OMNIHEALTH DIAGNOSTICS

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DIABETESpredict® by patia

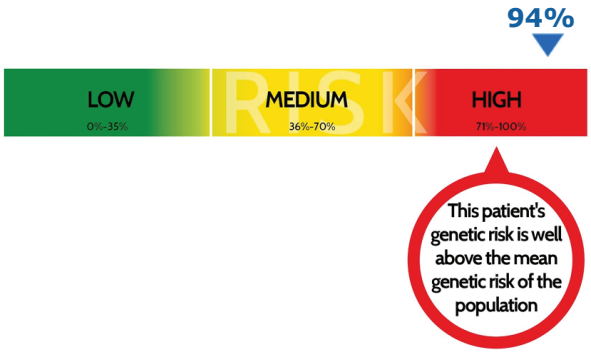
TYPE 2 DIABETES GENETIC RISK ASSESSMENT

PATIENT INFORMATION		SPECIMEN INFORMATION	PRACTITIONER INFORMATION
Name: [redacted]		Test: Genotyping	Provider: [redacted]
Sample ID: [redacted]	Sex: F	Collection date: 09/23/2022	Client ID: [redacted]
DOB: 08/23/1956	BMI: 31.92 kg/m^2	Received date: 09/28/2022	Address: 2611 Woodley Park Drive, Montgomery, AL, 36116
Race: Black or African American	Ethnicity: Not Hispanic or Latino	Report date: 10/07/2022	
T2D Family history: Yes		T2D Personal history: No	

RESULT

THE RISK OF TYPE 2 DIABETES

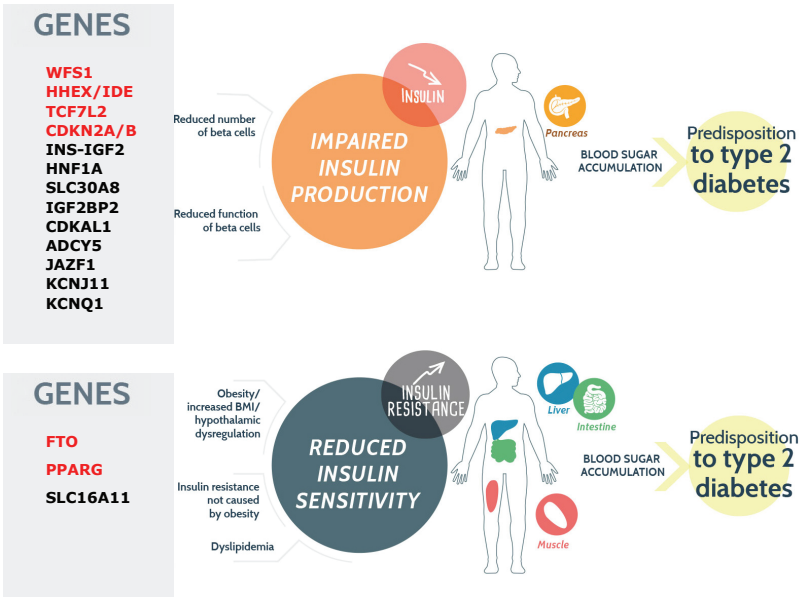
2 copies of risk polymorphisms have been detected in the genes: WFS1, HHEX/IDE, CDKN2A/B, PPARG. Such polymorphisms are associated with an increased genetic risk of developing type 2 diabetes. In addition, 1 copy of the following polymorphisms, also associated with type 2 diabetes, has been detected in the genes: SLC30A8, IGF2BP2, ADCY5, JAZF1, KCNQ1, TCF7L2, FTO.



The risk score reported is calculated by an algorithm which integrates the genotype of the patient with data on the patient's ethnicity, weight, height and family history of diabetes. If information on family history, weight or height is not provided by the patient, the applied algorithm will not integrate those factors.

Genes	Genotypes	
SLC16A11	G	G
INS-IGF2	C	C
HNF1A	G	G
WFS1	G	G
SLC30A8	A	G
PPARG	C	C
IGF2BP2	G	T
ADCY5	C	T
JAZF1	A	G
CDKAL1	A	A
HHEX/IDE	C	C
KCNJ11	C	C
KCNQ1	C	T
TCF7L2	T	C
FTO	C	T
CDKN2A/B	T	T

Red: risk copy
Black: no risk copy



Methodology. 16 genetic variants (polymorphisms) were genotyped using TaqMan OpenArrays high-precision methodology. These 16 variants are relevant in the development of type 2 diabetes (T2D) and are associated to an increased genetic risk of T2D. The genetic information is integrated with the patient's information of weight, height and parental history of T2D by an algorithm which calculates the % of the combined risk of T2D.

This test does not diagnose type 2 diabetes. A doctor must diagnose type 2 diabetes. These results do not mean that you or your family will necessarily develop type 2 diabetes. These results must be evaluated along with a complete individual and family medical history as well as other laboratory tests results. This test analyzes and informs only about certain genetic variants associated to the genetic risk of type 2 diabetes. This genetic test does not exclude that you or your family might develop other diseases.

REFERENCES

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GENOTYPE-INFORMED RECOMMENDATIONS

Lifestyle

Nutrition

Reducing calorie intake by 500-750 kcal per day is recommended. This protocol should be implemented progressively over a 2-3 week period, with the physician's guidance and supervision.

Informed by the PPARG genotype, a diet rich in legumes is recommended, because of genistein (flavonoid in legumes), and resveratrol (stilbenoid, in grapes, blueberries). Also, predominantly Mediterranean diet, with n-3 polyunsaturated fatty acids (present in fish and fish oil or avocado), olive oil, apple polyphenols. A diet low in fat and carbohydrates and low in SFA (saturated fatty acids, found in butter and cheese) is recommended.

This PPARG genotype makes individuals more sensitive to the negative effects of fats and refined carbohydrates.

Informed by the FTO genotype the diet should be rich in eicosapentaenoic and docosahexaenoic acids (omega-3) (in sardines, salmon, avocado). This gene regulates appetite and satiety. A diet high in protein and omega-3 can reduce appetite.

It is also recommended:

- Informed by the TCF7L2 genotype, a Mediterranean diet rich in whole grains, lean proteins, olive oil and moderate amounts of dairy products. In addition, include foods rich in antioxidants (berries, artichokes, beans and dark chocolate).
- A diet rich in Zinc (in beets and beans) due to the SCL30A8 genotype.
- Informed by the CDKN2A/2B genotype, grapes (high in resveratrol) and cod liver oil.
- Lentils (high in the flavonoid Genistein) due to the WFS1 genotype.

It is recommended that the last meal of the day be taken before 8:00 p.m., and breakfast the following day no earlier than 10:00 a.m.

Physical activity

Anaerobic exercise is recommended: 5 days/week, 30 min/day, combined with aerobic exercise 5 days/week, 30 min/day.
Pay attention to sleep hygiene, and try to get 7-8 hours of restorative sleep at night (due to the HHEX/IDE genotype)

Supplements

Vitamin and mineral preparations containing:

- Vitamin B complex
- Probiotics
- Zinc
- Vitamin E
- Selenium
- Vitamin A
- Iron
- Potassium

Pharmacology

Along with the physician's judgment and if this patient were to develop type 2 diabetes, consider the use of:

- Metformin due to FTO genotype.
- Sulfonylureas, Repaglinide, and DPP-4 inhibitors (Linagliptin, Sitagliptin) given the expected response to these medications due to the TCF7L2 genotype

Other lab tests

- HbA1c
- Cholesterol and triglycerides
- C-reactive protein
- ESR (erythrocyte sedimentation rate)
- Inquire about liver function

*These recommendations should be evaluated in conjunction with the evaluation made by a doctor based on personal and family history, results of physical examinations and other clinical/laboratory tests. These recommendations are based on a broad literature review. Patia has not conducted clinical studies to support them. Prevention of type 2 diabetes and obesity must include an integrative approach that considers diet, exercise, sleep/rest, emotional health and stress.

MEDITERRANEAN DIET: focus on whole grains, lean protein, and moderate amounts of dairy products and olive oils.
ANTIOXIDANT DIET: Golgi berries, blueberries, dark chocolate, artichoke, beans.
GENISTEIN: flavonoid in legumes and herbs; promotes beta cell function, cAMP signaling, reduces obesity-induced low-gradeinflammation.
AEROBIC EXERCISE ("cardio"): brisk walking, running, swimming, dancing, aerobics classes.
ANAEROBIC EXERCISE: weight lifting, push-ups, squats, high intensity interval training.
MIND-BODY PRACTICES: meditation, Yoga, Tai-Chi.
METFORMIN: improves insulin sensitivity by increasing peripheral glucose uptake and utilization. Recommended when tendency to insulin resistance.

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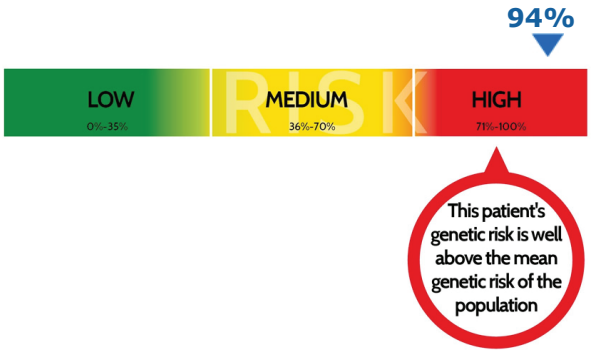

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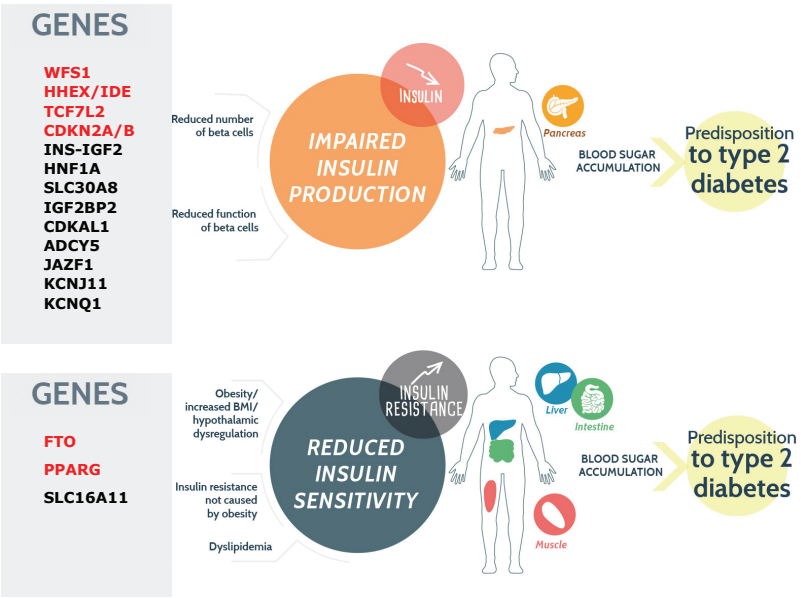

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