

Modulation of Intestinal Epithelial Cell-Derived Cytokine Secretion via Mistletoe Lectin

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A galactose- and N-acetyl-D-galactosamine-specific lectin (*Viscum album* L. var. *coloratum* agglutinin, VCA), which is known for its anti-cancer activity, was isolated from Korean mistletoe. In this study, IEC-6 rat intestinal epithelial cells and IM-9 human B-cells were cultured to determine the effect of VCA on cytokine and immunoglobulin (Ig) secretion. In lipopolysaccharide (LPS)-stimulated IEC-6 cells, VCA significantly shifted the interleukin (IL)-2, IL-5, IL-6, and tumor necrosis factor-alpha (TNF- α) secretion toward a more immunostimulatory response. Since intestinal epithelial cell-derived secretions may be capable of affecting local B cell Ig production in a variety of ways, we mimicked this condition by deriving a 2-day culture supernatant from IEC-6 cell line which was treated VCA in the presence or absence of LPS, and adding these supernatants to cultures of IM-9 human B cells. As a result, IgA secretion was significantly enhanced at in the presence of VCA at 10⁻⁸-10⁻⁴ μ g/mL. This study suggests that cytokines derived from IEC by VCA may create an environment which may contribute to the enhancement of IgA secretion seen in mucosal tissues. Overall, the induction of cytokines in intestinal epithelial cells, and IgA in B cells by Korean mistletoe lectin could indicate an enhanced immunosurveillance to prevent intestinal infections or other intestinal pathologies.

