

# Present-day Lebanese descend from Biblical Canaanites, genetic study suggests

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This photograph shows a large jar burial containing the remains of one of the individuals sequenced in the study. Credit: Dr. Claude Doumet-Serhal - The Sidon excavation

In the most recent whole-genome study of ancient remains from the Near East, Wellcome Trust Sanger Institute scientists and their collaborators sequenced the entire genomes of 4,000-year-old Canaanite individuals who inhabited the region during the Bronze Age, and compared these to other ancient and present-day populations. The results, published today (27 July) in the *American Journal of Human Genetics* suggest that present-day Lebanese are direct descendants of the ancient Canaanites.

The Near East is often described as the cradle of civilisation. The Bronze Age Canaanites, later known as the Phoenicians, introduced many aspects of society that we know today - they created the first alphabet, established colonies throughout the Mediterranean and were mentioned several times in the Bible.

However, historical records of the Canaanites are limited. They were mentioned in ancient Greek and Egyptian texts, and the Bible which reports widespread destruction of Canaanite settlements and annihilation of the communities. Experts have long debated who the Canaanites were genetically, what happened to them, who their ancestors were and if they had any descendants today.

In the first study of its kind, scientists have uncovered the genetics of the Canaanite people and a firm link with people living in Lebanon today. The team discovered that more than 90 per cent of present-day Lebanese ancestry is likely to be from the Canaanites, with an additional small proportion of ancestry coming from a different Eurasian population. Researchers estimate that new Eurasian people mixed with the Canaanite population about 2,200 to 3,800 years ago at a time when there were many conquests of the region from outside.





This photograph shows the Sidon excavation site which included the burials of the studied individuals. Credit: Dr. Claude Doumet-Serhal - The Sidon excavation

The analysis of ancient DNA also revealed that the Canaanites themselves were a mixture of local people who settled in farming villages during the Neolithic period and eastern migrants who arrived in the area around 5,000 years ago.

In the study, researchers sequenced whole genomes of five Canaanite individuals who lived 4,000 years ago in a city known as Sidon in present-day Lebanon. Scientists also sequenced the genomes of 99 present-day Lebanese and analysed the genetic relationship between the ancient Canaanites and modern Lebanese.

Dr Marc Haber, first author from the Wellcome Trust Sanger Institute, said: "It was a pleasant surprise to be able to extract and analyse DNA from 4,000-year-old human remains found in a hot environment, which is not known for preserving DNA well. We overcame this challenge by taking samples from the petrous bone in the skull, which is a very tough bone with a high density of ancient DNA. This method of extraction combined with the lowering costs of whole genome sequencing made this study possible."





This photograph shows the burial of a single sub adult individual sequenced in the study. Credit: Dr. Claude Doumet-Serhal - The Sidon excavation

Dr Claude Doumet-Serhal, co-author and Director of the Sidon excavation site\* in Lebanon, said: "For the first time we have genetic evidence for substantial continuity in the region, from the Bronze Age Canaanite population through to the present day. These results agree with the continuity seen by archaeologists. Collaborations between archaeologists and geneticists greatly enrich both fields of study and can answer questions about ancestry in ways that experts in neither field can answer alone."

Dr Chris Tyler-Smith, lead author from the Wellcome Trust Sanger Institute, said: "Genetic studies using ancient DNA can expand our understanding of history, and answer questions about the likely origins and descendants of enigmatic populations like the Canaanites, who left few written records themselves. Now we would like to investigate the earlier and later genetic history of the Near East, and how it relates to the surrounding regions."

**More information:** Marc Haber et al. (2017) Continuity and admixture in the last five millennia of Levantine history from ancient Canaanite and present-day Lebanese genome sequences. *American Journal of Human Genetics*. [DOI: 10.1016/j.ajhg.2017.06.013](https://doi.org/10.1016/j.ajhg.2017.06.013)

\* [www.sidonexcavation.com](http://www.sidonexcavation.com)

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