

Disease Symptoms

Actinobacillus pleuropneumoniae (App) is an important swine pathogen throughout the world. It causes acute fibrinous pneumonia and pleuritis and is often fatal. The disease can spread through a herd, by aerosol or contact¹, very rapidly with death occurring within 12 hours of exposure. Survivors of the disease are seriously impacted by the severe lung lesions this organism causes and often become subclinical carriers of the disease. Mortality, production losses and subsequent slaughter house culls due to adhesions are all fallouts of this disease.

Serological tests for App are available as a tool to monitor the disease status of the herd. Isolation of App from lung tissue of infected pigs is quite straight forward. Submissions of tissues from euthanized animals is recommended to avoid masking of App by rapidly growing microorganisms of decay.

Serotype Prevalance

There are 15 known serotypes of *A. pleuropneumoniae* with serotypes 1, 5 and 7 most commonly associated with disease in Canada. Most infections are the result of only one serotype, unlike *S. suis* and *H. parasuis*, but infection with two serotypes is not unheard of.

At Gallant Custom Laboratories we serotype for types 1 through 12 including types 5A and 5B using a slide agglutination test. Cross-reactivity of some serotypes can occur.

APX Toxin

There have been multiple virulence factors associated with App- such as capsular polysaccharides (cp), lipopolysaccharides (LPS), membrane proteins, adhesion factors, and exotoxins (such as *apx*)². It is found that every strain will have the *apxIV* gene but will have either the *apxI* and *apxII* or *apxII* and *apxIII* gene¹. It is accepted that strains that carry the *apxI* and *apx II* genes are the most virulent and are associated with serovars 1, 5, 9, and 11¹. PCR testing is available at some labs to detect the *apx* toxins in either the App isolate or samples and therefore, enable a rapid profile of the status of the isolate or the herd¹.

Bacterin Usage

App bacterins are used both in the breeding herd and to vaccinate weaned pigs. When disease symptoms are seen in piglets of 3 weeks of age or less, maternal vaccination may be recommended. However, when disease symptoms occur in the nursery and beyond, vaccination of the pigs is advised and must be scheduled prior to disease exposure. Vaccination of animals showing disease symptoms is not recommended. Use of serology and diagnostic investigation may aid in this process. Inactivated bacterins can only be expected to protect against the serovars included in the bacterin, so it is important to know all the serovars prevalent in the herd².

References: 1 “Prevalence of *Actinobacillus pleuropneumoniae*, *Actinobacillus suis*, *Haemophilus parasuis*, *Pasteurella multocida*, and *Streptococcus suis* in representative Ontario Swine Herds” MacInnes, J et al. Can J Vet Res v.72(3): 242-248 April 2008

2 “DNA microarray-based identification and typing of *Actinobacillus pleuropneumoniae*” GuoSheng Ziao et al. Can J Vet Res v. 73(3) Jul 2009