

FINAL REPORT



Mapping Genes Associated with Canine Mast Cell Tumors

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Researchers Narrow Search for Genetic Factors for Mast Cell Tumors

Mast cell tumor (MCT) is the most common skin tumor in dogs. A particularly high incidence of this disease has been reported in certain breeds, such as golden retrievers, shar-peis, Labrador retrievers and boxers. Scientists at MIT's, Broad Institute and the Ohio State University mapped genes associated with MCTs. They compared the genomes of 88 golden retrievers with MCT with those of over 103 healthy golden retrievers serving as control subjects. The team identified and localized five candidate loci as genetic risk factors for mast cell tumors. They reported that the locus on chromosome 17 has the strongest association, suggesting that it is a major risk factor for the disease. Although they did not identify the specific gene(s), they have narrowed down the search. Determining these genetic mutations will in turn allow for the development of genetic tests to identify dogs at risk for MCT cancer, leading to better treatment strategies and breeding management.

Publications:

[Genome-wide association mapping identifies multiple loci for a canine SLE-related disease complex](#) (*Nature, Genetics*, 2010)

[Genome-Wide Association Study of Golden Retrievers Identifies Germ-Line Risk Factors Predisposing to Mast Cell Tumours](#) (*PLoS Genetics*, 2015)

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