CpG DNA overcomes hyporesponsiveness to hepatitis B vaccine in orangutans

Heather L. Davis\textsuperscript{a}\textsuperscript{b}, Irma Suparto\textsuperscript{c}, Risini Weeratna\textsuperscript{a}, Jumintarto\textsuperscript{d}, Diah Iskandriati\textsuperscript{c}, Siti Chamzah\textsuperscript{a}, Amir Ma’ruf\textsuperscript{b}, Citrakasih Nente\textsuperscript{d}, Dyah Pawitri\textsuperscript{c}, Arthur M. Krieg\textsuperscript{e}, Heriyanto\textsuperscript{d}, Willie Smits\textsuperscript{b,d}, and Dondin Sajuthi\textsuperscript{c}

\textsuperscript{a} Loeb Health Research Institute at the Ottawa Hospital, 725 Parkdale Avenue, Ottawa, ON, Canada K1Y 4E9

\textsuperscript{b} Faculties of Health Sciences and Medicine, University of Ottawa, Ottawa, Canada

\textsuperscript{c} Primate Research Centre, Bogor Agricultural University, Bogor, Java, Indonesia

\textsuperscript{d} Wanariset Orangutan Rehabilitation Centre, Balikpapan, Kalimantan, Indonesia

\textsuperscript{e} Interdisciplinary Immunology Program and Department of Internal Medicine, University of Iowa College of Medicine, Iowa City, IA, and Veteran Affairs Medical Center, Iowa City, IA, USA

Abstract

Oligonucleotides containing immunostimulatory CpG motifs (CpG ODN) have been shown to be potent Th1-type adjuvants for augmenting antigen-specific responses in mice against hepatitis B surface antigen (HBsAg). The hepatitis B virus (HBV) infects only humans and great apes and appears to exist among wild chimpanzees and orangutans. An outbreak of HBV among orangutans being rehabilitated for re-introduction to the jungle caused the death of several animals. A prophylactic vaccination program revealed that orangutans are quite hyporesponsive to a current commercial vaccine compared to results obtained previously in humans and chimpanzees. Addition of CpG ODN to hepatitis B vaccine greatly increased the seroconversion rate and the titers of antibody against HBsAg (anti-HBs). This is the first demonstration of CpG DNA in a great ape and the results have important implications for the vaccination of humans against HBV and other diseases.

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