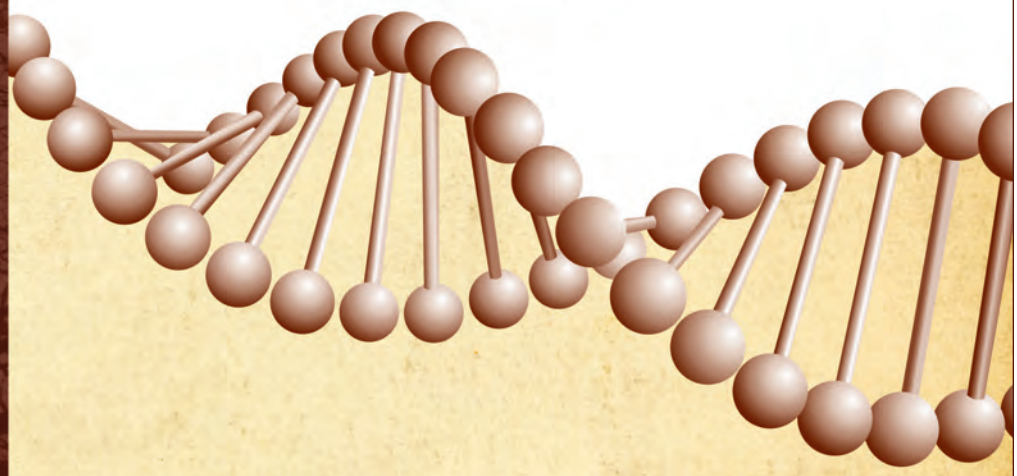
DNA TEST FOR ANCESTRY

Results Manual



DNA Origins® Test Manual

This Results Manual will walk you through the basics of DNA, what your results look like and what they mean, plus additional information and resources for you to use.

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Introduction

Congratulations on completing your DNA Origins® test.

We hope that you find your test results useful in learning more about your family history and ultimately, about you.

The purpose of this manual is to serve as a reference source for questions you may have about ancestry DNA testing in general, as well as the results that you received.

As you will learn in this manual, the DNA Origins test report you have received is a product of extensive scientific research combining works of geneticists, anthropologists, and social scientists. A lot of effort has been placed into ensuring that the methods used in the test are scientifically and statistically sound. DNA Origins is based on testing thousands of samples from populations around the world for DNA markers that can provide clues about your ancestral history.

In This Manual

We'll go over some DNA basics and information on human evolution and history, followed by a discussion of the ancestry testing services we currently offer. We also provide some resources at the end of this manual, should you wish to do more research on your own.

Each day, scientists around the world are further refining what we know today about ancestral genetics and worldwide human migrations. The results we give you are a great tool in your voyage as you learn more about your ancestors and where they came from.

Your Results Package

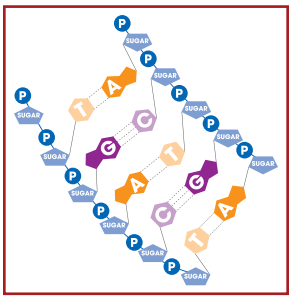
Your DNA Origins results package includes a certificate listing your biogeographical ancestry percentages, and a bar graph depicting the statistical confidence intervals (explained further in the Interpreting Your Results section). It also comes with this manual, which is available in both print and electronic editions.

DNA Basics

This chapter reviews some basic information about DNA biology and inheritance. As you may know, DNA is the genetic material found in all living things. Each cell in your body contains a full copy of the genetic material, which encodes all your body's structure and functions.

DNA is most often represented as a double helix. In the cell, the DNA helix is found in tightly coiled and packaged units called **chromosomes**. If all of the DNA inside a cell is stretched out and placed end to end, you would have a long, double-stranded helix that is about 3 meters in length.

The DNA helix looks like a twisted ladder. The two sides are composed of the four bases: adenine (A), thymine (T), guanine (G), and cytosine (C), and the rungs of the ladder represent hydrogen bonds that



connect specific pairs of these molecules together: A–T and G–C.

The arrangement of these molecules, called the DNA sequence, spell out the instructions for our physical characteristics and body functions. These instructions are found in units called **genes**. Not all of the DNA sequences code for genes. In fact, the majority of your cell's DNA is found in non-coding regions—they are thought to serve other purposes, which include regulating gene activity as well as providing structural support and protection. Many of these non-coding regions happen to have markers that are useful for human identification and ancestry studies.

Terms You Will Encounter in this Manual

In this manual, you will encounter terms specific to DNA testing and genealogy. A quick review of these terms will assist you in your understanding of your results.

Admixture (genetic)

In genetics, the result of interbreeding between two or more previously isolated populations within a species, resulting in the introduction of new genetic lineages into a population.

Ancestry Informative Marker (AIM)

The DNA Origins test examines AIMs—the subset of genetic markers that are distinctive of the founding populations of the world. These markers are found in all populations but in different forms (alternative sequences, also called alleles)—and for each marker, there is an identifying allele that is the same in each population. This allows our test to determine which of the founding populations have contributed to your genetic makeup today.

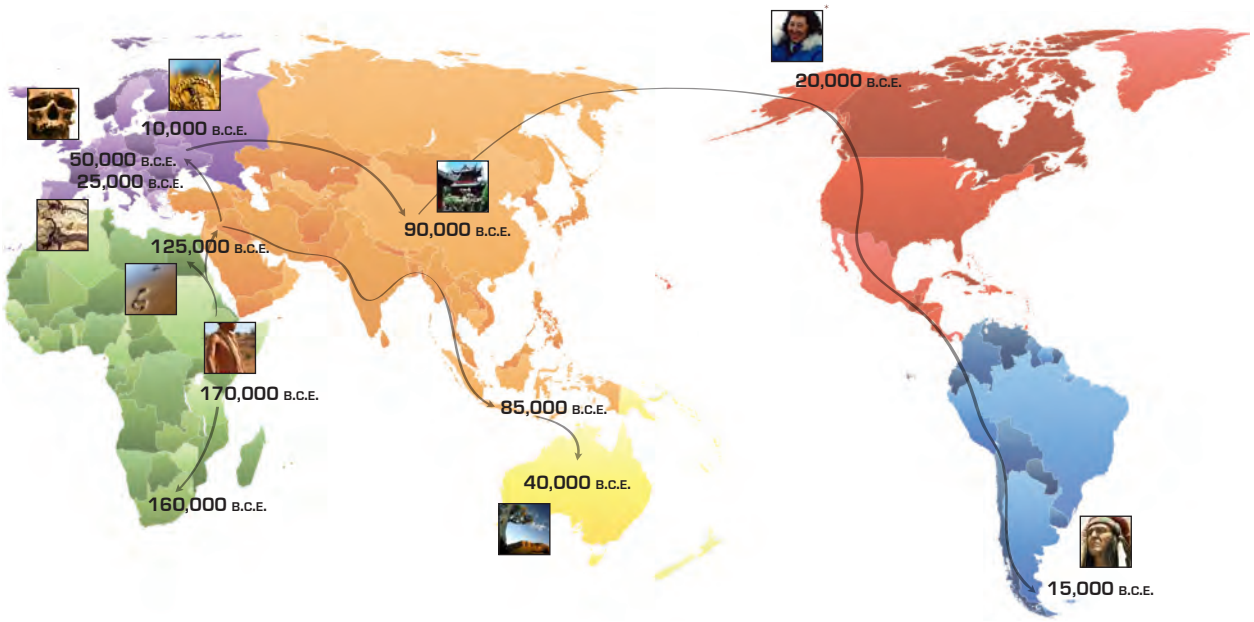
Allele

Alternate letters in the DNA sequence at a particular position in the genome. For example, a common variation in the genome is for some populations to have Cytosine (C) in a specific location on their DNA, while other populations would have Thymine (T). *See also entry on Single Nucleotide Polymorphisms.*

Timeline of Human Migration

The timeline of human migration presented below corroborates with DNA evidence. Your very own DNA contains evidence of this migration, and your results give you an insight into your ancestors' role in human history.

170,000 B.C.E.	Modern humans arise in East Africa
160,000 B.C.E.	Humans spread into southern and western Africa
125,000 B.C.E.	The first modern humans leave Africa, arriving on the Mediterranean shore.
90,000 B.C.E.	*Homo sapiens* settle China.
85,000 B.C.E.	A second wave of migration of humans spread along the coastal regions and reached Java within 10,000 years.
65,000 B.C.E.	Humans migrate northward into Europe
50,000 B.C.E.	The Cro-Magnon people are the earliest *H. sapiens* to settle Europe.
40,000 B.C.E.	Ancestors of Australian aborigines arrive on the Australian continent.
25,000 B.C.E.	*Homo sapiens* in Europe show artful skill with their cave paintings.
20,000 B.C.E.	The first humans cross the Bering land bridge into North America.
18,000 B.C.E.	The peak of the last Ice Age, when Europeans retreated to 4 refuges areas: Iberia, Ukraine, Siberia, and the Balkans.
15,000 B.C.E.	Humans may have reached South America by boat.
10,000 B.C.E.	The Earth warms up, and Europe is repopulated. Agriculture spreads there.



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