

Update 3-5-22, Puppy Lung Study

In 2021, the initial attempts to identify a genetic variant using GWAS were not successful. Then a number of genes known to be associated with similar lung diseases in humans and mammalian lung development were sequenced. Genomic DNA from 4 Norwich terriers were sequenced to ~30X coverage (Novogene Co. Ltd, Beijing, China) using the Illumina Novaseq60. Variants in 2 candidate genes were identified, however, these variants were 1) present in only 1 affected dog and 2) present in control dogs. Next, the research team looked at variants in noncoding exons of the candidate genes and found 3 variants in 2 genes which were unique to only 1 affected dog (not in control dogs but also not in the other 2 affected dogs).

Next steps are: 1) Realign the WGS sequence data to the new canine reference genomes (canfam4 and canfam6). These new reference genomes have resolved many assembly errors and also have updated gene lists. 2) Merge the GWAS data with another GWAS data set containing over 13,000 dogs from other breeds and compare affected Norwich terriers to population controls (excluding all Norwich terriers in which the phenotype is not known). 3) Continue to identify plausible candidate genes and screen for variants within these genes.

The study end date is extended to 8-31-22.

Effective 3-1-22, Dr. Kurt Williams has been named the new Director of the Oregon Veterinary Diagnostic Laboratory at Oregon State University. His work with the Norwich Terrier Puppy Lung Development Study will continue.