Genetica®

Baby Well

Understand nutrients your baby needs to maximize growth

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NGUYEN VAN A

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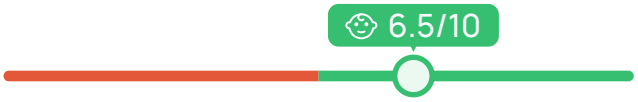
NGUYEN VAN A

Congratulations! Your baby has an excellent protein metabolism. He doesn't need a high protein infant formula in order to support healthy development. However, you need to keep in mind that he carries a “hunger gene” variant. Within the first 3 years of age, you need not worry much about the fat component in your baby’s diet. Because fat is actually important for the development of your child’s brain, especially during his first 12-24 months of life. As your infant turns into a toddler, you’ll want to ensure that the fats he eats are healthy in nature. Children with the “hunger gene” variant, if not managed well during the young age, incurs a higher risk of hypercholesterolemia (very high levels of cholesterol in the blood).

Carbohydrate Metabolism

Good

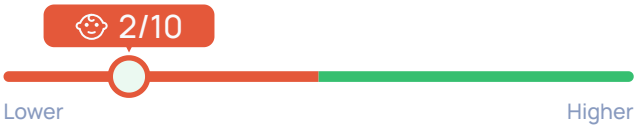


Milk Metabolism

Disadvantageous

Fat Metabolism

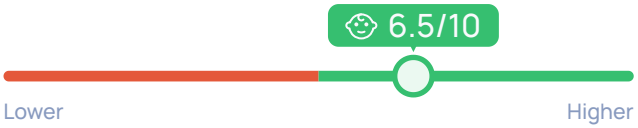
Disadvantageous



Bitter Taste

Protein Metabolism

Good



Sweet Taste

By analyzing your baby’s genes, we found 4 important insights

Name	Location	Value	Status	Highlight
PPARD	35411001	CC	Alert	Higher risk of high cholesterol later in life if consumed an excessive high fat diet during a young age.
APOA2	161223893	AG	Alert	Vulnerable to delayed cognitive development, linked to overeating genetic variation.
LEPR	65592830	AG	Alert	If not managed well during the young age, incurs a higher risk of hypercholesterolemia due to a “hunger” gene effect.
TLR1	38811255	TC	Alert	May not digest well with cow’s milk due to an immune system gene mutation.

Type of infant formula seeking for

If shown digestive symptoms with cow's milk, such as regurgitation (reflux and spitting up), abdominal distension (bloating and ballooning), strongly recommended using extensively hydrolyzed infant formula.

We have analyzed your child's TLR1 gene and found a non-beneficial variant. This variation affects the immune system's reaction to cow's milk. Furthermore, your child carries a harmful mutation in the IL10 gene. This genetic variation is linked to a higher risk of cow's milk allergy in East Asian babies aged 0-12 months. Please note that in many cases, signs and symptoms of cow's milk allergy come much later after a child consumes cow's milk. So, we high recommend to go to the doctor if you child frequently experiences with digestive symptoms, such as regurgitation (reflux and spitting up), abdominal distension (bloating and ballooning).

Please note that you baby has higher risk of high cholesterol later in life if consumed excessive high fat diet during the young age.It is because your baby has a harmful genetic variation in the PPARD gene. Individuals with this variation are more susceptible to higher levels of LDL ("bad") cholesterol in the face of a diet high in saturated fat during their young age. During the first 3 years, you should not worry much about fat and cholesterol because these nutrients help a baby grow, develop a healthy brain, and even make critical hormones. But after 3 years old, you should cut back on saturated fat in your baby's diet.

Baby Nutrition Guideline

Carbohydrate

Adequate intake
162 grams a day

Source
Potatoes, carrot, pumpkin, leaf vegetable, apple, strawberries

Fat

Adequate intake
39 grams a day

Source
Olive oil, sunflower oil, sesame oil, nuts and legumes

Protein

Adequate intake
44 grams a day

Source
Beef, pork, skinless chicken, freshwater fish, river shrimp, salmon; herring and mackerel

Tips and Recommendations

- Please note that restricting a child's eating too much may harm growth and development or encourage undesirable eating behaviors. Before making any drastic changes in a child's eating plan or physical activity habits, talk with your child's doctor or a registered dietitian. If your child is younger than 2 years and obese or overweight, consult your child's doctor before restricting fat or calories, such as with reduced-fat milk.

- You should be on the lookout for signs that your baby may be overfed. For example, during the infant time, a baby that is full will turn away from a breast or bottle and will not want to suck. This can be a good clue not to overfeed your baby at that time. As your baby grows older, you should teach your child to be aware of overeating behavior.
- You need to help your child to develop a healthy lifestyle to prevent the negative effect from the LEPR gene. During the weaning period, you should provide a heart-healthy diet that emphasizes fruits, vegetables, whole grains, poultry, fish and nuts, while limiting sugary foods and beverages. Eating this way may also help to increase his fiber intake, which is beneficial.
- Please note that many healthy bitter foods can be made more palatable with sweets. The next time you make your child something healthy vegetables, but with a bitter taste, experiment by cooking it with a little bit of sweet.
- You can do even better by him, however. Once he grows up, keep encouraging the consumption of healthy sweets instead of processed ones. For example, encourage him to eat an orange instead of a piece of cake. Instead of using high fructose corn syrup in your cooking when making banana bread, use healthier alternatives like agave syrup.
- You should ensure that your child is introduced to high amounts of organic, whole (unprocessed), and fresh fruits and vegetables. Fruits and vegetables believed to help protect against colorectal cancer include the following, which you can add to your child's diet: berries, apples, bananas, tomatoes, carrots, onions and oranges.

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Dear Mr. NGUYEN VAN A,

On behalf of Genetica® team, I would like to send you our warmest greetings with deepest gratitude for your interest and trust in our Genetica® gene decoding technology consultation service.

With the recipe for success of prestigious and reputable scientists in the genetics field and artificial intelligence technology, Genetica® sincerely believes that we can bring about greater values and meanings into each of our customers' lives. This is the mission, the aim I and my colleagues are pushing our hardest efforts to reach. Everyday, we thrive to seek for more knowledge and to perfect our service, bringing gene decoding closer to public's heart. The precious gem of unlocking one's genomes is no longer limited to elitists of expertise knowledge, with Genetica®, it now extends its embrace to you, to your family and to everyone, the embrace of unearthing uncountable mysteries buried deep in our unique genomes using scientific technologies.

Our dear customer, the report on your hand now narrates a map for you to explore yourself thoroughly and to listen to your own body. From this map, you can direct your own ultimate working, fitness, rest, education, and diet plans towards your best life.

On choosing "Genetica®, Explore your genes - Define your future", you will always be accompanied with our most experienced experts for all consultations needed. Therefore, do not hesitate to contact us should you have any inquiries upon your results. You can also log into our Genetica® application to update helpful information curated specifically for your genomes.

We truly hope you have had a great experience using our service.

It was our greatest pleasure being your guide on this journey,

Cao Anh Tuan
Founder & Chief Technology Officer at Genetica®

INTRODUCTION TO BABY WELL

Understand nutrients your baby needs to maximize growth

The Baby Well report walks you through a comprehensive look at the optimal, gene-based, steps you can take in order to improve your child's first—and developmentally critical—36 months of life.

In this report, we cover your child's carbohydrate metabolism-specific genetic variations. This will unlock a lot of mysteries for you. For example, you'll appreciate what types of foods your child should avoid in order to maintain a healthy weight and if he should consume high-fiber diet or not.

We'll also explore protein metabolism. With this you can learn about the protein-rich foods your child may need to eat to reach his full height as well as the dangerous immune-related conditions, like peanut allergies, you should be aware of.

As importantly, this report will focus on fat metabolism as well. Genetic variations that alter your child's metabolism of fat can affect important things, such as his optimal cognitive development. For example, we'll let you know if his infant formula should be supplemented with omega-3 fatty acids for maximal intelligence.

This report also contains an important, Milk Metabolism, section. Here we'll let you know if your child may be unable to tolerate regular cow's milk due to a digestive, allergic, or genetic disorder. This section will suggest alternative plant-based milks, or specialized formulas, which your child can consume in order to lead a healthy and happy life.

Finally, we go over the likely bitter and sweet taste sensations that your child may be predisposed to. Knowledge of this info can help you fine-tune your child's solid diet and the selection of specific infant formulas. This can help you avoid a lot of experimentation with food, prevent plenty of headaches, and ensure your child happily consumes the nutritious foods he needs.

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CARBOHYDRATE METABOLISM

17 genes analyzed

2 detailed results

2 personalized recommendations

WHAT IS **CARBOHYDRATE METABOLISM**?

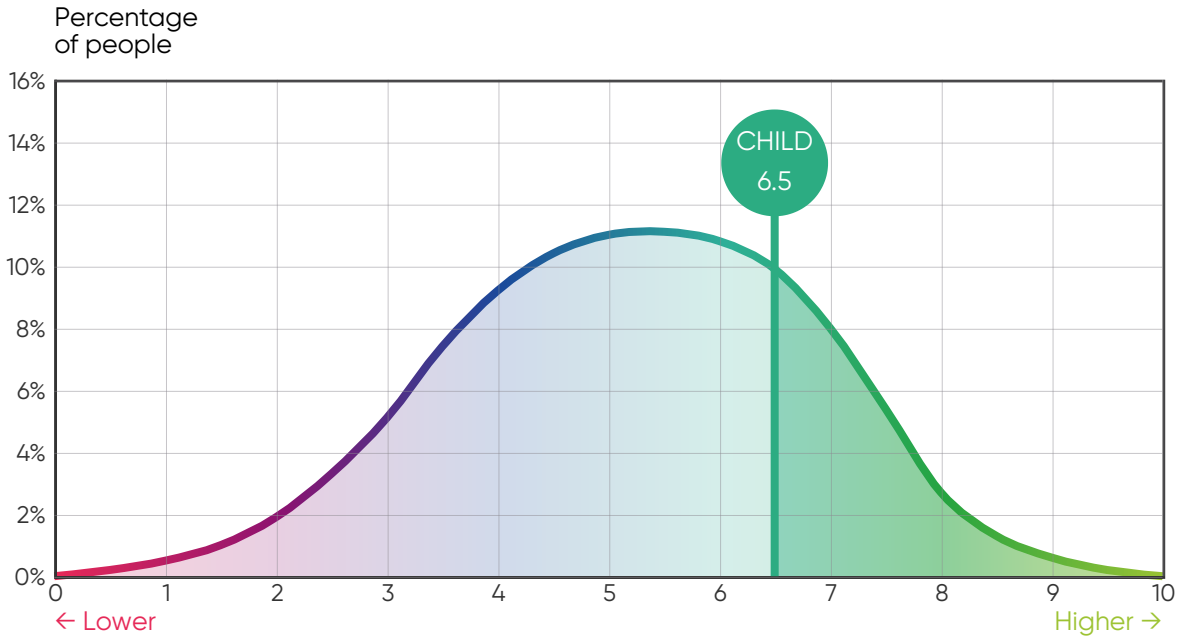
Metabolism describes the way your body burns energy and has a strong correlation to managing your weight. People with a "fast" metabolism can sometimes eat more food with little exercise and not gain weight. People with a "slow" metabolism tend to require adequate amounts of exercise to maintain weight. Carbohydrate metabolism denotes the various biochemical processes responsible for the formation, breakdown, and interconversion of carbohydrates in living organisms. You can get carbs from sweets, fruit, milk, yogurt, bread, cereal, rice, pasta, potatoes, and other vegetables.

There are two major types of carbohydrates (or carbs) in foods: simple and complex.

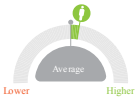
Simple carbohydrates: These are called simple sugars. They are rapidly absorbed resulting in a rise in blood glucose after consumption, which is believed to cause health problems like diabetes and heart disease. Simple carbohydrates are present in processed foods and refined products, and also found naturally in fruits, milk and milk products.

Complex carbohydrates: These are also called starches. They take longer to be absorbed and you will feel fuller for a longer period of time. Complex carbohydrates make blood sugar levels more stable and tend to be more nutrients and fiber dense than simple carbohydrates. Some examples of complex carbohydrates are unrefined grain products, legumes, bread, starchy vegetables, and others. These types of carbohydrates usually contain more vitamins, minerals, and are rich in fiber, which helps your digestive system to work well.

SUMMARIZED ANALYSIS



How your child's Carbohydrate Metabolism compares to the Asian population.



11% higher than average
Higher carbohydrate metabolism may greatly improve cognitive development.

Top 34% of Asian population
Your baby is able to break down sugar and starch efficiently.

What does this tell you?

Good ability to digest vegetables associated with a healthy starch-digesting enzyme variation.
Compared to other babies, your baby may have a greater ability to digest starches thanks to a healthy starch-digesting enzyme gene.

Better digestion of starch with an inborn good level of amylase
Your child carries a genetic variation that is linked to a good level of amylase, an enzyme that helps to digest starch.

RESULTS & RECOMMENDATIONS

OVERALL

Your child's carbohydrate metabolism is relatively better than average. Thanks to beneficial variants on the AMY1 and AMY2 genes, his good level of amylase production helps him digest starch and starchy foods better. As a result, you can start introduce him to a wide variety of starch like grains, fruits and vegetables, preferrably cooked starchy foods, when he is around 6 - 9 months old.

Good ability to digest vegetables associated with a healthy starch-digesting enzyme variation.

- *Dietary carbohydrates account for the greatest source of energy intake in most children's diets and play an important role in determining energy balance, which regulates body weight (BW) and adiposity. The digestion of polysaccharide carbohydrates begins in the mouth by action of salivary amylase, which catalyzes the hydrolysis of the glycosidic bonds of starch, followed by the action of pancreatic amylase. This process is encoded by AMY1 and AMY2 genes.*
- *Your baby carries a healthy version of the AMY1 gene. This genetic variation encodes salivary and pancreatic amylases, a special active protein that helps your baby digest starch. Your baby's genetic change is linked to a relatively better ability to digest starchy foods compared to other variations of this genetic change.*
- *This means that your baby should have little to no trouble digesting starchy foods starting at around 6 months of age. This also means that infant formulas that have various starches in them shouldn't cause your baby any undue trouble in terms of digestion.*
- *Since your baby is probably able to digest starches just fine, you may want to consider introducing him to the most common sources of starch: grains, fruits, and vegetables. Try a wide variety of starchy foods, in various textures, to see which ones your baby enjoys the most.*

Better digestion of starch with an inborn good level of amylase

- *Your child carries a genetic variation that is linked to a good level of amylase, an enzyme that digests starch. Please note that his digestion may do well with cooked starches added to his diet.*
- *Your baby carries a beneficial genetic variation in the AMY1 gene. This variation is associated with a higher inborn ability to produce amylase. Amylase is an enzyme (a type of active protein molecule) that is involved in the digestion of starches (carbohydrates).*
- *You can safely introduce solid foods, including starches, to your baby around 6-9 months old, without too much worry that he'll have trouble digesting the starches. You can start your introduction of solid starches with cooked versions of foods with wheat, tapioca, corn, rice, or potato starch. Cooked starches such as these are better digested and absorbed by infants. This is likely because cooking enhances the breakdown of starch by amylase.*

THE SCIENCE BEHIND

We analyzed 17 genes to correctly determine the genetic condition of your child's Carbohydrate Metabolism. Notable among these are:

AMY1-AMY2

Result: CC (beneficial)

Impact to your child's Carbohydrate Metabolism: MEDIUM

AMY1 makes a salivary protein called amylase, while AMY2 produces the pancreatic version of this protein. Amylase is an enzyme involved in digestion of carbohydrates in the form of starchy foods. When you consume starchy foods, amylase in your saliva will start the process of the disgestion of starches. To do so, amylase breaks down starches into smaller molecules and so they can be used as an energy source.

Children with CC variant may have a greater ability to digest starches thanks to a healthy starch-digesting enzyme gene.

AMY1

Result: AT (beneficial)

Impact to your child's Carbohydrate Metabolism: MEDIUM

AMY1 makes a salivary protein called amylase, while AMY2 produces the pancreatic version of this protein. Amylase is an enzyme involved in digestion of carbohydrates in the form of starchy foods. When you consume starchy foods, amylase in your saliva will start the process of the disgestion of starches. To do so, amylase breaks down starches into smaller molecules and so they can be used as an energy source.

Children with AT variant have better digestion of starch with an inborn good level of amylase.

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FAT METABOLISM

19 genes analyzed

2 detailed results

2 personalized recommendations

WHAT IS **FAT METABOLISM**?

Fats play important functions in our bodies as both a source of energy and for energy storage.

Unsaturated fat is found in avocados, salmon, and other food sources. Unsaturated fats help to manage cholesterol levels and reduce the risk of cardiovascular disease.

Saturated fat is found in red meat, coconut oil, cheese, and other food sources. Saturated fat increases your risk of cardiovascular disease and diabetes.

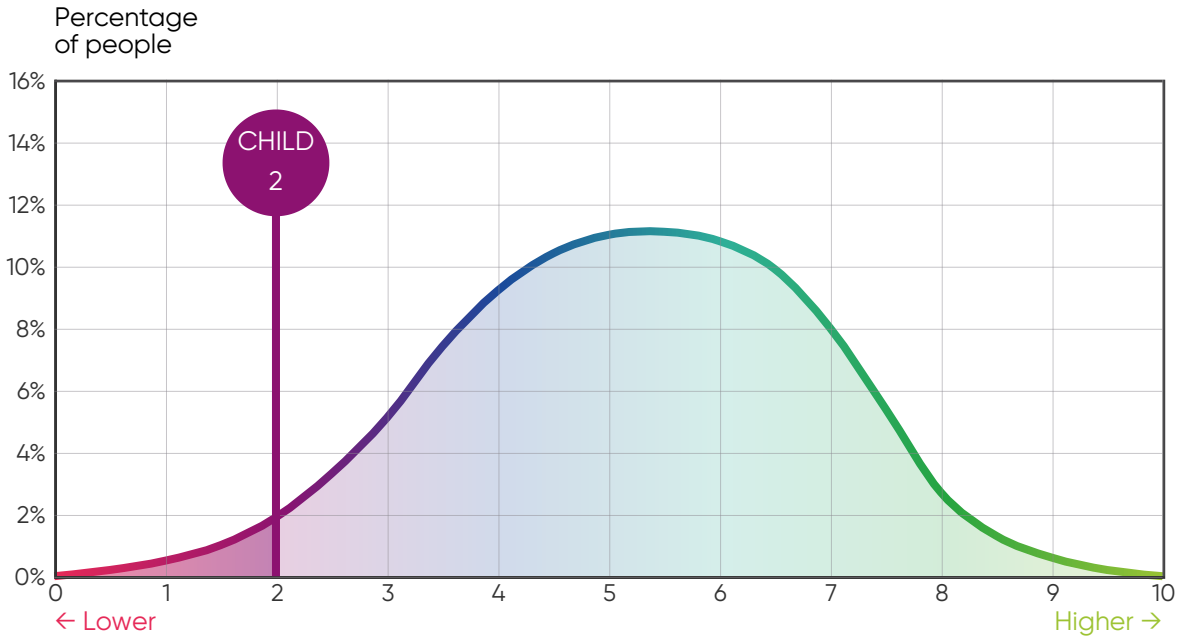
Trans fats are found in snack foods, cookies and cakes, and fried foods. Trans fats are often listed on the food label. Like saturated fats, trans fats can raise cholesterol and increase the chance of getting heart disease.

Fat metabolism is the process by which fats are broken down into smaller molecules so they can be used by our cells for energy. Our bodies can make saturated fats from building blocks such as fatty acids and glycerol. However, the other kind of fats, **the healthy ones such as unsaturated fats**, can only be obtained from our diet. This means that essential unsaturated fatty acids can be supplied only by diet, and as such you must make sure to include healthy fats in your diet.

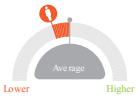
The Việt Nam National Institute of Nutrition, recommended the following Recommended Dietary Allowance (RDA) (g/day).

AGE	MALE	FEMALE
1-2	33-44	31-41
3-5	36-51	34-48
6-7	35-52	32-49
8-9	40-61	38-58
10-11	48-72	44-66
12-14	56-83	51-77
15-19	63-94	53-79
20-29	57-71	46-57
30-49	52-65	45-56
50-69	52-65	44-55
>70	49-61	40-51

SUMMARIZED ANALYSIS



How your child's Fat Metabolism compares to the Asian population.



25% lower than average
Lower fat metabolism may put your baby at risk when eating unhealthy fats excessively.

Bottom 11% of Asian population
Your baby is associated with an increased sensitivity to saturated fats.

What does this tell you?

If not managed well during the young age, incurs a higher risk of hypercholesterolemia due to a "hunger" gene effect.
Your baby carries a version of the "hunger gene" LEPR that causes 4.1 times higher risk of hypercholesterolemia (very high levels of cholesterol in the blood) with a high fat diet.This effect is shown later in life.

Higher risk of high cholesterol later in life if consumed an excessive high fat diet during a young age.
We have found that your baby has a genetic mutation in the PPARD gene that is linked to a higher risk of high cholesterol with the consumption of too much saturated fat.

RESULTS & RECOMMENDATIONS

OVERALL

Your child's fat metabolism is significantly below average. If your baby consumes excessive fat, he might have a higher risk of high cholesterol later in life due to his version of the LEPR and PPARD genes. However, the reality is that fat and cholesterol are important for a baby's brain development and vital hormones. Hence, you should never limit badly these substances during the first 2-year. After that, please beware of helping him choose a heart-healthy diet that emphasizes fiber intake and keeps him fit.

If not managed well during the young age, incurs a higher risk of hypercholesterolemia due to a "hunger" gene effect.

- *The LEPR gene tells the body to make the leptin receptor. The leptin receptor, found in the brain's hunger control center (the hypothalamus), binds a hormone called leptin. Leptin tells the brain that the body is full. Your child's version of the LEPR gene is found in people who are unable to feel fully satiated. This might be because of a faulty leptin receptor.*
- *Leptin receptor deficiency also causes severe obesity beginning in the first few months of life. Affected individuals are of normal weight at birth, but they are constantly hungry and quickly gain weight. Beginning in early childhood, affected individuals develop abnormal eating behaviors such as fighting with other children over food, hoarding food, and eating in secret.*
- *Recent research studies have shown that this harmful variant is also associated with Familial hypercholesterolaemia. Familial hypercholesterolaemia (FH) is a common genetic cause of premature coronary heart disease (CHD). Globally, one baby is born with FH every minute. If diagnosed and treated early in childhood, individuals with FH can have normal life expectancy.*
- *You need to help your child to develop a healthy lifestyle to prevent the negative effect from the LEPR gene. During the weaning period, you should provide a heart-healthy diet that emphasizes fruits, vegetables, whole grains, poultry, fish and nuts, while limiting sugary foods and beverages. Eating this way may also help to increase his fiber intake, which is beneficial.*

Higher risk of high cholesterol later in life if consumed an excessive high fat diet during a young age.

- *Your baby has a harmful genetic variation in the PPARD gene. Individuals with this variation are more susceptible to higher levels of LDL ("bad") cholesterol in the face of a diet high in saturated fat during the young age.*
- *The reality is that fat and cholesterol are important for a baby's development. These nutrients help a baby grow, develop a healthy brain, and even make critical hormones. Therefore, a baby should never be severely restricted in his intake of fat or cholesterol, especially if he's younger than 24 months.*

- *However, if your baby has a well-defined family history of high cholesterol or he has a known family history of heart disease, then you should discuss cutting back on saturated fat in your baby's diet even when he is less than 2 years old. Exactly how much to cut back, and in which part of the diet, is something only his pediatrician can determine.*
- *Between the ages of 2 and 5 years, you should encourage your child to gradually choose foods with less fat, saturated fat, and trans fat. By age 5, their overall food choices, like yours, should include heart-healthy foods such as low-fat dairy products, skinless chicken, fish, lean red meats, whole grains, fruits, and vegetables.*
- *Please note that restricting a child's eating too much may harm growth and development or encourage undesirable eating behaviors. Before making any drastic changes in a child's eating plan or physical activity habits, talk with your child's doctor or a registered dietitian. If your child is younger than 2 years and obese or overweight, consult your child's doctor before restricting fat or calories, such as with reduced-fat milk.*

THE SCIENCE BEHIND

We analyzed 19 genes to correctly determine the genetic condition of your child's Fat Metabolism. Notable among these are:

LEPR

Result: AG (harmful)

Impact to your child's Fat Metabolism: HIGH

LEPR is a receptor for leptin (hormone that regulates body weight), and is involved in the regulation of fat metabolism, as well as in the generation of white blood cells. Leptin receptor deficiency is a condition that causes severe obesity beginning in the first few months of life. Affected individuals are of normal weight at birth, but they are constantly hungry and quickly gain weight. The extreme hunger leads to chronic excessive eating and obesity. Beginning in early childhood, affected individuals develop abnormal eating behaviors such as fighting with other children over food, hoarding food, and eating in secret. People with leptin receptor deficiency also have delayed puberty or do not go through puberty, and may be unable to conceive children.

Children with AG variant have a higher risk of hypercholesterolemia due to a "hunger" gene effect in the LEPR gene.

PPARD

Result: CC (harmful)

Impact to your child's Fat Metabolism: MEDIUM

PPARD encodes a nuclear hormone receptor that implicated in varieties of biological processes, including epidermal cell proliferation, migration, lipid and glucose metabolism. PPARD is highly expressed in brain, heart, skeletal muscle, adipose tissue and pancreatic islets. The overexpression of PPARD was observed in various human cancers, such as colorectal, pancreatic and lung cancer. Research studies revealed that PPARD polymorphisms were associated with lipid levels, metabolic traits, obesity and risk of coronary heart diseases (CHD).

Children with CC variant have higher risk of high cholesterol later in life if consumed an excessive high fat diet during their young age.

PROTEIN METABOLISM

14 genes analyzed

2 detailed results

2 personalized recommendations

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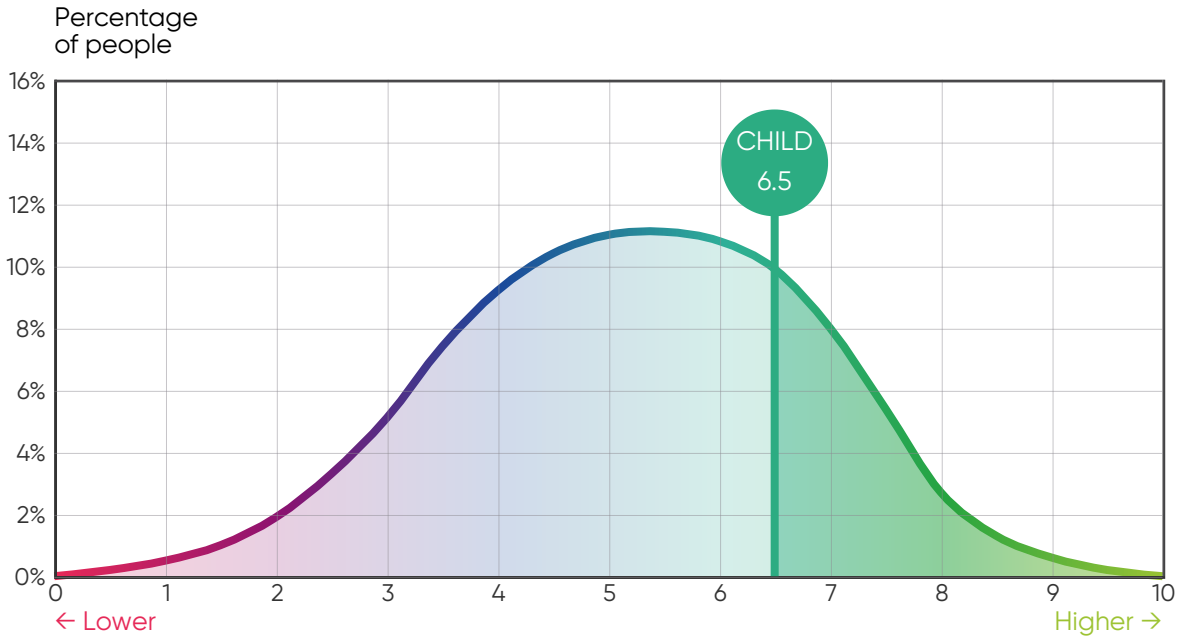
WHAT IS **PROTEIN METABOLISM**?

Proteins are important for the formation and function of the cells in the body. Proteins also function as enzymes, in membranes, as transport carriers, and as hormones; and their component amino acids serve as precursors for nucleic acids, hormones, vitamins, and other important molecules. Proteins make up our hair, skin, and nails. Proteins are also important to carry out biological functions in our cells, such as creating cell walls, transporting nutrients to where they are needed, and directly participating in biological reactions for our survival.

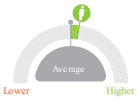
Proteins are made out of smaller building blocks called amino acids; this is the equivalent of individual Lego pieces that come together to form a bigger piece. Some of these amino acids, or Lego units, are made in our bodies while others are obtained from diet, which is why a balanced diet containing protein is important.

Proteins are a major energy source. Proteins have been shown to help in weight management, but not all protein types are the same. The rate at which you digest protein may affect the rate at which it is absorbed by your body to generate energy. Proteins are also important for building and maintaining healthy muscles and bones. Animal products, such as meat, fish, and eggs, are rich sources of protein. There are also vegetarian sources of protein, such as legumes, nuts, and others, but their protein content is lower.

SUMMARIZED ANALYSIS



How your child's Protein Metabolism compares to the Asian population.



10% higher than average
Higher protein metabolism is considered beneficial for your baby's digestive system.

Top 35% of Asian population
Your baby's stomach and small intestine can efficiently break down and absorb proteins.

What does this tell you?

No additional risk of accumulating toxic compounds from high protein milk formula
Your baby carries a beneficial genetic variation that is linked to a healthy level of a toxic compound, such as ammonia, in the presence of a high protein diet.

No additional risk of colorectal cancer later in life, so long as a healthy diet is followed from the beginning.
Your baby's GATA3 gene is free of genetic mutations that would raise your child's colorectal cancer risk in the face of the consumption of processed meats.

RESULTS & RECOMMENDATIONS

OVERALL

The gene testing result indicates that your child has a relatively better protein metabolism than average. Beneficial variants in the MTHFR gene decrease your baby's risk of accumulation of ammonia in response to a high protein diet. Therefore, you might not need to worry about high protein milk and formula diets. Your baby's healthy version of the GATA3 gene also partially protects him from colorectal cancer later in life. To ensure his protection, have his diet full of organic, whole, fresh fruits and vegetables, such as apples, bananas, and carrots.

No additional risk of accumulating toxic compounds from high protein milk formula

- *The MTHFR gene provides instructions for making an enzyme called methylenetetrahydrofolate reductase. This enzyme plays a role in processing amino acids, the building blocks of proteins. There are harmful variants of the MTHFR gene that increase the risk of cumulating toxic compounds from high protein milk formula.*
- *Your child carries the favorable genetic variation in the MTHFR gene. This variation maintains a healthy level of ammonia in individuals who consume a high protein diet. Abnormally high levels of ammonia make individuals feel tired after a high protein meal.*
- *Children need the right amount of protein in their milk or formula in order to ensure they grow to their full height. However, excessive protein intakes may cause many issues. However, children with your baby's genetic profiles don't need to worry about high protein milk and formula diets. Please note that taking excessively high protein diets for a long time can still cause obesity.*

No additional risk of colorectal cancer later in life, so long as a healthy diet is followed from the beginning.

- *Our analysis shows that your child has a healthy variation of the GATA3 gene. This is great news as this genetic variation is not linked to a higher risk of colorectal cancer later on in life.*
- *Nevertheless, genetics do not control the entire (overall) risk of colorectal cancer. Environmental and lifestyle factors do so as well. Among East Asian countries, China, Japan, Korea, Malaysia, and Singapore have the highest prevalence of colorectal cancer. This may be as a result of their advanced economies, which allow more people to spend more money on the consumption of a lot of red and processed meats, which are known causes of colorectal cancer.*
- *What you should be aware of is that it takes decades of following a proper diet to lower your child's risk of cancer down the line. Therefore, the key to ensuring your child's good genetics don't go to waste is to place him on a healthy path right from the very beginning.*
- *This means you should ensure that your child is introduced to high amounts of organic, whole (unprocessed), and fresh fruits and vegetables. Fruits and vegetables believed to help protect against colorectal cancer include the following, which you can add to your child's diet: berries, apples, bananas, tomatoes, carrots, onions and oranges.*

THE SCIENCE BEHIND

We analyzed 14 genes to correctly determine the genetic condition of your child's Protein Metabolism. Notable among these are:

MTHFR

Result: TG (beneficial)

1 in 4
people carry beneficial variant

Impact to your child's Protein Metabolism: MEDIUM

Methylenetetrahydrofolate reductase, or MTHFR for short, is an enzyme involved in the metabolism of vitamin B9 (same as folate, folic acid). We obtain folic acid through our diet, but in order for our cells to utilize it, it needs to be converted into an active form, meaning another version of itself. MTHFR allows us to convert folic acid obtained through our diet into the biologically active form (called methylfolate) so cells can use it. One documented example of the importance of MTHFR is its role in preventing birth defects, which is why pregnant women are advised to take folate supplements.

Children with TG variant have no additional risk of accumulating toxic compounds from overly high protein milk formula.

GATA3

Result: GG (beneficial)

4 in 7
people carry beneficial variant

Impact to your child's Protein Metabolism: MEDIUM

GATA3 is a transcription factor and is critical for the embryonic development of various tissues such as kidney, liver, brain, spinal cord, mammary gland and the proper functioning of the endothelium of blood vessels. Transcription factors are known for decoding the information in our genome to express unique set of proteins. Loss of GATA3 function leads to congenital disorder of hyperparathyroidism (lack of calcium and muscle spasms), deafness and kidney malformations.

Children with GG variant have no additional risk of colorectal cancer later in life, so long as a healthy diet is followed from the beginning.

MILK METABOLISM

39 genes analyzed

2 detailed results

2 personalized recommendations

Genetica®

WHAT IS **MILK METABOLISM**?

In the Baby Well report, we give numerous gene-based recommendations for why a child may need to drink a slightly different version of regular cow's milk. For instance, some children may be better off consuming low-fat cow's milk or cow's milk fortified with vitamin D as a result of special genetic variations.

However, there are quite a number of reasons for why a child may be unable to tolerate, physiologically-speaking, any regular cow's milk.

As a case in point: some kids cannot properly digest sugars, like lactose, found in milk. This leads to a condition called lactose intolerance and the need to seek out a special kind of cow's milk that has had its lactose removed enzymatically.

In other cases, a child's immune system can overreact to normally harmless substances, like proteins found in milk. This can lead to a cow's milk allergy, requiring a switch to plant milk in order to avoid trips to the emergency room.

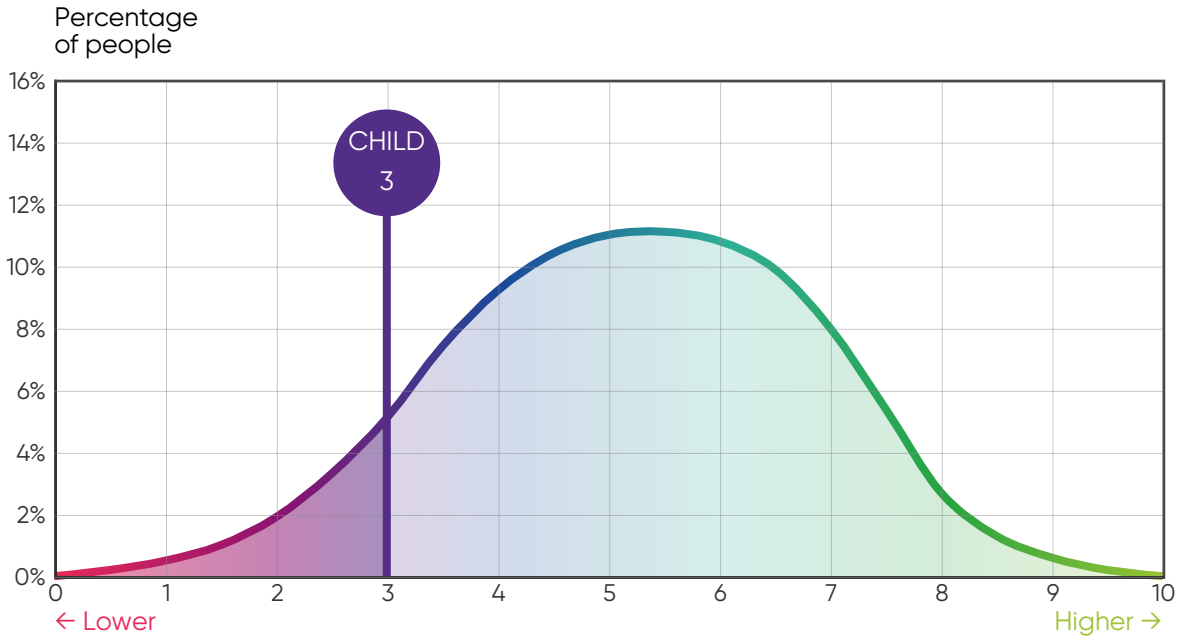
Further still, some kids are born with serious genetic disorders that require specialized infant formulas. For example, this happens with a condition known as phenylketonuria. Without a switch to a special formula, serious developmental issues can occur.

Whether due to a digestive disorder, allergy, or genetic condition, you can now appreciate that some babies can't tolerate normal cow's milk.

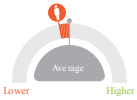
We'll let you know if that's the case with your baby in the Milk Metabolism section.

A low Milk Metabolism score means that your child's body may not be able to tolerate regular cow's milk for a specific reason that we will make clear. A high Milk Metabolism score means your child's body is likely to tolerate any type of milk or infant formula just fine.

SUMMARIZED ANALYSIS



How your child's Milk Metabolism compares to the Asian population.



13% lower than average
Your baby may require more special types of milk and solid food at weaning.

Bottom 21% of Asian population
You may need to spend more time and effort to select the most optimal milk and solid foods for your baby.

What does this tell you?

Exacerbated with cow milk allergy if there is parental history of cow milk allergy
Our analysis shows that your baby's IL10, immune system, gene has a mutation that is linked to a higher risk of cow's milk allergy; especially with a parental history.

Highly sensitive to the proteins in cow's milk based formula, linked to an immune system gene variation.
Your baby carries a mutation in the STAT6 gene that might predispose him to a higher risk of not be able to digest the proteins in the cow's milk; affecting the growth of your baby.

RESULTS & RECOMMENDATIONS

OVERALL

Your baby's milk metabolism is lower than average. It's likely for your baby to react negatively to cow's milk and cow's milk-based product, due to harmful variants in his immune system genes IL10 and STAT6. This allergy might even be worsened if his parents have had cow's milk allergy before. During the breastfeeding period, his mother should also avoid animal-based dairy products in general, including product from, cow, goat and sheep's milk. If needed, consult the pediatrician about a specialized infant formular designed for those with cow milk allergy.

Exacerbated with cow milk allergy if there is parental history of cow milk allergy

- *Your child carries a harmful mutation in the IL10 gene. The IL10 gene encodes an anti-inflammatory, and immune system-modulating, substance. Genetic changes to the IL10 gene have been linked to numerous allergic and other immune system conditions, such as asthma and food allergies.*
- *In your baby's case, his genetic variation is linked to a higher risk of cow's milk allergy (CMA), an allergic reaction to proteins found in cow's milk. This finding has been confirmed in East Asian (Chinese) babies aged 0-12 months. Importantly, this specific genetic change shows that the risk that your baby may have CMA is higher if you or your baby's other biological parent has a history of allergies.*
- *In babies with CMA, these reactions can begin minutes after consuming cow's milk. In other babies, the reactions take several days to appear. This makes it difficult for many parents to diagnose CMA. Therefore, only your baby's pediatrician can truly diagnose CMA and your baby should be tested for this disorder given his genetic variation.*
- *If your child is diagnosed with CMA, he may be unable to have any dairy products made with cow's milk, such as milk, yogurt, ice cream, and butter. Many children with CMA are also allergic to other animal-based dairy products, like cheeses made from sheep or goat milk.*
- *You are highly recommended that you continue breastfeeding while avoiding the consumption of all dairy products yourself. Or, the pediatrician may recognize that there's a need for your baby to consume a special infant formula designed for kids with cow milk allergy; if so, hypoallergenic formulas may be a good option for you to consider.*

Highly sensitive to the proteins in cow's milk based formula, linked to an immune system gene variation.

- *Your baby carries a harmful mutation in the STAT6 gene that is involved in the regulation of the protein molecules, called IgE antibodies. IgE antibodies are very closely involved with digestion problems when consuming cow's milk. Children carrying this variant are at higher risk of having larger amounts of IgE in response to cow's milk. This may indicate a higher risk of cow's milk digestion complication.*

- *The signs and symptoms of this complication include—but aren't limited to—wheezing, diarrhea, and hives after the consumption of cow's milk. Depending on each child, these and other signs and symptoms may appear quickly or slowly after the consumption of cow's milk.*
- *One of the many possible tests and methods used by doctors to diagnose this complication is called serum-specific IgE. Kids with your baby's genetic variation tend to have higher IgE antibodies against cow's milk proteins than other kids.*
- *There is some good news, however. Most children outgrow this digestion complication (around 80% do so) by adulthood. Another piece of good news is that kids with your baby's specific genetic variation tend to outgrow this problem faster than average. Some outgrow this digestion problem as early as 12 months of age.*
- *Until your baby's doctor advises otherwise, your baby will need to limit his usage from cow's milk products. If you breastfeed, you may be advised to stay away from cow's milk products as well. Your baby's doctor may even suggest feeding with a specialized infant formula. Please do not feed your baby any non-standard milk that hasn't been explicitly approved by his pediatrician.*

THE SCIENCE BEHIND

We analyzed 39 genes to correctly determine the genetic condition of your child's Milk Metabolism. Notable among these are:

IL10

Result: TT (harmful)

Impact to your child's Milk Metabolism: MEDIUM

IL10 encodes a cytokine produced primarily by monocytes and to a lesser extent by lymphocytes. This cytokine has pleiotropic effects in immunoregulation and inflammation. It also enhances B cell survival, proliferation, and antibody production. Knockout studies in mice suggested the function of this cytokine as an essential immunoregulator in the intestinal tract. Mutations in this gene are associated with an increased susceptibility to infection and rheumatoid arthritis.

Children with TT variant may be exacerbated with cow milk allergy if there is parental history of cow milk allergy.

STAT6

Result: TT (harmful)

Impact to your child's Milk Metabolism: MEDIUM

The protein encoded by the STAT6 gene is a member of the STAT family of transcription factors. In response to cytokines and growth factors, STAT family members are phosphorylated by the receptor associated kinases, and then form homo- or heterodimers that translocate to the cell nucleus where they act as transcription activators. This protein plays a central role in exerting IL4 mediated biological responses. It is found to induce the expression of BCL2L1/BCL-X(L), which is responsible for the anti-apoptotic activity of IL4. Knockout studies in mice suggested the roles of this gene in differentiation of T helper 2 (Th2) cells, expression of cell surface markers, and class switch of immunoglobulins.

Children with TT variant are highly sensitive to the proteins in cow's milk based formula, linked to an immune system gene variation.

Genetica®

BITTER TASTE

8 genes analyzed

2 detailed results

2 personalized recommendations

WHAT IS **BITTER TASTE**?

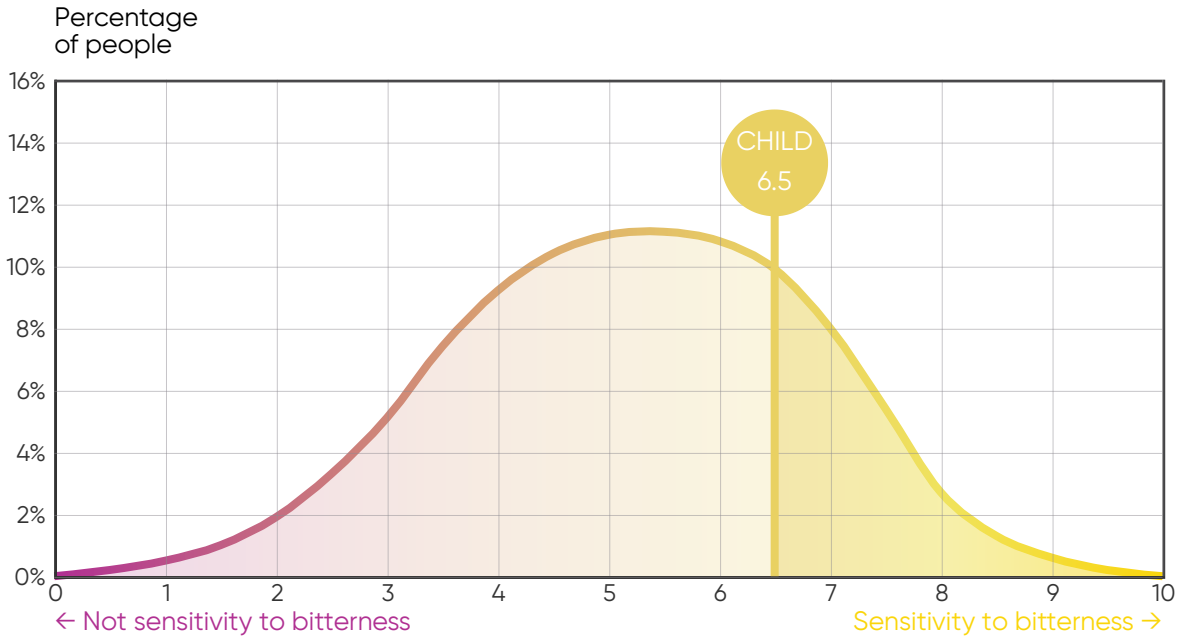
Ever wonder why some children are reluctant against spinach, asparagus, brussels sprouts with an explanation that these vegetables are bitter. Part of that explanation may lay in their genes.

One of the most studied genes for bitter taste is TAS2R38. This gene encodes the bitter taste receptor. There are two common forms (or alleles) of the TAS2R38 gene, one of the common forms is a tasting allele, and the other is a non-tasting allele. Each allele codes for a bitter taste receptor protein with a slightly different shape. The shape of the receptor protein determines whether a person can taste bitterness or no taste. Since all people have two copies of every gene, combinations of the bitter taste variants determine whether someone finds TAS2R38 intensely bitter and the ability to taste it correlates strongly with the ability to taste other bitter substances that do occur naturally.

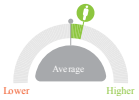
Vegetables such as collard greens, kale, broccoli, cabbage, and brussels sprouts, contain a compound called glucosinolates and isothiocyanates, and much of the perceived "bitterness" of these vegetables is mediated through TAS2R38. These receptors influence release of special hormones involved in appetite regulation, and therefore may influence caloric intake, which in turn results in unhealthy eating habits. TAS2R38 gene mutations are associated with alterations in individual sensitivity to bitter taste and may affect food intake.

Research has shown that individuals with non-bitter taste alleles eat more vegetables in their food. However, tasters vary greatly in their sensitivity to bitterness. While the bitter gene has about 85% of the total influence over whether someone is a taster or a non-taster (heritability), there are many other things that affect bitter tasting ability. Also, an individual's sensitivity may change over time, since people may find that they can taste bitterness on some days, but not on others. Studies showed that individuals with the "strong bitter tasters" gene variant were less likely to be smokers. This may be due to the fact that people with bitter taste are likely the taste of cigarettes bitter and may be less likely to smoke in comparison to non-tasters.

SUMMARIZED ANALYSIS



How your child's Bitter Taste compares to the Asian population.



14% higher than average
Your baby can taste bitter well as a result of high taste sensitivity.

Top 35% of Asian population
It is possible that your baby might be dislike many types of vegetables, such as kale or cabbage, because those vegetables taste bitter to him.

What does this tell you?

Likely to build a habit to consume fewer vegetables due to high bitter taste sensitivity
Your baby has a gene that allows him to sense bitter compounds well. This ability is linked to a higher risk of consuming less vegetables because many leaf and green vegetables taste bitter to your baby.

Probably can taste bitter in citrus fruits, such as grapefruit, as a result from a taste receptor gene
When analyzing the genes associated with ability to taste bitter in citrus fruits, such as grapefruit, we found that it is likely your child can taste the bitterness in them.

RESULTS & RECOMMENDATIONS

OVERALL

Your child might have a relatively higher bitter taste than others. Your child tends to perceive bitter taste in foods relatively well due to his genes. On one hand, you should limit your child from having super sweet or salty foods. On the other hand, he might eat fewer vegetables. Hence, bitter-tasting foods should not be completely avoided as some of them contain beneficial phytonutrients. You can try to cook it with a little bit of sweet and slowly introduce foods with natural bitterness to him, especially during the weaning process.

Likely to build a habit to consume fewer vegetables due to high bitter taste sensitivity

- *Many bitter foods contain healthy compounds, including vitamins, minerals, and antioxidants. Some of these compounds may have anti-cancer properties. Your baby's genetic profile reveals that he can taste bitter foods relatively well. This actually makes him sense the bitterness in most of the leaf and green vegetables, that may make him eat less vegetables.*
- *Please note that many healthy bitter foods can be made more palatable with sweets. The next time you make your child something healthy vegetables, but with a bitter taste, experiment by cooking it with a little bit of sweet.*

Probably can taste bitter in citrus fruits, such as grapefruit, as a result from a taste receptor gene

- *Young baby has a preference for certain tastes like sweets and a dislike for others like bitterness. From the very beginning, babies are attracted to sweet flavor, to help them to drink breast milk, a naturally sweet food. They may also like salty tastes, but are averse to sour and bitter. In nature most poisonous or toxic plants have a sour or bitter taste, and children are genetically programmed to naturally avoid flavors such as sour and bitterness.*
- *For your baby, you should limit your child from having super sweet and super salty foods; otherwise, he will develop a strong inclination towards sweet and salty foods. As a consequence, that may not help him to develop a taste for other foods, to build a more balanced diet. It is recommended that you slowly introduce fruits and vegetables with natural bitterness during the weaning process.*

THE SCIENCE BEHIND

We analyzed 8 genes to correctly determine the genetic condition of your child's Bitter Taste. Notable among these are:

TAS2R38

Result: CC (harmful)

Impact to your child's Bitter Taste: MEDIUM HIGH

TAS2R38 protein controls the ability to taste bitter-tasting compounds (glucosinolates), found in many plants such as broccoli, Brussels sprouts and cabbage. In humans, there are two predominant common forms that either can taste bitterness (Taster allele) or no taste for bitterness (Non taster allele). TAS2R38 gene mutations are associated with alterations in individual sensitivity to bitter taste and may affect food intake.

Children with CC variant are likely to build a habit to consume fewer vegetables due to high bitter taste sensitivity.

TAS2R16

Result: TT (normal)

Impact to your child's Bitter Taste: MEDIUM HIGH

TAS2R16 gene encodes a member of a family of candidate taste receptors that are members of the G protein-coupled receptor superfamily. These family members are specifically expressed by taste receptor cells of the tongue and palate epithelia. Each of these apparently intronless genes encodes a 7-transmembrane receptor protein, functioning as a bitter taste receptor.

Children with TT variant probably can taste bitter in citrus fruits, such as grapefruit.

Genetica®

SWEET TASTE

10 genes analyzed

2 detailed results

2 personalized recommendations

WHAT IS **SWEET TASTE**?

Sweet taste perception is the ability to perceive sweetness in foods or drinks while consuming. Sweet is one of the five basic tastes and it has been well studied. In one's mouth, the sweet substance is detected by taste receptors of the tongue's taste buds. This taste sensation influences the sweet consumption in food selection and dietary intake.

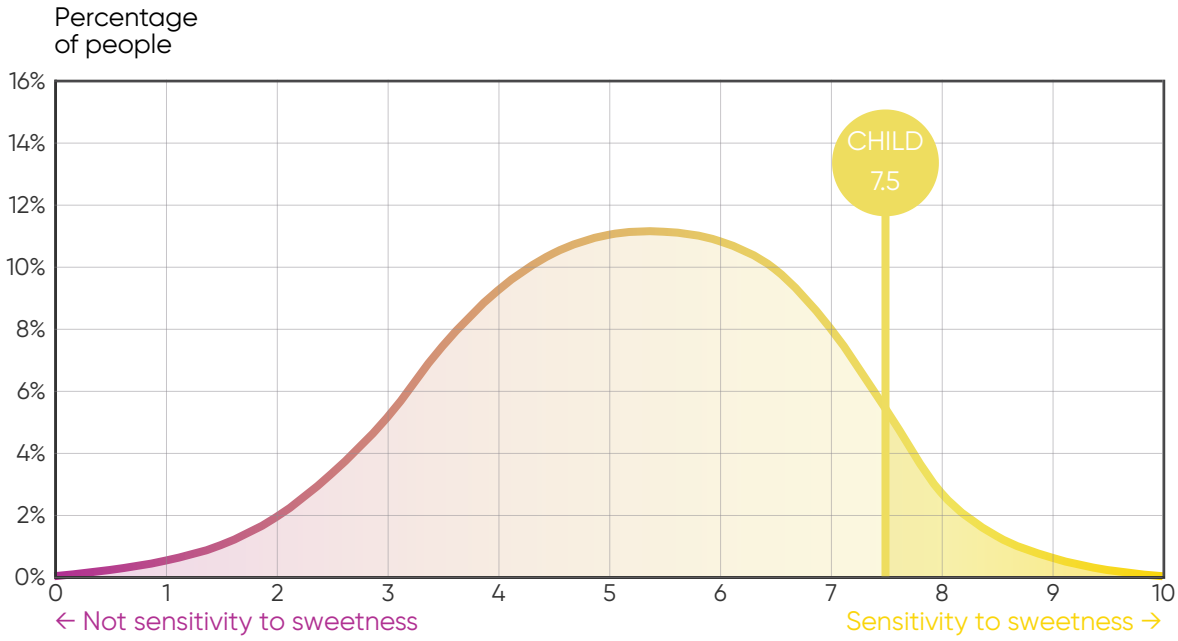
The sweet taste perception is different among people. People with increased ability to taste sweetness are able to taste sweetness very well, therefore, they are likely to consume less sweet foods or drinks. People with reduced ability to taste sweetness, on the contrary, may require to have more sweet foods or drinks to feel the flavor. For instance, when two children are having chocolate-flavored milk together, a child who has a high sweet taste is able to feel sweetness better and notice the drink is sweet enough. The other has a low sweet taste will consider the drink having a light sweet taste, therefore, he may add more chocolate syrup or sugar to feel its sweetness.

Providing that sweet taste is one of the favorite tastes, preferences for sweet foods and beverages are important contributors to body weight and obesity development. Understanding your child sweet taste can help:

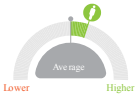
- Adjust his diet according to his genotype to boost his overall health.
- If you are the one who prepares meals for the family, understanding the sweet taste of family members can help you prepare more palatable meals.
- Explain questions/concerns related to sweetness, such as why people feel sweet differently from a certain type of food.

Research has shown that sweet taste perception is mediated by the sweet taste receptor TAS1R2, TAS1R3. These two proteins recognize diverse natural and synthetic sweeteners. TAS1R2 is likely the sole sweet-specific taste receptor and it also contains the primary binding site of sweet compounds. Mutations in TAS1R2 are associated with sucrose taste and sugar intake. Particularly, they are associated with a habit of sugar consumption in overweight and obese individuals.

SUMMARIZED ANALYSIS



How your child's Sweet Taste compares to the Asian population.



20% higher than average
Your baby's genetic test results show that he has a good sweet sensitivity. He only needs to eat a bit of sweet to feel the taste.

Top 25% of Asian population
Since your child might not incline toward sweet food, you may need to provide other types of food with high energy to support his growth.

What does this tell you?

May develop a healthy mind thanks to a genetic variation that heightens sensitivity to sugar.
Your baby may not like processed sugar as much as other kids because of a genetic variation in the TAS1R3 gene. This is great news as processed sugar is bad for your baby's brain.

Stronger possibility of healthier brain thanks to a lack of a sweet tooth genetic variation.
Your child doesn't have any genetic variation that raises his risk of having a significant sweet tooth. This may indirectly protect his developing brain from the damaging effects of sugar.

RESULTS & RECOMMENDATIONS

OVERALL

Your child's sweetness sensitivity is higher than average. Thanks to beneficial variants in the TAS1R3 and FGF21 genes, your baby is not particularly fond of sweet foods, thereby increasing his chance of healthy mind and brain development. At least for the first 36 months of his life, avoid feeding him any processed sweets. As he grows up, encourage him to choose healthy sweets like fruits, instead of processed sugar like cakes, candy, or ice cream. You can even try agave syrup when cooking for him.

May develop a healthy mind thanks to a genetic variation that heightens sensitivity to sugar.

- *The TAS1R3 gene mediates the way a person perceives the taste of something sweet. In other words, one person may think that a piece of candy is extremely sweet while another person will think it's barely sweet. This difference in taste perception of sugary substances is, in part, affected by variations in the TAS1R3 gene.*
- *The good news is that your baby's specific genetic variation is linked to a higher sensitivity to sweets. Meaning: your baby is more likely to be someone who doesn't crave desserts all of that much compared to others. For example, he may find that a soda pop is way too sweet due to his high sensitivity to sugar and so he'll avoid drinking any in the future.*
- *This is a good thing for many reasons. First, it will lower his intake of calories and minimize his risk of obesity. Obese children score poorer on cognitive tests. Second, the consumption of processed sugar is bad for a baby's brain, leading to poorer cognitive test scores. Therefore, your baby may get to avoid all of this thanks to his helpful genetic variation.*
- *You can do even better by him, however. Once he grows up, keep encouraging the consumption of healthy sweets instead of processed ones. For example, encourage him to eat an orange instead of a piece of cake. Instead of using high fructose corn syrup in your cooking when making banana bread, use healthier alternatives like agave syrup.*

Stronger possibility of healthier brain thanks to a lack of a sweet tooth genetic variation.

- *The FGF21 gene is involved in signaling in the hypothalamus to suppress sugar intake and alcohol consumption. Variants of this gene affect sweet taste sensitivity. Your baby's version of the FGF21 gene is not linked to having a significant sweet tooth. This is very good news because babies who have a sweet tooth that is indulged by their parents with processed sugars, perform poorly on cognitive tests. Perhaps, you won't have to deal with worrying about your baby consuming too much candy or cake, though.*

- *It's very important to know that environmental factors (upbringing) can alter even the best genetic variations, such as your baby's. For instance, babies who are fed table sugar (sucrose) or goods processed from table sugar (candy, cake, etc) show a higher threshold for sweet tastes later in life. This means babies who are fed sweets are more likely to consume more sweets later in life. This overconsumption of sugar may harm brain development, lead to obesity, and cause other issues.*
- *To protect and take benefit from your baby's beneficial genetic variation, you should avoid feeding your baby any processed sweets as long as possible, at least for the first 36 months of life, in order to set him up for intellectual success.*

THE SCIENCE BEHIND

We analyzed 10 genes to correctly determine the genetic condition of your child's Sweet Taste. Notable among these are:

TAS1R3

Result: CC (beneficial)

Impact to your child's Sweet Taste: MEDIUM

TAS1R3 protein encoded by the TAS1R3 gene is a G-protein coupled receptor involved in taste responses. The encoded protein can form a heterodimeric receptor with TAS1R1 to elicit the umami taste response, or it can bind with TAS1R2 to form a receptor for the sweet taste response.

Children with CC variant may develop a healthy mind thanks to a genetic variation that heightens sensitivity to sugar.

FGF21

Result: GG (beneficial)

Impact to your child's Sweet Taste: MEDIUM

:FGF21 gene encodes a member of the fibroblast growth factor (FGF) family, encoding for a hormone that is created in the liver. FGF family members possess broad mitogenic and cell survival activities and are involved in a variety of biological processes. This protein is a secreted endocrine factor that functions as a major metabolic regulator. The encoded protein stimulates the uptake of glucose in adipose tissue. In addition to stimulating adipocytes to uptake glucose, FGF21 also is involved in signaling in the hypothalamus to suppress sugar intake and alcohol consumption. Variants of this gene affect sweet taste sensitivity.

Children with GG variant have stronger possibility of healthier brain thanks to a lack of a sweet tooth genetic variation.

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BACKGROUND

Human genomes contain 20,000 to 25,000 genes. Genes in our bodies are inherited from our parents. Some genes don't have any negative effects, but some definitely do. Our genes make us unique as the way we are.

Basic Terminologies in Genomics

Genome

A gene is the basic unit of heredity which is a phenomenon of parents passing on their characteristics to offspring. In most cases, the material constituting genes are DNA, and genes are passed on to the next generation by replicating DNA. DNA carries genetic code, defined by 4 different bases A, T, G, C.

DNA

DNA, or deoxyribonucleic acid, is the hereditary material in humans and almost all other organisms. Nearly every cell in a person's body has the same DNA. The information in DNA is stored as a code made up of four chemical bases: adenine (A), guanine (G), cytosine (C), and thymine (T).

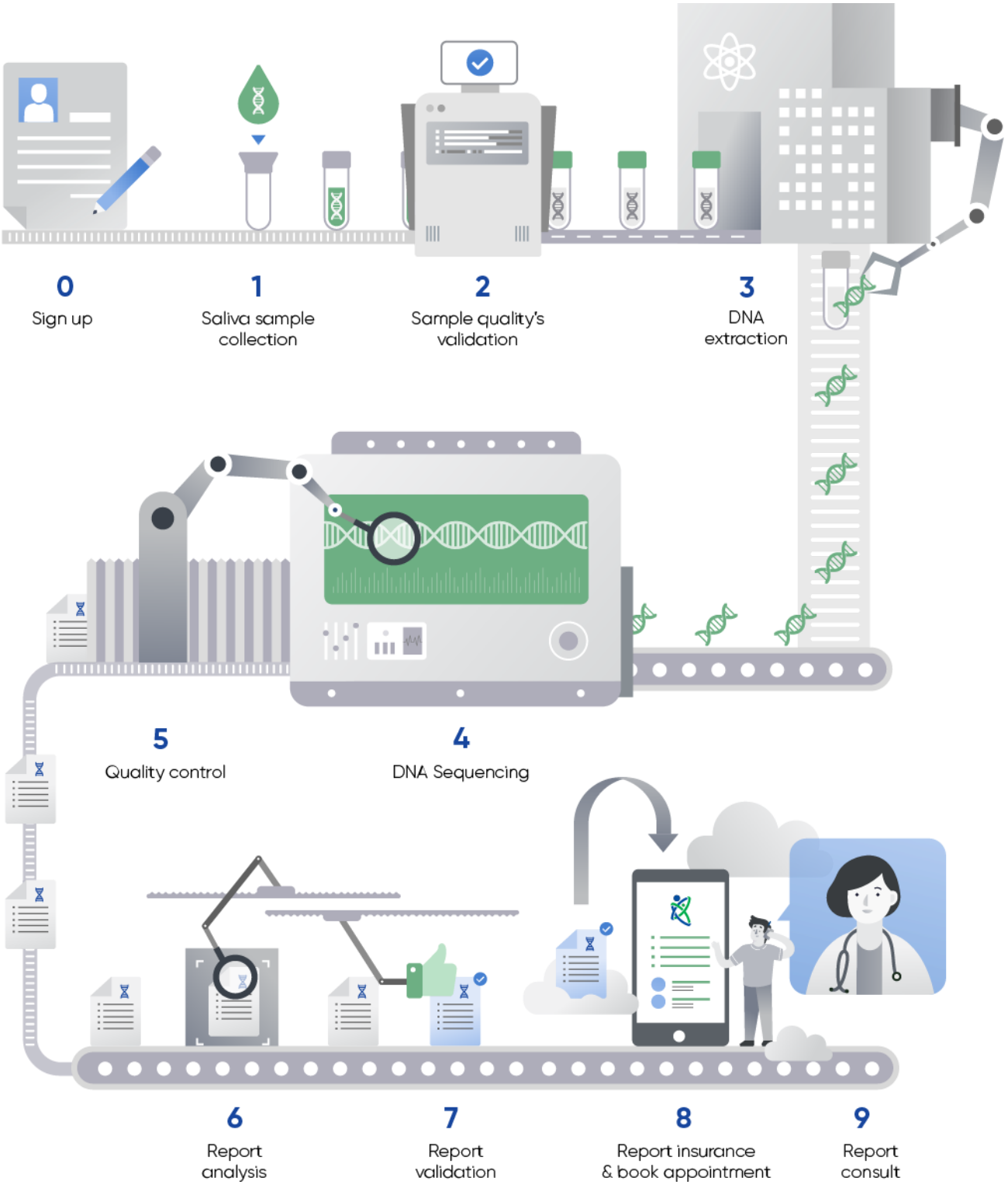
A **single-nucleotide polymorphism (SNP, pronounced snip)** is a DNA sequence variation occurring when a single nucleotide adenine (A), thymine (T), cytosine (C), or guanine (G) in the genome (or other shared sequence) differs between members of a species or paired chromosomes in an individual.

Mutation

Mutation is a change that occurs in our DNA sequence, either due to mistakes when the DNA is copied or as the result of environmental factors such as UV light and cigarette smoke.

Genes can be referred to as the "integrated body of information" which constitutes our bodies, and the purpose of genetic testing is to learn the genetic impacts of the occurrence of a specific disease in advance, and moreover, to control environmental factors as much as possible.

HOW THIS REPORT IS GENERATED?



GENETIC TESTING: AN OVERVIEW

Technological advances have dramatically impacted almost every aspect of daily life, especially in healthcare. Scientists study the complete DNA sequences and perform genetic mapping to help understand what causes disease, what makes a person to lose weight or gain weight faster than the others, and individual differences in behaviors, such as cognitive ability and personality.

With a few drops of saliva, a person can gain a wealth of personal insights. For example, a person with family history of breast cancer can find out if she carries a mutation in BRCA genes. Research shows that mutations in breast cancer (BRCA) genes significantly increase the chances of cancer. In particular, a BRCA1 mutation can increase the chances of breast cancer up to 81% and ovarian cancer up to 54%. Genetic tests will provide the information a user and their doctor need in order to take appropriate preventive actions.

On another spectrum, parents can **leverage genetic information** to create an optimal education plan to **unlock their child's potentials. Every child is unique**. A one-size-fits-all education will hinder children to unleash their innate talents. A child who has a tendency to be extrovert performs prolonged study everyday, which may lead to depression. For the past two decades, researchers have found dozens of genes that increase a child's susceptibility to anxiety, attention-deficit hyperactivity disorder, heightened risk-taking, and antisocial. However, unless the child suffers a traumatic or stressful childhood, the above traits are not revealed when they grow into adulthood. Genetic studies have shown that children with certain gene variants may need and benefit greatly from more maternal support.

According to Dr. Jennifer Stagg, the author of the (best seller) book **Unzip your genes, genomic testing provides information that was not clinically available just a few years ago**. She can now provide guidance to patient questions such as, "It seems like I get fat when I weight-train. Is that possible?" or "I've tried every low-carb diet and it doesn't work. How could that be?" It is really quite simple. A patient's saliva sample can provide answers. "Mrs. Smith, genetically you are predisposed to gain fat mass with an intensive strength training program" and "Mr. Morgan, with your genetic makeup, you will do better on a Mediterranean diet."

Genomics allows us to see how variations in our DNA can interact with one another and impact our growth, behavior and overall health. However, **our genes are not our destiny**. The way our genes get expressed is also affected by our lifestyle, environmental and psychosocial factors.

Other services from Genetica®

65 genes

G-Care

Foundation To Your Quality Life

Over 18 years of age

NutriCare
- Carbohydrate metabolism
- Protein metabolism
- Fat metabolism

Facts-to-Know
- Béo bụng
- Chuyển hóa affeine
- Nguy cơ mất ngủ

HealthCare
- Breast Cancer or Prostate Cancer
- Stomach Cancer
- Asian Flush

Personality
- Belly fat
- Caffeine sensitivity
- Insomnia tendency

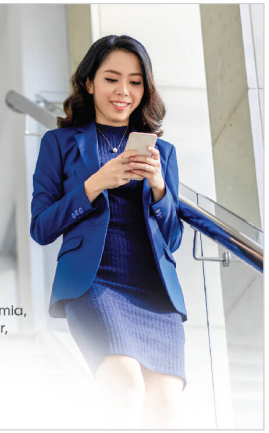
PhysiCare
- Endurance ability
- Power performance
- Cardiorespiratory fitness

300 genes

G-Pro

Unearth Your Potentials

Over 18 years of age



Mind & Spirit
- Personality
- Behavior tendency
- Cognitive ability
- IQ, EQ
- Educational attainment
- Language ability
- Math ability
- Music ability

Nutrition
- Protein, Fat, Carbohydrate metabolism
- Vitamin requirements
- Liver Detoxification
- Food and Drink sensitivities
- Eating behavior
- Cardiometabolic risk
- Diabetes risk scores
- Cardiometabolic health

Fitness
- Endurance ability
- Power performance
- Cardiorespiratory fitness
- Recover ability
- Tendency to get injuries
- Weight Management Difficulty
- Tendon/ Ligament strength
- Exercise benefit

Resting
- Insomnia tendency
- Belly fat
- Caffein metabolism

Health

Up to 20 common cancers for both genders
- Breast, Bladder, Brain, Cervical,
- Colorectal, Colon, Esophageal,
- Uterine, Kidney, Stomach, Leukemia,
- Liver, Lung, Pancreatic, Testicular,
- Prostate, Ovarian, Skin
- Pheochromocytoma and
- Paraganglioma

125 genes

G-Kid Care

Foundation For Child's Development

From 0 to 18 years of age

Behavioural tendencies
- Extraversion
- Conscientiousness
- Emotional instability

Macronutrient metabolism
- Carbohydrate metabolism
- Fat metabolism
- Protein metabolism

Health risk
- Obesity risk score

Intelligence
- IQ
- EQ
- Cognitive ability

300 genes

G-Kid Pro

Reaching An Optimal Future

From 0 to 18 years of age

Mind
- IQ
- EQ
- Educational attainment
- Cognitive ability
- Math ability
- Language ability
- Music ability
- Fitness potentials

Body
- Vitamin requirement
- Mineral requirement
- Macronutrients requirement
- Eating behavior
- Sweet and bitter taste
- Health risk: Obesity Cardiometabolic/ Diabetes risk.

Spirit
- Personality
- Behavior tendency

Other services from Genetica®

97 genes

G-Health

Access Risk Of Hereditary Diseases

Over 18 years of age

Up to 20 common cancers for both genders

- Breast
- Bladder
- Brain
- Cervical
- Colorectal
- Colon
- Esophageal
- Uterine
- Kidney
- Stomach
- Leukemia
- Liver
- Lung
- Pancreatic
- Testicular
- Prostate
- Ovarian
- Pheochromocytoma
- and Paraganglioma
- Skin

48 genes

G-Autism

Hereditary Autism Risk Screening

The G-Autism report will unveil the genetic risk of an individual via:
- Detect any known pathogenic or likely pathogenic mutations associated with ASD.
- Evaluate the Autism Risk Score: A polygenic score which indicates the user's increased risk of autism.

Everyone will benefit from this report. However, young children who display symptoms of autism are especially advised to take the genetic test.

This report will provide you:
- In-depth knowledge about gene-related causes of ASD.
- Information that enables best-suited personalized therapy and developmental care in regard to the user's risk of autism.

32 genes

G-Immunity

Hereditary Susceptibility To Respiratory Viral Infection Screening

Traits tested:
- SARS-CoV
- Influenza
- Acute Respiratory Distress Syndrome (ARDS)

Everyone will benefit from this report.

Benefits:
- Provide users the genetic information about their susceptibility to viral infection.
- Mainly focusing on respiratory viral infections at this time.
- Provide actionable guidelines and recommendations based on research studies from epidemics that have happened, such a SARS epidemic, ...

73 genes

G-Stroke

Hereditary Stroke Screening

The G-Stroke report will provide the following information:
- Pathogenic or likely pathogenic mutations that increase risk of strokes (ischemic stroke, hemorrhagic stroke).
- Stroke Risk Score: a polygenic score that indicates the patient's increased risk of stroke.

Everyone will benefit from this report.

Benefits:
- In-depth knowledge about gene-related causes of stroke.
- Information to make informed medical and lifestyle decisions in regard to the user's risk of stroke.
- Personalized recommendations for preventive and monitoring options.

28 genes

G-ADHD

Hereditary ADHD Risk Screening

The G-ADHD report will provide the following information:
- Pathogenic or likely pathogenic mutations that increase risk of ADHD.
- ADHD Risk Score: a polygenic score that indicates the user's increased risk of ADHD.

Young children and teenagers are especially advised to take the genetic test.

Benefits:
- In-depth knowledge about gene-related causes of ADHD.
- Information to help make informed medical and lifestyle decisions in regard to the user's risk of ADHD, as well as available treatment options.
- Helpful and personalized recommendations.

DISCLAIMERS

Gene Friend Way provides genetic assessment services for research or investigational use. Gene Friend Way does not provide any direct medical advice to individual patients. Genetic information must always be considered in conjunction with other information about your health such as lifestyle, family history, risk factors, biomedical data, diet, nutrition and physical activity among other factors.

Gene Friend Way's role is limited to providing results of genetic test and providing a broad set of general recommendations. More detailed recommendations that may be specific to you are to be made by qualified Professional Practitioners only. General guidelines provided in our report are for information purpose only and are meant to aid your Professional Practitioner to render the relevant professional or medical advice and treatment. While assessing your genetic parameters and providing the report and recommendations, we do not consider your past or existing health conditions and or any medication taken by you (either in the past or currently), even if you may have provided us with such information. Our report and the recommendations therein are to be acted upon in consultation with a medical or other health and wellness professional practitioner.

Your reliance upon the report is solely at your own discretion. As with all health and medical related matters, you should exercise adequate care in using the information provided in this report or on our website. Gene Friend Way disclaims any responsibility for any errors and/or omissions by you or other persons either during collection of DNA samples or delivery of the DNA sample to Gene Friend Way. We make no warranties of any kind, either express or implied, including, without limitation, the implied warranties of merchantability, fitness for a particular purpose, accuracy and non- infringement. The information in this report is for Research Use Only (RUO) or Investigational Use Only (IUO), meant to assist in further clinical diagnosis or treatment by Professional Practitioners.

If your sample is rejected or testing results are invalid, it means your sample was sub-optimal and could not be tested. You will be advised to re-collect and re-test. All samples not valid for testing are disposed of according to guidelines for biohazardous waste and are HIPAA compliant.

Laboratory Developed Test (LDT). This test was developed and its performance characteristics determined by Genetica in a manner consistent with CLIA requirements. It has not been cleared or approved by the U.S. Food and Drug Administration. This test is not intended to be used without first consulting your physician and subsequent clinical testing as deemed appropriate.

Thank you,

It is our honor to be able to contribute
to your healthy and happy life.

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in Vietnam and in the US.

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