

# Modern dogs are more Asian fusions than Euro pups, study finds

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Dingoes like these pictured on Borneo were included in an extensive dog genetics study led by UC Davis researchers. Credit: Tajai's Photos, Creative Commons

(PhysOrg.com) -- Don't close the book on Fido's genealogy just yet: A new study led by University of California, Davis, wildlife genetics researchers provides a surprising glimpse into the global heritage of both wild and domestic dogs.

Results from the study, which examined the DNA of 642 [dogs](#), suggest that European and American canine breeds were much more influenced by dogs from Southeast Asia than by ancient Western dogs or by dogs from the Middle East, as was previously thought.

Findings from the study by collaborators in California, Iran, Taiwan and

Israel appear online in the journal *Public Library of Science (PLOS) One*.

“The two most hotly debated theories propose that dogs originated in Southeast Asia or the Middle East,” said study co-author Ben Sacks, director of the Canid Diversity and Conservation Group in the Veterinary Genetics Laboratory in the UC Davis School of Veterinary Medicine. The laboratory is an international leader in animal genetics research and provides DNA testing and forensic analysis for numerous wildlife, companion animal and livestock species.

“In contrast to those theories, our findings suggest that modern European and American dogs are overwhelmingly derived from dogs that were imported from Asia since the silk trade, rather than having descended directly from ancient dogs native to Europe,” Sacks said. “Therefore, previous arguments against Europe as a potential site of dog origins, based on modern European dog DNA, must be reconsidered, and our high-resolution Y-chromosome data from indigenous dogs of the Middle East and Southeast Asia now provide the means to test this hypothesis using ancient European dog DNA.”

Sacks said that it was particularly surprising to find that Middle Eastern dogs had almost no influence on Western breeds, even though Europe is geographically closer to the Middle East than to Southeast Asia.

Other findings from the study demonstrate that Middle Eastern and Southeast Asian village dogs must have originated from a common gene pool thousands of years ago or from distinct groups of wolves or wolf-like dogs. The findings also indicate that Southeast Asia likely played an important role in the evolution of Western breed dogs.

In order to compare the evolutionary relationships between the dogs of Europe, the Middle East and Southeast Asia, the researchers analyzed DNA samples from nine wild members of the dog family and 633

domestic dogs. The domestic dogs were mostly from villages in the Middle East and Southeast Asia; they also included Australian dingoes, desert-bred salukis, which are Middle Eastern sight hounds, and 93 purebred dogs representing 35 other breeds.

The village dogs of Southeast Asia and the Middle East were chosen for the study because they are considered to have developed independent of modern breeds and are likely to reflect the genetics of ancient dogs of their regions. The Australian dingoes and Bali dogs were included because they have been isolated from other canine populations for thousands of years.

“Our findings demonstrate the importance of village dogs as windows into the past, providing a reference against which we can examine ancient DNA samples to shed light on the origins and spread of the domestic dog,” Sacks said.

Provided by UC Davis

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