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Effect of probiotics from natural sources on innate immunity

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Innate immunity is the protection that living beings obtain by virtue of birth. The scientific community has been investigating new approaches which can enhance innate immune mechanisms to fight against pathogens and thereby reducing the risk of drug resistant strains. These newer approaches take into consideration of neutraceutical products and the prominent among this group is probiotics. The role of probiotic bacteria in modulating immune system has been studied extensively by researchers worldwide.The present topic has been aimed at examining role of bacteria with probiotic capabilities isolated from natural sources in modulating innate immunity. Bacillus subtilis MBTU-PBBM1 isolated from cow's milk was found to enhance both humoral and cell mediated immune response in balb/c mice and the result was found to be dose dependent. Spore forming property of the strain makes it a suitable probiotic candidate during product manufacture.Oral administration of the potential probiotic strain, Enterococcus faecium MBTU-P1F1 isolated from infant faeces stimulated phagocytic activity of peritoneal macrophages significantly in balb/c mice. The source of origin of the strain finds consideration especially during formulation of probiotic products for human use. The human origin will enable the strain to perform optimally as most health promoting benefits are species specific.The lactic acid bacteria, Lactobacillus plantarum MBTU-P1H1 isolated from honeybee gut flora has essential probiotic properties. Oral treatment of balb/c mice enhanced both humoral and cell mediated immunity. Honey bee gut flora is a rich natural source of lactic acid bacteria and these bacteria are being explored for their varied neutraceutical applications.

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Role of the innate immune elements in the chronic inflammatory diseases

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This lecture will be focused on the interaction of multiple elements in the innate immune response of chronic inflammation patients: soluble mediators, cellular receptors and cells. The first point will be the expression of the TLRs on cells of the innate immune system, including the impact of TLR-induced signals on the cellular migration and scavenger properties of monocytes/macrophages. The second point will be the modulation of the epigenome by TLR-induced signals. Both points will be addressed at the steady state conditions of healthy donors as well as chronic inflammation in certain pathologies (inflammatory bowel disease, rheumatoid arthritis). The lecture will include the discussion about factors affecting the TLR-induced signals that can contribute to the inflammatory pathology and novel therapies oriented to regulate these factors.

The audience of this lecture will see the development of the first stage of translational research in chronic inflammation using patient samples with a variety of innovative methodology in a multidisciplinary team.

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