Circle

PREMIUM

YOUR DNA RESULTS

Premium Circle

Report Date: 25 Nov 2019

Personal Information

Customer:	**Premium Circle**
Date of Birth:	**25 Nov 1985**
Gender:	**Male**
Report Date:	**25 Nov 2019**
Sample ID:	**3812-1020-5162-75**

Table of Contents

Welcome

Dear Premium,

Welcome to your personalised Circle DNA test report. It's our absolute pleasure to introduce you to you!

Your life is a story spelled out with your DNA. The most interesting facts that uniquely belong to you are wrapped up in the strands of your genes. So, if you could rewrite your story – what would it say?

Circle Whole Exome Sequencing (WES) is the ultimate way to care for your future self by giving you a wealth of information that allows you to alter what might have been your genetic destiny.

Our team of scientists have carefully analysed your saliva sample at our internationally-accredited laboratory to bring you a living analysis of your DNA. In your report, you will discover insights into the incredible story of your genome, your health, traits, and needs. Armed with this information, you will have the power to live a longer, healthier and happier life.

By choosing Circle Whole Exome Sequencing (WES), you have joined countless individuals who have had life-changing experiences due to the priceless data provided by genetic testing.

Read on to kickstart your journey, and to empower yourself with valuable and actionable health and wellness insights so that you can make better choices, for you.

In health & happiness,
The Circle Team

Getting Started with Circle

To help you get the most out of this report, here's a quick 'Genetics 101'. Once you've got an understanding of the basics, you'll be all set to make the best use of your results and help apply them to make the lifestyle changes that are right for you.

IMPORTANT TO KNOW

1. Circle reports tell you about genetic mutations associated with certain traits and health conditions. They do not diagnose for any conditions or determine medical action.

2. Having a certain risk does not mean you will definitely develop a trait or condition. Similarly, you could still develop a trait or condition even if you don't have a mutation detected. It is possible to have other genetic mutations not included in these reports.

3. Genetics isn't a crystal ball - it cannot predict what will or won't be. Factors like lifestyle and environment can also affect whether a person develops a health condition or trait. Our reports cannot tell you about your overall risk for these conditions, and they cannot determine if you will or will not develop a condition.

4. These reports do not replace visits to a healthcare professional. Your results serve as a reference point, and should not be interpreted as medical advice. Consult with a healthcare professional for help interpreting and using genetic results.

Genetics 101

> Genes load the gun, but lifestyle pulls the trigger.

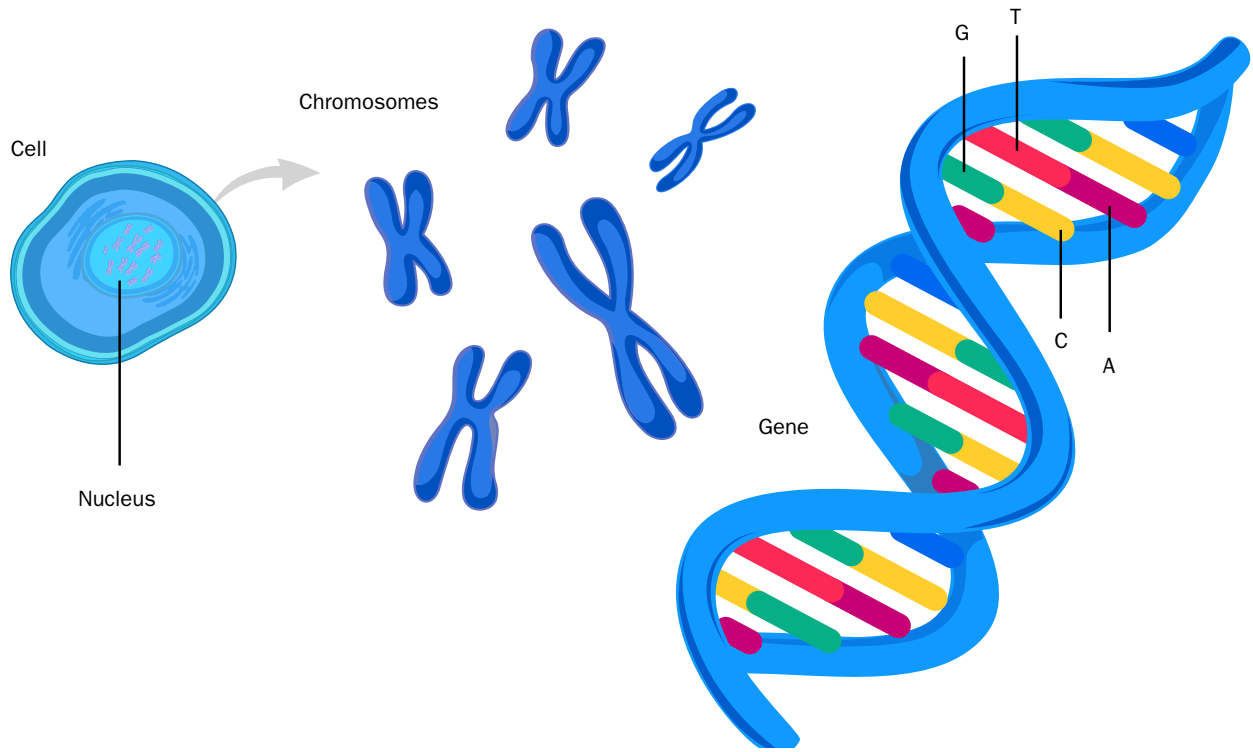
To understand exactly what this means, it's important to know the basics of genetics.

What is DNA?

DNA - also known as deoxyribonucleic acid - is an extremely long chain of molecules that contains the genetic blueprint of life on Earth. The DNA acts like a computer program - where the cell is the hardware and the DNA is the code. This code contains all the instructions that a living organism needs in order to grow, reproduce and function.

DNA is shaped like a ladder that's been twisted to form what's known as a double helix. The steps of the ladder are made of four nucleotides also known as bases: Adenine (A), Thymine (T), Cytosine (C), and Guanine (G). A always pairs with T, and G always pairs with C. Although there are only four bases, the As, Cs, Ts and Gs combine in thousands of combinations to make up our entire DNA - which is a total of 3 billion base pairs in length!

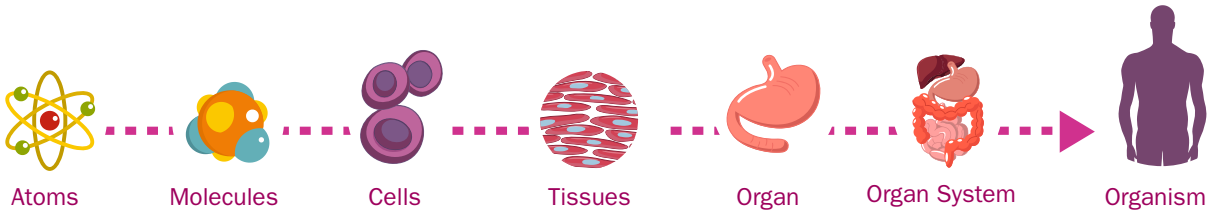
If someone were to unwind all the DNA molecules within a human body, the total length would reach from the Earth to Pluto and back. A complete base genome would take up three gigabytes of storage space. The entire human genome would take 50 years to type if someone types at a speed of 60 words-per-minute, eight hours a day!



How it Works

Chromosomes carry genetic information in a molecule called DNA. Genes are segments of DNA that influence what we look like on the outside and how we work on the inside. They contain the information our body needs to make chemicals called proteins, which form our bodily structure and play an important role in the processes that keep us alive. We are born with two copies of every gene - we inherit one copy from the father, and the other from the mother. The two genes interact to make each of us a unique combination of our parents' genetic identity.

Humans have 23 pairs of chromosomes, for a total of 46 chromosomes. Of these contain 22 pairs of autosomes, which look the same in both men and women. However, the 23rd pair consists of one allosome pair, the sex chromosome. Allosomes differ between males and females - males have an X chromosome and a Y chromosome; females have two X chromosomes. These sex chromosomes account for the biological differences between men and women.

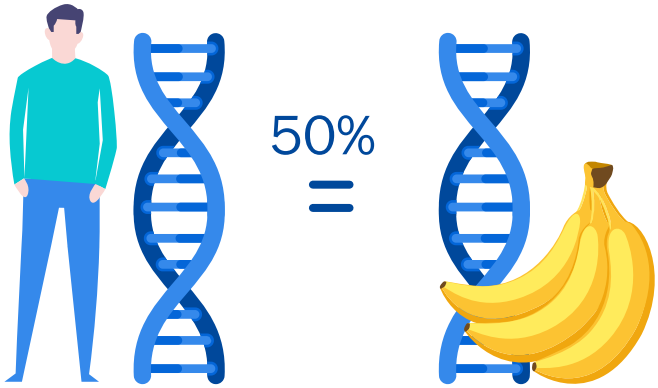


Did you know? Mature red blood cells do not have DNA.

There are many different types of cells in the human body, such as nerve cells, hair cells, heart cells, skin cells, and many more, all with different shapes and forms. The only human cells that do not contain chromosome pairs are reproductive cells that carry just one copy of each chromosome.

Chromosomes vary in number and shape among living things - however, this doesn't determine how complex an organism is. For example, potatoes have 48 chromosomes - two more than humans - but they're certainly not more complex than us.

Different organisms also have different genes, which is ultimately why each organism looks and functions uniquely. But one of the many reasons why scientists believe that all life on earth is related, is that the basic DNA code – the language of A, C, T and G – is pretty much the same for all living things. Many organisms even share some of the same genes as us. For example, any two unrelated humans share 99.9% of their genes with one another. Humans and chimpanzees – who are closely related – share 98.4% of their genetic code. Surprisingly, we also share roughly 50% of our genes with bananas.



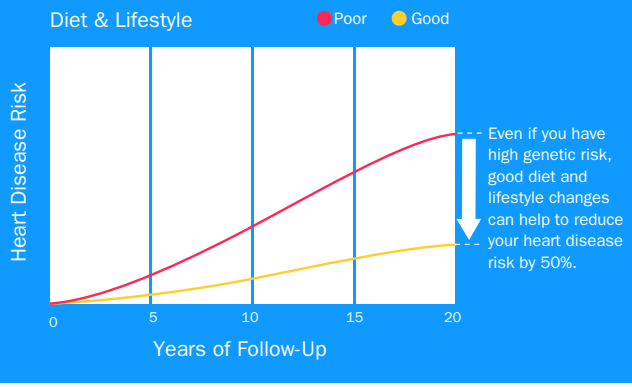
Nature Vs Nurture

Your genotype is the set of genes in your DNA which is responsible for a particular trait. The phenotype is the physical expression, or characteristics, of that trait.

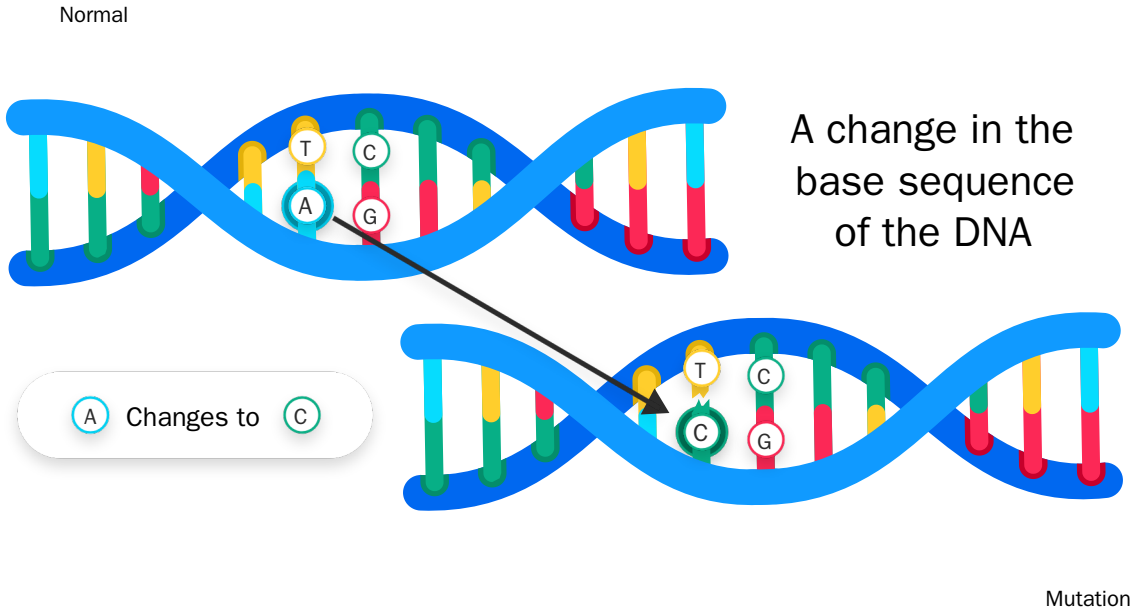
Most phenotypes are influenced by both your genotype and by the unique circumstances in which you have lived your life, including everything that has ever happened to you. We often refer to these as “nature” - the unique genome you carry - and “nurture” - the environment in which you have lived.

In particular, diet and lifestyle factors are major environmental factors that influence the risks for several common diseases such as diabetes, high blood pressure or high cholesterol. Importantly, even if someone is at a high genetic risk for these common diseases, following a healthy diet and lifestyle helps to reduce the risks. For example, studies have shown that high genetic risk for heart disease can be reduced by 50% if a healthy diet and lifestyle are followed.

The graph represented on the right illustrates how lifestyle can impact the risk of developing certain diseases over time.



What is a mutation?



Understanding Whole Exome Sequencing

Humans have about 20,000 genes. Each gene is responsible for something your body needs - such as a pigment to make your eye colour, or an enzyme to digest lactose. Scientists are discovering more and more aspects of the human DNA that can help us understand more about our traits and disease risks.

A variation in the DNA sequence is known as a mutation. Some DNA variations have been linked to health issues. Other DNA variations are not related to health, but they may indicate interesting aspects such as your physical traits, personality traits or behavioural tendencies. For example, you may have never considered traits such as the texture of your earwax and whether or not you're likely to get grey hair prematurely are related to your DNA.

Introns and exons are nucleotide sequences within a gene. Exons are the parts of your DNA that codes for proteins, and introns are non-coding areas. During protein synthesis, the exons are transcribed to make mRNA, which you can think of as a protein precursor. All the exons put together are called the exome, which makes up about 1% of our genome.

In whole exome sequencing, the exons in the genes are examined closely to see if there are changes in an exon - like a typo found in a sentence – that may cause certain health conditions. Likewise, there may also be changes in a gene that won't cause any problems at all, or may even be beneficial to you.

> Scientists believe that the exome is the most important part of our genome, and where most disease causing mutations occur.

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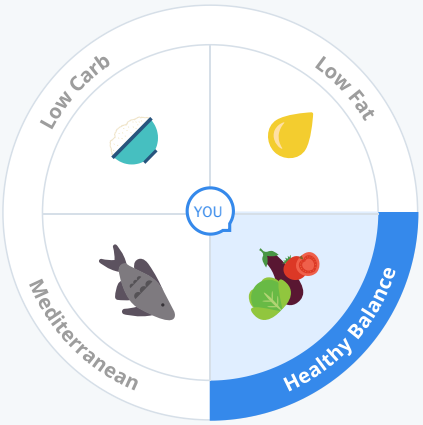
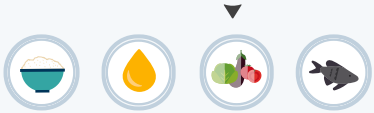
Diet

Take full control of your diet and nutrition by unlocking everything there is to know about your dietary DNA profile. Learn about your body's sensitivity to many of the foods you eat, whether or not you have certain dietary allergies, and the impact your genes may have on your ability to digest certain food groups. Supported by genetically-guided consultations, turn your DNA insights into actionable food decisions that make your body happy.

Your **Diet** Report Results Summary

Your Optimal Diet Type





Healthy Balance Diet

Even those with no genetic food sensitivities should be mindful of their diet to prevent common health risks. Cutting back on saturated fats and processed carbs would help anyone feel their best.

Alcohol Sensitivity

Higher Sensitivity

Normal Sensitivity | Higher Sensitivity

Fat Sensitivity

Normal Sensitivity

Normal Sensitivity | Higher Sensitivity

Caffeine Sensitivity

Normal Sensitivity

Normal Sensitivity | Higher Sensitivity

Carbohydrate Sensitivity

Normal Sensitivity

Normal Sensitivity | Higher Sensitivity

Theophylline Sensitivity

Normal Sensitivity

Normal Sensitivity | Higher Sensitivity

Salt Sensitivity

Higher Sensitivity

Normal Sensitivity | Higher Sensitivity

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Your **Diet** Report Results Summary

Coeliac Predisposition

Normal Predisposition

Lactose Intolerance

Likely Intolerant

Spice Sensitivity

Higher Sensitivity

Taste Sensitivity

Non-Taster

Sweet Tooth

Normal Preference

Weight Regain

Average Risk

Detox: Cruciferous Vegetable Needs

Increased

Detox: Toxin Generation Speed

Normal

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Nutrition

We all metabolise nutrients differently based on our unique genetic make-up. Your body already knows what it needs, and now you can too by taking the guesswork out of which supplements to choose and which nutrient-dense foods to eat. Learn about how your DNA plays a role in your body's ability to absorb certain vitamins and minerals, so that you can take control of your long-term health with personalised nutrient recommendations.

Your **Nutrition** Report Results Summary

Antioxidants

Higher Needs

Normal Needs | Higher Needs

Omega-3 (ALA)

Normal Needs

Normal Needs | Higher Needs

Calcium

Normal Needs

Normal Needs | Higher Needs

Omega-3 (DHA)

Normal Needs

Normal Needs | Higher Needs

Folic Acid

Normal Needs

Normal Needs | Higher Needs

Omega-3 (DPA)

Higher Needs

Normal Needs | Higher Needs

Iodine

Higher Needs

Normal Needs | Higher Needs

Omega-3 (EPA)

Normal Needs

Normal Needs | Higher Needs

Iron

Normal Needs

Normal Needs | Higher Needs

Phosphorus

Normal Needs

Normal Needs | Higher Needs

Magnesium

Normal Needs

Normal Needs | Higher Needs

Selenium

Normal Needs

Normal Needs | Higher Needs

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Your **Nutrition** Report Results Summary

Vitamin A

Normal Needs

Normal Needs | Higher Needs

Vitamin E

Normal Needs

Normal Needs | Higher Needs

Vitamin B12

Normal Needs

Normal Needs | Higher Needs

Zinc

Normal Needs

Normal Needs | Higher Needs

Vitamin B2

Normal Needs

Normal Needs | Higher Needs

Vitamin B6

Normal Needs

Normal Needs | Higher Needs

Vitamin C

Normal Needs

Normal Needs | Higher Needs

Vitamin D

Normal Needs

Normal Needs | Higher Needs

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Sports & Fitness

Bridge the gap between your fitness and your DNA by discovering how your genes affect traits like your exercise response, recovery rate, and injury risk. It's here that you'll also discover how to get the very best out of your workouts, utilise your power and endurance profiles, as well as prevent any serious injuries. Our professional fitness coaches are here to help you every step of the way.

Your **Sports & Fitness** Report Results Summary

Low Power	22.73%
High Endurance	62.78%
Low Strength	14.49%

Optimal Training Type

Consider the following:
Based on your genetic results, your endurance dominance suggests that you could benefit from training that places a higher priority on endurance-based activities. We recommend allowing 60% of your training schedule to be focused on endurance-based activities, and letting the rest be a split between power and strength-based training.

Optimal Sports Type

Consider the following:
Triathlon, distance running and hiking

Based on your genetic results, you will likely respond well to sports that have an endurance focus.

Your **Sports & Fitness** Report Results Summary

Risk of Achilles Tendon Injury

Very Low

Very Low | Lower | Moderate | Higher | Very High

Injury Risk

Average Risk

Average Risk | Elevated Risk

Blood Flow

Higher

Normal | Higher

Lactate Clearance

Average

Below average | Average | Above average

Body Composition

Normal Lean Body Mass

Normal Lean Body Mass | Increased Lean Body Mass | High Lean Body Mass

Lactate Production

Below average

Below average | Average | Above average

Endurance Capacity

High

Low | Medium | High

Risk of Anterior Cruciate Ligament Rupture

Very Low

Very Low | Lower | Moderate | Higher | Very High

Fatigue Resistance

Average

Below average | Average | Above average

Exercise Associated Muscle Cramps

Below average

Below average | Average | Above average

Heart Rate Response to Exercise

Higher

Lower | Average | Higher

Oxygen / VO_2 Efficiency

Normal

Normal | Higher

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Your **Sports & Fitness** Report Results Summary

Power Capacity

Low

Recovery Efficiency

Lower Recovery

Strength Profile

Low

Water Loss

Above average

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Well-Being

By looking at select genes and understanding their impact on your daily life, we can help you pave the path to wellness and vitality. Identifying everything from your metabolic and inflammatory response and life longevity, to your bone density and tendency to get mosquito bites - by uncovering your genetic predisposition for certain conditions, you can potentially prevent them from manifesting in the future.

Your **Well-Being** Report Results Summary

Appetite Control

Normal Control

Lower Control | Normal Control

Stress Fracture Risk

Average Risk

Average Risk | Elevated Risk

Bone Mineral Density

Likely Normal

Likely Lower | Likely Normal

Inflammatory Response

Normal Response

Normal Response | Increased Response

Life Longevity

Likely Average

Likely Average | Likely Higher

Metabolic Response

Normal Response

Lower Response | Normal Response

Tendency for Mosquito Bites

Normal Tendency

Normal Tendency | Higher Tendency

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Stress & Sleep

Certain genes predispose some of us to be more sensitive to day-to-day stress than others. That's why effective stress management begins with understanding your body's unique stress and sleep profile. Find out whether you're a 'Warrior' or a 'Worrier', a 'Night Owl' or an 'Early Bird', and if you're genetically inclined towards getting better quality shut-eye, so that you can use the insights to improve your mental and physical well-being.

Your **Stress & Sleep** Report Results Summary

Sleep Apnoea Risk

Average Risk

Average Risk | Elevated Risk

Stress-Induced Obesity

Average Risk

Average Risk | Moderate Risk | Elevated Risk

Sleep Depth

Light Sleeper

Light Sleeper | Average Sleeper | Deep Sleeper

Stress Tolerance

Warrior

Worrier | Neutralist | Warrior

Sleep Duration

Long (>9 hours)

Short (<7 hours) | Standard (7-9 hours) | Long (>9 hours)

Sleep Movement

Average

Average | More

Sleep Quality

Easy Sleeper

Insomniac | Easy Sleeper

Sleep Time (Chronotype)

Night Owl

Morning Lark | Night Owl

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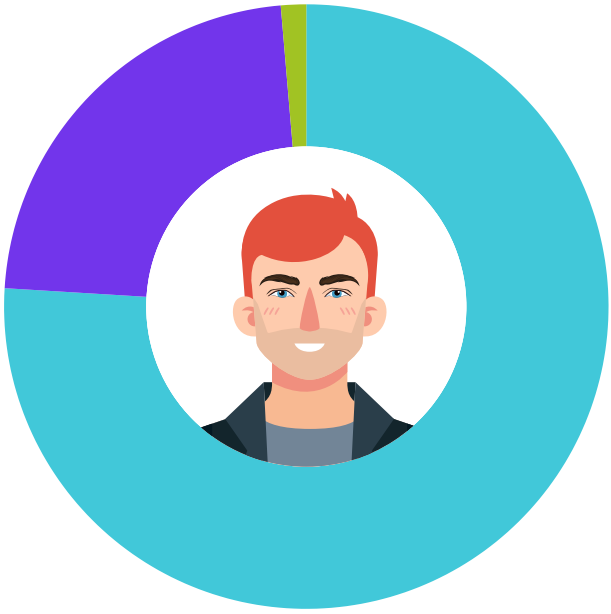
Ancestry

Your DNA test offers you the powerful experience of discovering what makes you unique and learning where you really come from. The places your ancestors called home are encoded in your DNA. Ethnic groups historically come from the same geographic regions and draw from a local gene pool. We analyse your DNA to determine your ancestral composition.

Your **Ancestry** Report Results Summary



European	**75.97%**
Southern European	68.95%
Eastern European	3.53%
Northwestern European	3.48%
Northern European	0%
Middle Eastern	**22.68%**
Southeast Asian	**1.35%**
Indonesian, Thai, Malaysian, Khmer & Myanmar	1.07%
Vietnamese	0.28%
African	**0%**
East Asian	**0%**
Chinese	0%
Northern Han Chinese	0%
Northern Minority	0%
Southern Han Chinese	0%
Southern Minority	0%
Western Minority	0%
Japanese & Korean	0%

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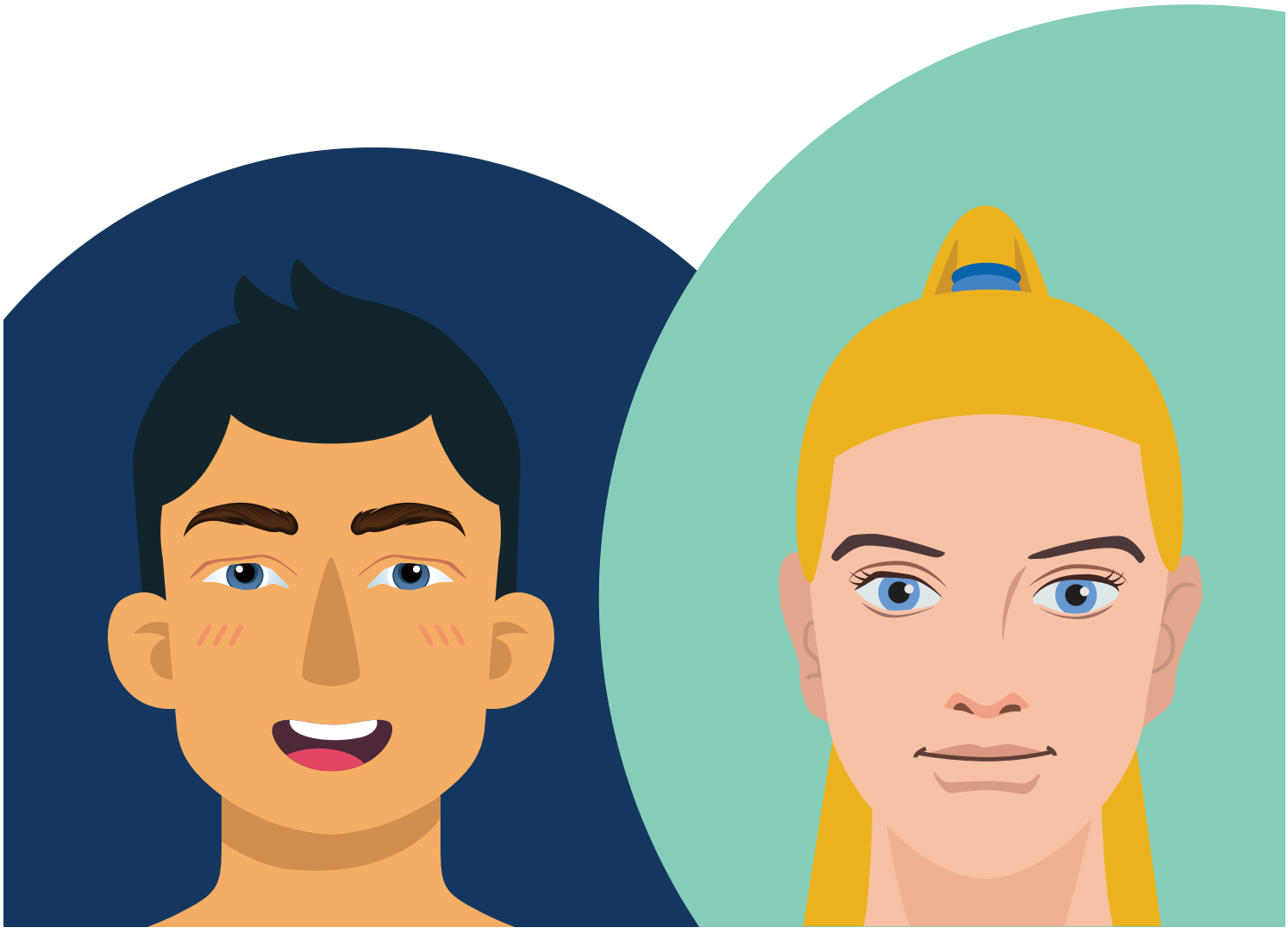
Skin

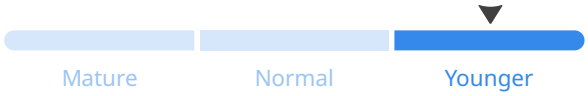
It’s difficult to predict how your skin will respond to ageing, but taking care of it based on what your genes tell you will go a long way in preventing future skin damage. Understanding your unique skin DNA profile helps to form the basis of your skin care routine - because not everyone’s skin is the same.



Your **Skin** Report Results Summary

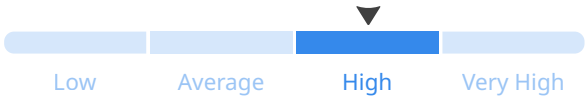
Skin Age

Younger



Acne Risk

High



Glycation Risk

Low

Oxidative Stress Risk

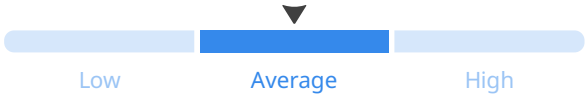
Low

Cellulite Formation

Higher Tendency

Wrinkle Formation Risk

Average



Stretch Marks

Higher Tendency

Keloid Scars Risk

Average

Skin Bruising Tendency

Average Tendency

Skin Hydration Ability

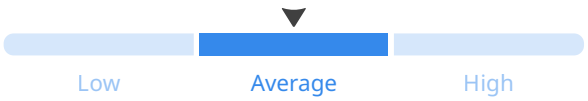
Normal Skin Hydration Factor

Skin Lightening Ability

Normal Ability

Skin Photoaging Risk

Average



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Your **Skin** Report Results Summary

Hyperpigmentation Risk

Average

Sunburn Risk

Average

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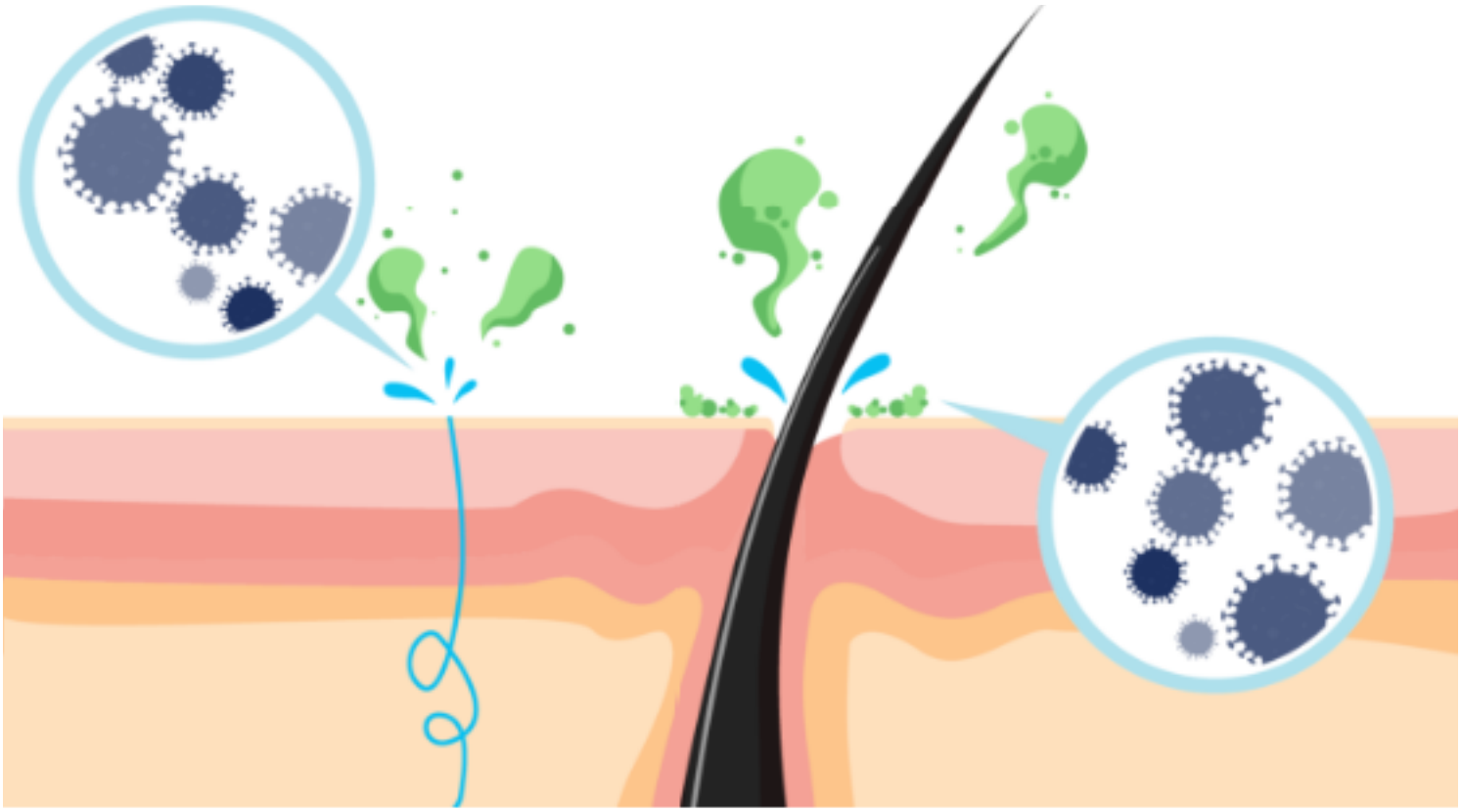
Physical Traits

Learning about how your DNA influences your appearance and senses is a fun and innovative way to understand the science behind physical and sensory traits including hair colour, smell sensitivity and earwax type. Discover how these traits run in your family and get answers to why you're the only one of your siblings with a particular trait.



Your **Physical Traits** Report Results Summary

Facial & Body Hair

Likely Normal

Pain Sensitivity

Likely Increased

Body Odour (Bromhidrosis)

Likely More Than Normal

Photic Sneeze Reflex

Less Likely

Ear Protrusion

Likely

Smell Sensitivity

Likely Normal

Earwax Type

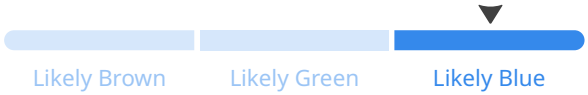
Likely Wet

Sweat (Hyperhidrosis) Tendency

Likely Normal

Eye Colour

Likely Blue



Persistent Thinness

Less Likely Thin

Hair Colour

Likely Red

Waist Circumference

Likely Average

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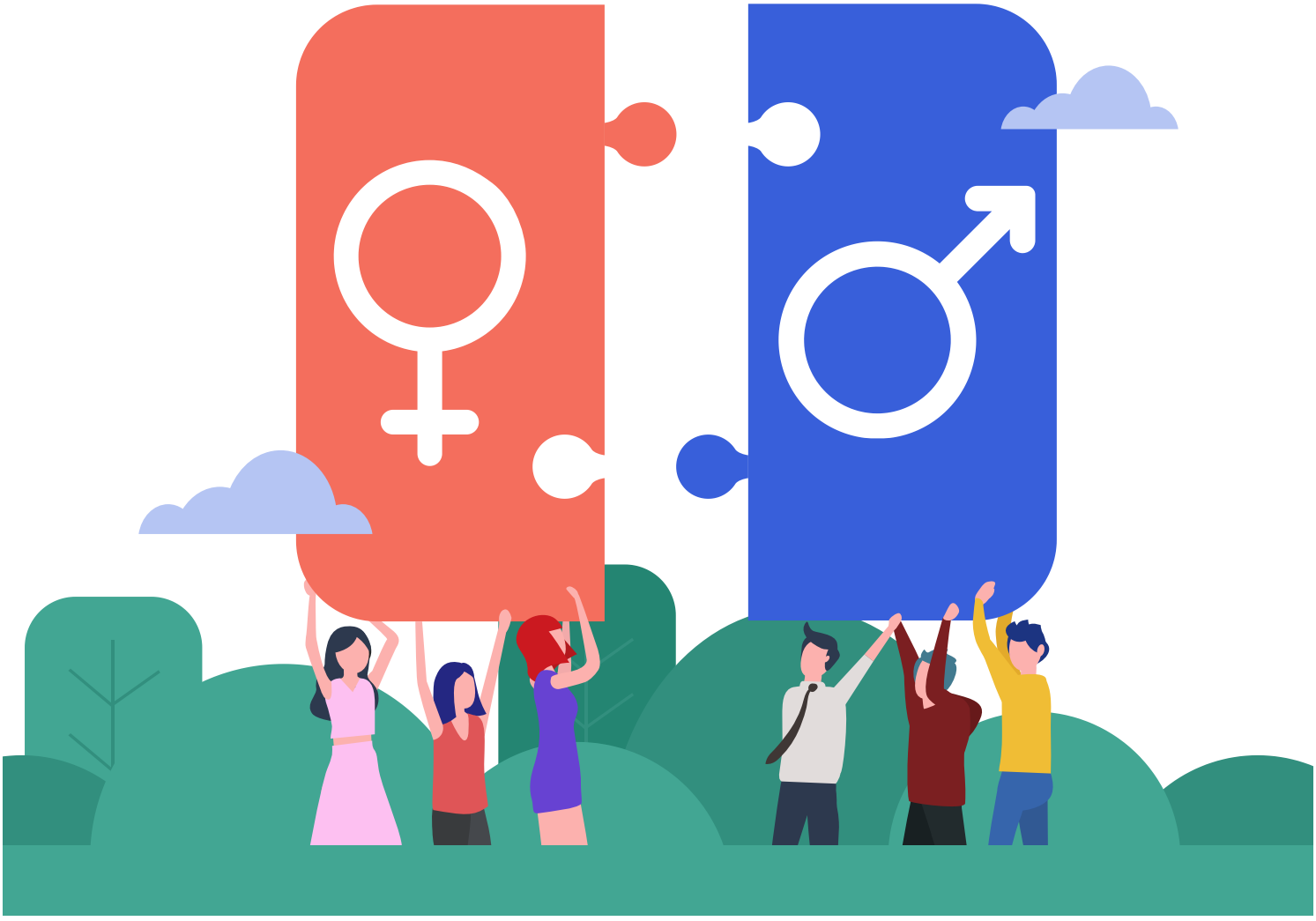
Gender Traits

Whether you are an artist creating new artifacts, a scientist making new discoveries or a gambler making reckless bets may be partly programmed into your genes. Those who have what's known as the "thrill-seeking" gene are likely to be more apt to take risks - and those who don't, tend to be more risk-averse. What will your genes tell you about your "thrill-seeking" tendency?



Your **Gender Traits** Report Results Summary

Thrill-Seeking

Less Likely a Thrill-Seeker

Less Likely a Thrill-Seeker | Thrill-Seeker

Male Sex Hormone Levels

Normal

Normal | Elevated

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Behavioural Traits

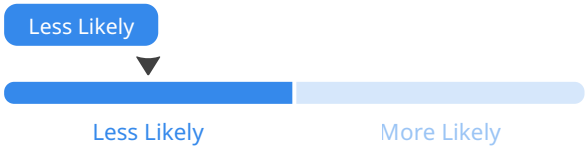
Discovering more about what makes you a unique human being is a combination of both your genes (nature) and environment (nurture). Your genetics can affect your behaviour in different situations - from your susceptibility towards alcohol, smoking and food addiction, to how charitable you're likely to be, as well as if you're predisposed towards being more obsessive/compulsive than others.

Your **Behavioural Traits** Report Results Summary

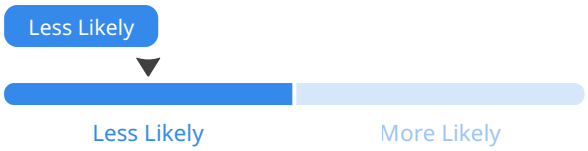
Alcohol Addiction

Altruism

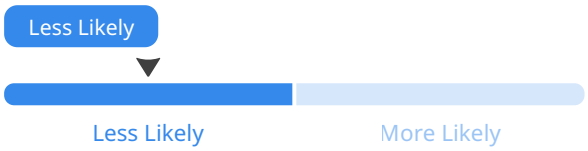
Food Addiction



Obsessions With Washing/Cleaning



Smoking Addiction



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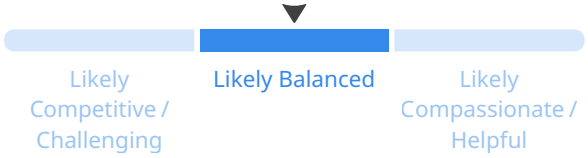
Personality Traits

If you've ever wondered about the links between your personality and your genes, wonder no more. It's here that you will learn about how your unique gene profile can offer a deeper look into the role your DNA may play in how you think, feel, act, and react. Are you more extraverted and open than others? Or do you tend to be more disciplined and organised? Your genes can tell you a lot about the type of person you are.

Your **Personality Traits** Report Results Summary

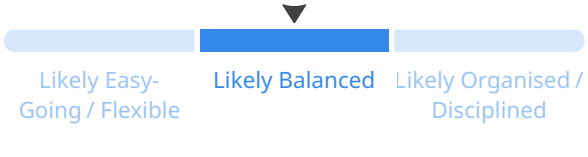
Agreeableness

Likely Balanced



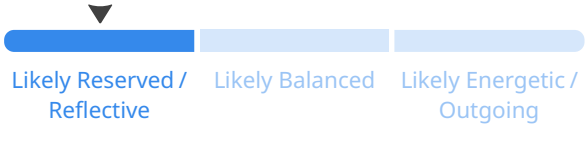
Conscientiousness

Likely Balanced



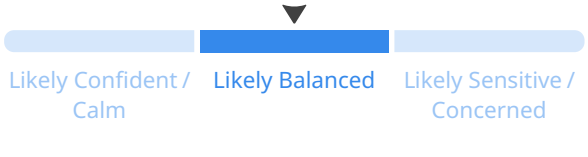
Extraversion

Likely Reserved / Reflective



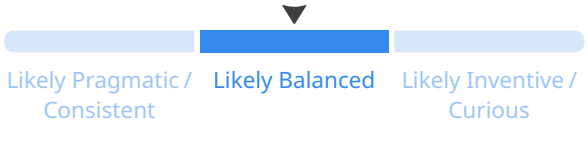
Neuroticism

Likely Balanced



Openness

Likely Balanced



Customer:	Premium Circle
Date of Birth:	25 Nov 1985
Gender:	Male
Report Date:	25 Nov 2019
Sample ID:	3812-1020-5162-75

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Success Traits

Your likelihood of success in life could be written in your DNA. There is mounting evidence to show that the best predictor of your life's outcome isn't just linked to your environment (i.e. your upbringing and social class) but to your genetic make-up, too. From your intelligence quotient and entrepreneurship tendency, to how good you're likely to be at mathemathics - there's a host of exciting information contained in the genes that make you, you.

Your **Success Traits** Report Results Summary

Intelligence Quotient (IQ)

Normal

Normal | Excellent | Gifted

Language Ability

Normal

Normal | Excellent | Gifted

Emotional Quotient (EQ)

Excellent

Normal | Excellent | Gifted

Mathematical Skills

Normal

Normal | Excellent | Gifted

Entrepreneurship Tendency (AQ)

Excellent

Normal | Excellent | Gifted

Memory Skills

Normal

Normal | Excellent | Gifted

Creativity

Excellent

Normal | Excellent | Gifted

Educational Attainment

Normal

Normal | Above Average | High

Information Processing Power

Excellent

Normal | Excellent | Gifted

Customer:	Premium Circle
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Music & Dance

No language is more universal than music. It's a part of the joy of life, which is why it’s found in cultures across the world. However, how well we’re able to create it and dance to it is likely ingrained in our DNA. Discover and celebrate the genetic possibilities of your hidden talents - and those of your children - by uncovering your (and their) music and dance abilities, so that you can start to nurture and master them.

Your **Music & Dance** Report Results Summary

Dancing Ability

Normal

Normal Gifted

Musical Ability

Normal

Normal Gifted

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Pollution

While air pollution is a major environmental concern that poses major health issues to the general population, certain individuals are more genetically predisposed than others to get certain respiratory conditions when exposed to certain airborne pollutants. Find out why prevention is better than cure by knowing your genetic risk profile when it comes to the air you breathe.

Your **Pollution** Report Results Summary

Dust Allergy Sensitivity

Pesticide Sensitivity

Automobile Pollution Sensitivity

Environmental Pollution Sensitivity

Second-Hand Smoke Sensitivity

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Common Health Risks

Most people with an inherited common disease risk don't know they may already have the condition, as they don't experience symptoms. If left undetected and untreated, these types of conditions can lead to problems such as heart disease and type 2 diabetes. While most disease cases are caused by a combination of environmental conditions like pollution, and lifestyle choices like an unhealthy diet, being overweight, smoking and drinking, some are due to genetics.

Certain inherited conditions like heart disease and stroke are passed down through families and are caused by a change (or mutation) in one or more of your genes. Insights into your genetic risk for certain diseases can help you and your healthcare provider build a personalised health plan to manage the onset of various conditions.

Your **Common Health Risks** Report Results Summary

Familial Hypercholesterolemia

Stroke

Heart Disease

Type 2 Diabetes

High Cholesterol

Hypertension

Non-Alcoholic Fatty Liver Disease

Obesity

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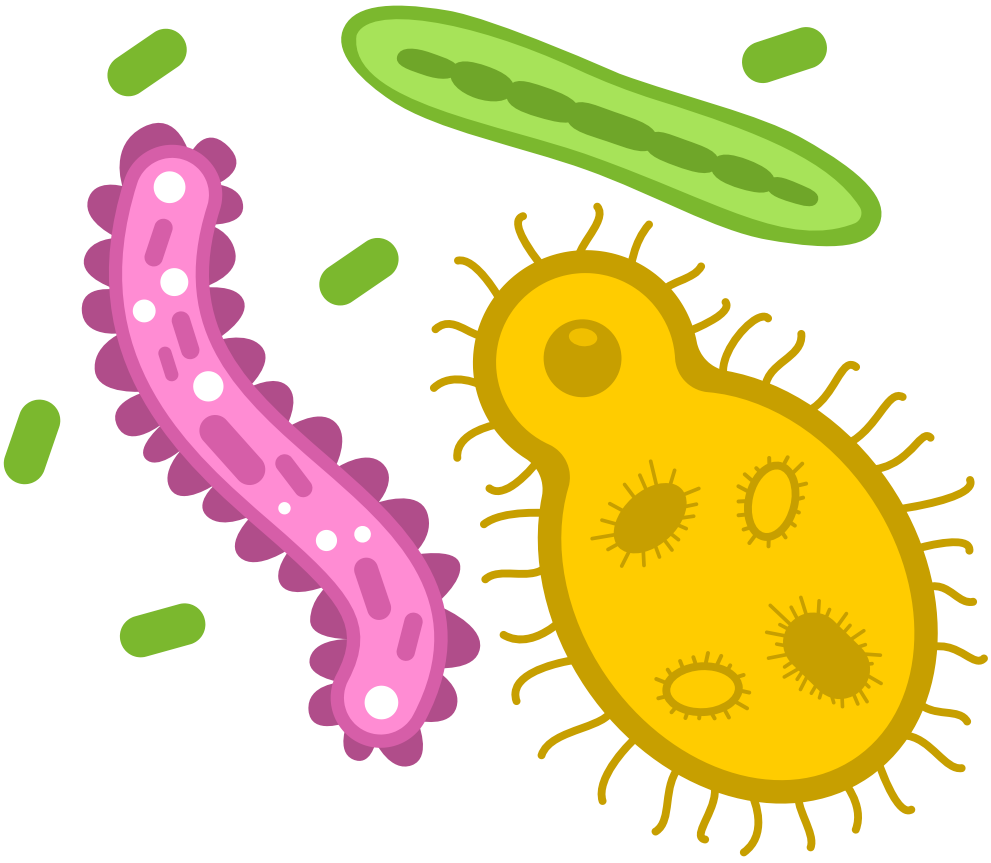
Disease Risk

Genetic risks for diseases are often identified too late. Limited health budgets also mean testing is usually only offered to people diagnosed with genetic diseases and their families - not healthy individuals. The human exome contains over 85% of disease causing mutations known today. It is the most revealing part of your genome, and a cost-effective and compelling approach for uncovering disease genes.

Circle Disease Risk allows you to understand how your genetics may impact your risk of developing certain health conditions. Our reports provide you with information and tools that aid your understanding of potential health risks, including potential risks of complex illness, how certain conditions may be passed on from generation-to-generation, as well as how you can take preventable measures now to avoid these diseases manifesting later in life.



Your **Disease Risk** Report Results Summary

Androgenetic Alopecia

Elevated Risk

Allergies

Average Risk

Lumbar Degenerative Disc Disease

Elevated Risk

Alopecia Areata

Average Risk

Migraine

Elevated Risk

Age-Related Macular Degeneration (AMD)

Average Risk

Abdominal Aortic Aneurysm

Average Risk

Ankylosing Spondylitis

Average Risk

Attention Deficit Hyperactivity Disorder (ADHD)

Average Risk

Anxiety Disorder

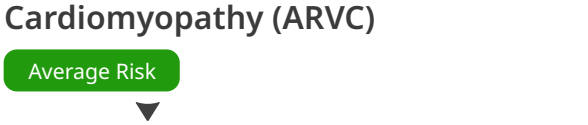
Average Risk

Allergic Rhinitis

Average Risk

Arrhythmogenic Right Ventricular Cardiomyopathy (ARVC)

Average Risk



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Your **Disease Risk** Report Results Summary

Asthma

Atopic Dermatitis

Atrial Fibrillation

Autism

Brugada Syndrome

Catecholaminergic Polymorphic Ventricular Tachycardia (CPVT)

Childhood Ear Infection

Chronic Periodontitis

Cluster Headache

Chronic Obstructive Pulmonary Disease (COPD)

Crohn's Disease

Deep Vein Thrombosis

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Your **Disease Risk** Report Results Summary

Major Depression

Dilated Cardiomyopathy (DCM)

Duodenal Ulcer

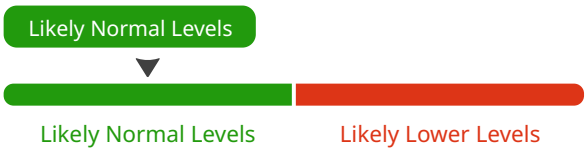
Influenza (Flu) Susceptibility

Gallstone Disease

Glaucoma

Gout

High-Density Lipoprotein (HDL) Cholesterol



Hyperhomocysteinemia

Hypertrophic Cardiomyopathy (HCM)

Hypothyroidism

Idiopathic Pulmonary Fibrosis (IPF)

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Your **Disease Risk** Report Results Summary

Inflammatory Skin Disease

Early Onset Myocardial Infarction

Insulin Resistance and Response

Non-Syndromic Hearing Loss

Irritable Bowel Syndrome (IBS)

Noonan Syndrome

Kidney Stones

Opioid Addiction

Long QT Syndrome

Orthostatic Hypotension

Male Infertility

Osteoarthritis

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Your **Disease Risk** Report Results Summary

Osteoporosis

Peripheral Artery Disease

Psoriasis

Psoriatic Arthritis

Rheumatoid Arthritis

Selective IgA deficiency

Short QT Syndrome

Sitosterolemia

Syndromic Hearing Loss

Temporomandibular Joint Disorder

Thoracic Aortic Aneurysm and Dissection

Tooth Decay

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Discover what your DNA says about you in our comprehensive reports inside the Circle mobile app.

Customer:	Premium Circle
Date of Birth:	25 Nov 1985
Gender:	Male
Report Date:	25 Nov 2019
Sample ID:	3812-1020-5162-75

Your **Disease Risk** Report Results Summary

Hypertriglyceridemia

Ulcerative Colitis

Vitiligo

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Gender:	Male
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Dementia & Brain Health

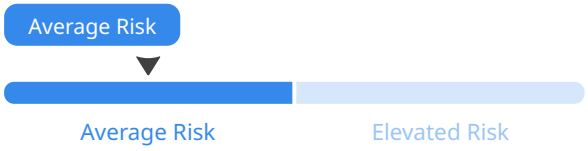
Research has found that many mental health disorders are caused by a combination of biological, environmental, psychological, and genetic factors. In fact, a growing body of research has found that certain genetic mutations are associated with some mental conditions. By better understanding your risk of dementia and other brain conditions, you allow yourself to make adjustments in your lifestyle that could reduce or delay the condition's development later in life. It also allows you to pass on this valuable information on to your loved ones so that they can also mitigate their risk.

Your **Dementia & Brain Health** Report Results Summary

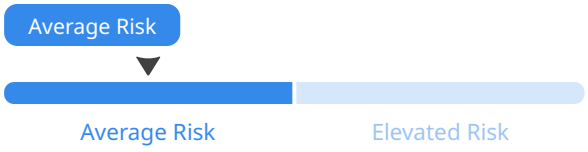
Alzheimer's Disease

Bipolar Disorder

Frontotemporal Dementia



Lewy Body Dementia



Parkinson's Disease

Schizophrenia

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Drug Response

From the moment medications enter your body, it's actively working to process or metabolise them. All drugs will eventually leave the body through a process called elimination - but the time they stay active is often determined by genetic variations that change the way your drug-processing enzymes work.

Certain genetic mutations can lead to unexpected or exaggerated responses to medications, including severe complications and adverse drug reactions. Learn which medications and doses are best suited to your condition and genetic make-up so that you can develop treatment strategies and medication selections based on your specific DNA needs.

Understanding Your Results

We have grouped the drugs we tested into the seven different health conditions that they treat. Your results provide information about how genes affect your response to different medications.

Poor Metaboliser
Breaks down medications very slowly. May experience side effects at normal doses.

Intermediate Metaboliser
Breaks down medications slowly. May have too much medication at normal doses.

Normal Metaboliser
Breaks down medications normally. Has normal amounts of medication at normal doses.

Ultrarapid Metaboliser
Breaks down medications very rapidly. May not get enough medications at normal doses.

Medications are colour-coded into four categories

Use with Caution
Based on your genetic profile, you break down these medications very slowly and might have too much medication at normal doses, likely resulting in an increased risk for developing adverse drug reactions. Use medications with caution or consider an alternative drug.

Decrease Starting Dosage
Based on your genetic profile, you break down these medications slowly and might have too much medication at normal doses, likely resulting in an increased risk for developing adverse drug reactions. Medications may be used with decreased dosage.

Use as Directed
Based on your genetic profile, you break down these medications normally and might have normal amounts of medications at normal doses, likely resulting in normal responses to these medications. Medications may be used as directed per package insert.

Increase Starting Dosage
Based on your genetic profile, you break down these medications too quickly and might not get enough medication at normal doses, likely resulting in suboptimal therapeutic response to these medications. Medications can be used with increased dosage.

Limitations

This report provides information about how genes included in the Circle Drug Response Test affect your response to drugs. It combines pharmacology (the science of drugs) and genomics (the study of genes) for the safe and effective use of medications and doses tailored to your DNA. We recommend you share your results with your healthcare provider for further advice and to tailor your current or future treatment plan.

Your **Psychiatric** Report Results Summary

The Psychiatric Drug panel examines how your genes may affect your metabolism and response to FDA-approved medications commonly prescribed to treat psychiatric conditions such as anxiety and mood disorders, etc.

USE AS DIRECTED

Antipsychotic

amisulpride
aripiprazole
paliperidone
quetiapine
ziprasidone

Others

bupropion[1]

SSRI

citalopram
escitalopram
sertraline

BZP

clobazam
diazepam
midazolam

SNRI

duloxetine

Stimulant

methylphenidate[3]

MAOI

moclobemide

Opioid Antagonist

naloxone
naltrexone

Anticonvulsant

valproic acid[4]

USE WITH CAUTION

Antipsychotic

chlorpromazine[2]
olanzapine[2]

^ Prodrug: Medication that is metabolised into a pharmacologically active compound within the body.

* FDA, CPIC, DPWG professional body guideline or significant clinical evidence.

[1] Might have a decreased chance to quit smoking when treated with bupropion. Closely monitor the response to bupropion.

[2] Might have decreased drug responses and increased time until drug response.

[3] Might have an increased severity of social withdrawal or nausea. Closely monitor the adverse effects of methylphenidate.

[4] Might have greater weight gain. Closely monitor the adverse effects.

Your **Cardiovascular** Report Results Summary

The Cardiovascular Drug panel examines how your genes may affect your metabolism and response to FDA-approved medications commonly prescribed to treat cardiovascular conditions such as hypertension (high blood pressure), hyperlipidemia (high cholesterol) and heart disease, etc.

USE AS DIRECTED

CCB
- amlodipine

Beta Blocker
- atenolol
- carvedilol

Statin
- atorvastatin[1]
- fluvastatin
- lovastatin
- pravastatin[6]
- rosuvastatin[1]
- simvastatin[7]

Diuretic
- bumetanide
- furosemide
- hydrochlorothiazide[5]

Antiplatelet
- clopidogrel ^[2]
- prasugrel
- ticagrelor

Antiarrhythmic
- digoxin

ACEI
- enalapril

ARB
- losartan
- olmesartan
- telmisartan
- valsartan

Anticoagulant
- warfarin[9]

DECREASE STARTING DOSAGE

CCB
- verapamil[8]

USE WITH CAUTION

Fibrate
- fenofibrate[3]

Others
- hydralazine[4]

Nitrate
- isosorbide mononitrate[4]

^ Prodrug: Medication that is metabolised into a pharmacologically active compound within the body.

* FDA, CPIC, DPWG professional body guideline or significant clinical evidence.

[1] *Might have increased risk of statin-related muscle symptoms.

[2] *Might have higher on-treatment ADP-induced platelet aggregation and lower levels of clopidogrel active metabolite.

[3] Might have decreased reduction in fasting LDL-C.

[4] Might have decreased response in heart failure.

[5] *Might have decreased reduction of diastolic blood pressure. Closely monitor the response to hydrochlorothiazide.

[6] Might benefit less from pravastatin treatment. Closely monitor the response to pravastatin.

[7] *Consider initiating simvastatin at desired starting dose and adjust doses based on disease-specific guidelines.

[8] Might have decreased drug metabolism.

[9] Recommended warfarin doses to achieve a therapeutic INR based on CYP2C9 and VKORC1 genotype using the warfarin product insert approved by the US Food and Drug Administration, CPIC Guidelines and Eur J Clin Pharmacol (2007) 63: 1135-1141

Your **Diabetes** Report Results Summary

The Diabetes Drug panel examines how your genes may affect your metabolism and response to FDA-approved medications commonly prescribed to treat diabetes and other diabetes related complications.

USE AS DIRECTED

Statin

atorvastatin[1]
fluvastatin
lovastatin
pravastatin[4]
rosuvastatin[1]
simvastatin[5]

ACEI

enalapril

SU

glibenclamide
gliclazide
glimepiride
glipizide

ARB

losartan
olmesartan
telmisartan
valsartan

TZD

pioglitazone

Meglitinide

repaglinide

USE WITH CAUTION

Fibrate

fenofibrate[2]

Biguanide

metformin[3]

^ Prodrug: Medication that is metabolised into a pharmacologically active compound within the body.

* FDA, CPIC, DPWG professional body guideline or significant clinical evidence.

[1] *Might have increased risk of statin-related muscle symptoms.

[2] Might have decreased reduction in fasting LDL-C.

[3] *Might have decreased drug responses.

[4] Might benefit less from pravastatin treatment. Closely monitor the response to pravastatin.

[5] *Consider initiating simvastatin at desired starting dose and adjust doses based on disease-specific guidelines.

Your **Pain** Report Results Summary

The Pain Drug panel examines how your genes may affect your metabolism and response to FDA-approved medications commonly prescribed to treat acute and chronic pain.

USE AS DIRECTED

TNF Inhibitor
- adalimumab
- etanercept
- infliximab

Opioid
- alfentanil
- methadone

NSAID
- celecoxib
- diclofenac
- flurbiprofen
- ibuprofen
- indomethacin
- meloxicam
- naproxen

SNRI
- duloxetine

DMARD
- methotrexate[2]

Opioid Antagonist
- naloxone
- naltrexone

Others
- paracetamol

Anticonvulsant
- valproic acid[7]

DECREASE STARTING DOSAGE

Opioid
- buprenorphine[1]
- fentanyl[1]
- morphine[1]

Anaesthetic
- propofol[3]

Neuromuscular Blocker
- rocuronium[4]

USE WITH CAUTION

Others
- sulfasalazine[5]

Triptan
- sumatriptan[6]

^ Prodrug: Medication that is metabolised into a pharmacologically active compound within the body.

* FDA, CPIC, DPWG professional body guideline or significant clinical evidence.

[1] *Might have decreased opioid analgesic requirement after surgery.

[2] *Might have increased likelihood of methotrexate induced toxicity.

[3] Might need decreased dose of propofol for general anaesthesia.

[4] Might have increased response to rocuronium when placed under anesthesia.

[5] Might have a lower likelihood of achieving remission of rheumatoid arthritis.

[6] Might be less likely to have reduced pain or attack frequency.

[7] Might have greater weight gain. Closely monitor the adverse effects.

Your **Commonly Prescribed Drugs** Report Results Summary

The Commonly Prescribed Drugs panel examines how your genes may affect your metabolism and response to FDA-approved medications commonly prescribed to treat disease conditions such as common cold and cough, allergy and acid reflux, etc.

USE AS DIRECTED

Bisphosphonate
- alendronate
- risedronate

Statin
- atorvastatin[1]
- fluvastatin
- lovastatin
- pravastatin[6]
- rosuvastatin[1]
- simvastatin[8]

Others
- carisoprodol
- paracetamol
- phenylephrine

NSAID
- celecoxib
- diclofenac
- flurbiprofen
- ibuprofen
- indomethacin
- meloxicam
- naproxen

Antimicrobial
- daptomycin
- dicloxacillin
- erythromycin
- voriconazole

Antihistamine
- fexofenadine

SU
- glibenclamide
- gliclazide
- glimepiride
- glipizide

DMARD
- methotrexate[4]

Anticonvulsant
- valproic acid[9]

INCREASE STARTING DOSAGE

PPI
- dexlansoprazole[2]
- esomeprazole[2]
- lansoprazole[2]
- omeprazole[2]
- pantoprazole[2]
- rabeprazole[2]

DECREASE STARTING DOSAGE

Opioid
- morphine[5]

USE WITH CAUTION

Biguanide
- metformin[3]

PDE 5 Inhibitor
- sildenafil[7]

^ Prodrug: Medication that is metabolised into a pharmacologically active compound within the body.

* FDA, CPIC, DPWG professional body guideline or significant clinical evidence.

[1] *Might have increased risk of statin-related muscle symptoms.

[2] *Literatures have shown that individuals who are CYP2C19 normal metabolizer might have decreased drug response with standard dosing.

[3] *Might have decreased drug responses.

[4] *Might have increased likelihood of methotrexate induced toxicity.

[5] *Might have decreased opioid analgesic requirement after surgery.

[6] Might benefit less from pravastatin treatment. Closely monitor the response to pravastatin.

[7] *Might be less likely to have positive erectile response. Closely monitor the response to sildenafil.

[8] *Consider initiating simvastatin at desired starting dose and adjust doses based on disease-specific guidelines.

[9] Might have greater weight gain. Closely monitor the adverse effects.

Your **Paediatrics** Report Results Summary

The Paediatrics Drug panel examines how your genes may affect your metabolism and response to FDA-approved medications commonly prescribed to treat paediatric conditions.

USE AS DIRECTED

Antipsychotic
aripiprazole
paliperidone
quetiapine
ziprasidone

ICS
budesonide[1]
fluticasone[1]
triamcinolone[1]

SSRI
citalopram
escitalopram
sertraline

Antimicrobial
daptomycin
dicloxacillin
erythromycin
voriconazole

BZP
diazepam

Antihistamine
fexofenadine

NSAID
ibuprofen

Stimulant
methylphenidate[3]

Others
paracetamol
phenylephrine

Barbiturate
phenobarbital

SABA
salbutamol[6]

LABA
salmeterol[6]

Anticonvulsant
valproic acid[7]

INCREASE STARTING DOSAGE

PPI
dexlansoprazole[2]
esomeprazole[2]
lansoprazole[2]
omeprazole[2]
pantoprazole[2]
rabeprazole[2]

USE WITH CAUTION

LTRA
montelukast[4]

Antipsychotic
olanzapine[5]

^ Prodrug: Medication that is metabolised into a pharmacologically active compound within the body.

* FDA, CPIC, DPWG professional body guideline or significant clinical evidence.

[1] *Might have decreased short term response to inhaled corticosteroids as measured by FEV after 6 weeks of treatment.

[2] *Literatures have shown that individuals who are CYP2C19 normal metabolizer might have decreased drug response with standard dosing.

[3] Might have an increased severity of social withdrawal or nausea. Closely monitor the adverse effects of methylphenidate.

[4] Might have no change in forced expiratory volume in one second (FEV1) response to montelukast after 6 month of treatment.

[5] Might have decreased drug responses and increased time until drug response.

[6] *Might have a better response to treatment as measured by a decreased risk of asthma exacerbations and higher quality of life scores. Closely monitor the response to the drug.

[7] Might have greater weight gain. Closely monitor the adverse effects.

Your **Geriatrics** Report Results Summary

The Geriatrics Drug panel examines how your genes may affect your metabolism and response to FDA-approved medications commonly prescribed to treat geriatric conditions.

USE AS DIRECTED

TNF Inhibitor
- adalimumab
- etanercept
- infliximab

Bisphosphonate
- alendronate
- risedronate

Beta Blocker
- atenolol
- carvedilol

Statin
- atorvastatin[1]
- fluvastatin
- lovastatin
- pravastatin[5]
- rosuvastatin[1]
- simvastatin[6]

ACEI
- enalapril

COMT Inhibitor
- entacapone

SU
- glibenclamide
- gliclazide
- glimepiride
- glipizide

Dopamine Precursor
- levodopa[2]

ARB
- losartan
- olmesartan
- telmisartan
- valsartan

NMDA Antagonist
- memantine

TZD
- pioglitazone

Dopamine Agonist
- pramipexole

Antipsychotic
- quetiapine

AChEI
- rivastigmine

USE WITH CAUTION

Biguanide
- metformin[3]

Antipsychotic
- olanzapine[4]

Anticholinergic
- tiotropium[7]

^ Prodrug: Medication that is metabolised into a pharmacologically active compound within the body.

* FDA, CPIC, DPWG professional body guideline or significant clinical evidence.

[1] *Might have increased risk of statin-related muscle symptoms.

[2] Might have an increased risk for adverse reactions, including hallucinations and dyskinesia, when treated with levodopa.

[3] *Might have decreased drug responses.

[4] Might have decreased drug responses and increased time until drug response.

[5] Might benefit less from pravastatin treatment. Closely monitor the response to pravastatin.

[6] *Consider initiating simvastatin at desired starting dose and adjust doses based on disease-specific guidelines.

[7] Might have decreased drug responses.

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Cancer Risk

Circle Cancer Risk determines whether or not you carry inherited genetic mutations that may increase your risk of developing cancer. Having an early awareness of your genetic predisposition towards certain cancers can monumentally affect the outcome of your health, by allowing you to create a personalised plan designed to help prevent or detect cancer at an earlier and more treatable stage. In fact, 5-10% of cancers are due to inherited genetic mutations. Most of the inherited cancer conditions follow an autosomal dominant mode of inheritance. So, one person is enough to pass on the cancer-causing mutation from one generation to another.

However, it's important to note that while having a mutation may increase your risk of cancer, this test is not a cancer diagnosis and does not mean you will necessarily develop the disease. For example, most men have a 2% chance of getting colorectal cancer by the age of 70, while a man with a genetic mutation in the MLH1 gene can have a 35% chance. The level of increased risk differs from gene-to-gene and from cancer-to-cancer. This information can help your healthcare provider give you actionable steps towards preventive and early screening measures.

Understanding Your Results

There are three possible types of results:

No cancer-causing mutation was detected.

This suggests that the laboratory did not find any specific pathogenic mutations the test was designed to detect. However, other factors also influence your risk of developing cancer. A genetic counsellor can help you understand how both genetic and non-genetic factors may influence your risk of developing cancer.

A cancer-causing mutation was detected.

This suggests that a genetic mutation associated with an increased cancer susceptibility was detected in the genes tested. It is important to follow up with a doctor or a genetic counsellor, since there may be preventive options that are effective in reducing cancer risk.

A clinically significant genetic mutation detected.

This suggests that a clinically significant mutation was detected in the genes tested - however, this genetic mutation is not currently linked to an increased cancer risk in males. We do still recommend following up with a doctor or a genetic counsellor to better understand your cancer risk.

Limitations

This report provides information about your genetic predisposition to the specific types of cancer included in the Circle Cancer Risk Test Report. Environmental and lifestyle factors also often play a large role in your risk for developing cancer. The information presented in the Circle Cancer Risk Test Report is not intended as medical advice and should not be used for diagnosing, treating or preventing diseases. Please consult with your healthcare provider for further advice before making any changes to your diet or lifestyle.

Your **Cancer Risk** Report Results Summary

Bladder Cancer 2 gene(s) tested	No cancer-causing mutation was detected.
Brain Cancer 16 gene(s) tested	No cancer-causing mutation was detected.
Breast Cancer 15 gene(s) tested	No cancer-causing mutation was detected.
Carcinoid 2 gene(s) tested	No cancer-causing mutation was detected.
Chondrosarcoma 4 gene(s) tested	No cancer-causing mutation was detected.
Colorectal Cancer 27 gene(s) tested	No cancer-causing mutation was detected.
Esophageal Cancer 1 gene(s) tested	No cancer-causing mutation was detected.
Fanconi Anemia Related Cancers 5 gene(s) tested	No cancer-causing mutation was detected.
Gastro-Intestinal Stromal Tumour 5 gene(s) tested	No cancer-causing mutation was detected.
Kidney Cancer 8 gene(s) tested	No cancer-causing mutation was detected.

Your **Cancer Risk** Report Results Summary

Leukaemia 23 gene(s) tested	No cancer-causing mutation was detected.
Liver Cancer 9 gene(s) tested	No cancer-causing mutation was detected.
Lung Cancer 3 gene(s) tested	No cancer-causing mutation was detected.
Lung Cancer 12 gene(s) tested	No cancer-causing mutation was detected.
Melanoma 20 gene(s) tested	No cancer-causing mutation was detected.
Meningioma 7 gene(s) tested	No cancer-causing mutation was detected.
Multiple Myeloma 1 gene(s) tested	No cancer-causing mutation was detected.
Neuroblastoma 6 gene(s) tested	No cancer-causing mutation was detected.
Neurofibroma 1 gene(s) tested	No cancer-causing mutation was detected.
Osteosarcoma 4 gene(s) tested	No cancer-causing mutation was detected.

Your **Cancer Risk** Report Results Summary

Pancreatic Cancer 17 gene(s) tested	No cancer-causing mutation was detected.
Paraganglioma 10 gene(s) tested	No cancer-causing mutation was detected.
Parathyroid Cancer 1 gene(s) tested	No cancer-causing mutation was detected.
Pheochromocytoma 12 gene(s) tested	No cancer-causing mutation was detected.
Pituitary Adenoma 3 gene(s) tested	No cancer-causing mutation was detected.
Prostate Cancer 16 gene(s) tested	No cancer-causing mutation was detected.
Retinoblastoma 2 gene(s) tested	No cancer-causing mutation was detected.
Rhabdomyosarcoma 6 gene(s) tested	No cancer-causing mutation was detected.
Skin Basal Cell Cancer 11 gene(s) tested	No cancer-causing mutation was detected.
Skin Squamous Cell Cancer 15 gene(s) tested	No cancer-causing mutation was detected.

Your **Cancer Risk** Report Results Summary

Stomach Cancer 15 gene(s) tested	No cancer-causing mutation was detected.
Thyroid Cancer 9 gene(s) tested	No cancer-causing mutation was detected.
Uveal Melanoma 1 gene(s) tested	No cancer-causing mutation was detected.
Wilms Tumour 10 gene(s) tested	No cancer-causing mutation was detected.

Customer:	Premium Circle
Date of Birth:	25 Nov 1985
Gender:	Male
Report Date:	25 Nov 2019
Sample ID:	3812-1020-5162-75

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Family Planning

Circle Family Planning (carrier screening) can determine whether or not you or your partner carry inherited genetic mutations that you might pass on to an unborn child. Knowing this information before you get pregnant, or early in your pregnancy, can make a difference in your family's well-being.

Your DNA contains two copies of every gene — one inherited from your mother, and one from your father. These genes pass along family characteristics like hair and eye color. They also sometimes pass on inherited conditions.

Most people carry at least one pathogenic mutation in a gene included in our Family Planning Screen. This usually only becomes an issue if both you and your partner have a pathogenic mutation in one copy of the same gene. When this happens, even though neither of you have any symptoms, there is a 1-in-4 chance for each pregnancy that your child will be affected by the condition associated with the gene. With this information, your healthcare provider can give you actionable steps you can take to prevent your child from having the condition.

Understanding Your Results

There are four possible types of results:

Negative

This suggests that no disease-causing mutation was detected amongst the genes tested for the analysed condition.

Positive: Carrier

This suggests that a disease-causing mutation was detected amongst the genes tested for the analysed condition. Symptoms are generally not seen in carriers but there may be an increased risk of passing down the genetic disease to your child.

Positive: At Risk for Symptoms

This suggests that a disease-causing mutation was detected amongst the genes tested for the analysed condition. Risk of symptoms may be present for you and your child, and there may also be an increased chance your child may develop the condition.

Positive: Likely Affected

This suggests that a disease-causing mutation was detected amongst the genes tested for the analysed condition. Risk of symptoms may be present for you, and there may be an increased risk of passing down the genetic condition to your child.

Limitations

This report provides information about your genetic predisposition to the specific types of conditions included in the Circle Family Planning Test Report. The information presented in the Circle Family Planning Test Report is not intended as medical advice and should not be used for diagnosing, treating or preventing diseases. Please consult with your healthcare provider for further advice before making any changes to your diet or lifestyle.

Your **Family Planning** Report Results Summary

Achondrogenesis Due to SLC26A2 Mutation	Negative
Achromatopsia Due to ATF6 Mutation	Negative
Achromatopsia Due to CNGA3 Mutation	Negative
Achromatopsia Due to CNGB3 Mutation	Negative
Achromatopsia Due to GNAT2 Mutation	Negative
Achromatopsia Due to PDE6C Mutation	Negative
Achromatopsia Due to PDE6H Mutation	Negative
Acute Fatty Liver Due to HADHA Mutation	Negative
Alkaptonuria Due to HGD Mutation	Negative
Alpha-Mannosidosis Due to MAN2B1 Mutation	Negative

Customer: Premium Circle
Date of Birth: 25 Nov 1985
Gender: Male
Report Date: 25 Nov 2019
Sample ID: 3812-1020-5162-75

Your **Family Planning** Report Results Summary

Alpha-Sarcoglycanopathy Due to SGCA Mutation	Negative
Alpha Thalassemia Due to HBA1/HBA2 Mutation	Negative
Alpha-1 Antitrypsin Deficiency Due to SERPINA1 Mutation	Negative
Andermann Syndrome Due to SLC12A6 Mutation	Negative
Aspartylglycosaminuria Due to AGA Mutation	Negative
Ataxia-Telangiectasia Due to ATM Mutation	Negative
Ataxia with Vitamin E Deficiency Due to TTPA Mutation	Negative
Autosomal Recessive Hypophosphatasia Due to ALPL Mutation	Negative
Autosomal Recessive Muscular dystrophy Due to CAPN3 Mutation	Negative
Autosomal Recessive Muscular dystrophy Due to CAV3 Mutation	Negative

Your **Family Planning** Report Results Summary

Autosomal Recessive Muscular dystrophy Due to DYSF Mutation	Negative
Autosomal Recessive Muscular dystrophy Due to FKTN Mutation	Negative
Autosomal Recessive Polycystic Kidney Disease Due to PKHD1 Mutation	Negative
Autosomal Recessive Spastic Ataxia of Charlevoix-Saguenay (ARSACS) Due to SACS Mutation	Negative
Bardet-Biedl Syndrome Due to BBS1 Mutation	Negative
Bardet-Biedl Syndrome Due to BBS10 Mutation	Negative
Beta-sarcoglycanopathy (Limb-girdle muscular dystrophy) Due to SGCB Mutation	Negative
Beta Chain-Related Hemoglobinopathy Due to HBB Mutation	Negative
Biotinidase Deficiency Due to BTD Mutation	Negative
Bloom Syndrome Due to BLM Mutation	Negative

Your **Family Planning** Report Results Summary

Canavan Disease Due to ASPA Mutation	Negative
Carnitine Palmitoyltransferase Deficiency Due to CPT1A Mutation	Negative
Carnitine Palmitoyltransferase Deficiency Due to CPT2 Mutation	Negative
Cartilage-hair Hypoplasia Due to RMRP Mutation	Negative
Choroideremia Due to CHM Mutation	Negative
Citrullinemia Due to ASS1 Mutation	Negative
Citrullinemia Due to SLC25A13 Mutation	Negative
Cohen Syndrome Due to VPS13B Mutation	Negative
Combined Pituitary Hormone Deficiency Due to PROP1 Mutation	Negative
Congenital Adrenal Hyperplasia Due to CYP17A1 Mutation	Negative

Your **Family Planning** Report Results Summary

Congenital Disorder of Glycosylation Due to MPI Mutation	Negative
Congenital Disorder of Glycosylation Due to PMM2 Mutation	Negative
Costeff Optic Atrophy Syndrome Due to OPA3 Mutation	Negative
Cystic Fibrosis Due to CFTR Mutation	Negative
Cystinosis Due to CTNS Mutation	Negative
D-bifunctional Protein Deficiency Due to HSD17B4 Mutation	Negative
Deafness Due to PCDH15 Mutation	Negative
Diastrophic Dysplasia Due to SLC26A2 Mutation	Negative
Dihydrolipoamide Dehydrogenase Deficiency Due to DLD Mutation	Negative
Dihydropyrimidine Dehydrogenase Deficiency Due to DPYD Mutation	Negative

Your **Family Planning** Report Results Summary

Dilated Cardiomyopathy Due to FKTN Mutation	Negative
Duchenne Muscular Atrophy Due to DMD Mutation	Negative
Factor XI Deficiency Due to F11 Mutation	Negative
Familial Dysautonomia Due to ELP1 Mutation	Negative
Familial Mediterranean Fever Due to MEFV Mutation	Negative
Fanconi Anemia Due to FANCA Mutation	Negative
Fanconi Anemia Due to FANCC Mutation	Negative
Fanconi Anemia Due to FANCG Mutation	Negative
Galactosemia Due to GALT Mutation	Negative
Gaucher Disease Due to GBA Mutation	Negative

Your **Family Planning** Report Results Summary

Glucose-6-phosphate Dehydrogenase Deficiency Due to G6PD Mutation	Negative
Glutaric Acidemia Due to GCDH Mutation	Negative
Glycogen Storage Disease Due to AGL Mutation	Negative
Glycogen Storage Disease Due to G6PC Mutation	Negative
Glycogen Storage Disease Due to PYGM Mutation	Negative
Glycogen Storage Disease Due to SLC37A4 Mutation	Negative
GRACILE Syndrome Due to BCS1L Mutation	Negative
HELLP Syndrome Due to HADHA Mutation	Negative
Hereditary Fructose Intolerance Due to ALDOB Mutation	Negative
Herlitz Junctional Epidermolysis Bullosa Due to LAMA3 Mutation	Negative

Your **Family Planning** Report Results Summary

Herlitz Junctional Epidermolysis Bullosa Due to LAMB3 Mutation	Negative
Herlitz Junctional Epidermolysis Bullosa Due to LAMC2 Mutation	Negative
Hexosaminidase A Deficiency (Including Tay-Sachs Disease) Due to HEXA Mutation	Negative
HFE-associated Hereditary Hemochromatosis Due to HFE Mutation	Negative
Homocystinuria Due to CBS Mutation	Negative
Hyperinsulinism Due to ABCC8 Mutation	Negative
Hyperinsulinism Due to HADH Mutation	Negative
Hyperinsulinism Due to KCNJ11 Mutation	Negative
Inclusion Body Myopathy Due to GNE Mutation	Negative
Isovaleric Acidemia Due to IVD Mutation	Negative

Your **Family Planning** Report Results Summary

Joubert Syndrome Due to TMEM216 Mutation	Negative
Krabbe Disease Due to GALC Mutation	Negative
LCHAD Deficiency Due to HADHA Mutation	Negative
Maple Syrup Urine Disease Due to BCKDHA Mutation	Negative
Maple Syrup Urine Disease Due to BCKDHB Mutation	Negative
Maple Syrup Urine Disease Due to DBT Mutation	Negative
Maple Syrup Urine Disease Due to DLD Mutation	Negative
Medium Chain Acyl-CoA Dehydrogenase Deficiency Due to ACADM Mutation	Negative
Megalencephalic Leukoencephalopathy with Subcortical Cysts Due to MLC1 Mutation	Negative
Metachromatic Leukodystrophy Due to ARSA Mutation	Negative

Customer: Premium Circle
Date of Birth: 25 Nov 1985
Gender: Male
Report Date: 25 Nov 2019
Sample ID: 3812-1020-5162-75

Your **Family Planning** Report Results Summary

MTHFR Deficiency Due to MTHFR Mutation	Negative
Mucolipidosis Due to MCOLN1 Mutation	Negative
Mucopolysaccharidosis Due to IDUA Mutation	Negative
Muscle-Eye-Brain Disease Due to POMGNT1 Mutation	Negative
Muscular dystrophy-dystroglycanopathy Due to FKTN Mutation	Negative
Nemaline Myopathy Due to KLHL40 Mutation	Negative
Nemaline Myopathy Due to NEB Mutation	Negative
Neuronal Ceroid Lipofuscinosis Due to CLN3 Mutation	Negative
Neuronal Ceroid Lipofuscinosis Due to CLN5 Mutation	Negative
Neuronal Ceroid Lipofuscinosis Due to PPT1 Mutation	Negative

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Date of Birth: 25 Nov 1985
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Sample ID: 3812-1020-5162-75

Your **Family Planning** Report Results Summary

Neuronal Ceroid Lipofuscinosis Due to TPP1 Mutation	Negative
Niemann-Pick Disease Due to NPC1 Mutation	Negative
Niemann-Pick Disease Due to SMPD1 Mutation	Negative
Nijmegen Breakage Syndrome Due to NBN Mutation	Negative
Nonsyndromic Hearing Loss and Deafness Due to GJB2 Mutation	Negative
Nonsyndromic Hearing Loss and Deafness Due to GJB3 Mutation	Negative
Northern Epilepsy Due to CLN8 Mutation	Negative
Pendred Syndrome Due to SLC26A4 Mutation	Negative
Phenylalanine Hydroxylase Deficiency Due to GCH1 Mutation	Negative
Phenylalanine Hydroxylase Deficiency Due to GCHFR Mutation	Negative

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Date of Birth: 25 Nov 1985
Gender: Male
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Sample ID: 3812-1020-5162-75

Your **Family Planning** Report Results Summary

Phenylalanine Hydroxylase Deficiency Due to PAH Mutation	Negative
Phenylalanine Hydroxylase Deficiency Due to PCBD1 Mutation	Negative
Phenylalanine Hydroxylase Deficiency Due to PTS Mutation	Negative
Phenylalanine Hydroxylase Deficiency Due to QDPR Mutation	Negative
Polyglandular Autoimmune Syndrome Due to AIRE Mutation	Negative
Pompe Disease Due to GAA Mutation	Negative
Primary Carnitine Deficiency Due to SLC22A5 Mutation	Negative
Primary Hyperoxaluria Due to AGXT Mutation	Negative
Primary Hyperoxaluria Due to GRHPR Mutation	Negative
Primary Hyperoxaluria Due to HOGA1 Mutation	Negative

Your **Family Planning** Report Results Summary

Pseudocholinesterase Deficiency Due to BCHE Mutation	Negative
Pycnodysostosis Due to CTSK Mutation	Negative
Recessive Multiple Epiphyseal Dysplasia Due to SLC26A2 Mutation	Negative
Rhizomelic Chondrodysplasia Punctata Due to PEX7 Mutation	Negative
Salla Disease Due to SLC17A5 Mutation	Negative
Segawa Syndrome Due to TH Mutation	Negative
Short Chain Acyl-CoA Dehydrogenase Deficiency Due to ACADS Mutation	Negative
Sickle Cell Disease Due to HBB Mutation	Negative
Sjögren-Larsson Syndrome Due to ALDH3A2 Mutation	Negative
Smith-Lemli-Opitz Syndrome Due to DHCR7 Mutation	Negative

Your **Family Planning** Report Results Summary

Steroid-resistant Nephrotic Syndrome Due to COQ8B Mutation	Negative
Steroid-resistant Nephrotic Syndrome Due to CUBN Mutation	Negative
Steroid-resistant Nephrotic Syndrome Due to LAMB2 Mutation	Negative
Steroid-resistant Nephrotic Syndrome Due to LMX1B Mutation	Negative
Steroid-resistant Nephrotic Syndrome Due to NPHS1 Mutation	Negative
Steroid-resistant Nephrotic Syndrome Due to NPHS2 Mutation	Negative
Steroid-resistant Nephrotic Syndrome Due to PLCE1 Mutation	Negative
Steroid-resistant Nephrotic Syndrome Due to SMARCAL1 Mutation	Negative
Steroid-resistant Nephrotic Syndrome Due to WT1 Mutation	Negative
Sulfate Transporter-related Osteochondrodysplasia Due to SLC26A2 Mutation	Negative

Your **Family Planning** Report Results Summary

Trifunctional Protein Deficiency Due to HADHA Mutation	Negative
Tyrosinemia Due to FAH Mutation	Negative
Usher Syndrome Due to ADGRV1 Mutation	Negative
Usher Syndrome Due to CDH23 Mutation	Negative
Usher Syndrome Due to CIB2 Mutation	Negative
Usher Syndrome Due to CLRN1 Mutation	Negative
Usher Syndrome Due to MYO7A Mutation	Negative
Usher Syndrome Due to PCDH15 Mutation	Negative
Usher Syndrome Due to PDZD7 Mutation	Negative
Usher Syndrome Due to USH1C Mutation	Negative

Your **Family Planning** Report Results Summary

Usher Syndrome Due to USH1G Mutation	Negative
Usher Syndrome Due to USH2A Mutation	Negative
Usher Syndrome Due to WHRN Mutation	Negative
Very Long Chain Acyl-CoA Dehydrogenase Deficiency Due to ACADVL Mutation	Negative
Wilson Disease Due to ATP7B Mutation	Negative
X-linked Juvenile Retinoschisis Due to RS1 Mutation	Negative
Zellweger Syndrome Spectrum Due to PEX1 Mutation	Negative