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Disruption of the gut microbiome and gut permeability as ground zero for the nutrition-related epidemics of the developed world

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Over the last 10 years, there has been an explosion of basic science data that has revealed a link between the intestinal microbiome and systemic disease in the human host. The lack of some species or the presence of other bacterial species has been shown to correlate with the occurrence of metabolic diseases, immune dysfunction, and many cancers. This correlation has radically changed the landscape of anti-aging and cancer research, and broadened the potential adjuvant therapies and interventions to prevent and reverse chronic disease in the future. However, there has been a lack of understanding of the mechanisms by which dysbiosis causes systemic inflammatory and metabolic disarray. This lecture demonstrates how massive changes in our farming and soil ecology practices of the last 30 years have impacted the demographic and geographic distributions of cancer death. Furthermore, we demonstrate how these farming practices contribute to chronic inflammation and metabolic collapse within the American population, offering new molecular insights into the direct and indirect mechanisms by which dysbiosis in our macro and micro-environments may mediate systemic disease. We show here the biologic effects of a recently discovered family of bacterial metabolites that constitute a vast array of carbon-based redox signaling molecules. We show that these molecules can regulate and maintain the macrostructures of the extracellular matrix and the human immune system, and also directly mediate the differential production of mitochondrial reactive oxygen species and apoptosis in healthy and cancerous cell types. This breakthrough new science offers a new model for the ecology of human health, pathogenesis of disease, and potential nutritional adjuvant therapies of the future.

Biography

Zach M Bush is one of the few triple Board Certified Physicians in the country, with specialties in Internal Medicine, Endocrinology and Metabolism, and Hospice/Palliative Care. His achievements include award-winning cell biology, clinical care, and medical education. He is the Founder and Director of Revolution Health Center in Charlottesville, Virginia, and is the CEO of Biomic Sciences - the team that has brought forth the novel science and product line of RestoreTM.

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