

21st European

Nutrition and Dietetics Conference

June 11-13, 2018 | Dublin, Ireland



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A standardized extract, KGR-BG1, from Korean black ginseng (*Panax ginseng*) and its protective effects against a suppressed immunomodulatory disorder induced by environmental heat stress

The root of *Panax ginseng* is one of the traditional and folk medicines to be used for many therapeutic purposes in the oriental countries such as Korea, China and Japan for thousands of years. In the present study, a standardized extract, KGR-BG1, showing the higher contents of ginsenosides Rg5, Rk1 and Rg3, was prepared from Korean black ginseng (five times-steamed and dried ginseng), depending upon the extracting and processing methods. The protective effects of KGR-BG1 were investigated against heat stress in a rat model. Following acclimatization for one week, rats were housed at room temperature for two weeks and then exposed to heat stress (40°C/2h/day) for four weeks. Heat stress dramatically increased secretion of inflammatory factors and this was significantly reduced in the KGR-BG1 treated groups. Levels of inflammatory factors such as heat shock protein 70 (HSP 70), IL (interleukin)-6, i-NOS (inducible nitric oxide synthase) and TNF- α (tumor necrosis factor- α) increased in the spleen and muscle on heat stress. KGR-BG1 has been found to inhibit the increase by down-regulation of HSP 70 and the associated NF (nuclear factor)- κ B, MAP (mitogen-activated protein) kinase signaling pathways, indicating it to suppress activation of T-cells and B-cells. As a result, it is considered that KGR-BG1 suppresses the immune response by heat stress and decreases the production of inflammatory cytokines in muscle and spleen, suggesting it to protect a suppressed immunomodulatory disorder by inhibiting inflammation and maintaining immune homeostasis.

Biography

Jong Dae Park received his BS and PhD at the School of Pharmacy, Sungkyunkwan University, South Korea in 1980. Following his PhD in 1987, he took a Post-doctoral course at the Faculty of Pharmaceutical Sciences, Osaka University, Japan in 1990. He has worked as a Project Leader at the Division of Ginseng Efficacy, Korea Ginseng & Tobacco Research Institute. His main research interest is in the field of discovery of new drugs and nutraceuticals from natural sources, which covers isolation and characterization of immunomodulatory acidic polysaccharide from red ginseng and development of anti-rheumatoid arthritis and anti-hypolipidemic agents from ginseng and crude drugs. He is now the Project Investigator for the National Research Project related to development of new materials relieving heat shock stress from Korean ginseng.

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