172.3. A Canine Target Species Challenge Model to Evaluate Efficacy of a Coccidiodomycosis Vaccine
Lisa E. Shubitz, DVM1; Richard Bowen, DVM; Edward J. Robb, DVM2; Daniel A. Powell, PhD3; Angela Bosco-Lauth, DVM4; Arnt Hartwig5; Hien Trinh, DVM6; Mary L. Lewis7; Jeffrey A. Peeling, PhD2; John N. Galgiani, MD8; Maria L. Lewis7; Airn Robb9; Bosco-Lauth, DVM4; Hartwig5; Trinh, DVM6; Lewis7; Peeling, PhD2; Galgiani, MD8; 1University of Arizona College of Medicine, Tucson, Arizona; 2University College of Medicine, Tucson, Arizona; 3Colorado State University, Fort Collins, Colorado; 4Valley Fever Center for Excellence, Tucson, Arizona

Session: 165. Mycology
Friday, October 4, 2019: 12:15 PM

Background. The preferred efficacy design for licensing a vaccine for animal use for coccidiodomycosis (Coccidioidomycosis [Coccidioides posadasii, strain Silvera, delivered via endotracheal tube under injectable anesthesia. Thoracic radiographic [BD] PharMingen]. Fluorescence profiles were analyzed using Flow Jo software (BD Biosciences). The results are expressed as a percentage of positive cells.

Results. The percentages of CD4+ cells were low in both patients when compared with healthy control but it is much higher in diabetes case when compared with others. CD161+ cell population was higher in both patients when compared with healthy control and diabetic patient without fungal infection. The percentage of IL23R+ cells was significantly high in patient before treatment when compared with, healthy control and diabetics. And at the 6-month challenge dose the percentage of CD25+ cells was highest in healthy control when compared with others. The profile of CD25+ was comparatively similar in patient before treatment and diabetics but we found a higher percentage, in patients after treatment.

Conclusion. The findings in this study imminently indicate the mechanism of immune dysregulation involving Th17 and Treg pathways in mucormycosis and provide evidence that restoration of Th17/Treg may be considered as a therapeutic option for long-term benefit in diabetics.

Disclosures. All authors: No reported disclosures.

172.3. A Canine Target Species Challenge Model to Evaluate Efficacy of a Coccidiodomycosis Vaccine
Lisa E. Shubitz, DVM1; Richard Bowen, DVM; Edward J. Robb, DVM2; Daniel A. Powell, PhD3; Angela Bosco-Lauth, DVM4; Arnt Hartwig5; Hien Trinh, DVM6; Mary L. Lewis7; Jeffrey A. Peeling, PhD2; John N. Galgiani, MD8; Maria L. Lewis7; Airn Robb9; Bosco-Lauth, DVM4; Hartwig5; Trinh, DVM6; Lewis7; Peeling, PhD2; Galgiani, MD8; 1University of Arizona College of Medicine, Tucson, Arizona; 2University College of Medicine, Tucson, Arizona; 3Colorado State University, Fort Collins, Colorado; 4Valley Fever Center for Excellence, Tucson, Arizona

Session: 165. Mycology
Friday, October 4, 2019: 12:15 PM

Background. The preferred efficacy design for licensing a vaccine for animal use for coccidiodomycosis (Coccidioides [Coccidioides posadasii, strain Silvera, delivered via endotracheal tube under injectable anesthesia. Thoracic radiographic graphs, CBC, and serum chemistries and body weights were obtained at 2- or 3-week intervals and dogs were euthanized 8 weeks p.i., or earlier if necessary. Approximately 1 gram lung specimens from each lobe were cultured for fungal burden. Fixed tissues were examined histologically. Serum was analyzed for antibodies.

Results. Ten of 11 dogs were successfully infected; 5 required early removal at 33-48 days p.i. Elevated globulin, decreased albumin, decreased A/G ratio, monocytosis and weight loss were present in all infected dogs. Radiographic and histopathologic findings were very extensive in dogs that received the most consistent scoring and clinical findings, including some early removal, without overwhelming disease, while the low dose produced the least consistent quantifiable features. All dogs developed antibodies.

Conclusion. Nebulized aerosol delivery of spores reproducibly produced significant coccidiodomycosis in 10 of 11 dogs. Overall, the challenge model demonstrated consistent characteristic findings sufficient to assess vaccine efficacy in dogs during an 8-week period post challenge without producing a potentially overwhelming infection. Aerosol nebulization of arthroconidia in beagle dogs should provide a vaccination-challenge experimental design in line with Chapter 9 Code of Federal Regulations, parts 102.5 and 104.5.

Disclosures. All authors: No reported disclosures.