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Korean red ginseng increased the immune cell activity of splenocyte *in vitro* and *in vivo*

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Korean red ginseng is a pharmacological plant that is traditionally used to improve the body's immune functions and ameliorate the symptoms of various diseases. However, the splenocyte activity of Korean red ginseng and its underlying molecular and cellular mechanisms are not fully understood. In this study, *in vitro* and *in vivo* immune cell activities of Korean red ginseng were explored. Also, Korean red ginseng was assessed for its efficacy to act as an adjuvant for the immune response of splenocytes. The porcines were treated with different concentrations of Korean red ginseng, orally for 4 weeks. The splenocytes isolated from Korean red ginseng-treated group showed enhanced immune cell-activities in a dose dependent manner when compared to untreated group. Further, the intracellular levels of perforin and NKp46 were found to be significantly increased in translational level as revealed by western blot analysis, respectively. In addition, we compared the cytotoxic activity of Korean red ginseng-treated splenocytes against target cell such as K-562 cell for 4 weeks. The Korean red ginseng-treated splenocytes were incubated with K-562 in a ratio of dose-dependent manner for 4 hours. Korean red ginseng-treated splenocytes showed a significantly increased cytotoxicity in dose-dependent manner. In other hand, Korean red ginseng-untreated splenocytes showed a less immune cell activity. Finally, Korean red ginseng exhibited *in vivo* immune activities in the animal model by increasing the intracellular levels of perforin and NKp46 without changing the animal body weight. These results suggest that Korean red ginseng is capable of tumor cell suppression via different molecular and cellular mechanisms, including induction of activation of immune cells.

Biography

Jong-Hoon Kim has completed his PhD from Konkuk University, Seoul, Republic of Korea and Postdoctoral studies from Konkuk University, School of Veterinary Medicine. He is the Director for Department of Veterinary Physiology, a premier immunotherapy research lab. He has published more than 50 papers in reputed journals and has been serving as an Editorial Board Member of *Journal of Ginseng Research*.

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