

# CpG DNA overcomes hyporesponsiveness to hepatitis B vaccine in orangutans

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## 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.

**Author Keywords :** Non-human primate; Infectious immunity — virus; Hepatitis B vaccine; Adjuvant

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