

Study shows dogs may have been domesticated far earlier than thought

May 15 2013, by Bob Yirka



(Phys.org) —An international team of researchers has found genetic evidence that suggests dogs may have been domesticated as far back as 32,000 years ago. In their paper published in *Nature Communications* outlining their study and results, the team theorizes that dogs indigenous to China might represent the missing link in the domestication of dogs.

Scientists have long studied the close relationship between humans and [dogs](#), and various theories have been proposed to explain just how far back in time the relationship goes. Most agree that dogs and humans have coexisted for at least 16,000 years. In this new effort, the research team suggests it might be twice that long.

To better understand when dogs first became domesticated, researchers look to when they diverged from wolves—experts estimate it occurred sometime between 16,000 and 32,000 years ago. To come up with a more accurate estimate, the researchers took [DNA samples](#) from indigenous Chinese street dogs, several modern breeds and four grey wolves.

An analysis of the samples indicated that the grey [wolves](#) split from the Chinese dogs approximately 32,000 years ago. But then the researchers went further—they also looked at the genes responsible for such things as digestion and [metabolism](#) and even neurological processes. They then compared the dog genes to the same types of genes in humans. In so doing, they found some similarities that suggest humans and dogs have evolved some of the same traits over the same time period—hinting at a possible communal relationship. And that, the researchers say, suggests that dogs might have been domesticated as far back as 32,000 years ago.

The researchers note that scientists have long held the notion that domestication of dogs and other animals has been associated with people and animals living in close quarters in relatively tight communities. Such conditions, they contend would almost certainly have a similar impact on people as well as the animals living in the same environment. They note that dogs, for example, in addition to exhibiting similar [genes](#), also suffer from many of the same kinds of diseases, e.g. breast cancer, obesity, epilepsy and even obsessive-compulsive disorder.

The evidence found by the researchers offers only circumstantial evidence of course, which means more research will have to be done before the time of dog domestication can be officially pushed back.

More information: The genomics of selection in dogs and the parallel evolution between dogs and humans, *Nature Communications* 4, Article number: 1860 [doi:10.1038/ncomms2814](https://doi.org/10.1038/ncomms2814)

Abstract

The genetic bases of demographic changes and artificial selection underlying domestication are of great interest in evolutionary biology. Here we perform whole-genome sequencing of multiple grey wolves, Chinese indigenous dogs and dogs of diverse breeds. Demographic analysis show that the split between wolves and Chinese indigenous dogs occurred 32,000 years ago and that the subsequent bottlenecks were mild. Therefore, dogs may have been under human selection over a much longer time than previously concluded, based on molecular data, perhaps by initially scavenging with humans. Population genetic analysis identifies a list of genes under positive selection during domestication, which overlaps extensively with the corresponding list of positively selected genes in humans. Parallel evolution is most apparent in genes for digestion and metabolism, neurological process and cancer. Our study, for the first time, draws together humans and dogs in their recent genomic evolution.

© 2013 Phys.org

Citation: Study shows dogs may have been domesticated far earlier than thought (2013, May 15)
retrieved 29 April 2024 from

<https://phys.org/news/2013-05-dogs-domesticated-earlier-thought.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--