

Researchers find some of the genes responsible for differences in behavior between dog breeds

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A team of researchers affiliated with several institutions in the U.S. has found some of the genes that are responsible for differences in behavior

between dog breeds. In their paper published in *Proceedings of the Royal Society B*, the group describes their study of data from two types of dog-based databases and what they found.

Different breeds of dogs are known for differences in their behavior. Some are more aggressive, some are easy to train, some are natural herders. In this new effort, the researchers attempted to track down the parts of the dog genome responsible for such different behaviors between breeds.

The work by the team involved accessing and analyzing data from two databases of information on dog genotyping—a third (C-BARQ) stores information on 14,000 dogs from pet owners' assessments of behavioral characteristics of their dogs across 14 [behavioral traits](#). In comparing information from the two types of databases, the researchers were able to narrow down the list of possible candidate [genes](#) responsible for several types of behavioral traits.

They found that some were more easily identifiable than others. For traits such as chasing, aggression or trainability, for example, the researchers found genes that contributed to approximately 60 to 70 percent of variability between breeds. Other genes related to traits such as fearfulness or energy levels were not as evident. The researchers suggest this is likely because such traits are more heavily influenced by environmental factors or training. The researchers note that no [single gene](#) was found to be responsible for any particular behavior type, suggesting that it is likely that behavior is influenced by many genes.

They further note that environment also likely plays a large role in the variable behavior patterns seen with [dogs](#). They also acknowledge that their work did not show how genes that are responsible for behavior work. And finally, they point out that their work was done with averages, so dog owners should not expect that an individual dog of a given [breed](#)

will behave a certain way.

More information: Evan L. MacLean et al. Highly heritable and functionally relevant breed differences in dog behaviour, *Proceedings of the Royal Society B: Biological Sciences* (2019). [DOI: 10.1098/rspb.2019.0716](https://doi.org/10.1098/rspb.2019.0716)

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