Immunoadjuvant activity of the lectins isolated from Korean mistletoe

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The adjuvant effect of lectins (KML-C) isolated from Korean mistletoe (*Viscum album coloratum*) on induction ofhumoral and cellular immune responses against keyhole limpet hemocyanine (KLH).was examined. When mice were immunized subcutaneously (s.c) with KLH (20mg/mouse) admixed with or without 50 ng/mouse of KML-C (KLH+KML-C), mice immunized with KLHqKML-C showed significantly higher antibody titers against KLH than those immunized with KLH alone, showing the highest titer 5 weeks after immunization. Furthermore, boost immunization with KLH+KML-C at 2-week interval elicited much higher activity than single immunization to enhance antibody responses against KLH. The assay for determining isotypes of antibodies revealed that KML-C augmented KLH-specific antibody titers of IgG1, IgG2a and IgG2b. The culture supernatants obtained from the splenocytes of mice treated with KLH+KML-C also showed a higher level of both KLH-specific Th-1 (IL-2 and IFN-g) and Th-2 type cytokine (IL-4). In an in vitro analysis of T lymphocyte proliferation to KLH on week 4, the splenocytes of mice treated with KLH+KML-C showed a significantly higher proliferating activity than those treated with KLH alone. In addition, mice immunized twice with KLH+KML-C and followed by intrafootpad (i.f) injection of KLH (50 mg/site). 14 weeks after the primary immunization induced a higher delayed-type hypersensitivity (DTH) reaction than mice treated with KLH alone. These results suggest that KML-C is a potent immunoadjuvant to enhance cellular and humoral immune responses.

Keywords : Korean mistletoe; Lectin; Adjuvant; Vaccine; Immune responses