

## Supplementary Data 1

Clinical Summary of Control Population: 92 control animals were identified by searching the hospital database for brain MRI's with 'normal brain' or 'unremarkable brain' included in the report. Images were then reviewed to confirm lack of discernible brain pathology.

The presenting complaint was confirmed or suspected seizures (including non-specific, owner-described 'episodes') in 66 animals, vestibular signs +/- CN VII deficits in 12, mild gait abnormalities in 6, abnormal mentation in 2, acute blindness in 1, cervical pain in 2, generalized tremors in 1, polyuria/polydipsia in 1, and no detectable neurologic abnormalities in 1.

Diagnoses included epilepsy in 56 animals, no neurologic cause identified in 14, idiopathic peripheral vestibular dysfunction and/or idiopathic facial nerve paralysis in 11, suspected behavioral origin in 2, suspected toxin or tremor syndrome in 4, syncope in 3, central DI (grossly normal pituitary) in 1, and possible trauma versus focal myelitis in 1.

Cerebrospinal fluid was not obtained in 3 animals. In the remaining 89, CSF analysis was normal in 83. The protein was elevated in 3 animals, 1 of whom had a concurrent, confirmed thoracolumbar IVDD, 1 with notable systemic disease and 1 with focal seizures and mild protein elevation (46mg/dl) that remained clinically neurologically normal aside from intermittent focal seizures 2 years following imaging. The nucleated cell count was mildly elevated (11-25cells/ul) in 3 animals. All had negative infectious disease testing, 2 were never treated at any time with steroids (in 1 of these the CSF tap was performed following cluster seizure activity), and 1 with suspected trauma or focal myelitis was treated with antibiotics and low-dose steroids but demonstrated improvement in neurologic status prior to initiation of therapy.