



RESEARCH PROGRESS REPORT SUMMARY

Grant 02452-A: Targeting the T Helper Inflammatory Pathway in Meningoencephalomyelitis of Unknown Origin (MUO)

Principal Investigator: Renee Barber, DVM, PhD
Research Institution: University of Georgia
Grant Amount: \$8,845
Start Date: 1/1/2018 **End Date:** 12/31/2021
Progress Report: End-Year 3
Report Due: 12/31/2020 **Report Received:** 2/4/2021

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Original Project Description:

Meningoencephalomyelitis of unknown origin (MUO) is a common neurological disorder of dogs that results in inflammation of the brain and/or spinal cord causing depression, seizures, blindness, difficulty walking, and death. All dogs can be affected but young to middle aged small and toy breed dogs (such as the Chihuahua, Maltese, Pug, and Yorkshire Terrier) are more frequently affected. Currently, brain biopsy is the only means of definitive diagnosis prior to death and the ideal treatment is not known. There is a critical need to improve diagnosis and treatment of MUO. The investigators will identify changes in the immune system associated with inflammation that occurs in the brains and spinal cords of affected dogs, looking for specific products of the immune response, such as interferon-gamma and interleukin 17, in blood and cerebrospinal fluid. Identification of these products could lead to development of new diagnostic tests, strategies for more effective treatment, and improved prognosis prediction.

Publications: None at this time

Presentations:

Presented research to date as part of an Updates on MUO research at the Southeastern Veterinary Neurology Conference in Athens, GA 2018. This resulted in a successful research collaboration between Dr. Chris Levine and UGA.

Report to Grant Sponsor from Investigator:



Meningoencephalomyelitis of unknown origin (MUO) is a disorder of dogs that results in inflammation of the brain and/or spinal cord causing depression, seizures, blindness, difficulty walking, and death. All dogs can be affected but young to middle aged small and toy breed dogs (such as the Chihuahua, Maltese, Pug, and Yorkshire Terrier) are most often affected. MUO is common but unfortunately, brain biopsy is the only means of definitive diagnosis prior to death and the ideal treatment is not known. There is a critical need to improve diagnosis and treatment of MUO. We are working to identify changes in the immune system associated with the inflammation that occurs in the brains and spinal cords of affected dogs by looking for specific products of the immune response, known as interferon-gamma and interleukin 17, in blood and cerebrospinal fluid. We have identified several cases with strong interferon-gamma and interleukin 17 responses when compared to controls. We expect to find more differences as we evaluate more cases and plan to use these findings development of new diagnostic tests and strategies for more effective treatment as well as improved prognosis prediction.