PROGRESS REPORT

Identifying Genetic Risk Factors for Perianal Fistulas

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Morris Animal Foundation-funded researchers at the Royal Veterinary College in the United Kingdom are working to identify genes associated with the development of perianal fistulas in two high-risk breeds – German shepherd and Leonberger dogs. Perianal fistulas consist of inflammation, ulceration and development of painful tunnel-like lesions that can extend into the rectum and colon. The disease is a significant welfare problem for affected dogs and often is challenging to treat. German shepherd and Leonberger dogs are more predisposed than other dog breeds to developing this condition, suggesting genetic factors are involved.

So far, the research team has collected samples and extracted genetic material (DNA) from unaffected and affected German shepherd and Leonberger dogs. Initial analysis has captured millions of genetic variants within individual animals and the wider cohort of dogs for study. The next steps are to narrow down the data to determine which variants the dogs have in common that may contribute to disease susceptibility. The team will then compare these results with genomes or genetic code from other dogs from the same and other breeds to further narrow down the dataset, with the aim of pinpointing those genetic variants of interest in both German shepherd and Leonberger dogs that warrant further study.

Knowing which genes are involved in increased risk of developing perianal fistulas will potentially help inform the design of new preventive and curative therapies for affected dogs. Improved knowledge of disease genetics could lead to the development of a genetic test to help identify dogs at risk of developing perianal fistulas. These types of breed-specific tests often improve early monitoring and care, as well as help to inform breeding decisions to potentially reduce the disease incidence in affected breeds.

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