Sa.99. HIV-1-gp120-Induced T-Cell Responses Attenuated by the Green Tea Catechin, Epigallocatechin Gallate (EGCG).

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Background: HIV-1 infection results in impaired immune function by initial binding of the HIV-1 virion envelope glycoprotein, gp120, to the CD4 receptor. Previously, we presented evidence that the green tea catechin, epigallocatechin gallate (EGCG), binds to the CD4 molecule at the gp120 attachment site. In light of this new finding, we present evidence of the effect of EGCG on HIV-1-gp120-induced T-cell responses. Methods: Human T-cells were purified by immunomagnetic separation from leukopaks. Proliferation measured by tritiated thymidine incorporation was assessed following the mitogenic stimulation of T-cells with phytohemagglutinin (PHA). Apoptotic events were assessed by Annexin V binding, changes in surface expression of Apo-1/Fas (CD95) determined by flow cytometric analysis, and Bcl-2 levels measured by ELISA. Results: HIV-1-gp120 (100 ng/ml) increased T-cell proliferative responses 2-fold. Addition of EGCG (20—2000 nM) to HIV-1-gp120-treated T-cells reduced proliferative responses in a dose-dependent manner to 35% and 46% at 200 and 2000 nM ($p < 0.01$). HIV-1-gp120-induced T-cell apoptosis measured by Annexin V binding was reversed by EGCG (200—2000 nM) ($p < 0.01$). CD95 receptor expression was upregulated by HIV-1-gp120, with a concomitant downregulation of 32% and 52% by EGCG (200 and 2000 nM, respectively) ($p < 0.01$). Bcl-2 was downregulated in the presence of EGCG. Substitution of EGCG with control catechin, (−) catechin, did not affect baseline nor HIV-1-gp120-induced responses. Conclusion: EGCG inhibition of gp120 binding to CD4+ T-cells presents the mechanism of a protective effect against HIV-1 infection. We show here that this naturally derived agent furthers the reversion of the gp120-induced T-cell dysfunction seen in the proliferative and apoptotic processes. Therefore, EGCG has potential use as adjunctive therapy in HIV-1 infection.

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Sa.100. Eradication of HIV By Treatment of HIV-Infected/AIDS Patients with Vitamin D-Binding Protein-Derived Macrophage Activating Factor GcMAF.

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Highly activated macrophages can recognize and destroy viruses and their infected cells. Inflammation-primed macrophage activation is the principal macrophage activation process that requires serum vitamin D-binding protein (Gc protein) and participation of B and T lymphocytes. Stepwise hydrolysis of Gc protein with the membranous β-galactosidase of inflammation-primed B-cells and the sialidase of T-cells yields a potent macrophage activating factor, a protein with N-acetylgalactosamine as the remaining sugar. Thus, Gc protein is the precursor for the principal macrophage activating factor (MAF). However, the MAF precursor activity of serum Gc protein of HIV-infected patients was lost or reduced because Gc protein is deglycosylated by serum α-N-acetylgalactosaminidase (Nagalase) secreted from HIV-infected cells (AIDS Res Hum Retrovirus 11: 1373—8, 1995). Thus, deglycosylated Gc protein cannot be converted to MAF. Since macrophage activation for enhanced phagocytosis and antigen presentation to B and T lymphocytes is the first indispensable step for development of both humoral and cellular immunity, lack of macrophage activation leads to severe immunosuppression and secondary infection, i.e., pneumonia. *In vitro* treatment of Gc protein with immobilized β-galactosidase and sialidase generates the most potent macrophage activating factor (termed GcMAF) ever discovered. Efficacy of GcMAF for HIV-infected 4 patients was assessed by 3 serum Nagalase activity. After approximately 10 to 15 weekly administrations of 100 ng GcMAF, these patients exhibited very low serum Nagalase activities equivalent to healthy controls. Eradication of HIV and HIV-infected cells was confirmed by complete clearance of viral antigens (i.e., p24 and gp120) in blood stream. The disease did not relapse two years after completion of GcMAF therapy.

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Sa.101. B-Cell Lymphopenia in a Patient with Kabuki Syndrome?

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Background: Kabuki syndrome (KS) is a sporadic disorder characterized by postnatal growth retardation, developmental delay and a characteristic facial appearance. Cardiovascular defects, clefts of the lip, palate, or both, and musculoskeletal abnormalities occur in about 50% of patients with KS. The cause of this multiple congenital anomaly syndrome is unknown, and investigators have speculated that KS is a contiguous gene-deletion syndrome. In the literature, KS is known to associate with hypogammaglobulinemia but its origin/mechanism is not certain. Here, we are first time describing a KS patient with severe hypogammaglobulinemia associated with B-cell lymphopenia as well. Patient/Methods: 9 months-old female with delayed developmental milestones and complex congenital heart defects has been suffering from a history of infantile spasm. She has had recurrent otitis media and sino-pulmonary infections. One episode of pneumonia was diagnosed and confirmed by chest X-ray at 6 months of age. Since her postnatal growth retardation, a characteristic facial appearance and cardiovascular defects, she was diagnosed with KS by our geneticist. Immunology was consulted for her severe hypogammaglo-