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N*01:01 display unusual peptide presentation features in that the bat-specific sequence combination of the 3-AA insertion at the N-terminus of the α1 helix and the charge matching residues enable the tight anchoring of the P1-Asp in pocket A of bat MHC I. Interestingly, this uncommon peptide presentation features of bat MHC I may be shared by the MHC I from various marsupials. Our study may help to understand the greater capacity of bats with 3AA insertion to co-exist with a variety of viruses from the perspective of adaptive immunity. What's more, our study sheds light on bat adaptive immunity and may benefit future vaccine development against bat-borne viruses of high impact on humans.

LB056

Immunotherapy with the preS-based grass pollen allergy vaccine BM32 induces hepatitis B-specific protective antibody responses: kinetics and epitope specificity of antibody responses

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There are several unsolved issues in the management of hepatitis B infection (HBV). Approx. 10% of vaccinees are non-responsive to HBsAg-containing vaccines, and therapeutic vaccines for the treatment of chronic infection are not available. Conventional HBV vaccines are based mainly on HBsAg, although the other surface protein preS has been shown to be crucial for the virus´ entry into hepatocytes via NTCP. We recently found that immunotherapy with the preS-containing recombinant grass pollen allergy vaccine BM32 induced antibodies which inhibit HBV infection *in vitro*. To further investigate the vaccine´s anti-HBV potential, we produced preS and three preS-derived peptides: peptide A, comprising the epitope, involved in liver cell attachment; peptide B - the epitope, thought to be required for inhibition of infection; and peptide C, including both regions. Sera from 130 grass pollen allergic patients, who had received 3, 4 or 5 injections of BM32 or placebo in monthly intervals, were tested in ELISA assays. We analyzed levels of IgG as well as IgG isotypes and subclasses. We detected the induction of a robust preS-specific IgG antibody response, consisting mostly of IgG_1 and IgG_4 subclasses; IgG_1 appeared early, while IgG_4 appeared later and was more sustained. Serum levels of IgG_1 and IgG_4 antibodies against preS and preS-derived peptides were quantified. PreS-specific IgG_1 and IgG_4 reacted with all three peptides and thus were directed against the regions of preS important for liver cell attachment and inhibition of infection, which supports our previous findings and indicates that BM32 indeed may protect against HBV.

