Every individual is unique so how can the treatment be common.

SCYLEX

SCIENCE EXCELLENCE

Setting New Standards in Pharmacogenomic Research & Precision Medicine.

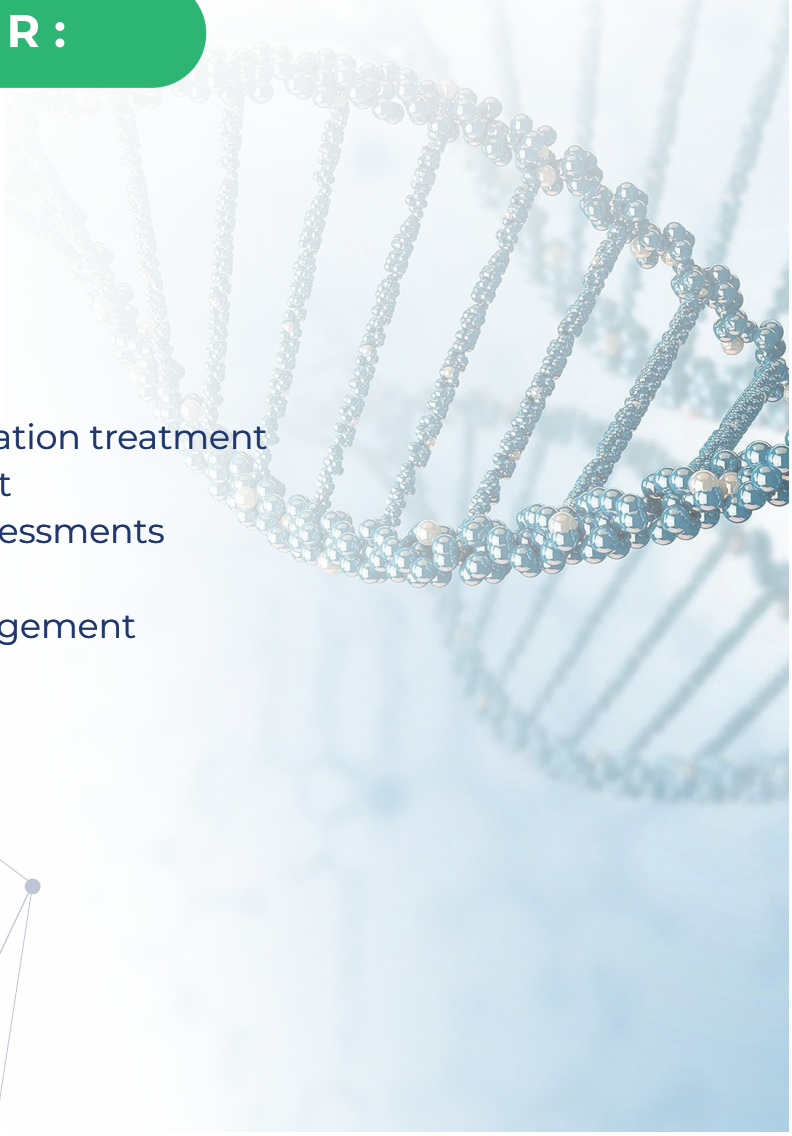
WHAT WE OFFER:

— Polygenic Risk Score

Breast/Prostrate Cancer Risk
Type II Diabetes Risk

— Pharmacogenetics:

Personalized Psychiatric medication treatment
Personalized Pain management
Personalized Antibiotic Risk assessments
Nutrigenomics
Personalized Weight loss management



Future Projects:

Hospital Readmission Risk Assessment

Pharmacogenetic PGx Report

Assay Ordered	Psychiatric Panel
Patient Name	Patient #1
Patient ID#	00000001
DOB	Unknown
Gender	Female
Sample Collection Date	N/A

Section I: Drug Recommendation Summary†

Drug Class	Optimal Outcomes/ Use as Directed	Dose with Caution/ Moderate Gene-drug Interaction	Contraindicated/ May Cause Adverse Effects
Anti-anxiety	**alprazolam**(Xanax®) **carbamazepine**(Tegretol®) **chlordiazepoxide**(Librium®) **clonazepam**(Klonopin®) **fosphenytoin**(Cerebyx®) **lamotrigine**(Lamictal®) **lorazepam**(Ativan®) **oxazepam**(Serax®) **phenytoin**(Dilantin®) **temazepam**(Restoril®)	**diazepam**(Valium®)	
Antidepressant	**desvenlafaxine**(Pristiq®) **fluvoxamine**(Luvox®) **levomilnacipran**(Fetzima®) **trazodone**(Desyrel®)* **vilazodone**(Viibryd®) **vortioxetine**(Trintellix®)	**amitriptyline**(Elavil®) **atomoxetine**(Strattera®) **bupropion**(Wellbutrin®) **citalopram**(Celexa®) **clomipramine**(Anafranil®) **desipramine**(Norpramin®) **doxepin**(Prudoxin®) **duloxetine**(Cymbalta®) **escitalopram**(Lexapro®) **fluoxetine**(Prozac®) **imipramine**(Tofranil®) **mirtazapine**(Remeron®)** **nortriptyline**(Pamelor®) **paroxetine**(Paxil®) **sertraline**(Zoloft®) **trimipramine**(Herphonal®)	**venlafaxine**(Effexor®)
Anti-psycotic	**aripiprazole**(Abilify®) **brexpiprazole**(Rexulti®) **haloperidol**(Haldol®) **quetiapine**(Atrolak®) **risperidone**(Risperdal®)	**pimozide**(Orap®) **zuclopenthixol**(Clopixol®)	

† In the Scylex PGx report "Drug Recommendation Summary" section, each drug is categorized based on personalized PGx recommendations from CPIC and DPWG databases using each patient's specific genetic profile. Drug prescribing recommendations based on CPIC level A/B are included in this report, please check Section III for more details.

* This drug may require an additiomal single gene test for a complete recommendation.

** This drug recommendation is assigned based on a gene variant that could not be identified in your test.

Section II: Dosing Recommendation Summary‡

Drug	Guideline	Recommendation
amitriptyline	CPIC	Consider a 25% reduction of recommended starting dose. Utilize therapeutic drug monitoring to guide dose adjustments.
	DPWG	Use 75% of the standard dose and monitor the efficacy and side effects or the plasma concentrations of amitriptyline and nortriptyline to adjust the maintenance dose.
atomoxetine	CPIC	Adults: Initiate with a dose of 40 mg/day and increase to 80 mg/day after 3 days. If no clinical response and in the absence of adverse events after 2 weeks, consider increasing dose to 100 mg/day. If no clinical response observed after 2 weeks, consider obtaining a peak plasma concentration (1 to 2 hours after dose administered). If <200 ng/mL, consider a proportional increase in dose to approach 400 ng/mL. Dosages greater than 100 mg/day may be needed to achieve target concentrations. Pediatrics: Initiate with a dose of 0.5 mg/kg/day and increase to 1.2 mg/kg/day after 3 days. If no clinical response and in the absence of adverse events after 2 weeks, consider obtaining a peak plasma concentration (1 to 2 hours after dose administered). If <200 ng/mL, consider a proportional increase in dose to approach 400 ng/mL.
	DPWG	In the event of side effects occurring and/or a response later than 9 weeks: reduce the dose and check whether the effect is conserved The plasma concentration of atomoxetine is a factor of 2-3 times higher for IM than for NM at the same dose.
citalopram	CPIC	Initiate therapy with recommended starting dose. Consider a slower titration schedule and lower maintenance dose than normal metabolizers.
	DPWG	Do not exceed the following daily doses: 1. Adults up to 65 years: 30mg as tablets or 22mg as drops, 2. Adults 65 years or older: 15mg as tablets or 10mg as drops
clomipramine	CPIC	Consider a 25% reduction of recommended starting dose. Utilize therapeutic drug monitoring to guide dose adjustments.
	DPWG	Use 70% of the standard dose and monitor the effect and side effects or the plasma concentrations of clomipramine and desmethylclomipramine. For depression, the therapeutic range is 200-400 ng/mL for the sum of the plasma concentrations of clomipramine and desmethylclomipramine. For anxiety disorders, the therapeutic plasma concentration of clomipramine is approximately 100 ng/mL, in combination with a plasma concentration of desmethylclomipramine lower than 200 ng/mL. For obsessive compulsive disorder, the therapeutic plasma concentration of clomipramine is higher than 200 ng/mL, in combination with a plasma concentration of desmethylclomipramine that is as low as possible. A sum of the plasma concentrations of clomipramine and desmethylclomipramine higher than 600 ng/mL is considered toxic.

Pharmacogenetic PGx Report

Assay Ordered	Psychiatric Panel
Patient Name	Patient #2
Patient ID#	00000002
DOB	Unknown
Gender	Female
Sample Collection Date	N/A

Section I: Drug Recommendation Summary†

Drug Class	Optimal Outcomes/ Use as Directed	Dose with Caution/ Moderate Gene-drug Interaction	Contraindicated/ May Cause Adverse Effects
Anti-anxiety	**alprazolam**(Xanax®) **carbamazepine**(Tegretol®) **chlordiazepoxide**(Librium®) **clonazepam**(Klonopin®) **fosphenytoin**(Cerebyx®) **lamotrigine**(Lamictal®) **lorazepam**(Ativan®) **oxazepam**(Serax®) **phenytoin**(Dilantin®) **temazepam**(Restoril®)	**diazepam**(Valium®)	
Antidepressant	**amitriptyline**(Elavil®) **citalopram**(Celexa®) **clomipramine**(Anafranil®) **desipramine**(Norpramin®) **desvenlafaxine**(Pristiq®) **doxepin**(Prudoxin®) **escitalopram**(Lexapro®) **fluvoxamine**(Luvox®) **imipramine**(Tofranil®) **levomilnacipran**(Fetzima®) **nortriptyline**(Pamelor®) **paroxetine**(Paxil®) **trimipramine**(Herphonal®) **venlafaxine**(Effexor®) **vilazodone**(Viibryd®) **vortioxetine**(Trintellix®)	**atomoxetine**(Strattera®) **bupropion**(Wellbutrin®) **duloxetine**(Cymbalta®) **fluoxetine**(Prozac®) **mirtazapine**(Remeron®) **sertraline**(Zoloft®) **trazodone**(Desyrel®)	
Anti-psycotic	**aripiprazole**(Abilify®) **brexpiprazole**(Rexulti®) **haloperidol**(Haldol®) **pimozide**(Orap®) **quetiapine**(Atrolak®) **risperidone**(Risperdal®) **zuclopenthixol**(Clopixol®)		

† In the Scylex PGx report "Drug Recommendation Summary" section, each drug is categorized based on personalized PGx recommendations from CPIC and DPWG databases using each patient's specific genetic profile. Drug prescribing recommendations based on CPIC level A/B are included in this report, please check Section III for more details.

Section II: Dosing Recommendation Summary‡

Drug	Guideline	Recommendation
atomoxetine	CPIC	Adults: Initiate with a dose of 40 mg/day and increase to 80 mg/day after 3 days. If no clinical response and in the absence of adverse events after 2 weeks, consider increasing dose to 100 mg/day. If no clinical response observed after 2 weeks, consider obtaining a peak plasma concentration (1 to 2 hours after dose administered). If <200 ng/mL, consider a proportional increase in dose to approach 400 ng/mL. Dosages greater than 100 mg/day may be needed to achieve target concentrations. Pediatrics: Initiate with a dose of 0.5 mg/kg/day and increase to 1.2 mg/kg/day after 3 days. If no clinical response and in the absence of adverse events after 2 weeks, consider obtaining a peak plasma concentration (1 to 2 hours after dose administered). If < 200 ng/mL, consider a proportional increase in dose to approach 400 ng/mL.
sertraline	CPIC	Consider a lower starting dose, slower titration schedule and 25% reduction of standard maintenance dose as compared to CYP2B6 normal metabolizers or select a clinically appropriate alternative antidepressant not predominantly metabolized by CYP2B6.

‡ Drug Dosing Recommendations listed in this table are sourced from CPIC guidelines, based on PharmGKB's high confidence clinical annotations (CPIC/PharmGKB levels 1A, 1B, 2A, 2B).
For full detailed implications please see Section III.

Pharmacogenetic PGx Report

Assay Ordered	Pain Panel
Patient Name	Jane Doe
Patient ID#	00000001
DOB	Unknown
Gender	Female
Sample Collection Date	N/A
Version	1.0

Section I: Drug Recommendation Summary†

Drug Class	Optimal Outcomes/ Use as Directed	Dose with Caution/ Moderate Gene-drug Interaction	Contraindicated/ May Cause Adverse Effects
Non-Opioid Analgesics	celecoxib(Celebrex®) diclofenac(Cataflam®, Zipsor®) flurbiprofen(Ansaid)® ibuprofen(Advil®, Motrin®) lornoxicam(Xefo®) meloxicam(Mobic®, Vivlodex®) naproxen(Aleve®) piroxicam(Feldene®) tenoxicam(Mobiflex®)	carisoprodol(Soma®)	
Opioid Analgesics	alfentanil(Alfenta®, Rapifen®) morphine oxycodone(OxyContin®) sufentanil(Dsuvia®, Sufenta®)	codeine fentanyl hydrocodone(Vicodin®) hydromorphone(Dilaudid®) methadone(Methadose®, Dolophine®) tramadol(Ultram®, Conzip®)	

† In the Scylex PGx report “Drug Recommendation Summary” section, each drug is categorized based on personalized PGx recommendations from CPIC and DPWG databases using each patient’s specific genetic profile. Drug prescribing recommendations based on CPIC level A/B are included in this report, please check Section III for more details.

Section II: Dosing Recommendation Summary‡

Drug	Guideline	Recommendation
codeine	DPWG	For PAIN: It is not possible to offer adequately substantiated advice for dose adjustment based on the limited available literature for this phenotype. 1. Be alert to a reduced effectiveness. 2. In the case of inadequate effectiveness: • a. Try a dose increase. • b. If this does not work: choose an alternative. Do not select tramadol, as this is also metabolised by CYP2D6. Morphine is not metabolised by CYP2D6. Oxycodone is metabolised by CYP2D6 to a limited extent, but this does not result in differences in analgesia in patients. 1. If no alternative is selected: advise the patient to report inadequate analgesia. For COUGH: No action required.
tramadol	DPWG	It is not possible to provide a recommendation for dose adjustment, because the total analgesic effect changes when the ratio between the mother compound and the active metabolite changes. 1. Be alert to a reduced effectiveness. 2. In the case of inadequate effectiveness: • a. Try a dose increase. • b. If this does not work: choose an alternative. Do not select codeine, as this is also metabolised by CYP2D6. Morphine is not metabolised by CYP2D6. Oxycodone is metabolised by CYP2D6 to a limited extent, but this does not result in differences in analgesia in patients. 1. If no alternative is selected: advise the patient to report inadequate analgesia.

‡ Drug Dosing Recommendations listed in this table are sourced from the CPIC and DPWG guidelines, based on PharmGKB's high confidence clinical annotations (CPIC/PharmGKB levels 1A, 1B, 2A, 2B).
For full detailed implications please see Section III.

Personalized Drug Metabolism Card

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Name: Jane Doe

Report Date: MM/DD/YYY

GENE	GENOTYPE	PHENOTYPE
CYP2D6	*1/*4	Intermediate Metabolizer
CYP2C9	*1/*1	Normal Metabolizer
CYP2C19	*17/*17	Ultrarapid Metabolizer
CYP2B6	*3/*4	Poor Metabolizer
CYP3A4	*1/*1	Normal Metabolizer

MM/DD/YYYY

Sample ID: ######

SEX: Male

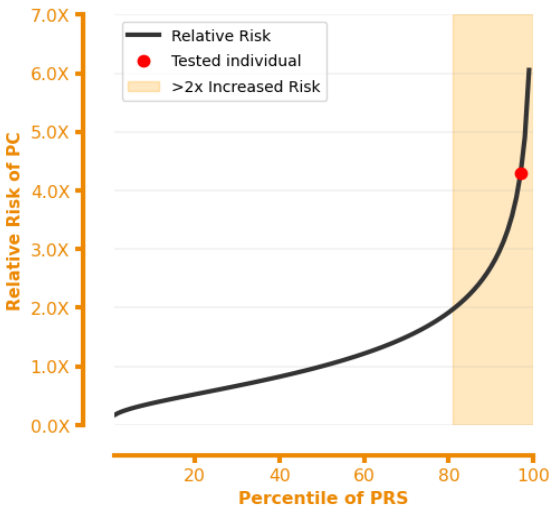
DATA TYPE: SNP Array

PROSTATE CANCER RISK REPORT

RELATIVE RISK OF PROSTATE CANCER	SUMMARY
Risk Threshold 2X average Not elevated High	Based on the PRS outlined below the risk of developing prostate cancer is around 4 times the average, which is considered to be **High** risk.

RESULTS	
Polygenic Risk Score	High (97th percentile) or 0.4X increased risk

POLYGENIC RISK SCORE EXPLAINED



A polygenic risk score (PRS) measures the component of disease risk from many genetic variants spread throughout the genome. Relative risk of prostate cancer is calculated by comparing the tested individual's PRS to a reference population. PRS in men above the 81st percentile is considered high because it confers greater than two times the lifetime genetic risk of disease of an average man. The chart shows how PRS translates to relative risk for prostate cancer. **This prostate cancer PRS (Bolli et al 2019, biorxiv) comprises 682,397 genome-wide variants.**

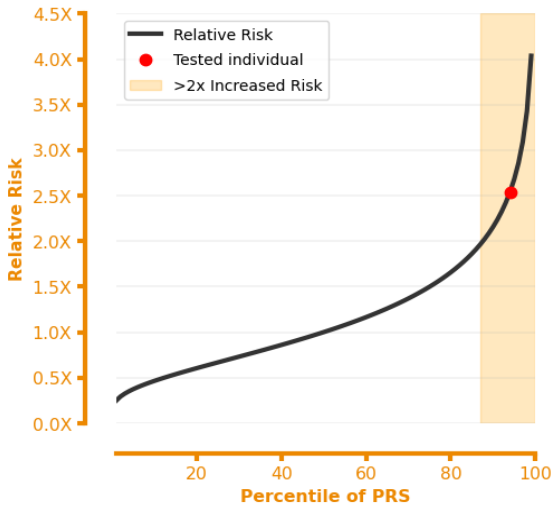
*More information on how this PRS was developed can be found here:
Software as a Service for the Genomic Prediction of Complex Diseases, Bolli et al. 2019
https://www.biorxiv.org/content/10.1101/763722v2.full

BREAST CANCER RISK REPORT

BRCA1/BRCA2 RISK ASSESSMENT	SUMMARY
Risk Threshold 2X average Not elevated High	Based on the PRS outlined below the risk of developing Breast Cancer PGS000004 is around 3 times the average, which is considered to be **High risk**.

RESULTS	
Polygenic Risk Score	High (95th percentile) or 2.7X increased risk

POLYGENIC RISK SCORE EXPLAINED



A polygenic risk score (PRS) measures the component of disease risk from many genetic variants spread throughout the genome. Relative risk of Breast Cancer is calculated by comparing the tested individuals PRS to a reference population. PRS above the 87th percentile is considered high because it confers greater than two times the lifetime genetic risk of disease of an average person. The chart shows how PRS translates to relative risk of Breast Cancer. **This Hypertension PRS comprises 313 genome-wide variants.**

https://doi.org/10.1016/j.ajhg.2018.11.002

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NUTRI-GENOMICS

SUMMARY LIST OF TRAITS

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Fitness

- VO2max
- Muscular Strength
- Endurance
- Heart Rate
- Improved weight loss with physical activity
- Muscle soreness
- Flexibility
- Muscle repair
- Exercises effects on Blood Pressure
- Motivation to exercise
- Cardiorespiratory
- Responsiveness Exercises effects on Triglycerides
- RMR
- Risk of low bone density
- Electrolytes
- circadian disruption
- Muscle soreness

Vitamins

- Lycopene
- Vitamin A (carotene)
- Vitamin A (retinol)
- Vitamin B1 (Thiamine)
- Vitamin B12
- Vitamin B2 (riboflavin)
- Vitamin B3 (niacin)
- Vitamin B5 (pantothenic acid)
- Vitamin B6
- Vitamin B7 (biotin)
- Vitamin B9 (folate)
- Vitamin C
- Vitamin D
- Vitamin E
- Vitamin K
- CoQ10
- Choline

Macronutrients

- Protein Metabolism
- High Cholesterol Risk
- Monounsaturated Fat Benefits
- Carbohydrate Metabolism
- Fiber
- Omega 3
- Omega 6
- Saturated Fat Risk
- Fat Metabolism

Minerals

- Calcium
- Copper
- Iron deficiency
- Iron overload
- Magnesium
- Phosphorus
- Selenium
- Potassium
- Zinc
- Iodine
- Salt sensitivity
- Glutathione

Weight Management

- Obesity Risk
- Hunger/Fullness Regulation
- Resting Metabolic Rate (RMR)
- Mediterranean Diet
- Mood-Driven Appetite Response
- Sweet Tooth
- Difficulty losing weight
- Bitter taste Sensitivity
- Low-Carb Diet Effectiveness
- Low-fat Diet Effectiveness
- Improved weight loss with physical activity

Allergies and Sensitivities

- Lactose Intolerance
- Milk allergy
- Peanut allergy
- gluten sensitivity
- Pesticide Sensitivity
- Mercury Sensitivity
- sensitivity PCB
- Phthalate Sensitivity
- PFA sensitivity

VITAMIN B9 (FOLATE)

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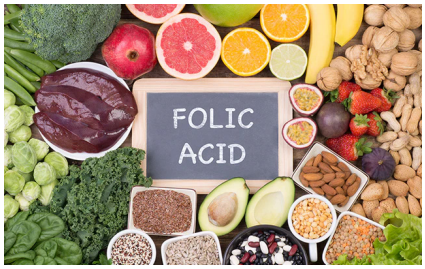
Vitamin B9, also known as folate or folic acid, is a water-soluble B-vitamin that plays a crucial role in various bodily functions.



Low levels of Vitamin B9 can lead to Fatigue and Weakness, impaired immune function and cognitive and mood disorders.

Food Source: Good dietary sources of folate include leafy green vegetables, legumes, citrus fruits, and liver.

HEART

Folate is involved in the metabolism of homocysteine, an amino acid linked to an increased risk of heart disease when elevated in the blood. Adequate folate intake can help lower homocysteine levels, reducing the risk of cardiovascular problems.

NERVOUS

Folate is important for brain health and proper nerve function. It is involved in the production of neurotransmitters, such as serotonin and dopamine, which play a role in mood regulation and overall mental well-being.

SKIN & HAIR

Folate contributes to healthy skin and hair by supporting cell regeneration and tissue repair.

IMMUNITY

Folate plays a role in the immune system's functioning, helping the body respond effectively to infections.

RISK OF OBESITY

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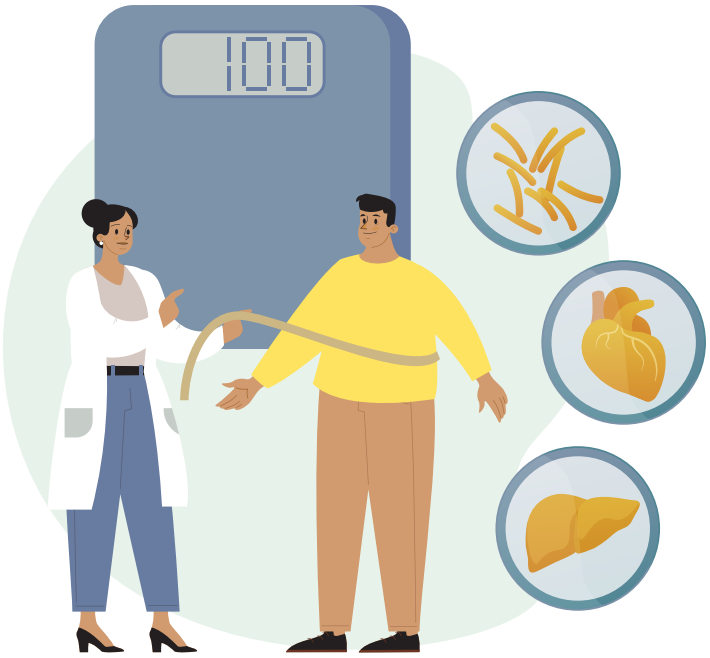
OBESITY



FTO

Certain genetic variations in the FTO gene can make individuals more prone to obesity, affecting factors like appetite control, insulin response, and regualting fat storage and metabolism, ultimately making weight loss more challenging for them.

CLOCK

The Circadian Locomotor Output Cycles Kaput (CLOCK) gene is like your body's energy manager, regulating when you eat, store, and use up energy. When things like irregular sleep or eating at odd times mess with this natural rhythm, it can throw off how your body handles energy. This disruption might lead to issues with your weight.

MC4R

The MC4R gene is vital for controlling appetite and maintaining energy balance. It works in the brain to regulate how much we eat and how our body uses energy. Variations in this gene can increase the risk of obesity, especially when it comes to disruptions in appetite regulation. Some mutations in MC4R can lead to early-onset obesity. Precision care targeting the MC4R pathway, combined with lifestyle interventions, holds promise for effective weight management.

FTO GENE

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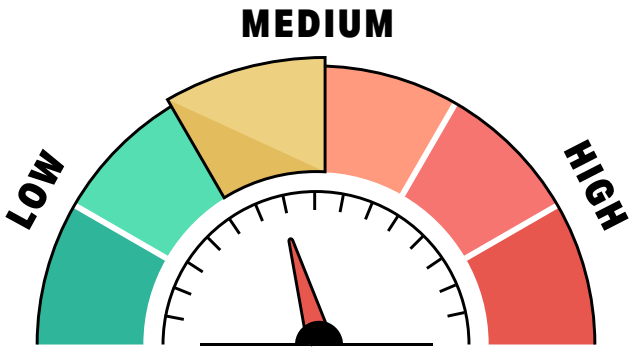
Science Excellence

Certain genetic variations in the FTO gene can make individuals more prone to obesity, affecting factors like appetite control, insulin response, and regualting fat storage and metabolism, ultimately making weight loss more challenging for them.



SNPs Low Risk

rs9939609TT	rs1558902TT	rs1421085TT	rs17817449TT

Great news! Your FTO gene variant doesn't show a high genetic risk. But remember, many things affect your weight, like how you eat, sleep, exercise, handle stress, and your surroundings. Your genes might make you more sensitive to feeling hungry, especially during exercise.

Recommendations

Your genetic risk score shows you have a low risk for obesity.
Here are suggestions to support your health:

- Choose nutrient-dense foods to meet nutritional needs without excess calories.
- Engage in regular aerobic and strength-training exercises to support overall health.
- Prioritize good sleep hygiene for overall well-being.

FTO GENE

SCYLEX
Science Excellence

SNPs Medium Risk

rs9939609AT | rs1558902AT | rs1421085CT | rs17817449GT

You may experience some risk associated with the effects of the FTO gene expression on body weight, including an increased likelihood of excess caloric consumption. Research indicates that physical activity could counteract many negative effects of the FTO gene on weight and waist circumference. Therefore, by maintaining a balanced diet and engaging in regular exercise, you can promote improved weight outcomes.

Recommendations

Your genetic risk score shows you have an average risk for obesity. Here are suggestions to support your health:

- Practice a balanced and nutritious diet rich in fruits, vegetables, whole grains, protein, and healthy fats.
- Incorperate regular physical activity throughout your week.
- Pay attention to portion sizes to avoid excessive caloric intake.

SNPs High Risk

rs9939609AA | rs1558902AA | rs1421085CC | rs17817449GG

Research suggests that people with the high-risk varient of the FTO gene may eat more calories than those with a lower-risk variant. Although there's a higher chance of obesity linked to this gene, there's also evidence supporting the idea that you might experience better weight loss with diets like the Mediterranean diet, especially compared to those with the TT allele. Additionally, studies show that intermittent fasting could be beneficial for those with the high-risk variant of this gene.

Recommendations

Your genetic risk score shows you have a high risk for obesity. Here are suggestions to support your health:

- Consider intermittent fasting, particularly for men.
- Incorporate at least 150 minutes of moderate aerobic activity or 75 minutes of vigorous aerobic activity a week, or a combination of moderate and vigorous activity.
- Minimize processed and ultra-processed, high-calorie, high-fat, and high-sugar foods that can contribute to weight gain. Consider eating patterns such as the Mediterranean diet.

Weight loss Medication Recommendation

Weight loss medications can be a valuable tool for individuals who are struggling to achieve two types of obesity that may benefit the most from medications as opposed to other, alternative treatments. Currently, there are a variety of weight loss medications that are available on the market with each having their own mechanism of action. Due to the variety of mechanisms and depending on your specific genetic profile, some may be more suitable for you than others. The benefit of the **Scylex Weight loss panel** is that we test genes that have been shown to have implications in the different classes of weight loss medications. This, in effect, gives you a personalized recommendation as to which weight loss medications, if any, would be most effective for your weight loss goals.

Test Results

The list of medications and your recommendations based on your genetic profile are below:

Ozempic®; Wegovy®; Trulicity®; Victoza®; Contrave®; IMCIVREE®

Most Beneficial	Moderately Beneficial	Least Beneficial
Victoza® IMCIVREE®	Contrave®	Ozempic® Wegovy® Trulicity®

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