Lept7. **Hamster IgG2-based immune response to leptospiral bacterin**

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Introduction: Leptospirosis is the most common zoonosis worldwide, occurs mainly in the tropics and mortality rates range from 10 to >50%. Vaccines are an effective strategy for the control of leptospirosis. However, protection is restricted to the serovar (or closely related serovars) used in the bacterin. Subunit vaccines have shown promising results, but little is known about the immune response required to induce protection. An understanding of the immune response caused by bacterins will improve the development of effective vaccines against leptospirosis. The aim of this study was determine which immunoglobulin G (IgG) isotype is related to protection in the hamster model of leptospirosis. **Materials and Methods**: Golden Syrian hamsters were distributed in four groups (n=7 by group) that were immunized with : A) Bacterin only; B) Bacterin followed by lethal challenge; C) PBS only; D) PBS followed by lethal challenge. Two doses of bacterin (10^8 heat-inactivated leptospires, *Leptospira interrogans* serovar Copenhageni) or PBS were administered on day 0 and day 14. Hamsters were challenged with 500 leptospires (5× the LD_{50}) 14 days post-immunization. Twenty-one days after challenge all surviving animals were euthanized. Blood samples were collected by phlebotomy of the retro-orbital venous plexus before vaccine and challenge administration and 8 days later. An ELISA was developed using recombinant LigBrep and LipL32 leptospiral proteins as previous described. Sera were diluted 1:100 in PBS-T and secondary peroxidase conjugated antibody to hamster IgG, IgG1, IgG2/3 and IgG3 were diluted 1:6000. Reactions were revealed with OPD and the absorbance was read at 492nm. **Results**: No deaths occurred in groups A, B and C, while all animals in group D died. Vaccinated animals showed a significant increase in IgG levels. Isotyping found no evidence of anti-IgG1 and IgG3 antibodies in the hamster sera. However, there was a strong IgG2 response before and after challenge. In group D animals the IgG and IgG2 levels increased eight days after challenge. No significant antibody response was observed in animals that were immunized with PBS. **Main conclusions**: Bacterin, the only leptospirosis vaccine commercially available that offers 100% protection and sterilizing immunity, appeared to induce an IgG2 based antibody response. Currently, new experiments are on-going to elucidate whether the protective immune response is correlated with high IgG2 titres. If so, vaccine preparations based on recombinant proteins could be developed with adjuvants to stimulate an IgG2 response.**E-mail:** grassmann.aa@gmail.com