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Live bacterial cultures (probiotics) and the overarching influence on end-organ function: A critical review

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At the time of birth, humans experience an induced pro–inflammatory flux. The mediators of this induced activity, is a fleet of bacteria that assault all mucosal surfaces as well as the skin. Thus initiating effects that eventually provide the infant with an immunological profile that is concordant with immune tissue maturation. These effects occur beneath an emergent immune system surveillance and antigenic tolerance capability radar. Over time, continuous and regulated interactions with environmental as well as commensal microbial and viral antigens lead to an adapted and maintained symbiotic state of tolerance, especially in the gastrointestinal tract (GIT) the organ site of the largest microbial biomass. However, the perplexing and much debated surprise has been that all microbes need not be targeted for destruction. The advent of sophisticated genomic techniques has led to microbiome studies that have clarified the critical and important biochemical activities that commensal bacteria provide to ensure continued GIT hormesis. Until recently, the GIT and its associated micro–biometabolome was a neglected factor in chronic disease development and end organ function. A systematic underestimation has been to undervalue the contribution of a persistent GIT dysbiotic (a gut barrier associated abnormality) state. Dysbiosis provides a plausible clue as to the origin of systemic metabolic disorders encountered in clinical practice that may explain the epidemic of chronic diseases. In this brief review we further build a hypothesis that posits subtle adaptation responses by the GIT microbiome. That is environmentally triggered and maintained microbiome perturbations that drive an aberrant overload of dysbiosis. Probiotic bacterial strains with specific metabolic properties may assist the GIT microbiota and reduce the metabolic dysfunction of end organs such as the kidney and the liver. This effect may translate to a useful adjunct clinical treatment approach for patients diagnosed with a metabolic disorder.

Biography

Luis Vitetta completed his PhD at the age of 26 years from the University of Melbourne, Faculty of Medicine and Postdoctoral studies from The University of Melbourne, Swinburne University and The University of Queensland. He was the Director of Director of the Centre for Integrative Clinical and Molecular Medicine, School of Medicine, The University of Queensland between the years 2007-2013. Currently, he is the Medical Director of Research at MEdlab, Sydney, Australia, with honorary roles at the University of Queensland and Sydney University Sydney Medical School. He has published more than 200 papers in reputed journals and serving as an editorial board member of repute journals such *Advances in Integrative Medicine, BMC Complementary Medicine.*

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