

# VETERINARY TECHNICAL DATASHEET

Fetal Onset Neuroaxonal Dystrophy, (FNAD)



Mutation Found In :Schnauzer (Giant), Laboratory colony of mixed breed dogs

## Disorder Type

- Nervous system

## Disease Severity

- Severe

## Background

Dogs with fetal onset neuroaxonal dystrophy (FNAD) die upon birth due to respiratory failure. The mutation was discovered in a laboratory colony of mixed breed dogs that were the outcome of breeding between a Giant Schnauzer and Beagle. The prevalence of FNAD in natural populations remains to be determined.

## Key Signs

- Respiratory failure
- Arthrogryposis. Scoliosis
- Hypoplasia of lungs / brain / spine
- Death upon birth

## Clinical Description

Fetal onset neuroaxonal dystrophy (FNAD) is a disorder that disturbs the development of motor neurons in the central nervous system. Scoliosis (abnormal lateral curvature of the spine) and multiple contracted joints (arthrogryposis) are often observed. Arthrogryposis causes affected puppies to have no voluntary movement of limbs. Respiratory deficiencies cause affected puppies to die at birth.

## Mode of Inheritance

- autosomal recessive

## Gene Name

- MFN2

## Next Steps

Post-mortem examination to confirm disease. Post-mortem examinations usually reveal abnormally swollen axons throughout the brain stem, spinal cord, and peripheral nerves.

## References

Fyfe JC, Al-Tamimi RA, Liu J, Schäffer AA, Agarwala R, Henthorn PS. A novel mitofusin 2 mutation causes canine fetal-onset neuroaxonal dystrophy. *Neurogenetics* 12:223-32, 2011.