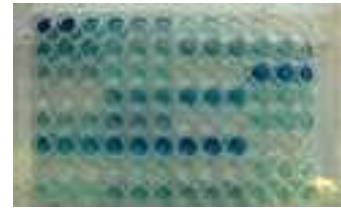


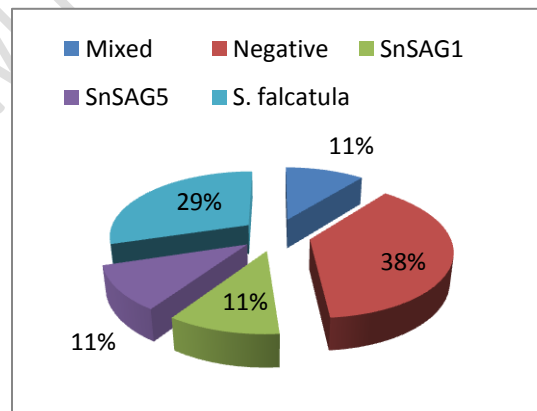
PEPTIDE ELISA DETECTS ANTIBODIES to SARCOCYSTIS NEURONA

New peptide-based serological testing determines the presence of *Sarcocystis neurona*, etiologic agent in equine protozoal myelitis (EPM), by detecting antibodies after infection. This **serological test** identifies antibodies to strain specific peptides distinguishing all known virulent phenotypes by their surface antigens **SAG 1, 5, or 6**. The selection of these specific proteins ensures that there are **no cross-reactions** with co-incident, non-pathogenic organisms. The **specificity to each protein is 100%**. There are no false positive results because cross reacting antigens are eliminated. Each *S. neurona* strain is identified by a unique protein marker (possible virulence factors). The **high sensitivity** of the ELISA is obtained by using TMB horseradish peroxidase as a detection reagent. The ELISA format **yields a titer** to each phenotype. Serum testing is appropriate for evaluation and CSF is not required, or recommended.



We chose well characterized cases of EPM to develop allele specific proteins that identify strains that play a role in *Sarcocystis neurona* infections in horses. Various strains produce severe or mild disease that can depend on the parasite load particular to the strain of parasite. Some phenotypes do not enter the CNS and are not neurovirulent but produce antibodies that are detected by nonspecific tests.

Biological and molecular assays demonstrated that 47% of opossums carry mixed populations of *Sarcocystis*, 22% carry the non-pathogen *S. falcatula* and 8% carry virulent *Sarcocystis neurona*. Horses are exposed to these mixed populations via contamination of feed sources with opossum feces. The horse develops antibodies to three strains of *S. neurona* that are differentiated by the PEPTIDE ELISA, see pie chart. One third of the infections will not result in EPM but produce antibodies, it is important for treatment and prognosis to know which strain infects the horse and if mixed infections are present.



The presence of antibodies to virulent phenotypes of *S. neurona* indicates infection in horses and an **increase in titer indicates active disease**. Exposure to *Sarcocystis* is regional and sero-surveillance studies predict the high false positive results seen on nonspecific tests, the PEPTIDE ELISA determines actual exposure by eliminating false positive test results and identifies the phenotype of the infection.

Each kit includes 12 x 8 well strips with breakaway wells, controls, and set up instructions to standardize the test. Sample diluent and calibrators, conjugate, TMB substrate, and wash buffer are available from Sigma-Aldrich. Each kit is sufficient for 96 tests.