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Faculty of Veterinary Medicine
(University of Liège - Belgium)

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One Health

L'Animal et l'Homme, une même santé



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Oral presentations

Ly6C^{hi} monocytes are key orchestrators of gammaherpesvirus lifecycle

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Gammaherpesviruses (γHVs) are highly prevalent human viruses as the best studied γHVs, Epstein-Barr virus and the Kaposi's Sarcoma-associated Herpesvirus, infect respectively some 90% and up to 40% of human populations. Through coevolution with their hosts, γHVs have developed numerous mechanisms to control the immune response and successfully persist in the host in a symbiotic relationship. Hence, these persistent infections usually do not cause major harm in healthy adult host. In some instances, the persisting herpesvirus infections might even provide some benefits to the host. In that context, our laboratory recently showed that a pulmonary infection with Murid gammaherpesvirus 4 (MuHV-4), a γHV infecting mice, induces the recruitment of Ly6C^{hi} monocytes from the bone marrow to the site of primary infection. These recruited cells have been shown to regulate some heterologous responses against aeroallergens and block development of allergic asthma. While the recruitment of these Ly6C^{hi} monocytes induced by MuHV-4 infection confer a benefit to the host in the context of allergic asthma, their direct role in MuHV-4 lifecycle remains unknown. The objective of this study is to decipher the importance of Ly6C^{hi} MOs in MuHV-4 lifecycle. To that end, we investigated whether Ly6C^{hi} MOs affect MuHV-4 replication and investigated the role of Ly6C^{hi} MOs in the establishment of both innate and adaptive immune response to MuHV-4. By using complementary mouse models deficient for Ly6C^{hi} MOs, we highlighted the importance of Ly6C^{hi} MOs recruitment in the MuHV-4 lifecycle. Our results show that, at early time points after MuHV-4 infection, recruitment of Ly6C^{hi} MOs is associated with reduced viral replication, clinical signs, and neutrophilic infiltration in lungs. Moreover, these recruited Ly6C^{hi} MOs produced high levels of IL-10 suggesting regulatory properties and dampen the establishment of MuHV-4 specific adaptive immune response. These results highlight that Ly6C^{hi} MOs are key orchestrators of immune response following γHV infection.

Diagnostic and prognostic value of hypoglycin A, methylenecyclopropyl acetic acid-carnitine and, acylcarnitines profile in horses with atypical myopathy

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Equine atypical myopathy (AM) is an acute environmental intoxication linked to hypoglycin A (HGA). Previous studies showed that blood of diseased animals exhibited HGA, methylenecyclopropyl acetic acid-carnitine (MCPA) and, a severely modified acylcarnitines profile (AC). This latest reflects the biochemical derangement induced and is thought to be useful to diagnose AM and to prognosticate the chances of survival. In contrast to clinically affected horses, HGA but not MCPA was detected in the blood of healthy co-grazing horses (Co-G). The aim of this study was to confirm the diagnostic and/or prognostic value of HGA, MCPA and AC in AM. A retrospective and exploratory blood analysis was conducted on European AM cases reported to the Atypical Myopathy Alert Group from autumn 2006 to 2018. Confirmed or highly probable AM cases (n=155) and their Co-G (n=75) were included in the study. Serum concentration of HGA, MCPA and AC were determined by previously validated methods. Both, HGA and MCPA concentrations were statistically higher in serum of AM cases than in Co-G (HGA = 4.12±0.38 vs. 1.60±0.21 μmol/l and MCPA = 332.50±71.06 vs. 15.85±5.22nmol/l, respectively) challenging their usefulness for diagnosis. Among AM cases, survivors had a calculated prognosis for survival (based on AC) of 19±3% vs. 51±6% in non-survivors. All Co-G had a prognosis above 95%. For the first time, MCPA was detected in apparently healthy Co-G. An early detection of HGA/MCPA in Co-G might be a promising step in prophylaxis whereas the survival prognosis may be used to balance the chances of success with cost management, human involvement and with animal suffering.