

# EXHIBIT

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# AncestryDNA – Frequently Asked Questions (United States)

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## AncestryDNA - Frequently Asked Questions

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## About AncestryDNA™

### 1. What is AncestryDNA?

AncestryDNA is a new DNA testing service that utilizes some of the latest autosomal testing technology to revolutionize the way you discover your family history. This service combines advanced DNA science with the world's largest online family history resource to predict your genetic ethnicity and help you find new family connections. It maps ethnicity going back multiple generations and provides insight into such possibilities as: what region of Europe are my ancestors from, or am I likely to have East Asian heritage? AncestryDNA can also help identify relationships with unknown relatives through a dynamic list of possible DNA member matches.

### 2. What do my results tell me?

Your AncestryDNA results include information about your genetic ethnicity estimates and identifies potential DNA matches, linking you to others who have taken the AncestryDNA test. Your results are a great starting point for more family history research, and it can also be a way to dig even deeper into the research you've already done.

### 3. What technology is behind this new service?

The AncestryDNA test uses microarray-based autosomal DNA testing, which surveys a person's entire genome at over 700,000 locations, all with a simple saliva sample. Additionally, the new online interface integrates state-of-the-art tools for you to utilize your DNA results for family history research.

### 4. How is this DNA test going to help me with my research?

Your DNA may hold information to help make new discoveries about your family's past, your cultural roots, as well as confirm information in your family tree. Using your DNA test in combination with an

Ancestry subscription gives you hints that can guide your investigations and connect you with new relatives. These new relatives that you discover may have additional information, a piece of your family story to tell or photos to share.

Your DNA test results also provide information that's more relevant and recent—targeting your family history a few hundred or even a thousand years ago, as compared to the Y-chromosome or mitochondrial DNA tests, which have a 10,000 to 50,000 year time focus.

## 5. Can a woman take this test?

Yes, women and men can take the AncestryDNA autosomal test since we all carry the DNA that is being tested. In fact, men and women are tested in the same way for the same number of markers.

Unlike some other DNA tests, which only analyze the Y-chromosome (and can only be taken by a male to look at your direct paternal lineage) or mitochondrial DNA (can be taken by a male or female but only looks at your direct maternal lineage), AncestryDNA looks at a person's entire genome at over 700,000 locations. To learn more about the differences between the DNA tests you can [click here](#).

## 6. How does the new AncestryDNA test differ from other DNA tests?

**It's more comprehensive.** Unlike the Y-chromosome or mitochondrial DNA test, AncestryDNA uses an autosomal DNA test that surveys a person's entire genome at over 700,000 locations. It covers both the maternal and paternal sides of the family tree, so it covers all lineages. The Y-DNA test only reflects the direct father-to-son path in your family tree, and the mtDNA test only reflects the direct mother-to-child path in your family tree. Learn more about the differences between the DNA tests [here](#).

**The test is gender neutral.** Both men and women can take the AncestryDNA test and are tested in the same way for the same number of markers providing the same level of detail in the results.

**It predicts your recent genetic ethnicity.** Thanks to advances in DNA technology we're able to compare your DNA to samples from around the world, to find out more about your family's background and ethnic history—not ancient history, but the people and places that matter to you.

**Enhanced DNA matching.** Unlike the Y-chromosome or mitochondrial DNA tests, the new AncestryDNA autosomal test looks at a much broader range of your DNA, which helps identify matches throughout your entire family tree—along both your paternal and maternal sides.

**The information is more relevant and recent**—targeting your family history a few hundred or even a thousand years ago, as compared to the Y and mtDNA tests, which have a 10,000 to 50,000 year time focus.

**Improved website.** AncestryDNA has a significantly enhanced personalized site experience with interactive tools and features to make your family history search even easier.

## 7. When can I expect to get my results?

Your AncestryDNA test results will normally take about 6-8 weeks to process from the time that the lab receives your DNA sample. Please note that you must also [activate your DNA kit](#) online in order to begin

processing.

If you have not received your AncestryDNA results after 8 weeks, please contact customer service at 1-800-262-3787 and we'll help you out.

## 8. How do I see my results?

When your AncestryDNA results are ready, you will receive an email from AncestryDNA notifying you, with a link to view your results. Your results will also be available online in your password-protected AncestryDNA account here: <https://www.ancestry.com/dna>

## 9. What does 'autosomal' DNA testing mean?

Autosomal DNA testing includes the other 22 pairs of chromosomes that aren't the X or Y chromosome that determine your gender. Autosomal testing allows you to find family across all lines in your family tree. That means both men and women can take the test, and the results are not limited to just the direct maternal or paternal lines.

The AncestryDNA test analyzes your entire genome—all 23 pairs of chromosomes—as opposed to only looking at the Y-chromosome or mitochondrial DNA (which makes other types of tests gender specific). Your autosomal chromosomes carry genetic information from both your parents that's passed down through the generations.

Using autosomal testing, AncestryDNA surveys over 700,000 locations in your DNA, all with a simple saliva sample.

## 10. Where is the AncestryDNA test available for purchase?

The AncestryDNA test is available in the United States and for purchase online for residents of the United Kingdom and Ireland at [AncestryDNA.co.uk](https://www.ancestry.com/dna) or <https://www.ancestry.com/dna>. We hope to make it available in other countries in the future although we do not have a date for this yet.

## 11. Who offers AncestryDNA?

AncestryDNA is offered by Ancestry.com DNA, LLC, a member of the Ancestry family of companies, the world's largest online resource for family history.

# Interpreting my results

## 1. How do I interpret the ethnicity map on my results page?

The ethnicity map is a quick and easy way for you to visualize and interact with your DNA results. The fields of color on the map correspond to the colors in your ethnicity results pie chart. The map is interactive, so be sure to click around and zoom in to see more details.

## 2. When reviewing a DNA match, how do I interpret the 'Map and Locations' map?

If you are an Ancestry subscriber, and you and your DNA match both have family trees linked to DNA results, you will have access to a 'Map and Locations' map that may contain different colored pins that indicate the birth locations of the ancestors in your tree (up to about 10 generations of direct line ancestors), the birth locations of ancestors in your DNA match's tree, and overlapping birth locations that appear in both family trees. Some pins have a graphic with two people, this represents more than one person in that location. There is a legend at the bottom of the map to help you understand what the different colors of pins refer to on the map.

### 3. How do I link my DNA results to my family tree?

You can link your Ancestry family tree to your DNA results on [your personal status page](#). Just click on Settings and then scroll down to 'Family Tree Linking' to link your DNA results to a family tree. Currently, you can only link one tree to your DNA results.

### 4. What does it mean when my ethnicity results identify 'Trace Regions'?

Most people may have a percentage identified with 'Trace Regions' in their genetic ethnicity results. Trace Regions are regions where the estimated range includes zero and does not go above 15%, or where the predicted percentage is less than 4.5%. Since there is only a small amount of evidence that you have genetic ethnicity from these regions, it is possible that you may not have genetic ethnicity from them at all. This is not uncommon, and as more genetic signatures are discovered with a higher confidence level, we may be able to update these Trace Regions over time.

### 5. My genetic ethnicity results don't seem to match what I would have expected. Why is that?

Your family tree may go back hundreds of years, but there could be more to your family's story that's just out of reach of paper documents and conventional research. AncestryDNA can reach back hundreds, maybe even a thousand years, to tell you things that aren't in historical records—things you might have never known otherwise.

Although our ethnicity algorithms and prediction models will continue to improve over time, there are a few reasons why your ethnicity estimate may not be exactly what you expected: 1. Your genetic ethnicity may go back further than your family tree. 2. While your ancestors lived in a certain country, there may have been genetic influence from other places. 3. You don't necessarily share common DNA with all of your ancestors. Click [here](#) for more information.

### 6. Will the ethnicity results tell what information is specific to my maternal or paternal line?

The type of DNA that is being tested looks at ethnicity across both maternal and paternal lines. It does not currently isolate ethnicity results to only your maternal or paternal line.

### 7. How accurate is the test?

AncestryDNA uses advanced scientific techniques to produce your results. We measure and analyze a person's entire genome at over 700,000 locations. During the testing process, each DNA sample is held to a quality standard of at least a 98% call rate. Any results that don't meet that standard may require a new DNA sample to be collected.

Then we compare your DNA to one of the most comprehensive and unique collections of DNA samples from people around the world, to identify overlap. As our database of DNA samples continues to grow, you could receive updates with new information.

## 8. What does the 'confidence percentage' mean for DNA matches?

Our DNA matching confidence percentage is a number from 0-100% and is meant to help you identify which matches to focus on—the higher the confidence the more likely that they are more closely related to you. Our confidence levels are determined by the amount of common DNA two people share with one another. To do this, we measure over 700,000 markers in the DNA to analyze the number and length of continuous strands that align. Over time, as we continue to understand more about different populations, these confidence levels will improve.

## 9. How do I access my Y-DNA or mitochondrial DNA test results?

If you have taken one of the Y-chromosome and mitochondrial DNA tests, you will still have access to your results until September 30, 2014. You can access them [here](#) or on the AncestryDNA homepage. Please click [here](#) for more information.

## 10. If I have Native American ethnicity in my results what does that tell me?

The AncestryDNA test may predict if you are at least partly Native American, which includes some tribes that are indigenous to North America, including the U.S., Canada and Mexico. The results do not provide a specific tribal affiliation. (Please note that your AncestryDNA ethnicity results cannot be used as a substitute for legal documentation.)

# AncestryDNA Privacy

## 1. Where are the DNA samples tested?

DNA samples are tested in a secure third-party testing lab in the United States.

## 2. Can other users see my results?

As the DNA sample owner, you control who can see your results. If you are a minor, your test must be activated by your parent or legal guardian who becomes the account manager. The account manager controls who can see your results.

### 2a. How do I share my ethnicity results with other Ancestry users?

To share your ethnicity results with other Ancestry users, click the "share" button on your results page



and enter their email addresses into the pop-up window. Once you send the invitation, they will receive an email containing a link to your ethnicity results.

## 2b. Can I give other Ancestry users permission to see my results and edit account information? If so, what can they do?

Yes, you can invite other Ancestry users to become viewers, collaborators or a manager on your account.

A viewer can view your ethnicity estimate; learn about communities connected to you through common ancestors; see who shares your DNA, and find out who is related to you through a specific ancestor.

A collaborator has the same permissions as a viewer, but can also delete or highlight people who share DNA with you, and link your test results to family trees.

An account manager has the same permissions as a collaborator, but can also change your test display preferences; invite others to access your test results; assign and change account roles; modify, add data, or permanently delete test results and send and respond to messages from your account.

For more information on how to give other Ancestry users access to your DNA results, please click [here](#).

## 3. How do I assign account roles for my DNA test results?

Go to the “DNA Test Results Access” section on your test settings page to send an invitation for an account role. As the owner, you do not lose any account rights when you assign account roles. You can remove or reassign roles at any time.

## 4. What is the difference in account roles between viewer, collaborator, and manager?

The following chart outlines the permissions for each account role:

Task	Viewer	Collaborator	Manager
View DNA matches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
View Ethnicity Estimate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
View Genetic Communities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
View notes about a DNA Match	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
View DNA Circles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
View removed DNA matches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Link test results to Family Trees		<input type="checkbox"/>	<input type="checkbox"/>
Edit DNA Matches		<input type="checkbox"/>	<input type="checkbox"/>
Add and edit DNA Match notes		<input type="checkbox"/>	<input type="checkbox"/>
Edit test participant details		<input type="checkbox"/>	<input type="checkbox"/>
Change ethnicity display preferences		<input type="checkbox"/>	<input type="checkbox"/>



Invite others to access results	<input type="checkbox"/>
Assign and change account roles	<input type="checkbox"/>
Permanently delete DNA test results	<input type="checkbox"/>
Download raw DNA data	<input type="checkbox"/>
Send and respond to messages from the test owner's account	<input type="checkbox"/>

The **owner** has all of the above permissions, and may add or remove a manager at any time.

## 5. How do I manage my privacy settings?

You can manage the following privacy settings on the DNA Settings page, which you can access by going to the [AncestryDNA status page](#) and clicking the Settings link:

**Email notifications for DNA matches:** If you would like to be notified about possible DNA matches, you can choose to be notified weekly or monthly under “Email Settings for [Name]”. If you do not wish to be notified about matches, you can set this email notification to “Off.”

**Display Name:** You can choose to display your real name or your Ancestry username to other Ancestry users. To make your selection, simply click on the “Edit” button below “Participant Display Name” and choose your preferred display name.

**Results (ethnicity) settings:** You can choose to share your full ethnicity with other matches or only the ethnicity elements that are shared by potential matches. Under “Ethnicity Preference,” you can check or uncheck the box next to “Show participant’s ethnicity profile to DNA matches”; if it is unchecked only your partial ethnicity will be shown. The default setting is a checked box, meaning your full ethnicity will be shown if you do not choose otherwise. If you have ordered a DNA Test for another person, then these default settings will apply to their results, but they will be able to change these in the event they take over as the Administrator of their DNA Test. If you do not want others to see your results at all, then you can delete your results by clicking “Delete this test” button on the right under “Delete this test from AncestryDNA.” However, if you do so, you will then not be able to benefit from the Service, including seeing the results of others.

**Family tree linking:** You can link your DNA Test or any other DNA Test if you are the Account Manager to family trees that you have created. This will help determine how you may be related to any DNA matches found by AncestryDNA. If you link the DNA Test to an Ancestry family tree, any potential matches who are Ancestry subscribers will be able to see your tree (excluding living people in your tree) as part of their results, unless your tree is designated as “Private” (please see “Family Tree Settings” below for more information). If you are an Ancestry subscriber, you will also be able to see any public family trees linked to the DNA Tests of your potential DNA matches. To link the DNA test to a tree, please click “Link to tree” under “Family Tree Linking” on the Settings page, select the applicable family tree(s),

locate the DNA test-taker in the fillable box, and then click “Link to DNA.” To unlink a DNA test from a tree, click on the “Edit” button under “Family Tree Linking” on the Settings page, and press the green ‘X’ next to the applicable tree. Currently, you can only link one tree to your DNA results, but from the ‘Family Tree Linking’ page, you can choose a different family tree to link to your DNA Test.

**Sharing DNA results:** If you are the Account Manager of a DNA Test, you can invite others to access your DNA results as a “Viewer”, “Collaborator”, or “Manager” by inviting them through the “DNA Test Results Access” section of the test settings page. All Users given access in this way will be able to see both your ethnicity estimate and the possible relative matches that AncestryDNA has identified for you. Any Collaborator you share your DNA results with will also be able to change information that you have identified with the DNA Test. You are under no obligation to invite others to access your DNA results with anyone, but you may choose to do so in order to share your discoveries with others. On your DNA Settings page, you can see all of the people you have invited to access your DNA results. To revoke access to your DNA results, simply click the “Remove” link next to the email address or username of the person you want to revoke rights for.

There can only be one Manager per DNA Test, so if you are the current Manager and invite another person to become Manager, you will no longer have those rights and will instead be classified as a Collaborator of that test. Please note that once you have transferred your Manager rights to another person, you cannot undo that decision unless the new Manager decides to return those rights to you. The new Manager will also have the right to revoke your access to the DNA Test.

**Manage ethnicity results shared links:** On your DNA Settings page, you can see any links to your ethnicity estimates that you have shared and, if you wish, delete any such links by clicking the “Remove shared link” button next to the applicable email addresses(es). Once you remove that link, the person you shared your ethnicity estimates with will no longer be able to access that information via the link they originally received from you unless you re-share it with them.

**Download your raw DNA data:** To download your raw DNA data, please go to the Settings page and click on the ‘Get started’ button on the right under “Download your raw DNA data.” Please note that once you receive the downloaded raw DNA data, that downloaded copy will not be protected by our security measures. Please see the section of these FAQs entitled “Downloading your AncestryDNA raw DNA data” below for more information.

**Deleting your DNA tests:** If for some reason you decide you want to permanently delete your DNA Test from the AncestryDNA Website, you can click on “Delete this test” on the right side of the Settings page. Once you delete the test, your DNA test will not be recoverable and this action CANNOT be undone, so you must enter the password for your Ancestry account to confirm that you want to proceed with the deletion. Please note: in the event that you or we delete results, copies of that information may remain viewable elsewhere to the extent any such copy has been shared with others and copied and stored. Additionally, we may retain certain information to prevent identity theft and other misconduct even if deletion has been requested. Information that is removed or deleted may also persist in backup copies for a reasonable time for our internal business purposes but will not be available to you or others.

**Ancestry Website Settings:** Please click [here](#) to view and manage the below privacy settings on the

Ancestry website:

- [Site / Community Preferences](#): this allows you to control the information that others in the Ancestry Community see about you, as well as the settings for hints that you want to receive from us.
- [Email Settings](#): this allows you to control what newsletters, updates, and marketing emails we send to you. You may opt out to receive emails at all times.
- [Alerts](#): this allows you to control the email alerts that are sent to you.
- **Family Tree Settings**: this allows you to control how others can view, access and/or edit any family trees you may create. Please click [here for more info about tree settings](#).

## 6. Where can I go to learn more about my privacy?

Your privacy is very important to us and we are committed to protecting your DNA. For more information on privacy at AncestryDNA, please review the [AncestryDNA Privacy Statement](#). For a more general discussion of privacy on the Ancestry family of websites, see the Ancestry [Privacy Center](#).

## Downloading your AncestryDNA™ raw DNA data

### 1. What is 'raw DNA data'?

Raw DNA data is the data that's generated in the lab from your DNA sample. The AncestryDNA test produces approximately 700,000 pieces of data that we use to calculate your DNA results and match you to others. The data include SNPs (single nucleotide polymorphisms) and indels (insertion/deletion sites), two different types of common genomic variation. A downloaded file will contain the genomic data for the specified sample with each line representing a single variant. Each line contains the name of the variant (including the rsID where possible), the location (chromosome and position) of the variant, and the pair of observed values (allele 1 and allele 2) at this genomic location for this sample. In the case of a SNP, each allele will be coded as A, C, G, or T representing the four possible nucleotides adenine, cytosine, guanine, or thymine respectively. In the case of an indel, each allele will be coded as I or D representing an insertion or deletion respectively.

The information that you'll receive with your AncestryDNA raw data will include the 'rs' ID where possible, chromosome, and the base pair position on the human reference genome (GRCh37). The genotype (the observed alleles at each position) will be provided on the forward strand. The raw DNA data provided has passed the AncestryDNA data quality filters.

An example of raw DNA data looks like:

rsID	chromosome	position	allele1	allele2
rs4477212	1	72017	A	A
rs3094315	1	742429	A	A
rs3131972	1	742584	G	G
rs12124819	1	766409	G	G

## 2. Why would somebody want to download their raw DNA data?

Some users have inquired about downloading their raw DNA data, because it can be interesting to scientists and genetic genealogists who would like to extend their research. There are tools available on the web that are developed by academics or enthusiasts, for the purpose of analyzing and comparing raw DNA data. If you choose to upload your data to an outside organization, we recommend you look for specific guidelines in place that respect your privacy.

For your protection, make sure to confirm that the organization or an outside site adheres to the following privacy and security measures:

- A privacy policy or statement that outlines the steps the company takes and the steps you should take to secure your data.
- Look for an IRB (Institutional Review Board) that ensures ethical compliance on how your data is used.
- The option to delete your data at any time. Be aware that some sites you might upload your raw data to, have no options for deleting or removing your raw data.
- Has a secure website that's login/password protected and utilizes SSL encryption.

## 3. How do I download my raw DNA data?

If you'd like to download a copy of your raw DNA data, here are the steps to follow once you are on the AncestryDNA site:

1. From the [AncestryDNA status page](#) click the link 'manage test settings'.
2. On the 'manage test settings' page click the 'Get started' button on the right under 'Download your raw DNA data'.
3. Enter your password. This will trigger an email that will be sent to your email account on file, which will include a link to confirm download of the DNA data.
4. Open the email and click the 'Confirm data download' button in the email.
5. On this download page click the button "Download Raw DNA Data".
6. The file will then download to your computer.

**Important Security Information:** Once you receive the downloaded raw DNA data that downloaded copy will not be protected by our security measures. For more information read [AncestryDNA Terms and Conditions](#) and [AncestryDNA Privacy Statement](#).

## 4. What is the file format of the raw DNA data?

The raw data is formatted as a text file with about 700,000 rows of information. Because the file is very

large, we compress it prior to the download. The file you download is a .zip file, which can be viewed on your computer.

### **How to unzip a file using Windows:**

Do one of the following:

- To extract the entire contents of the compressed folder, right-click the folder, click 'Extract All', and then follow the instructions.
- Double click the compressed folder to open it. Then, drag the file or folder from the compressed folder to a new location.

### **How to unzip a file using Mac:**

- Double click the file to unzip it.

## **5. I uploaded my raw DNA results to another website and my results look different. Why is that?**

If you choose to upload your AncestryDNA raw DNA results to another website, they will look different for a number of reasons. Other companies do not use the same algorithms, database or methods to translate the data. Only AncestryDNA has access to the unique information available on Ancestry.com, including the family trees and records to help power the accuracy of the results. In addition, the proprietary algorithms that we use to calculate results are based on documented family trees and a one-of-a-kind, comprehensive database of DNA samples from around the world.

## **6. How do I read my raw DNA data?**

If you choose to download your raw DNA data and want to understand more about how to read it, the following information may be helpful.

Raw DNA data is provided in a TAB delimited text file. This file contains a header describing the data and five columns of information. Each line corresponds to one single nucleotide polymorphism (SNP) or indel. A SNP is a single site in the genome that is known to vary across individuals. An indel is either an insert or a deletion site. Our genotyping assay measures what nucleotide is present at each of approximately 700,000 variants on both the paternal and maternal copies of the genome. The possible observations are A for adenine, C for cytosine, G for guanine, T for thymine, I for insertion' and 'D for deletion, or 0 for missing data. Column one provides the identifier (including the #rsID where possible). Columns two and three contain the chromosome and basepair position of the variant using human reference 37.1 coordinates. Columns four and five contain the two alleles observed at this variant (genotype). The specific letters present are called alleles and the pair of alleles observed at a variant is called the genotype. Every variant we examine is bi-allelic, meaning there are only two possible alleles present. This means that there are three possible genotypes at each variant. For example, if a variant contains either C (cytosine) or A (adenine), then the possible genotypes are C C, A A, or A C (allele order is irrelevant so C A is the same as A C). Each chromosome is composed of two complementary strands, often called forward and reverse, and alleles may be reported on either strand. For example, a SNP

genotype that is G G on the forward strand will be C C on the reverse strand. Likewise G A on the forward strand is C T on the reverse strand. It is essential to know the strand on which your data is reported. For the AncestryDNA product, we report data for the SNPs on the forward strand with respect to the human reference genome.

## 7. Is my raw DNA data protected after I download it?

If you choose to download a copy of your raw DNA data, you are responsible for protecting that downloaded copy. While we protect your information in our systems, once you receive the downloaded raw DNA data, that copy will not be protected by our security measures.

## 8. What are the privacy and security steps taken to protect my raw DNA data?

Your raw DNA data is secured by a number of security measures while in our possession. For example, your DNA sample is identified only by a bar code—even our testing laboratories don't have your identity. We also store all DNA data in encrypted databases to ensure restricted access, even within the company. In addition to these protections, AncestryDNA adheres to the Genetic Information Nondiscrimination Act or "GINA" which makes it illegal for health insurance companies, group health plans and most employers to discriminate against you based on your genetic information. These protections will remain for the copy of your raw DNA data that we possess. But you will need to secure the raw DNA data if you choose to download it.

## 9. Do my DNA matches have access to my raw DNA data?

No, your DNA matches do NOT have access to your raw DNA data. We have many protections in place to ensure your genetic data is secure. Only people with access to your test results can initiate the data download. You can learn more about these [privacy settings here](#).