This is your personalized health report:

In this report you will see some of your genetic predispositions related to drugs.

As usual in our studies, in the first pages you will find an iconographic summary of each of the analyzed values, which we develop more broadly in later pages.

We study your genetic predisposition towards certain medications. Depending on the drug, your genetics can affect the level of toxicity, the effectiveness of ore dose needed, and more.

This report should never be used without a Medical Doctor supervision. Any decision about drugs has to be taken by a Medical Doctor considering all factors. This report is not valid for clinical use so other diagnostic dna tests may be needed.

The results of this report are personal, and not applicable to studies about other members of your family.

This report is not valid for clinical or diagnostic use

Should I make drastic changes in my health management with the data of this test?

No at all, any changes you want to make in your health management should be analyzed by an expert geneticist and the medical specialists. Any doubts you have about any genetic test should be checked by healthcare experts in Genetic Diagnosis.

Does it all depend on my genes?

No at all, our body responds to many conditions. Our genes are certainly an important parameter. Lifestyle, sport, food, and many other circumstances influence our body. Knowing yourself certainly helps to treat our body in the most appropriate way. And this is what these genetic reports aren all about: more information.

What is this report based on?

This test is based on different genetic studies internationally consolidated and accepted by the scientific community. There are certain scientific databases where studies are published where there is a certain level of consensus. Our genetic tests are carried out by applying these studies to the genotype of our clients. In each section you will see some of the studies publications on which it is based. There are sections where more studies are used than the ones listed.

Summary:

Pharmacogenomics: Cardiology

Pravastatin

Patients with the AA genotype who are treated with statins may be more likely to respond as compared to patients with the AT or TT genotype. Other genetic and

Simvastatin

Patients with the TT genotype may have a lower risk of simvastatin-related myopathy as compared to patients with the CT or CC genotype. Other genetic and

Warfarin

Patients with the TT genotype may require a lower dose of warfarin as compared to patients with the CC or TC genotype. Other genetic and clinical factors may also

Phenprocoumon

Patients with the TT genotype who are treated with acenocoumarol or phenprocoumon may require a lower dose as compared to patients with the TC or CC

Hydrochlorothiazide

Patients with the CC genotype and hypertension who are treated with hydrochlorothiazide may have an increased response as compared to patients with

Pharmacogenomics: Neurology

Amitriptyline

Patients with the GG genotype who are treated with amitriptyline may have increased metabolism of amitriptyline (decreased amitriptyline plasma

Antidepressants

Patients with the TC genotype and Depressive Disorder or Depression may be less likely to respond to antidepressant treatment as compared to patients with the CC

Bupropion

Patients with the GG genotype who are treated with bupropion may be more likely to quit smoking as compared to patients with the AA or AG genotypes, although this

Citalopram

Patients with the CC genotype may have decreased metabolism of citalopram or escitalopram as compared to patients with the TT or TC genotype. Other

Clomipramine

Patients with the GG genotype may have an increased metabolism of clomipramine as compared to patients with the AG or AA genotype. Other genetic and clinical

Summary:

Escitalopram

Patients with the CC genotype may have decreased metabolism of citalopram or escitalopram as compared to patients with the TT or TC genotype. Other

Carbamazepine

Patients with the AG genotype may require an increased dose of carbamazepine as compared to patients with the AA genotype, although this is contradicted in one

Aripiprazole

Patients with schizophrenia, schizoaffective disorder, or autism spectrum disorder and genotype AC may have a decreased likelihood of weight gain and

Clozapine

Patients with the GG genotype may have decreased but not non-existant risk of side effects including hyperprolactinemia and weight gain, but increased risk of

Haloperidol

Patients with schizophrenia, schizoaffective disorder, or autism spectrum disorder and genotype AC may have a decreased likelihood of weight gain and

Olanzapine

Patients with the GG genotype may have decreased but not non-existant risk of side effects including hyperprolactinemia and weight gain, but increased risk of

Paliperidone

Patients with schizophrenia, schizoaffective disorder, or autism spectrum disorder and genotype AC may have a decreased likelihood of weight gain and

Risperidone

Patients with the TT genotype and schizophrenia who are treated with risperidone may be more likely to have improvement in symptoms as compared to patients with

Ziprasidone

Patients with schizophrenia, schizoaffective disorder, or autism spectrum disorder and genotype AC may have a decreased likelihood of weight gain and

Amisulpride

Patients with schizophrenia, schizoaffective disorder, or autism spectrum disorder and genotype AC may have a decreased likelihood of weight gain and

Quetiapine

Patients with schizophrenia, schizoaffective disorder, or autism spectrum disorder and genotype AC may have a decreased likelihood of weight gain and

Summary:

Pharmacogenomics: Pain

Meperidine

Patients with the TC genotype may have decreased opioid analgesic requirements after surgery. Other genetic and clinical factors may influence.

Morphine

Patients with the TC genotype may have decreased opioid analgesic requirements after surgery as compared to patients with the CC genotype. Other genetic and

Pentazocine

Patients with the TC genotype may have decreased opioid analgesic requirements after surgery as compared to patients with the CC genotype. Other genetic and

Aspirin

Patients with the AA genotype who are treated with aspirin may have a decreased, but not absent, risk for non-response to aspirin as compared to patients with the AG

Alfentanil

Individuals with AA genotype may experience increased efficacy of opioids for pain and opioid related drugs to treat addiction, and may require a decreased dose of

Buprenorphine

Patients with the TC genotype may have decreased opioid analgesic requirements after surgery as compared to patients with the CC genotype. Other genetic and

Fentanyl

Patients with the TC genotype may have decreased opioid analgesic requirements after surgery as compared to patients with the CC genotype. Other genetic and

Naltrexone

Individuals with the AA genotype may experience increased efficacy of opioids for pain and opioid related drugs to treat addiction, and may require a decreased dose of

Tramadol

Individuals with the AA genotype may experience increased efficacy of opioidsand may require a decreased dose. However this has been contradicted in some studies.

Pharmacogenomics: Onco

Methotrexate

Patients with the GG genotype and leukemia or lymphoma who are treated with methotrexate: 1) may have better response to treatment 2) may be at decreased

Summary:

Vincristine
Patients with the TT genotype may have increased risk of peripheral nervous system diseases when treated with vincristine may have as compared to patients

Fluorouracil, capecitabine, pyrimidine analogues, tegafur and Neoplasms
Patients TT genotype treated with fluoropyrimidine-based chemotherapy may have 1) increased clearance of the drug and 2) decreased, but not absent, risk and

Cisplatin
Patients with the GG genotype may have an increased risk for toxicity with cisplatin treatment, including hearing loss and neutropenia, as compared to patients with the

Irinotecan
Patients with the GG genotype with cancer who are treated with irinotecan-based regimens may have a decreased risk of neutropenia as compared to patients with

Mercaptopurine
Patients with CC genotype who are treated with thiopurines for inflammatory bowel diseases (IBD) or acute lymphoblastic leukemia (ALL) may have a reduced, but not

Tamoxifen
The CC genotype in women with breast cancer who are treated with tamoxifen (with or without anastrozole, cyclophosphamide, docetaxel, doxorubicin, epirubicin,

Pharmacogenomics: Other

Peginterferon Alpha-2b
Patients with the TC genotype and Hepatitis C genotype 1 may have decreased response (sustained virological response, SVR) when administered peg interferon

Ribavirin
Patients with the TC genotype and Hepatitis C genotype 1 may have decreased response (sustained virological response, SVR) when administered peg interferon

Tacrolimus
Transplant recipients with the TT (CYP3A4 genotype may require a decreased dose of tacrolimus as compared to patients with the TC or CC genotype. Other genetic

Viagra (Sildenfail)
Patients with the CC genotype and erectile dysfunction who are treated with sildenafil may be less likely to have positive erectile response as compared to

PHARMACOGENOMICS: CARDIOLOGY

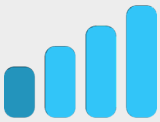
Phenprocoumon

Phenprocoumon (marketed under the brand names Marcoumar, Marcumar and Falithrom) is a long-acting oral anticoagulant drug, a derivative of coumarin. It is a vitamin K antagonist that inhibits coagulation by blocking synthesis of coagulation factors II, VII, IX and X.

Your genetic map

Gene	Genotype
VKORC1	TT

How is your genetics?



Patients with the TT genotype who are treated with acenocoumarol or phenprocoumon may require a lower dose as compared to patients with the TC or CC genotype. Other genetic and clinical factors may also influence a patient's acenocoumarol or phenprocoumon maintenance dose requirement.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/23423913

PHARMACOGENOMICS: CARDIOLOGY

Hydrochlorothiazide

Hydrochlorothiazide (HCTZ or HCT) is a diuretic medication often used to treat high blood pressure and swelling due to fluid build up. Other uses include diabetes insipidus, renal tubular acidosis, and to decrease the risk of kidney stones in those with high calcium level in the urine. For high blood pressure it is often recommended as a first line treatment.

Your genetic map

Gene	Genotype
YEATS4	CC

How is your genetics?

Patients with the CC genotype and hypertension who are treated with hydrochlorothiazide may have an increased response as compared to patients with the TC or TT genotype. Other genetic and clinical factors may also influence a patient's response to hydrochlorothiazide.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/22350108

PHARMACOGENOMICS: CARDIOLOGY

Pravastatin

Pravastatin is a cholesterol-lowering agent that belongs to a class of medications known as statins. It was derived from microbial transformation of mevastatin, the first statin discovered. It is a ring-opened dihydroxyacid with a 6'-hydroxyl group that does not require in vivo activation. Pravastatin is one of the lower potency statins; however, its increased hydrophilicity is thought to confer advantages such as minimal penetration through lipophilic membranes of peripheral cells, increased selectivity for hepatic tissues, and a reduction in side effects compared with lovastatin and simvastatin.

Your genetic map

Gene	Genotype
HMGCR	AA

How is your genetics?

Patients with the AA genotype who are treated with statins may be more likely to respond as compared to patients with the AT or TT genotype. Other genetic and clinical factors may also influence a patient's response when treated with statins.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/15199031

PHARMACOGENOMICS: CARDIOLOGY

Simvastatin

Simvastatin is a lipid-lowering agent that is derived synthetically from the fermentation of Aspergillus terreus. It is a potent competitive inhibitor of 3-hydroxy-3-methylglutaryl coenzyme A reductase (hydroxymethylglutaryl COA reductases), which is the rate-limiting enzyme in cholesterol biosynthesis. It may also interfere with steroid hormone production. Due to the induction of hepatic LDL receptors, it increases breakdown of LDL cholesterol.

Your genetic map

Gene	Genotype
SLCO1B1	TT

How is your genetics?

Patients with the TT genotype may have a lower risk of simvastatin-related myopathy as compared to patients with the CT or CC genotype. Other genetic and clinical factors may also influence a patient's risk for toxicity.

Some of the publications in which this section is based:

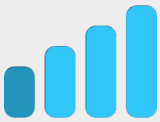
https://www.ncbi.nlm.nih.gov/pubmed/28482130

PHARMACOGENOMICS: CARDIOLOGY

Warfarin

Warfarin is an anticoagulant drug normally used to prevent blood clot formation as well as migration. Although originally marketed as a pesticide (d-Con, Rodex, among others), Warfarin has since become the most frequently prescribed oral anticoagulant in North America. Warfarin has several properties that should be noted when used medicinally, including its ability to cross the placental barrier during pregnancy which can result in fetal bleeding, spontaneous abortion, preterm birth, stillbirth, and neonatal death. Additional adverse effects such as necrosis, purple toe syndrome, osteoporosis, valve and artery calcification, and drug interactions have also been documented with warfarin use. Warfarin does not actually affect blood viscosity, rather, it inhibits vitamin-k dependent synthesis of biologically active forms of various clotting factors in addition to several regulatory factors.

How is your genetics?



Patients with the TT genotype may require a lower dose of warfarin as compared to patients with the CC or TC genotype. Other genetic and clinical factors may also influence a patient's warfarin dose requirement.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/gtr/conditions/CN078029

Your genetic map

Gene	Genotype
VKORC1	TT

PHARMACOGENOMICS: NEUROLOGY

Amisulpride

Amisulpride, sold under the brand name Solian among others, is an antipsychotic medication used to treat schizophrenia. It is usually classed with the newer generation of antipsychotics, the so called atypical antipsychotics.

Your genetic map

Gene	Genotype
MC4R	AC

How is your genetics?

Patients with schizophrenia, schizoaffective disorder, or autism spectrum disorder and genotype AC may have a decreased likelihood of weight gain and hypertriglyceridemia when taking amisulpride, aripiprazole, clozapine, olanzapine, haloperidol, paliperidone, quetiapine, ziprasidone, or risperidone as compared to patients with the AA genotypes, although this is contradicted in one study. Other clinical and genetic factors may also influence.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/22566560

PHARMACOGENOMICS: NEUROLOGY

Amitriptyline

Amitriptyline hydrochloride is a dibenzocycloheptene-derivative tricyclic antidepressant (TCA). TCAs are structurally similar to phenothiazines. They contain a tricyclic ring system with an alkyl amine substituent on the central ring. In non-depressed individuals, amitriptyline does not affect mood or arousal, but may cause sedation. In depressed individuals, amitriptyline exerts a positive effect on mood. TCAs are potent inhibitors of serotonin and norepinephrine reuptake. Tertiary amine TCAs, such as amitriptyline, are more potent inhibitors of serotonin reuptake than secondary amine TCAs, such as nortriptyline. TCAs also down-regulate cerebral cortical β-adrenergic receptors and sensitize post-synaptic serotonergic receptors with chronic use. The antidepressant effects of TCAs are thought to be due to an overall increase in serotonergic neurotransmission. TCAs also block histamine-H1 receptor**s, α1-adrenergic receptors and muscarinic receptors, which accounts for their sedative, hypotensive and anticholinergic effects (e.g. blurred vision, dry mouth, constipation, urinary retention), respectively.

How is your genetics?

Patients with the GG genotype who are treated with amitriptyline may have increased metabolism of amitriptyline (decreased amitriptyline plasma concentrations and increased nortriptyline plasma concentrations) as compared to patients with the AA or AG genotype. Other genetic factors, including other CYP2C19 alleles *17 rs12248560 and *3 rs4986893, along with clinical factors, may also influence.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/16024198

Your genetic map

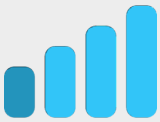
Gene	Genotype
CYP2C19	GG

PHARMACOGENOMICS: NEUROLOGY

Antidepressants

It's thought that antidepressants work by increasing levels of a group of chemicals in the brain called neurotransmitters. Certain neurotransmitters, such as serotonin and noradrenaline, can improve mood and emotion, although this process isn't fully understood. Increasing levels of neurotransmitters can also disrupt pain signals sent by nerves, which may explain why some antidepressants can help relieve long-term pain

How is your genetics?



Patients with the TC genotype and Depressive Disorder or Depression may be less likely to respond to antidepressant treatment as compared to patients with the CC genotype. Other genetic and clinical factors may also influence a patient's response to anti-depressants.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/25303296

Your genetic map

Gene	Genotype
GRIK4	TC

PHARMACOGENOMICS: NEUROLOGY

Aripiprazole

Aripiprazole, sold under the brand name Abilify among others, is an atypical antipsychotic. It is recommended and primarily used in the treatment of schizophrenia and bipolar disorder.Other uses include as an add-on treatment in major depressive disorder, tic disorders, and irritability associated with autism.

Your genetic map

Gene	Genotype
MC4R	AC

How is your genetics?

Patients with schizophrenia, schizoaffective disorder, or autism spectrum disorder and genotype AC may have a decreased likelihood of weight gain and hypertriglyceridemia when taking amisulpride, aripiprazole, clozapine, olanzapine, haloperidol, paliperidone, quetiapine, ziprasidone, or risperidone as compared to patients with the AA genotypes, although this is contradicted in one study. Other clinical and genetic factors may also influence.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/22566560

PHARMACOGENOMICS: NEUROLOGY

Bupropion

A unicyclic, aminoketone antidepressant. The mechanism of its therapeutic actions is not well understood, but it does appear to block dopamine uptake. The hydrochloride is available as an aid to smoking cessation treatment.

Your genetic map

Gene	Genotype
ANKK1	GG

How is your genetics?

Patients with the GG genotype who are treated with bupropion may be more likely to quit smoking as compared to patients with the AA or AG genotypes, although this has been contradicted in one study. Other genetic and clinical factors may also influence a patient's chance for quitting smoking.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/15492764

PHARMACOGENOMICS: NEUROLOGY

Carbamazepine

Carbamazepine (CBZ), sold under the tradename Tegretol among others, is a medication used primarily in the treatment of epilepsy and neuropathic pain. It is not effective for absence seizures or myoclonic seizures.It is used in schizophrenia along with other medications and as a second line agent in bipolar disorder.

Your genetic map

Gene	Genotype
EPHX1	AG

How is your genetics?

Patients with the AG genotype may require an increased dose of carbamazepine as compared to patients with the AA genotype, although this is contradicted in one study. Other genetic and clinical factors may also influence dose of carbamazepine.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/23252947

PHARMACOGENOMICS: NEUROLOGY

Citalopram

Citalopram (brand names: Celexa, Cipramil and others) is an antidepressant drug of the selective serotonin reuptake inhibitor (SSRI) class.

Your genetic map

Gene	Genotype
CYP2C19	CC

How is your genetics?

Patients with the CC genotype may have decreased metabolism of citalopram or escitalopram as compared to patients with the TT or TC genotype. Other geneticfactors, including other CYP2C19 alleles *2 rs4244285,*3 rs4986893, and clinical factors may also influence a patient's citalopram or escitalopram metabolism.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/20531370

PHARMACOGENOMICS: NEUROLOGY

Clomipramine

Clomipramine, sold under the brand name Anafranil among others, is a tricyclic antidepressant (TCA).It is used for the treatment of obsessive-compulsive disorder, panic disorder, major depressive disorder, and chronic pain. It may decrease the risk of suicide in those over the age of 65.

Your genetic map

Gene	Genotype
CYP2C19	GG

How is your genetics?

Patients with the GG genotype may have an increased metabolism of clomipramine as compared to patients with the AG or AA genotype. Other genetic and clinical factors may also influence a patient's clomipramine metabolism.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/16024198

PHARMACOGENOMICS: NEUROLOGY

Clozapine

Clozapine, sold under the brand name Clozaril among others, is an atypical antipsychotic medication. It is mainly used for schizophrenia that does not improve following the use of other antipsychotic medications.In those with schizophrenia and schizoaffective disorder it may decrease the rate of suicidal behavior.

Your genetic map

Gene	Genotype
ANKK1	GG

How is your genetics?

Patients with the GG genotype may have decreased but not non-existant risk of side effects including hyperprolactinemia and weight gain, but increased risk of tardive dyskinesia, during treatment with antipsychotic drugs as compared to patients with the AA or AG genotype. Other genetic and clinical factors may also influence a patient's risk for side effects.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/20714340

PHARMACOGENOMICS: NEUROLOGY

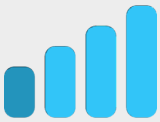
Escitalopram

Escitalopram, also known by the brand names Lexapro and Cipralex among others, is an antidepressant of the selective serotonin reuptake inhibitor (SSRI) class. It is approved by the U.S. Food and Drug Administration (FDA) for the treatment of adults and children over 12 years of age with major depressive disorder (MDD) or generalized anxiety disorder (GAD).

Your genetic map

Gene	Genotype
CYP2C19	CC

How is your genetics?



Patients with the CC genotype may have decreased metabolism of citalopram or escitalopram as compared to patients with the TT or TC genotype. Other geneticfactors, including other CYP2C19 alleles *2 rs4244285,*3 rs4986893, and clinical factors may also influence a patient's citalopram or escitalopram metabolism.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/17625515

PHARMACOGENOMICS: NEUROLOGY

Haloperidol

Haloperidol, marketed under the trade name Haldol among others, is a typical antipsychotic medication. Haloperidol is used in the treatment of schizophrenia, tics in Tourette syndrome, mania in bipolar disorder, nausea and vomiting, delirium, acute psychosis, and hallucinations in alcohol withdrawal.

Your genetic map

Gene	Genotype
MC4R	AC

How is your genetics?

Patients with schizophrenia, schizoaffective disorder, or autism spectrum disorder and genotype AC may have a decreased likelihood of weight gain and hypertriglyceridemia when taking amisulpride, aripiprazole, clozapine, olanzapine, haloperidol, paliperidone, quetiapine, ziprasidone, or risperidone as compared to patients with the AA genotypes, although this is contradicted in one study. Other clinical and genetic factors may also influence.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/22566560

PHARMACOGENOMICS: NEUROLOGY

Olanzapine

Olanzapine (originally branded Zyprexa) is an antipsychotic medication used to treat schizophrenia and bipolar disorder. It is usually classed with the atypical antipsychotics, the newer generation of antipsychotics. It appears to have slightly greater effectiveness in treating schizophrenia (especially the negative symptoms) and a lower risk of causing movement disorders than typical antipsychotics.

Your genetic map

Gene	Genotype
ANKK1	GG

How is your genetics?

Patients with the GG genotype may have decreased but not non-existant risk of side effects including hyperprolactinemia and weight gain, but increased risk of tardive dyskinesia, during treatment with antipsychotic drugs as compared to patients with the AA or AG genotype. Other genetic and clinical factors may also influence a patient's risk for side effects.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/23859574

PHARMACOGENOMICS: NEUROLOGY

Paliperidone

Paliperidone, sold under the trade name Invega among others, is a dopamine antagonist and 5-HT2A antagonist of the atypical antipsychotic class of medications. Invega is an extended release formulation of paliperidone that uses extended release system to allow for once-daily dosing.

Your genetic map

Gene	Genotype
MC4R	AC

How is your genetics?

Patients with schizophrenia, schizoaffective disorder, or autism spectrum disorder and genotype AC may have a decreased likelihood of weight gain and hypertriglyceridemia when taking amisulpride, aripiprazole, clozapine, olanzapine, haloperidol, paliperidone, quetiapine, ziprasidone, or risperidone as compared to patients with the AA genotypes, although this is contradicted in one study. Other clinical and genetic factors may also influence.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/23920449

PHARMACOGENOMICS: NEUROLOGY

Quetiapine

Quetiapine, marketed as Seroquel among others, is an atypical antipsychotic used for the treatment of schizophrenia, bipolar disorder, and major depressive disorder.

Your genetic map

Gene	Genotype
MC4R	AC

How is your genetics?

Patients with schizophrenia, schizoaffective disorder, or autism spectrum disorder and genotype AC may have a decreased likelihood of weight gain and hypertriglyceridemia when taking amisulpride, aripiprazole, clozapine, olanzapine, haloperidol, paliperidone, quetiapine, ziprasidone, or risperidone as compared to patients with the AA genotypes, although this is contradicted in one study. Other clinical and genetic factors may also influence.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/22566560

PHARMACOGENOMICS: NEUROLOGY

Risperidone

Risperidone, sold under the trade name Risperdal among others, is an antipsychotic medication.It is mainly used to treat schizophrenia, bipolar disorder, and irritability in people with autism. It is taken either by mouth or by injection into a muscle.

Your genetic map

Gene	Genotype
DRD2	TT

How is your genetics?

Patients with the TT genotype and schizophrenia who are treated with risperidone may be more likely to have improvement in symptoms as compared to patients with the CC genotype. Other genetic and clinical factors may also influence a patient's response to risperidone.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/18855532

PHARMACOGENOMICS: NEUROLOGY

Ziprasidone

Ziprasidone, sold under the brand name Geodon among others, is an atypical antipsychotic which is used for the treatment of schizophrenia as well as acute mania and mixed states associated with bipolar disorder.

How is your genetics?

Patients with schizophrenia, schizoaffective disorder, or autism spectrum disorder and genotype AC may have a decreased likelihood of weight gain and hypertriglyceridemia when taking amisulpride, aripiprazole, clozapine, olanzapine, haloperidol, paliperidone, quetiapine, ziprasidone, or risperidone as compared to patients with the AA genotypes, although this is contradicted in one study. Other clinical and genetic factors may also influence.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/22566560

Your genetic map

Gene	Genotype
MC4R	AC

PHARMACOGENOMICS: PAIN

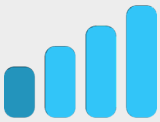
Alfentanil

Alfentanil (R-39209, trade name Alfenta, Rapifen in Australia) is a potent but short-acting synthetic opioid analgesic drug, used for anaesthesia in surgery.

Your genetic map

Gene	Genotype
OPRM1	AA

How is your genetics?



Individuals with AA genotype may experience increased efficacy of opioids for pain and opioid related drugs to treat addiction, and may require a decreased dose of opioids as compared to individuals with AG and GG genotypes. However this has been contradicted in some studies. In some studies, AA and AG genotypes were found to have a increased efficacy, and to require a decreased dose as compared to GG genotype. Other factors may influence.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/19605407

PHARMACOGENOMICS: PAIN

Aspirin

Aspirin, also known as acetylsalicylic acid (ASA), is a medication used to treat pain, fever, or inflammation. Specific inflammatory conditions in which aspirin is used include Kawasaki disease, pericarditis, and rheumatic fever. Aspirin is a nonsteroidal anti-inflammatory drug (NSAID) and works similar to other NSAIDs but also suppresses the normal functioning of platelets.

Your genetic map

Gene	Genotype
PTGS1	AA

How is your genetics?

Patients with the AA genotype who are treated with aspirin may have a decreased, but not absent, risk for non-response to aspirin as compared to patients with the AG or GG genotype. Other genetic and clinical factors may also influence a patient's response to aspirin.

Some of the publications in which this section is based:

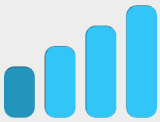
https://www.ncbi.nlm.nih.gov/pubmed/16493486

PHARMACOGENOMICS: PAIN

Buprenorphine

Buprenorphine, sold under the brand name Subutex, among others, is an opioid used to treat moderate acute pain and moderate chronic pain.

How is your genetics?



Patients with the TC genotype may have decreased opioid analgesic requirements after surgery as compared to patients with the CC genotype. Other genetic and clinical factors may influence a patient's opioid dose requirement.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/23183491

Your genetic map

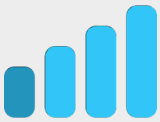
Gene	Genotype
CREB1	TC

PHARMACOGENOMICS: PAIN

Fentanyl

Fentanyl, also known as fentanil, is an opioid pain medication with a rapid onset and short duration of action

How is your genetics?



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Your genetic map

Gene	Genotype
CREB1	TC

PHARMACOGENOMICS: PAIN

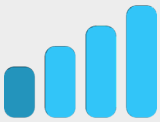
Meperidine

A narcotic analgesic that can be used for the relief of most types of moderate to severe pain, including postoperative pain and the pain of labor. Prolonged use may lead to dependence of the morphine type; withdrawal symptoms appear more rapidly than with morphine and are of shorter duration.

Your genetic map

Gene	Genotype
CREB1	TC

How is your genetics?



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Some of the publications in which this section is based:

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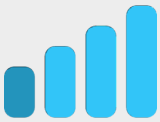
PHARMACOGENOMICS: PAIN

Morphine

The principal alkaloid in opium and the prototype opiate analgesic and narcotic. Morphine has widespread effects in the central nervous system and on smooth muscle. In January, 2017, morphine was approved for the treatment of chronic pain.

How is your genetics?



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Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/23183491

Your genetic map

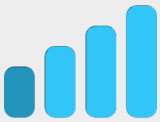
Gene	Genotype
CREB1	TC

PHARMACOGENOMICS: PAIN

Naltrexone

Naltrexone is a medication primarily used in the management of alcohol dependence and opioid dependence. Naltrexone is a pure opioid antagonist and works by blocking the activity of opioids

How is your genetics?



Individuals with the AA genotype may experience increased efficacy of opioids for pain and opioid related drugs to treat addiction, and may require a decreased dose of opioids as compared to individuals with the AG and GG genotypes. However this has been contradicted in some studies. In some studies, the AA and AG genotypes were found to have a increased efficacy, and to require a decreased dose as compared to the GG genotype. Other factors may also influence.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/18250251

Your genetic map

Gene	Genotype
OPRM1	AA

PHARMACOGENOMICS: PAIN

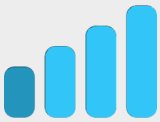
Pentazocine

The first mixed agonist-antagonist analgesic to be marketed. It is an agonist at the kappa and sigma opioid receptors and has a weak antagonist action at the mu receptor

Your genetic map

Gene	Genotype
CREB1	TC

How is your genetics?



Patients with the TC genotype may have decreased opioid analgesic requirements after surgery as compared to patients with the CC genotype. Other genetic and clinical factors may influence a patient's opioid dose requirement.

Some of the publications in which this section is based:

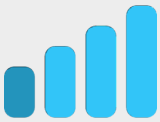
https://www.ncbi.nlm.nih.gov/pubmed/23183491

PHARMACOGENOMICS: PAIN

Tramadol

Tramadol, sold under the brand name Ultram among others, is an opioid pain medication used to treat moderate to moderately severe pain.

How is your genetics?



Individuals with the AA genotype may experience increased efficacy of opioidsand may require a decreased dose. However this has been contradicted in some studies. Other genetic and clinical factors may also influence.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/21837673

Your genetic map

Gene	Genotype
OPRM1	AA

PHARMACOGENOMICS: ONCO

Cisplatin

Cisplatin is a chemotherapy medication used to treat a number of cancers. This includes testicular cancer, ovarian cancer, cervical cancer, breast cancer, bladder cancer, head and neck cancer, esophageal cancer, lung cancer, mesothelioma, brain tumors and neuroblastoma.

Your genetic map

Gene	Genotype
XPC	GG

How is your genetics?

Patients with the GG genotype may have an increased risk for toxicity with cisplatin treatment, including hearing loss and neutropenia, as compared to patients with the TT genotype. Other genetic and clinical factors may also influence a patient's risk for toxicity.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/19434073

PHARMACOGENOMICS: ONCO

Fluorouracil, capecitabine, pyrimidine analogues, tegafur

Fluorouracil (5-FU), sold under the brand name Adrucil among others, is a medication used to treat cancer. By injection into a vein it is used for colon cancer, esophageal cancer, stomach cancer, pancreatic cancer, breast cancer, and cervical cancer. As a cream it is used for actinic keratosis and basal cell carcinoma.

It is a potent antimetabolite used in the treatment of cancer. It is a drug that blocks the methylation reaction of deoxyuridic acid to convert it into thymidylic acid by inhibiting an enzyme that is important for the synthesis of thymidine, which being part of the DNA molecule stops its formation. The drug is specific to the cell phase cycle, S phase. 5-Fluorouracil intervenes in the synthesis of DNA and inhibits to a small degree the formation of RNA. Both actions combine to promote a metabolic imbalance that results in cell death. The inhibitory activity of the drug, by its analogy with uracil, has an effect on the rapid growth of the neoplastic cells that preferentially take advantage of the uracil molecule for nucleic acid biosynthesis. The effects of a deprivation of DNA and RNA attack more cells that grow and multiply uncontrollably than normal.

How is your genetics?

Patients TT genotype treated with fluoropyrimidine-based chemotherapy may have 1) increased clearance of the drug and 2) decreased, but not absent, risk and reduced severity of drug toxicity as compared to patients with the AT genotype. The combination (FOLFOX, FOLFIRI or FEC) and delivery of the drug may influence risk for toxicity. Other genetic and clinical factors may also influence.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/17700593

Your genetic map

Gene	Genotype
DPYD	TT

PHARMACOGENOMICS: ONCOLOGY

Irinotecan

Irinotecan, sold under the brand name Camptosar among others, is a medication used to treat colon cancer and small cell lung cancer.For colon cancer it is used either alone or with fluorouracil. For small cell lung cancer it is used with cisplatin.

Your genetic map

Gene	Genotype
UGT1A1	GG

How is your genetics?

Patients with the GG genotype with cancer who are treated with irinotecan-based regimens may have a decreased risk of neutropenia as compared to patients with the AA genotype. Other genetic and clinical factors may also influence a patient's risk of neutropenia.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/19299905

PHARMACOGENOMICS: ONCOLOGY

Mercaptopurine

Mercaptopurine (6-MP), sold under the brand name Purinethol among others, is a medication used for cancer and autoimmune diseases. Specifically it is used to treat acute lymphocytic leukemia (ALL), chronic myeloid leukemia (CML), Crohn's disease, and ulcerative colitis.For ALL it is generally used with methotrexate.

Your genetic map

Gene	Genotype
NUDT15	CC

How is your genetics?

Patients with CC genotype who are treated with thiopurines for inflammatory bowel diseases (IBD) or acute lymphoblastic leukemia (ALL) may have a reduced, but not absent risk of developing leukopenia, neutropenia or alopecia as compared to TC or TT. Patients may also tolerate higher doses of thiopurines and be less likely to discontinue thiopurine treatment as compared to TC or TT, possibly due to the reduced risk for adverse effects. Other factors may influence.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/25624441

PHARMACOGENOMICS: ONCO

Methotrexate

An antineoplastic antimetabolite with immunosuppressant properties. It is an inhibitor of tetrahydrofolate dehydrogenase and prevents the formation of tetrahydrofolate, necessary for synthesis of thymidylate, an essential component of DNA.

Your genetic map

Gene	Genotype
MTHFR	GG

How is your genetics?

Patients with the GG genotype and leukemia or lymphoma who are treated with methotrexate: 1) may have better response to treatment 2) may be at decreased risk of toxicity 3) may require a higher dose of methotrexate, and 4) may be at lower risk of folate deficiency as compared to patients with the AA or AG genotype. This association has been contradicted or not found in multiple studies. Other genetic and clinical factors may also influence.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/22143415

PHARMACOGENOMICS: ONCO

Tamoxifen

Tamoxifen is a drug that is used as a complementary therapy for breast cancer. It is used for a long period after the end of surgery and chemotherapy and has been shown in different studies to significantly reduce the likelihood of a recurrence of the tumor.

Technically, it is classified as a selective modulator of estrogen receptors. Its mechanism of action is based on its antiestrogenic effect, that is, it blocks the action of this hormone that stimulates the development of tumor cells. It is not useful in all breast cancers, but only in those whose cells have specific estrogen receptors. Its action is not limited to the breast, because different organs have receptors for estrogen.

How is your genetics?

The CC genotype in women with breast cancer who are treated with tamoxifen (with or without anastrozole, cyclophosphamide, docetaxel, doxorubicin, epirubicin, exemestane, fluorouracil, letrozole, paclitaxel, radiotherapy) may have DECREASED treatment EFFICACY in PRE-MENOPAUSAL women and INCREASED treatment EFFICACY in POST-MENOPAUSAL women as compared to patients with the AA genotypes. Other genetic and clinical factors may also influence.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/26191232

Your genetic map

Gene	Genotype
CYP19A1	CC

PHARMACOGENOMICS: ONCO

Vincristine

Vincristine is an antitumor vinca alkaloid isolated from Vinca Rosea. It is marketed under several brand names, many of which have different formulations such as Marqibo (liposomal injection) and Vincasar. Vincristine is indicated for the treatment of acute leukaemia, malignant lymphoma, Hodgkin's disease, acute erythraemia, and acute panmyelosis. vincristine sulfate is often chosen as part of polychemotherapy because of lack of significant bone-marrow suppression (at recommended doses) and of unique clinical toxicity (neuropathy).

Your genetic map

Gene	Genotype
LOC100996325	TT

How is your genetics?

Patients with the TT genotype may have increased risk of peripheral nervous system diseases when treated with vincristine may have as compared to patients with the CC or TC genotype. Other genetic and clinical factors may also influence a patient's response to vincristine.

Some of the publications in which this section is based:

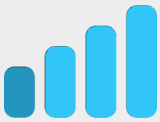
https://www.ncbi.nlm.nih.gov/pubmed/25710658

PHARMACOGENOMICS: OTHER

Peginterferon Alpha-2b

Peginterferon alfa-2b is a form of recombinant interferon used as part of combination therapy to treat chronic Hepatitis C, an infectious liver disease caused by infection with Hepatitis C Virus (HCV). HCV is a single-stranded RNA virus that is categorized into nine distinct genotypes, with genotype 1 being the most common in the United States, and affecting 72% of all chronic HCV patients. Treatment options for chronic Hepatitis C have advanced significantly since 2011, with the development of Direct Acting Antivirals (DAAs) resulting in less use of Peginterferon alfa-2b. Peginterferon alfa-2b is derived from the alfa-2b moeity of recombinant human interferon and acts by binding to human type 1 interferon receptors. Activation and dimerization of this receptor induces the body's innate antiviral response by activating the janus kinase/signal transducer and activator of transcription (JAK/STAT) pathway.

How is your genetics?



Patients with the TC genotype and Hepatitis C genotype 1 may have decreased response (sustained virological response, SVR) when administered peg interferon alpha (2a, 2b) and ribavirin as compared to patients with the CC genotype. Patients with the TC genotype may also have lower spontaneous clearance in acute HCV infections than patients with the CC genotype. Other genetic and clinical factors may also influence.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/21145807

Your genetic map

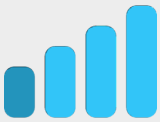
Gene	Genotype
IFNL3	TC

PHARMACOGENOMICS: OTHER

Ribavirin

Producing a broad-spectrum activity against several RNA and DNA viruses, Ribavirin is a synthetic guanosine nucleoside and antiviral agent that interferes with the synthesis of viral mRNA. It is primarily indicated for use in treating hepatitis C and viral hemorrhagic fevers. HCV is a single-stranded RNA virus that is categorized into nine distinct genotypes, with genotype 1 being the most common in the United States, and affecting 72% of all chronic HCV patients. It is reported that ribavirin might be only effective in early stages of viral hemorrhagic fevers including Lasser fever, Crimean-Congo hemorrhagic fever, Venezuelan hemorrhagic fever, and Hantavirus infection. Ribavirin is a prodrug that is metabolized into nucleoside analogs that blocks viral RNA synthesis and viral mRNA capping. Before the development of newer drugs, ribavirin and Peginterferon alfa-2a/Peginterferon alfa-2b dual therapy was considered the first-generation and standard antiviral treatment. Newer drugs developed as Hepatitis C viral infection treatments can be used to reduce or eliminate the use of ribavirin, which are associated with serious adverse effects.

How is your genetics?



Patients with the TC genotype and Hepatitis C genotype 1 may have decreased response (sustained virological response, SVR) when administered peg interferon alpha (2a, 2b) and ribavirin. They may also have lower spontaneous clearance in acute HCV infections than patients with the CC genotype. Other genetic and clinical factors may also influence a patient's response to peg interferon and ribavirin.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/21145807

Your genetic map

Gene	Genotype
IFNL3IFNL4	TC

PHARMACOGENOMICS: OTHER

Tacrolimus

Tacrolimus (also FK-506 or Fujimycin) is an immunosuppressive drug whose main use is after organ transplant to reduce the activity of the patient's immune system and so the risk of organ rejection. It is also used in a topical preparation in the treatment of severe atopic dermatitis, severe refractory uveitis after bone marrow transplants, and the skin condition vitiligo. It was discovered in 1984 from the fermentation broth of a Japanese soil sample that contained the bacteria Streptomyces tsukubaensis. Tacrolimus is chemically known as a macrolide. It reduces peptidyl-prolyl isomerase activity by binding to the immunophilin FKBP-12 (FK506 binding protein) creating a new complex. This FKBP12-FK506 complex interacts with and inhibits calcineurin thus inhibiting both T-lymphocyte signal transduction and IL-2 transcription.

How is your genetics?

Transplant recipients with the TT (CYP3A4 genotype may require a decreased dose of tacrolimus as compared to patients with the TC or CC genotype. Other genetic and clinical factors, such as CYP3A5 (rs776746), may also influence a patient's dose requirements.

Some of the publications in which this section is based:

Your genetic map

Gene	Genotype
CYP3A5	TT

PHARMACOGENOMICS: OTHER

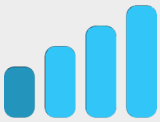
Viagra (Sildenfail)

Sildenfail is a vasoactive agent used to treat erectile dysfunction and reduce symptoms in patients with pulmonary arterial hypertension (PAH). Sildenafil elevates levels of the second messenger, cGMP, by inhibiting its breakdown via phosphodiesterase type 5 (PDE5). PDE5 is found in particularly high concentrations in the corpus cavernosum, erectile tissue of the penis. It is also found in the retina and vascular endothelium. Increased cGMP results in vasodilation which facilitates generation and maintenance of an erection.

Your genetic map

Gene	Genotype
GNB3	CC

How is your genetics?



Patients with the CC genotype and erectile dysfunction who are treated with sildenafil may be less likely to have positive erectile response as compared to patients with the TT genotype. Other genetic and clinical factors may also influence a patient's response to sildenafil.

Some of the publications in which this section is based:

https://www.ncbi.nlm.nih.gov/pubmed/12576843