

Dogs' origin traced to Middle East

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CATCHY CANINES The research on dogs has gained international attention.

A team of biologists from the University of California, Los Angeles has recently undertaken a study which claims that domestic dogs, according to genetic data, likely originated in the Middle East.

The genetic data suggests that the origin of modern dogs is directly tied to Middle Eastern grey wolves, and not East Asian wolves as originally thought.

James Knowles, a master's of biological sciences student at the University of Alberta, was involved in the project and spent most of his time doing analysis and lab work.

"I've been doing population genetics data since my undergrad at Queen's, and so when it came to an M.Sc., I came here to work on it in greater detail. I took an a project that had me use genetic information to look at grey wolf populations," Knowles said.

Published in the online journal *Nature* in mid-March, the paper explores three different ways of evaluating which populations of wolves is most likely to be the ancestral home of the modern dog, which infer evolutionary relationships between biological species by tracking species evolution in the same way a family tree is represented.

"Based on phylogenetic trees you can see some instances where Middle Eastern wolves pop out and share common ancestors with dogs," Knowles said.

Another evaluation technique used by the UCLA contingent were haplotype structures. These structures are basically long segments of DNA chromosomes.

"Using haplotype structures you are able to compare modern dogs and modern wolves to determine which populations of wolves dogs share more unique haplotypes with," Knowles explained.

"In different populations there is inevitably going to be some haplotypes that are going to be unique to different wolf populations. However, when you find which wolf populations dogs tend to share more haplotypes with that gives you a greater idea that more genes coming from that population are linked with dogs."

Nonetheless, the study was unequivocally aided by a technological innovation called the single nucleotide polymorphism genotyping chip. This chip, which examines the nucleotides at some 48,000 locations in the genome, allows researchers to see an array of genetic data.

"SNPs provide us with a great picture of the entire genome instead of using a small subset of markers. There are also way more sites in a chromosome that can be analyzed with the SNP chip because it can determine whether a chromosome is an A+T type or A+C type as compared to just A, C, G, or T," Knowles explained.

As far as the study has taken researchers in determining the origin of dogs, pinpointing the exact location of dogs remains unknown. One thing that research has shown and is widely agreed upon, however, is that dogs are roughly about 15,000 years old.

Although the paper has only been available to the public for slightly more than two weeks, it has already received prominent readership and media attention.

"I'm surprised at the reception the study has received already. Even Stephen Colbert committed a segment of his show to the study," Knowles stated.