the role of the large immune supervisor- the monocyte/macrophage, or M/Ms-which wanders through the extracellular fluids, constantly monitoring [touching, feeling] the condition of tissues for organic damage, infection, malignancy, and aging.

The history of M/Ms date back to the early 1800's, when Behring discovered humoral substances in serum capable of defense, eventually to be studied as antibodies, complements and acute reactive-phase proteins. He saw a blend of immune agents that protected animals from disease by deactivating the toxins of bacteria. Later experiments by Metchnikoff showed the role of leukocytes, engulfing and destroying microscopic organisms. It was then recognized that both humoral [chemical] molecules and immune cells mediate the host defense.

William Cooley in 1891 cured soft tissue malignant sarcomas, using an anti-tumor fraction akin to what we see today as toxic shock. His particular toxin- a polysaccharide released from bacterial membranes- proved too toxic for human treatment. An idea was born. Particular polysaccharides serving as a major sponsor, can trigger a cascade of immune-inflammation that even cures tumors. Recently, it has been discovered that an analogous molecule, the plant molecule of beta-polysaccharide, can act as a critical precursor of immunity: triggering the macrophage that, in turn, both calls out the army of the immune system and in addition, safely orchestrates the over all defense of the body.

A vast array of humoral chemicals and cells respond to the macrophage. That is, the giant macrophage, much like a five star General Patton, orchestrates and modulates the various elements of the immune system. These types of immune "troops" recognized today include helper and suppresser killer antibody types of T and B cells, humoral chemicals such as leukocytes [within the ground regulatory system] to initiate the defense activities of phagocytosis, lysosomal enzymes, cytolysis, etc. In turn, cytokine messenger molecules "talk" to membrane receptors of the host cells which then send secondary signals into the particular proteins needed to defend and to repair dysfunctional tissue. Moreover, the host genes can even program a remodeling of the membranes of attack cells, defeating their attempts, for instance to dock with immune CD's.

The most recent laboratory findings demonstrate that it is the core molecular sequence of the mannan component of cell membrane structures that serves as a first level signal to stimulate the release of M/Ms, both in animal and human cell lines and that these giant macrophages serve in turn as the primal surveyor and coordinator, of the total dynamic immune process. Extensive reviews of pharmaceutical research show the initial effects of M/Ms, to target, induce and modulate over 100 cell activities and cytokines, including enhanced production, in a dose-related manner, of interleukin-1 [IL-1] prostaglandin E-2 [PGE-2] lymphocyte CD4, natural killer and CD8 lymphocytes, Staphylococcal phagocytosis and tumor cell destruction.

The Regulation of Immunity

An M/M command cell [monomacrophage] emerges from the sinuses of he spleen, liver and bone marrow to circulate and migrate into tissues or organ cavities. They locate in greater numbers in the skin, mucosa, and other strategic portals of common invasion. The M/Ms technique is to analyze structures on the cell surface [oligosaccharides chains of glycoprotein] to differentiate cells of Self, non-Self or damaged/altered Self. The M/Ms are triggered into activation if they recognize a critical sequence of the membrane saccharides as being an abnormal non-Self or damaged/altered Self. If so, they audit ongoing multiple cellular mechanisms which sense and induce enzymes to destroy the "errors" [such as assembly errors in glycosylation] by targeting signals of IL-1, 54, INF-G, 55, and RNF etc. Assayed by ELISA techniques, M/Ms induce production on a concentration gradient basis of PG-E2 24, IL-1B, IL-2, IL-6, THF-alpha, GM-CSF, I~F-alpha and INF-Gamma 57, are shown to modulate defense and repair, and are sensitive to the simultaneous time/zone/sequence needs of tissue.

Mannose polymers produce a dose dependent increase of cell proliferation in culture medium. The hydrolased cleaved mannose units [ex. the Mannose molecule] enhance cell growth of human stromal fibroblasts and parenchyma cells of cat kidney. Also, it alerts genetic alteration of the structural membrane envelope of an attack virus, obstructing the chance for viral host cell docking. The enhanced growth of human stromal fibroblasts suggests that the ground regulatory system serves as the initial action site/vehicle of induced immune behavior. To sum, biological functions are mediated by the advanced macrophage that in turn can be stimulated by the polymannan molecule. Mannose molecules are components of the surface membranes of cells and are responsible for essential complex biochemical activities of cell life. The molecular structure of the cellular membrane in plants and animals is synthesized upon a core of mannose molecules. It is a gene dictated saccharides that ultimately can be read as cell signature and can be selectively responded, immunologically.

Mannan serves as a universal agent for stimulating the macrophage and in turn, the immune system. Its functions are essential for good health and defense. The beta-mannose-6-P04 of plant cell origin is a relatively nontoxic analogue of the [toxic] bacterial cell membrane first used by Dr. Cooley. The functional polymannan represents the first safe molecule in the new scientific field known as Glycobiology or Glycoscience. It meets the standards imposed by new government legislation, classified as Nutraceutical.

Mannans are relatively rare in common western diets. The body has a critical conservation of metabolic, low molecular weight mannans. Specific transport molecules [mannose binding proteins MBP] are produced in the liver of higher order animals. Research on the polymannan molecule supported scientifically by over $70 million in research studies, is the only functional molecule of Aloe. Aloe Immune ™ is organically grown aloe and with a very unique dehydration process to retain all four chains of molecular weight polymannans found in aloe. Independent Labs have shown higher concentration of the larger molecular of polymannans found in aloe (Barbadensis Miller species) to have over 1,000,000 – 2,000,000 Daltons.

The polymannan molecule commands the position of Nutraceutical health care, acting to orchestrate [upgrade and downgrade] the immune process. It enhances the host defense against a broad array of biological immune assaults, including allergy and hypersensitivity, auto-immune diseases, wound healing, induction of necrosis in malignant tumors and micro viral and bacterial infections. The pharmaceutical grade ACE-Mannan has been proven for safety and is accepted by the USDA for animal treatment of tumors and by the FDA for oral and skin treatment in humans. Currently controlled research is in process, per the FDA protocol for treatment of twenty types of human cancer and digestive ulceration disease.