

29th International Conference on

Vaccines and Immunization

March 19-20, 2018 | London, UK

Comparison of the Th1 - mediated immunity induced by two anti- Leishmaniosis vaccines in dogs

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Statement of the Problem: The protective immune response to Canine Leishmaniasis is mainly cell-mediated. Two European vaccines are commercialized to prevent the development of an active *Leishmania* infection in dogs. The study aimed to compare the cell-mediated orientation of the immune system induced by each vaccine.

Methodology & Theoretical Orientation: Twenty-four *Leishmania* seronegative 6-months-old Beagle dogs were randomly vaccinated with 3 injections of a LiESP/QA-21 vaccine (CaniLeishTM, Virbac, n=8) at D0, D21, D42, or vaccinated with 1 injection of the Q-protein recombinant vaccine (LetiFendTM, Leti, n=8) at D42, or received one injection of PBS (negative control) at D42 (n=8). Blood samples were taken at D0, D42 and D49 to assess the canine macrophage leishmanicidal activity (CMLA): (index of parasitemia, Nitric Oxide derivatives production, M1 /M2 macrophages ratio), key markers correlated with the Th1 -profile of the immune response (cysteine/cysteine ratio) and the peripheral effective memory T-cells (TEM) presence. Skin biopsies were performed at the study end to assess the resident effective memory T-cell response (TREM).

Findings: A CMLA response was observed in 4/8 (50%) and 3/8 (40%) dogs after respectively the second and first injections of CaniLeishTM and LetiFendTM vaccines. However, a mature cell-mediated immune response against Canine Leishmaniosis (CMLA + activated TEM + activated TREM + cysteine/cysteine ratio) after the primary vaccination courses was observed for 8/8 (100%) dogs vaccinated with CaniLeishTM but 1/8 (13%) dog vaccinated with LetiFendTM.

Conclusion & Significance: In this study, only CaniLeishTM vaccine elicited a mature cell-mediated immune response against canine leishmaniosis in all vaccinated dogs. In case of *Leishmania* infection, the presence of activated memory T-cells, especially at skin level, might induce an earlier specific re-activation of the immune system in dogs vaccinated with CaniLeishTM versus LetiFendTM. Further investigations are required to confirm these findings and their implications in field conditions.

Biography

Christelle Fontaine is a Medical Manager, Companion animals at Virbac, France. She is involved in phase IV trials and collaboration with Universities and specialists across the World. She graduated from the French Veterinary School of Maison Alfort, in Paris in 2007.

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