



# ANCESTRY REPORT

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## HERE'S A FUN FACT!



If you unravelled all DNA in your body and put it end to end, it would go from the earth to the sun and back hundreds of times!

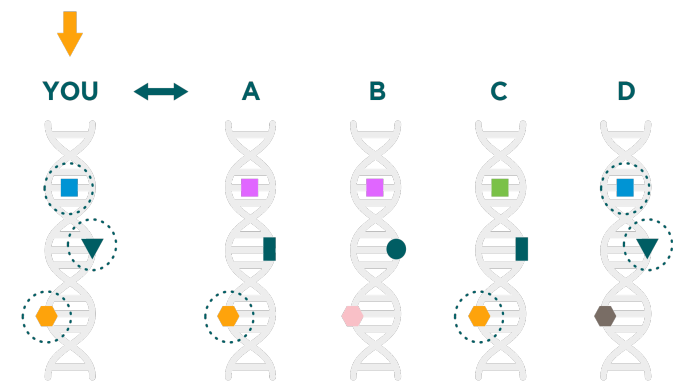
# UNDERSTANDING YOUR RESULTS

## INTRODUCTION

The Mediclinic Precise ancestry test investigates and analyses hundreds of thousands of sites in your DNA and compares it to the DNA of other populations around the world. Our computer software has the ability to determine **how similar you are compared to these populations when looking across all 23 pairs of your chromosomes**. Based on these scientific calculations, we can estimate your ancestral contributions based on chromosomes 1 - 22 and your maternal and paternal lineages via mitochondrial DNA (mtDNA) and the Y chromosome, respectively.

## READING YOUR RESULTS

Your results are separated into **three different sections**. The first section (a table and a pie chart) depicts your **overall ancestral contributions per region**, which is provided as a percentage of your total ancestry. The second section goes into depth for each region, providing some **fascinating facts regarding the countries in this region**. The last section depicts your **maternal and paternal (only in the case of males) lineages**, which is based off your mitochondrial DNA and Y chromosome, respectively. Each region is given a specific colour, which is consistent with the colour for the specific ancestral contribution they represent across your report.



A basic illustrative key to compare the matched traits of YOUR 23 pairs chromosomes to those of other populations in a database

e.g. HAIR COLOUR  
BODY SHAPE  
SKIN COLOUR



# FREQUENTLY ASKED QUESTIONS

## Why do my results look different from other company's ancestry tests that I have done before?



Every company's ancestry test differs in either how your genetic data is analysed using computational algorithms, or the population data that your genetic data is directly compared to. One company might use population 'A' to represent East Africa, but another uses population 'B', which might vary enough to affect your results.

## Why don't we provide country level results, but rather regional level results?



Overall, most companies offer regional results as providing country level results will only be accurate when including genetic data from every population within that specific region. Therefore, an individual's report suggesting that they have 10% Kenyan ancestry, upon further investigation, may show that it was the only East African population used for the analysis and the ancestral contribution actually originates from a population in Tanzania.

## Why do my results look different to my genealogy test results?



Ancestry and genealogy tests are very different in the overall results they produce. An ancestry test looks at patterns in your DNA to tell us about the origins of your genetic data. A genealogy test uses historical records, in some cases oral history, to draft a family tree showing how individuals are connected and where they lived/were born.

## Why are my results different to those of my family members?



Parents contribute 50% of their DNA to their children and the combination of the 50% may vary for each child resulting in different results. If you have an ancestral contribution that is absent in your parents, it may be indicative of two things. Firstly, your parents may have the ancestral contribution, however, it is less than 1% and we therefore don't report on it. Secondly, the ancestry has been "absorbed" by another ancestral contribution, e.g. your mother's North European contribution may be assigned as Western European in you as these two populations are similar and may share ancestry informative markers.



# FREQUENTLY ASKED QUESTIONS | Cont'd

## How accurate are my Mediclinic Precise Ancestry Test results?



As with most statistical calculations, these are estimated values associated with some degree of error, however, we have minimised this as much as possible to provide the most accurate results (overall accuracy of 92%).

## Will my Mediclinic Precise Ancestry Test results change and why?



As specific populations in the database increase in size, we may have an updated reference dataset that your DNA sample is compared to. Your results may change slightly, however, the overall continental ancestry ratio should remain largely the same, e.g. if you are 80% African, you will not present as 80% European with a reanalysis. We may also add new regions to the report, which could change your results if a contribution from the new ancestral region is present.

## Why do females not receive paternal lineage results?



Most humans have 23 pairs of chromosomes in every cell of their body. One pair of these chromosomes are called the “sex” chromosomes determining whether you are biologically a male or female. Females have two X chromosomes i.e. XX, while males have one X and one Y chromosome i.e. XY. Currently, the paternal lineage can only be determined using the Y chromosome.

## Why do my maternal and/or paternal lineages not correlate with my overall ancestral contributions?

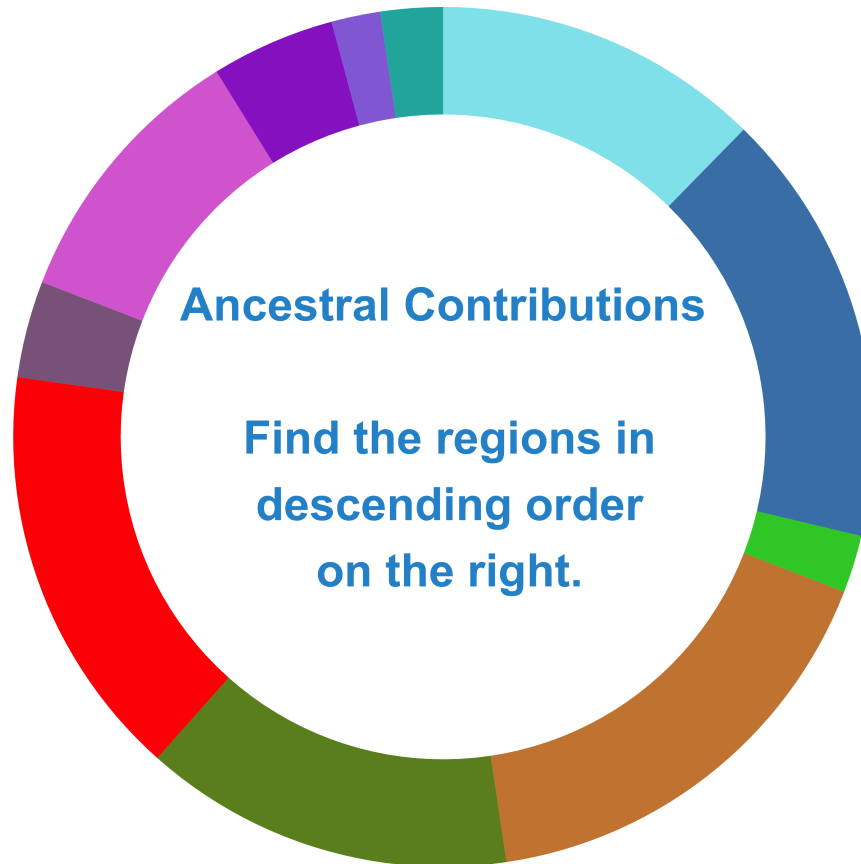


The Mediclinic Precise ancestry test looks at different parts of your genome, which carries specific information about your genetic history. The maternal lineage looks at mitochondrial DNA, which is passed down from mother to child, whilst the paternal lineage looks at the Y chromosome passed down from father to son. The overall ancestral contributions represent genetic information contained in chromosomes 1-22. Both the maternal and paternal lineages are able to trace your origins back 1000's of years (in most cases), whereas the ancestral contributions provide you with both older and more recent origins.



# YOUR RESULTS | Ancestral Contributions

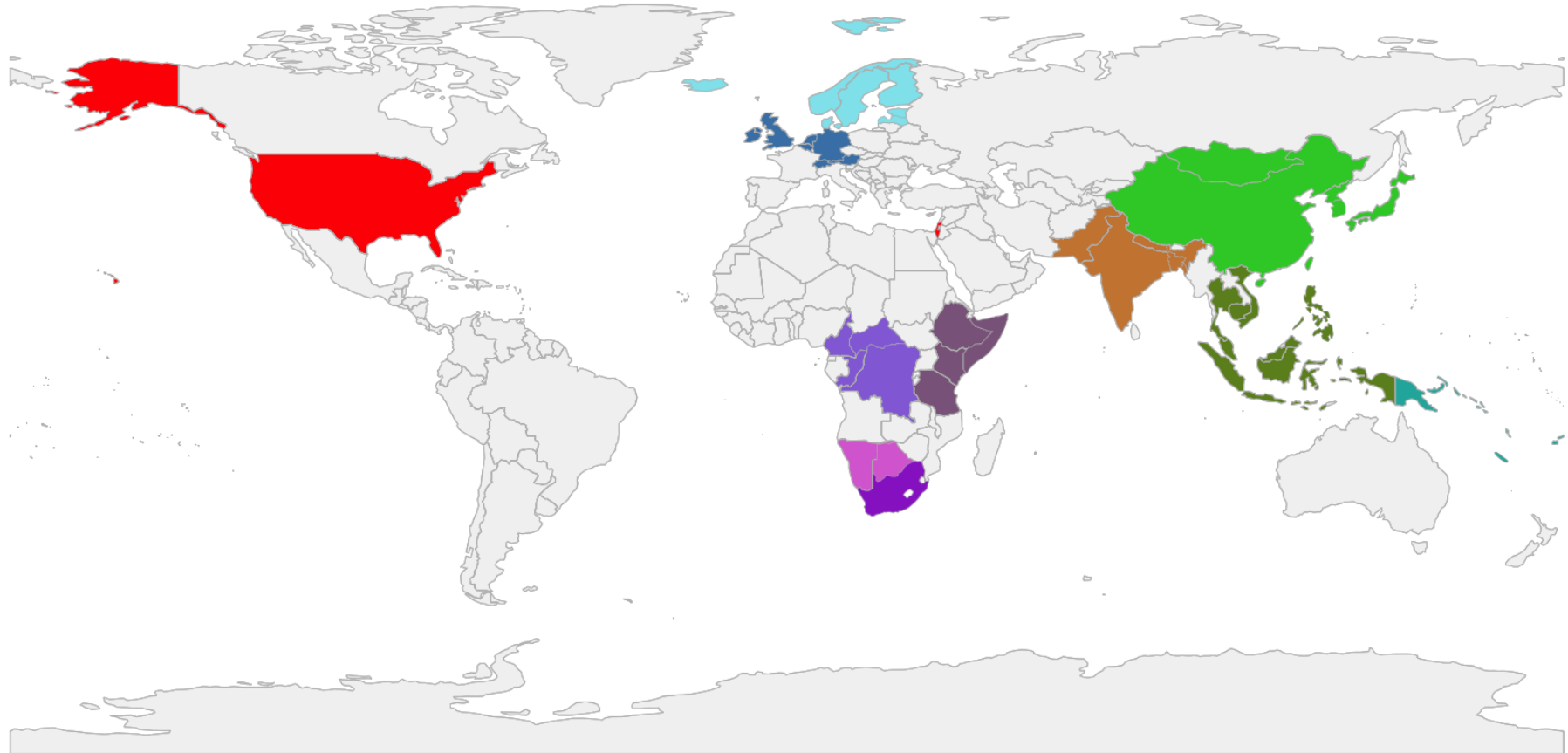
We traced your genetic history back to:



Region	Colour	Percentage
Southern Asia	Brown	16.61
Western and Central Europe	Blue	16.22
Ashkenazi Jew	Red	15.49
South Eastern Asia	Green	13.79
Northern Europe	Light Blue	12.20
Southern Africa - KhoeSan	Pink	10.20
Southern Africa - Bantu-Speaking	Purple	4.61
Eastern Africa	Dark Purple	3.60
Oceania	Teal	2.32
Eastern Asia	Light Green	2.14
Central Africa	Light Purple	1.82
Eastern Europe	Dark Grey	0.00
Southern Europe	Dark Blue	0.00
Northern Eurasia	Dark Green	0.00
Central Asia	Light Green	0.00
Western Asia	Orange	0.00
Middle East	Yellow	0.00
Arabian Peninsula	Tan	0.00
Northern Africa	Magenta	0.00
Western Africa	Pink	0.00
Southern America	Dark Red	0.00
Latin America	Light Red	0.00
Ancient	Grey	0.00

## YOUR RESULTS | Map

Find your ancestral contributions on the map!




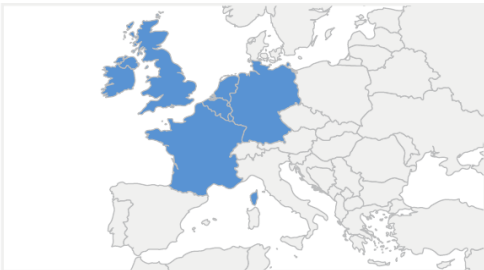




*"The ancestry of human beings is rich and varied. If we look far enough into the past it connects us all."*



# YOUR RESULTS | Regions

Lets take a closer look at the specific regions:







REGION	MAP	DESCRIPTION
 <p><b>SOUTHERN ASIA</b> India, Sri Lanka, Bangladesh, Pakistan</p>		<p>This area has acted as a crossroad for people and goods over a number of centuries. One of the most well-known routes used is the Silk Road which connects Asia with southern Europe and East Africa. These trade networks lead to the development and growth of multiple civilisations along the route and allowed for people from various cultures to meet and interact. Today, this region which holds India and Pakistan (amongst others) is well known for their sport teams (especially cricket). Sri Lanka is one of the worlds largest tea producers and exporters.</p>
 <p><b>WESTERN &amp; CENTRAL EUROPE</b> England, Wales, Northern Ireland, Ireland, Scotland The Netherlands, Germany, Switzerland, Austria, Belgium</p>		<p>Due to its sea locked location and proximity to both northern and southern Europe, the western regions of Europe (England, Scotland, Wales, Northern Ireland and Ireland), are wellknown for being the epicentre of revolutions, wars and invasions by multiple empires. It is also the location of what was once the largest empire in the world, known as the British Empire. London was the first city in the world to have an underground railway system, which opened in 1863. Central Europe includes countries that are occasionally considered to be part of Western Europe (The Netherlands, Germany, Belgium, Switzerland and Austria). Wilhelmus, the Dutch national anthem, is the oldest anthem that exists today. The East Side Gallery in Germany is the longest open-air art gallery (1.3km) in the world and was created as a preserved part of the former Berlin Wall.</p>
 <p><b>ASHKENAZI JEW</b> Israel and the United States of America</p>		<p>The Ashkenazi Jewish population are a Jewish diaspora population who speak traditionally Yiddish. The origin of this population is in Israel, but they moved into Europe and eventually the Americas from the Middle Ages onwards. The largest population today is in Israel and dispersed within the USA. Famous Ashkenazim include Albert Einstein, George Gershwin and Franz Kafka.</p>

*"The ancestry of human beings is rich and varied. If we look far enough into the past it connects us all."*











# YOUR RESULTS | Regions cont'd

REGION	MAP	DESCRIPTION
 <p><b>SOUTH EASTERN ASIA</b> Thailand, Cambodia, Indonesia, Malaysia, Vietnam, Myanmar, Nepal, Laos, Phillipines</p>		<p>This region encompasses Malaysia and Indonesia and falls in the trade route utilised by Europeans from the 17th century onwards. At that time, Indonesia (then known as the Dutch East Indies (DEI)) was colonised by the Netherlands. Many areas served as ports of call for the Europeans as well as sources for slaves during their journeys. During the 18th century, many slaves from this region were taken to the DEI's new colony, The Cape of Good Hope (now Cape Town). Indonesia has over 15 000 islands, where Java houses 600 million people (a fifth of the total population of South Eastern Asia). In Malaysia, you will find the plant with the world's largest leaves that can measure 3x2 metres long.</p>
 <p><b>NORTHERN EUROPE</b> Norway, Sweden, Finland, Denmark, Iceland, Estonia, Latvia</p>		<p>Northern Europe has an interesting history rooted in the Scandinavian Vikings who ruled the area 1300 to 800 years ago. Most of modern-day Europeans living in this area today have genetic links to these ancestors. Norway has the largest population of Artic reindeer herders and there is a long history between this animal and the people of Norway going back several thousand years. Finland has been called The Land of the 1000 lakes and is well known for its picturesque landscapes. A flag is flown outside your house in Denmark when it is your birthday and if a man is not married by the age of 30, they will get a pepper shaker as a gift and forever be called a Pepperman (or pebersvend).</p>
 <p><b>SOUTHERN AFRICA - KHOESAN</b> South Africa, Botswana, Namibia</p>		<p>The KhoeSan population is the oldest population worldwide and have ties in southern Africa for centuries. The KhoeSan population are made up of Khoekhoe populations who are agropastoralists and the San who were historically hunter-gatherers. These populations were the ones to first meet the Europeans as they arrived at the southern tip of South Africa in the 15th and 17th century. Today, this population can be found in the Northern Cape of South Africa, Namibia and Botswana.</p>

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# YOUR RESULTS | Regions cont'd

REGION	MAP	DESCRIPTION
 <p><b>SOUTHERN AFRICA BANTU-SPEAKING</b> South Africa</p>		<p>The Bantu-speaking populations in southern Africa have their origins in Kwazulu-Natal and the Eastern Cape. Their ancestral origins lie in populations from West, East and Central Africa and are thought to be the result of the Bantu-expansion that arrived in the area 1500 years ago. They have historical and genetic links to the KhoeSan. Bantu-speakers themselves are very diverse and group themselves in ethnic groups that include the Xhosa, Zulu, Sotho, Pedi, Tswana, amongst others. Each of these ethnic groups have a distinct culture and language dialect.</p>
 <p><b>EASTERN AFRICA</b> Somalia, Kenya, Tanzania, Ethiopia</p>		<p>The eastern region of Africa has been suggested to be the geographical origin of modern humans. More recently, it housed hunter-gatherers, pastoralists and a multitude of populations with diverse backgrounds, some with ancient links to Eurasia. It is thought that East Africans migrated south approximately 2000 years ago. Mount Kilimanjaro, the tallest mountain in Africa is located in Tanzania. Eastern Africa is home to a number of large lakes, Lake Victoria, Tanganyika and Lake Malawi.</p>
 <p><b>OCEANIA</b> Papua New Guinea, Fiji, Soloman Islands, Samoa, Tonga</p>		<p>Oceania consists of many islands, scattered across thousands of kilometres of the Pacific ocean. Papua New Guinea is the largest island in the Pacific Ocean. Fiji has 28 airports but only 4 paved runways. There is a tiny island within Soloman Island that is named Kennedy Island after John F. Kennedy had encountered it during his WWII career. Within the entire country of Samoa, there is only 1 city, named Apia.</p>

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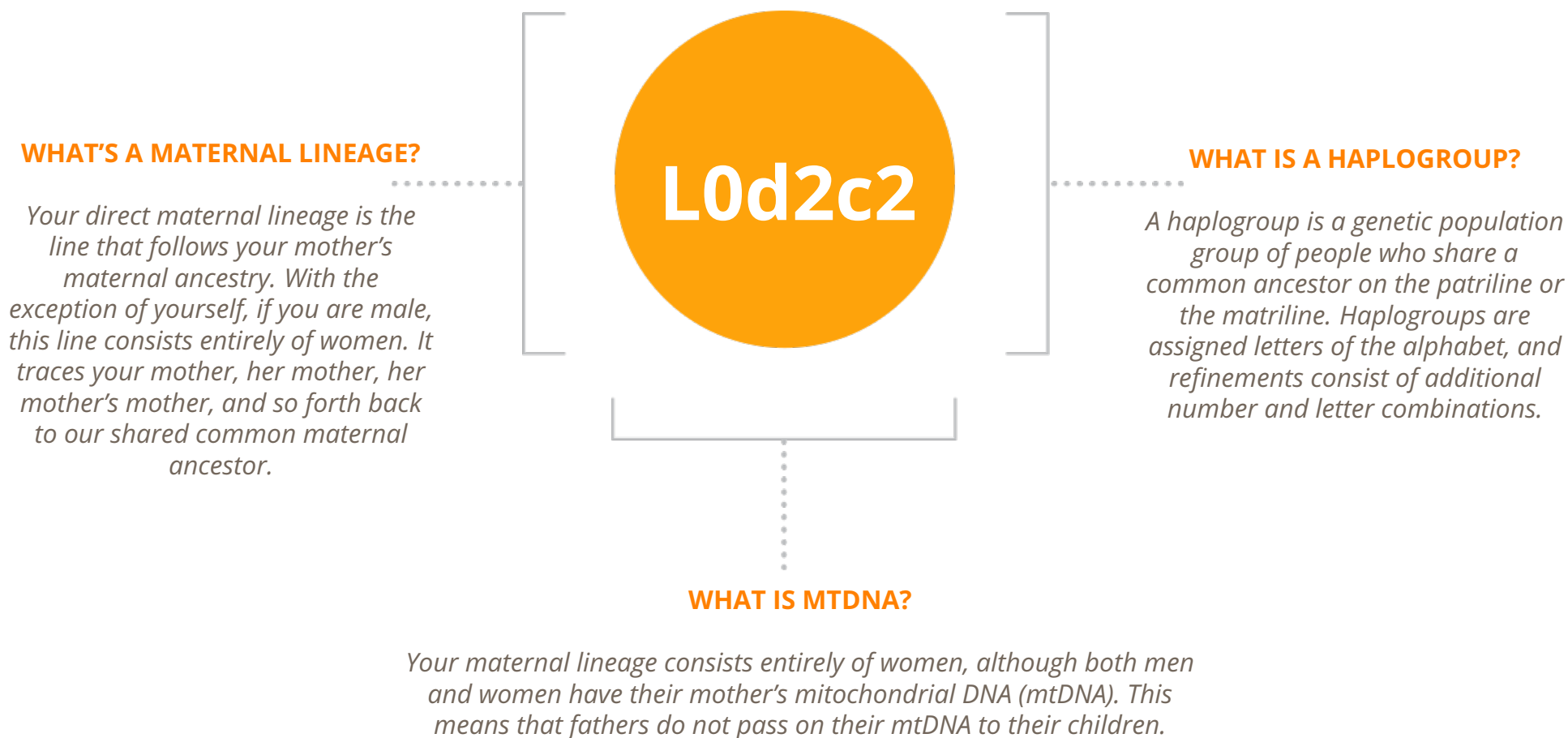
# YOUR RESULTS | Regions cont'd

REGION	MAP	DESCRIPTION
 <p><b>EASTERN ASIA</b> China, North and South Korea, Japan, Taiwan, Mongolia</p>		<p>The eastern regions of Asia encompass China, Japan, Korea and Taiwan. This region gained in power beginning approximately 2000 years ago with the rise of the Shang Dynasty in China. Major events in these regions include the various Chinese dynasties, the rise and fall of the Mongol Empire, the isolationism implemented due to increasing European contact and many cross-border and continent wars. Today, this region is standing out as a world leader in many fields and is thought to be the location of the next world power. There are over 1600 temples in Kyoto, Japan. A direct translation of the city name Hong Kong means fragrant harbour and is reminiscent of the trade that occurred in this harbour.</p>
 <p><b>CENTRAL AFRICAN</b> Democratic Republic of Congo, Cameroon, Central African Republic</p>		<p>This area is thought to be the birth-place of the Niger-Congo language as well as the origin of the Bantu expansion, which shaped the cultures, subsistence strategies, religions and languages of many other African countries. The Bantu expansion reached South Africa approximately 1500 years ago. This area is also very geographically diverse with rain forests in some areas, sandy beaches and desert dunes in others. Over time, this has shaped the people in the region. The rain forest pygmies are a unique example of this process. Today, the area contains over 80 ethnic groups each having its own language dialect, although French and Sango are the two official languages.</p>



## YOUR RESULTS | Maternal Lineage

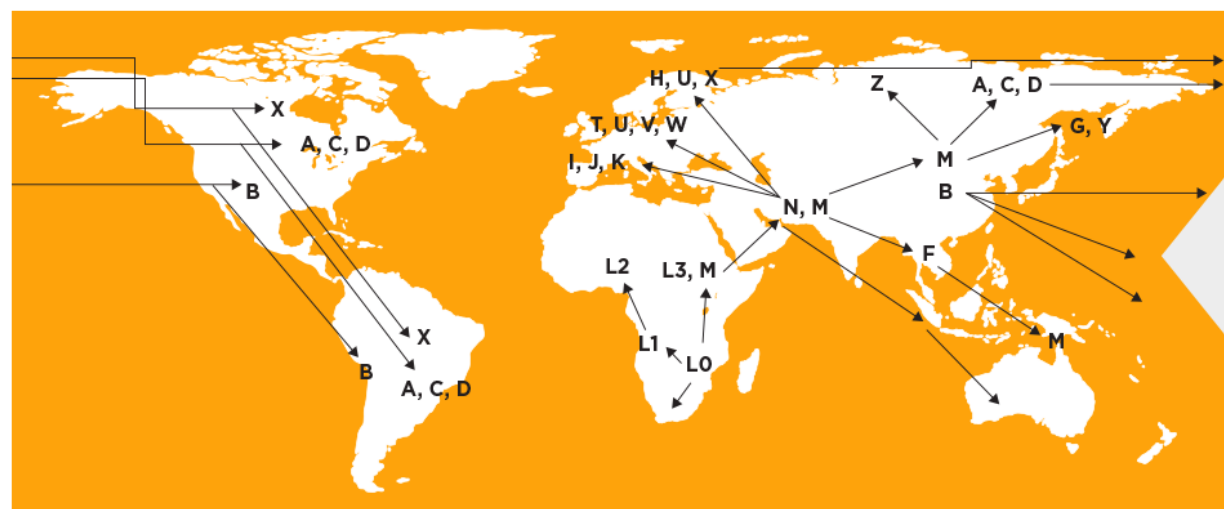
We traced your maternal lineage back thousands of years based on your mitochondrial DNA (mtDNA). Your mtDNA haplogroup is:



# YOUR RESULTS | Maternal Lineage cont'd

## L0d2c2

The time of origin of the L0d haplogroup is around 110 000 years ago. L0d is the most divergent and oldest haplogroup of all worldwide mtDNA haplogroups, and is found at its highest frequency in the Khoesan of Southern Africa. Nelson Rolihlahla Mandela, former President of South Africa, and Archbishop Emeritus Desmond Tutu share the L0d haplogroup with you.



This map shows the connection between every mtDNA haplogroup.

**?** Can you find your major mtDNA haplogroup?



# YOUR RESULTS | Paternal Lineage

We traced your paternal lineage back thousands of years based on your Y-chromosome. Your Y-chromosome haplogroup is:



### WHAT'S A PATERNAL LINEAGE?

Your direct paternal lineage is the line that follows your father's paternal ancestry. This line consists entirely of men.

### WHAT IS A HAPLOGROUP?

A haplogroup is a genetic population group of people who share a common ancestor on the patriline or the matriline. Haplogroups are assigned letters of the alphabet, and refinements consist of additional number and letter combinations.

### WHAT IS Y-CHROMOSOME DNA?

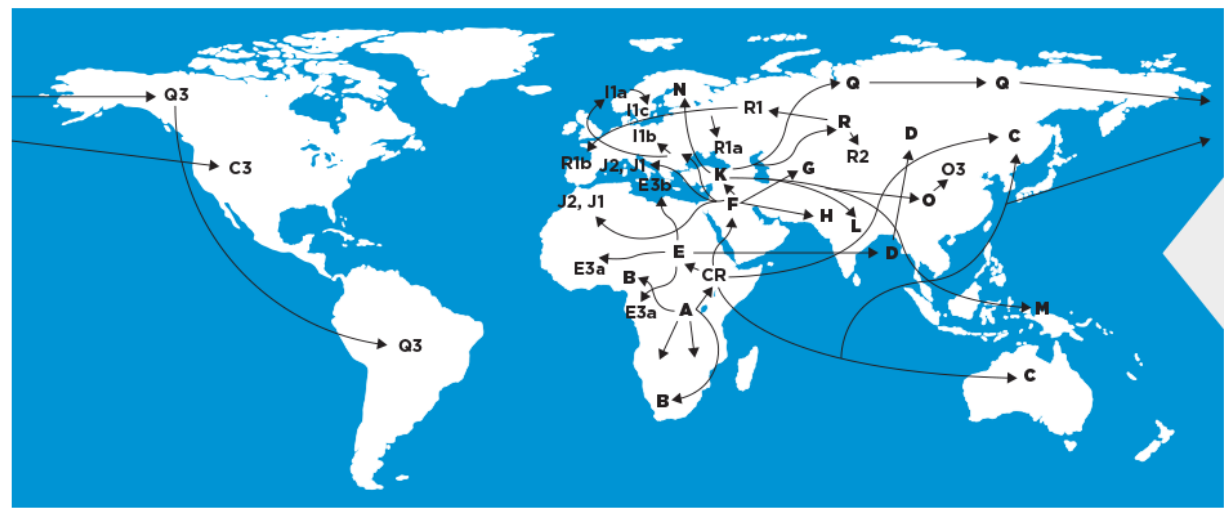
In males only, your Y-chromosome DNA (Y-DNA) can trace your father, his father, his father's father, and so forth. It offers a clear path from you to a known, or likely, direct paternal ancestor.



# YOUR RESULTS | Paternal Lineage cont'd

## R1b1a2a1a1

The time of origin of the R1b1a haplogroup is around 14 000 years ago. The R1b is the most common haplogroup in Western Europe, reaching over 80% in the populations of Ireland, the Scottish Highlands and Western Wales. It is also often observed in some parts of Russia and Central Africa. George Washington, the first president of the United States of America, shares the R1b haplogroup with you.



This map shows the connection between every Y-chromosome haplogroup.

**?** Can you find your major Y-chromosome haplogroup?



# YOUR RESULTS | Top 10 GEDmatch matches

PrimaryKit	PrimaryName	PrimaryEmail	MatchedKit	MatchedName	MatchedEmail	LargestSeg	TotalcM	Overlap	Gen	LargestXSeg	Total XCM	CreatedDate	TestCompany
LL5426360	*Christo	ancestry.info@mediclinic.co.za	M045544	*Johannes Engel	sharonapolles@hotmail.com	34.350	376.138	199048	2.600	10.069	10.069	2012-03-10	Migration - V3 - M
LL5426360	*Christo	ancestry.info@mediclinic.co.za	M131229	Victor van der Heyde	sharonapolles@hotmail.com	43.231	260.954	200621	2.900	0.000	0.000	2011-06-01	Migration - V3 - M
LL5426360	*Christo	ancestry.info@mediclinic.co.za	A909832	*Henkel	panda73@live.com	50.094	257.863	138263	2.900	17.773	53.664	2017-08-24	Migration - F2 - A
LL5426360	*Christo	ancestry.info@mediclinic.co.za	NE7831449	Patrick Hendricks	NikkijHendricks@gmail.com	71.843	230.013	502307	3.000	71.843	90.801	2021-11-25	BH2BU
LL5426360	*Christo	ancestry.info@mediclinic.co.za	M205358	*M Lewis	sharonapolles@hotmail.com	28.298	145.320	199602	3.300	0.000	0.000	2012-03-21	Migration - V3 - M
LL5426360	*Christo	ancestry.info@mediclinic.co.za	M170734	Roger Apolles	sharonapolles@hotmail.com	28.298	129.993	200405	3.400	0.000	0.000	2011-04-04	Migration - V3 - M
LL5426360	*Christo	ancestry.info@mediclinic.co.za	DJ9081793	Nicolette Hendricks	nikkijhendricks@gmail.com	50.113	137.497	501840	3.400	12.642	12.642	2021-09-13	BH2BU
LL5426360	*Christo	ancestry.info@mediclinic.co.za	DT6555656	Tristan Cornelissen	tcorns.tc@gmail.com	38.580	120.725	165496	3.400	0.000	0.000	2020-05-20	Ancestry
LL5426360	*Christo	ancestry.info@mediclinic.co.za	M966460	Vivienne Court	vivcourt@gmail.com	53.549	119.554	116788	3.500	0.000	0.000	2016-10-10	Migration - V4 - M
LL5426360	*Christo	ancestry.info@mediclinic.co.za	M732126	Joan Apolles	sharonapolles@hotmail.com	26.808	101.832	200417	3.600	0.000	0.000	2015-02-14	Migration - V3 - M

## GEDmatch Terminology

**'PrimaryKit':** The unique GEDmatch specific ID that is given to each individual when uploading their genetic data. **'PrimaryName':** Your name or preferred alias. **'PrimaryEmail':** This is the email address that is associated with the PrimaryKit. **'MatchedKit':** The kit number of the matched individual. **'MatchedName':** The name of the individual that GEDmatch is comparing your data to and have found a top 10 match with. Individuals with an asterisk (\*) indicate that they have used an alias and therefore the specific name might be a nickname or pseudonym. **'MatchedEmail':** This is the contact email for the specific individual that you have matched to. It may be that someone else (a family member, friend or a commercial company) have uploaded the individual's data. **'LargestSeg':** This column indicates the largest length of your DNA that matches that individual's DNA. **'TotalcM':** This column indicates the length of all parts of your DNA that matches that individual's DNA. cM is an abbreviation for centimorgan, which is a measure of genetic distance/length. **'Overlap':** This column indicates the total number of DNA markers that overlap between you and that individual. Matches with low overlap are highlighted in red. **'Gen':** Degree of relatedness. Based on the 'LargestSeg', the 'TotalcM' and the 'Overlap' columns, GEDmatch estimates the number of generations back that you and a specific individual are related. **'LargestXSeg':** The largest DNA segment on the X chromosome that matches. **'Total XCM':** The total length of DNA (in cM) on the X chromosome that matches. **'CreatedDate':** The date the matched kit was uploaded to GEDmatch. **'TestCompany':** The ancestry testing company that generated the genetic data for the matched kit.





# YOUR RESULTS | Matches cont'd, 'Gen' descriptions

Generations	Relationship
1.0	Parent-Child
1.2	Siblings
1.4	Half-sibling Uncle-Niece Grandparent
1.5	Uncle-Niece
1.6	Uncle/Aunt - Niece/Nephew
1.9	First Cousins
2.3	First Cousins
2.2 - 2.5	First Cousins Once Removed
2.6 - 3.0	Second Cousins
3.3 - 3.7	Second Cousins Once Removed
3.5	Second Cousins Twice Removed

Generations	Relationship
3.5 - 4.0	Third Cousins
3.8 - 3.9	Third Cousins Once Removed
4.1	Second Cousins Once Removed Second Cousins Twice Removed Second Cousins Three Times Removed Third Cousins Once Removed
4.2	Second Cousins Once Removed
4.3	Third Cousins
4.4	Second Cousins Twice Removed Third Cousins Third Cousins Once Removed Third Cousins Twice Removed Fourth Cousins Fourth Cousins Once Removed



## RAW DATA USAGE

Did you know that you can request your raw genetic data?

With this data, you can use other online services to:



Learn more information about your unique dietary



Find long lost relatives and build a family tree



Gain more insight into specific health factors



Contact us to request your data:  
[ancestry.Info@mediclinic.co.za](mailto:ancestry.Info@mediclinic.co.za)

## GENOMICS GLOSSARY

**Array:** A technology used to study many genes and DNA variants at once. Also known as a chip.

**Autosome:** One of the numbered, or non-sex, chromosomes (1 through 22).

**Base:** A single unit of a DNA strand. Also known as a nucleotide. Bases come in 4 versions: adenine, cytosine, guanine, thymine.

**Chromosome:** An organized package of DNA found in the nucleus of the cell. Humans have 23 pairs of chromosomes: 22 pairs of numbered chromosomes (autosomes) and 1 pair of sex chromosomes, X and Y.

**Deoxyribonucleic acid (DNA):** Carries genetic instructions in all living things. DNA consists of 2 strands that wind around one another to form a shape known as a double helix. Each strand has a backbone made of alternating sugar (deoxyribose) and phosphate groups, in addition to 1 of the 4 bases (see above). The 2 strands are held together by strong hydrogen bonds.

**DNA variant:** A site in the DNA sequence where there is a change in the order of the bases. Also known as a polymorphism when it occurs frequently in specific populations.

**Gene:** The unit of heredity which is transferred from a parent to their children. It forms a sequence/-collection of bases that eventually codes for the production of a protein that performs a specific function in the body.

**Genome:** The entire set of genetic instructions, encoded in DNA, found in a cell. Genomics is the study of the functions and interactions of many genes in the genome.

**Genotype:** The set of 2 bases inherited for a particular DNA variant. "To genotype" means to determine the type of bases present at a specific site.

**Mitochondrial DNA:** A small DNA sequence that is found in mitochondria of most cells. This DNA is different to other nuclear DNA as it is passed only from a mother to their child.

**Sex chromosome:** These 2 chromosomes (X or Y) determine an individual's biological gender; XX for females XY for males.



# DISCLAIMER



**THANK YOU FOR CHOOSING MEDICLINIC  
PRECISE TO TAKE THIS JOURNEY WITH YOU.**

Your ancestry test results are as scientifically accurate as possible, however, it cannot be interpreted as being 100% factual. For this reason, your ancestry test results cannot be used in any legal proceedings.

**FOR MORE INFORMATION:**



0861 444 558



ancestry.info@mediclinic.co.za



www.mediclinic.co.za/precise

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