Review of: "Staunch the Age Related Decline into Dementia, Cancer, Autoimmunity (POTS), Obesity, and Other Diseases with a Prebiotic, Probiotic, Postbiotic Triple Play"

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This work explores the decisive role of supplementation in targeting gut symbiosis, immune responses, and brain signaling for promoting health and comes up with a unique holistic approach to antagonize the age-related decline into dementia, cancer, autoimmunity, obesity, and other degenerative diseases with a prebiotic, probiotic, and postbiotic triple play. The author suggests employing a unique blend composed of a prebiotic (d-mannose), a probiotic (bifidobacteria and lactobacilli), and a postbiotic (butyrate) to maintain protective intestinal barrier integrity, suppress the inflammatory cytokine response to infections, dysbiosis, and stress, suppress oxidative stress, and restore the important balance between IFN-γ and TGF-β, elevate heart rate variability (HRV), and extend life and health span.

Nutrition can support a healthy gut–brain connection with protective signaling by symbiotic organisms in the digestive tract that is decisive in safeguarding a balanced response of the brain and the immune system to cope with stress, infectious agents, inflammation, oxidative stress, aberrant senescent signaling, and aging. The author demonstrates how a healthy gut microbiome, via the gut-brain axis (GBA), elevates the HRV, whereas a dysbiotic gut microbiome, low in biodiversity and protective symbionts and their signals, favors the release of proinflammatory cytokines, predominantly TNF-α, IL-6, and IL-1β, with detrimental alterations of tryptophan metabolism by inducing the IDO (indoleamine 2,3 dioxygenase)-dependent kynurenine pathway.

The potent effects on health are mediated by antioxidant and anti-inflammatory tryptophan-derived metabolites such as melatonin, indole-3-propionic acid, and indole-3-propionamide that originate in large part from symbiotic organisms in the digestive tract. Systemic oxidative stress and chronic inflammation are associated with their downregulation and upregulated IFN-γ (interferon-γ) and enhanced TGF-β (transforming growth factor-β). Gut dysbiosis causes an imbalance between the cytokines IFN-γ and TGF-β, both of which upregulate IDO and endogenous kynurenine. TGF-β regulates tolerogenesis. Too little, self-antigens are targeted and autoimmune reactions are likely; too much, tumor antigens are not targeted, and a dangerous TME (tumor microenvironment) is favored.

Protective symbiont signaling can benefit human health in concert with the formation and release of bioenergetic agents that improve metabolic control and energy metabolism efficacy. Balance is the key to achieving these goals, whether it be between opposing cytokines or enzymes. The gut-lung dysbiosis concept and the role of ACE (angiotensin-converting enzyme) and ACE 2 (angiotensin-converting enzyme 2) are discussed in this context. Autoimmune GPCR (G protein-

coupled receptor) antibodies are a sequel to gut dysbiosis and permeability. They are often involved in disease- and age-related autoimmunity, cancer, and dementia. They lead to energy and tryptophan depletion. Premature aging and systemic inflammation can be antagonized by bioenergetic protective signaling.