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Reference values for some hematological parameters in apparently healthy Iraqi Awassi sheep

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A study was conducted to determine some hematological parameters of Awassi sheep belonged to five regions (Shula, Abu-Ghraib, Mahmoudia, Yousifia and Alameel) in the West and South of Baghdad during the period from December to February, 2015-2016. Further, it was also, aimed to investigate the effect of the sex, age and regions on the studied parameters. A total of 150 apparently healthy Awassi sheep (93 male and 57 female) included in this study. Results revealed that the mean of Red Blood Cell (RBC) packed cell volume (PCV), hemoglobin (Hb), total white blood cell count (WBC), mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH) and mean corpuscular hemoglobin concentration (MCHC) were 7.91×106/µl, 26.52%, 8.24 g/dl, 8.64×106/µl, 32.61 fl, 10.63 pg and 32.73 g/dl respectively. Statistical analysis shows that the effect of region was significant (P<0.05) on all parameters. The effect of sex was significant (P<0.05) on all parameters except the WBC and MCHC. The effect of age was not significant. The results obtained from this study could serve as reference values for Awassi sheep; however, further study is needed to estimate the hematological reference values of healthy Awassi sheep by using Reference Value Advisor method to get more reliable estimations.

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Ex vivo platforms to evaluate CD4 and CD8 T cell immune responses to pathogens and candidate vaccines

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Ex vivo models were developed to study the functional activity of effector T cells proliferating in response to presentation of candidate vaccines, processed and presented by monocyte derived dendritic cells (MoDC). PBMC from a steer vaccinated with a *Mycobacterium paratuberculosis* (*Map*) deletion mutant (*Map/relA*) were used to demonstrate the potential of the models to study the effector T cell response to a live vaccine and a candidate *Map* major membrane protein (MMP). PBMC and CD14 depleted PBMC were used to show CD4 and CD8 T cells proliferated, when stimulated with *Map/relA* showing blood DC actually presented the antigens. MoDC pulsed with *Map/relA* were used to demonstrate a CD4 and CD8 T cell response. MMP was used to demonstrate a component of the response was directed towards MMP, a candidate for a peptide-based vaccine. CD8 T cells proliferating in response to antigens presented by MoDC pulsed with *Map/relA* were used to demonstrate their ability to kill intracellular *Map*. The models obviate many of the difficulties in assessing the potential efficacy of vaccines before testing in the field.

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