

NUTRIGENOMIX[®]

PHARMA



John Doe's Personalized Insights™ PrecisionRx Report

A confidential personalized guide to how the patient's unique genetic information affects their body's response to medications.

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Guide to Understanding Your Report

A how-to guide for reading and understanding the Personalized Insights™ Report.

Important Test Insights

A list of the medications included in this report that are classified as either DO NOT USE or USE WITH CAUTION, based on the genetic variants that were detected.

Your Report Overview

A high-level overview/summary of the test results for all medications included in this report.

Your Detailed Recommendations

Detailed recommendations for all medications included in this report.

Analysis of Your Gene Profile

A complete list of the genes tested/variants detected that are known to impact responses to the medications included in this report.

Test Information

Glossary of terms, test information & legal content.

Note: The online version of this report is updated every 6 months, based on the latest research and recommendations. To view the full online interactive version of this report (reflecting the most up-to-date recommendations) please log on to Inagene Portal at <https://patients.inagene.com>.

If you have any questions about this report, contact us by email at info@nutrigenomix.com.

Guide to Understanding Your Report

This section provides a how-to guide for reading and understanding the Personalized Insights™ PrecisionRx Report. The FULL report (which includes detailed insights and recommendations for ALL medications included in this report) is available to view in the section called “**Detailed Recommendations**”. You can also view a high-level summary of the overall results in the section called “**Report Overview**”.

Note: To view and print a shortened/customized version of this report that includes only those medications most relevant to you (for example, to include only those medications used in a specific therapeutic area, or to include only those medications currently being taken) log on to the online version of this report on your Inagene Portal account at <https://patients.inagene.com>, and click on the “**Search and Customize My Results**” tab at the top of the page.



How are Your Results Organized?

Four classifications provide you with quick insight into the general results of the test for each specific medication.



Do Not Use

When a medication has been labelled as “**Do Not Use**” it means that **this medication is NOT recommended, and using an alternative medication is recommended instead**, based on possible lack of effect or possible adverse side effects that could occur in individuals with this unique genetic profile. (Note: There may be rare circumstances where the prescriber may still choose to prescribe the medication based on his/her discretion, lack of suitable alternatives, and/or other non-genetic factors.)



Use with Caution

When a medication is labelled “**Use with Caution**” it means that **one or more gene-drug interactions have been identified that may impact the drug’s effectiveness or tolerability**. Based on available data, **response to the medication is expected to be different from most people** (for example, it may not provide the expected therapeutic effect at the standard recommended dose, or may result in increased risk of side effects in individuals with this unique genetic profile.)

For any medications labelled as “**Use with Caution**”, you should familiarize yourself with the identified risks and personalized recommendations provided in the Detailed Recommendations section of the report. This is also important information to share with any prescribers/the health care team, as it may impact decisions about treatment. In some cases, a different dose may be required, and in other cases the medication may not be recommended at all, based on the predicted response.



Use as Directed*

When a medication has been labelled “**Use As Directed***” it means that **no altered gene-drug interaction has been identified**, therefore based on currently available data**, **response to the medication is expected to be similar to most other individuals at standard doses**, and no individualized prescribing recommendations are provided as a result.



Use as Directed/Preferred*

When a medication has been labelled “**Use As Directed – Preferred***” it means that one or more altered gene-drug interactions have been identified that have been linked to an increased likelihood of responding to the medication (in other words, based on available data**, this medication has a higher likelihood of being effective for the individual tested, than it would be for most people (based on their unique genetic profile). In some cases (not always), an individual prescribing recommendation may be provided (for example, should an altered dose be recommended).

IMPORTANT NOTES

* If a medication is categorized as “**Use As Directed**” or “**Use As Directed/Preferred**” it does not mean the medication is guaranteed to work well, or that no side effects will be experienced. Genetics are only one of many factors impacting how individuals will respond to medications. Other factors influencing drug response may include environment, overall health, lifestyle choices, other health conditions, other medications being taken, and other factors.

** Pharmacogenetics studies are still ongoing and additional drug – gene interactions may be discovered in the future.



The Personalized Insights™ report also uses different icons to help you quickly interpret the individual results.



METABOLIC STATUS

When this icon appears beside a drug, it means that the person's body is expected to metabolize (process) the medication at a different rate (i.e. either more quickly or more slowly) than the average person. Depending on the genetic profile, the individual may be considered a "poor (very slow) metabolizer", an "intermediate (slow) metabolizer", or a "rapid" (fast) metabolizer of the medication.



SIDE EFFECT RISK

When this icon appears beside a medication, it means that available guidelines regarding the gene-drug interaction indicate that the medication may pose a higher risk for side effects for someone with this unique genetic profile.



ALTERNATIVE MEDICATION RECOMMENDED

When this icon appears beside a medication, it means that available guidelines regarding the gene-drug interaction indicate that using an alternative medication is recommended, based on possible therapeutic failure or adverse side effects that have been seen in individuals with this unique genetic profile.



SOURCE

Click on OR copy and paste OR manually type in the URL provided to the right of this icon to go directly to the source for each specific recommendation. (This information may be useful for health care practitioners seeking additional information about the recommendation.)



MULTIPLE GENE VARIANTS IMPACTING PREDICTED RESPONSE















When this icon appears beside a medication it means that multiple gene variants have been detected that may impact overall response to the medication. It is important to understand that different gene variants can, in some circumstances, have opposite effects on drug response. Our overall categorization for each medication is indicated by the coloured pill icon, however information on the possible effects of each individual gene variant detected is provided. If individual recommendations provided for a medication seem to contradict each other, then response to the medication may be unpredictable (consider an alternative medication if available). If the recommendations provided seem to support each other (say the same thing): then the overall predicted impact may be more pronounced/amplified.

Important Test Insights



































































Below you will find a list of those medications that are classified as: “DO NOT USE”, as well as those categorized as “USE WITH CAUTION”, based on the gene-drug interactions that were identified through testing.

IMPORTANT: Please review the previous section entitled “Guide to Understanding the Report” for guidance on how to interpret these results. Refer to the section entitled “Detailed Recommendations” in the pages that follow to view the detailed, personalized recommendations provided for each of the drugs listed below.

Medications Classified As: Do Not Use

 Amitriptyline	 Carbamazepine	 Citalopram
 Clomipramine	 Codeine	 Desipramine
 Doxepin	 Escitalopram	 Imipramine
 Nortriptyline	 Paroxetine	 Thioridazine
 Tramadol	 Trimipramine	

Medications Classified As: Use with Caution

 Acetaminophen	 Acetylsalicylic Acid	 Almotriptan
 Amphetamine	 Aripiprazole	 Atomoxetine
 Brexpiprazole	 Caffeine	 Cannabis
 Carvedilol	 CBD	 Clozapine
 Corticosteroids	 Cyclosporine	 Deutetrabenazine
 Dextroamphetamine	 Donepezil	 Duloxetine
 Elagolix	 Eletriptan	 Fentanyl
 Fluoxetine	 Fluvoxamine	 Frovatriptan
 Galantamine	 Haloperidol	 Hydrocodone
 Iloperidone	 Lacosamide	 Lamotrigine
 Lisdexamfetamine	 Lithium	 Lorazepam
 Methadone	 Methotrexate	 Methylphenidate
 Metoclopramide	 Metoprolol	 Midazolam
 Mirtazapine	 Morphine	 Naratriptan
 Nebivolol	 Olanzapine	 Ondansetron
 Oxazepam	 Oxycodone	 Perphenazine
 Phenytoin	 Pimozide	 Propranolol
 Protriptyline	 Risperidone	 Rizatriptan
 Sertraline	 Sirolimus	 Sufentanil
 Sumatriptan	 Tetrabenazine	 THC
 Trazodone	 Venlafaxine	 Vilazodone
 Vortioxetine	 Zolmitriptan	 Zuclopenthixol

Your Report Overview

This section provides an overall (high-level) summary of the test results. Please review the previous section entitled “Guide to Understanding the Report” for guidance on how to interpret these results. Refer to the section entitled “Detailed Recommendations” in the pages that follow to view the detailed, personalized recommendations provided for each of the drugs listed.

Note: If you are looking for a medication that does NOT appear on this summary, it is either because that medication is not currently available in Canada, or because (to the best of our knowledge) there are no actionable associations for that medication based on the genes we test for at this time. For a list of all the medications included on Inagene’s tests, copy and paste (or type) this URL into the browser: <https://patients.inagene.com/drug-list>















Report Overview results are sorted by

Drug Name








Drug Alpha

Tip: The online version of this report allows you to sort this drug summary by drug class, or by alphabetical order, by generic drug name or brand name, and to filter by therapeutic area. Access the online version of the report by logging on to Inagene Portal at patients.inagene.com.

















A

 Acebutolol	 Acetaminophen	 Acetylsalicylic Acid
 Adalimumab	 Alfentanil	 Allopurinol
 Almotriptan	 Alprazolam	 Amitriptyline
 Amphetamine	 Aripiprazole	 Asenapine
 Atenolol	 Atomoxetine	











B

 Benzhydrocodone	 Bisoprolol	 Botulinum Toxin
 Brexpiprazole	 Buprenorphine	 Bupropion
 Buspirone		

C

 Caffeine	 Cannabis	 Cannabis Sativa Extract
 Carbamazepine	 Carvedilol	 CBD
 Celecoxib	 Citalopram	 Clobazam
 Clomipramine	 Clonazepam	 Clozapine
 Codeine	 Corticosteroids	 Cyclophosphamide
 Cyclosporine		



D

 Desipramine	 Deutetrabenazine	 Dexamethasone
 Dextroamphetamine	 Diazepam	 Diclofenac
 Donepezil	 Doxepin	 Dronabinol
 Duloxetine		



E

 Elagolix Eletriptan Escitalopram Esketamine Eszopiclone Etanercept



F

 Fentanyl Fluoxetine Flurbiprofen Fluvoxamine Fosphenytoin Frovatriptan


G

 Gabapentin Galantamine Golimumab Guanfacine

H

 Haloperidol Hydrocodone





I

 Ibuprofen Iloperidone Imipramine Infliximab


K

 Ketamine


L

 Lacosamide Lamotrigine Lesinurad Levomilnacipran Lisdexamfetamine Lithium Lorazepam Lurasidone

M

 Meloxicam Meperidine Methadone Methotrexate Methylphenidate Metoclopramide Metoprolol Midazolam Milnacipran Mirtazapine Morphine


N

 Nabilone Nadolol Naloxone Naltrexone Naproxen Naratriptan Nebivolol Nifedipine Nortriptyline

O

 Olanzapine Ondansetron Ospemifene Oxazepam Oxcarbazepine Oxycodone




P

 Paliperidone Paroxetine Pentazocine Perphenazine Phenytoin Pimozide Piroxicam Pregabalin Propofol Propranolol Protriptyline




Q

 Quetiapine



R

 Remifentanyl Risperidone Rizatriptan


S

 Sertraline Siponimod Sirolimus Sufentanyl Sumatriptan




T

 Tacrolimus Tapentadol Tenoxicam Tetrabenazine THC Thioridazine Topiramate Tramadol Trazodone Trimipramine Tropisetron

V

 Valdecoxib Venlafaxine Vilazodone Vortioxetine

Z

 Ziprasidone Zolmitriptan Zopiclone Zuclopenthixol

Your Detailed Recommendations

This section provides a detailed look at the predicted response to all medications included in this report, and includes any/all personalized recommendations regarding their use. (The drugs are listed by generic name and in alphabetical order.)

Note: Please review the previous section entitled "Guide to Understanding the Report" for guidance on how to interpret these results.

Acebutolol

Beta-Blockers

Sectral



Acetaminophen

Other Pain Meds

Atasol, Tempra, Tylenol

* Other pain relief medications may also contain Acetaminophen



You have a variant in gene: **UGT2B15**

preliminary data recommendation

You may be less likely to respond to this medication.

Source: PMID: 28663312, 30908574

<https://www.pharmgkb.org/chemical/PA448015/clinicalAnnotation/1450374101>

Acetylsalicylic Acid

Nonsteroidal Inflammatory Drugs (NSAIDs)

A.S.A, Aspirin, Entrophen



You have more than one gene variant impacting your predicted response to this medication.

Our recommendation for this medication is indicated by the coloured pill icon, but information on the possible effects of the other gene variants you have is also provided.

If the recommendations seem to **contradict** each other: your response to this medication may be unpredictable (consider an alternative medication if available).

If the recommendations **support** each other: the overall predicted impact may be more pronounced/amplified.

You have a variant in gene: **GP1BA**

preliminary data recommendation

You may have a reduced response to this medication.

Source: PharmGKB - 3

<https://www.pharmgkb.org/gene/PA178/clinicalAnnotation/1043858980>

You have a variant in gene: **LTC4S**

preliminary data recommendation



You may have an increased risk of side effects from taking this medication, in particular urticaria (hives).

Source: PharmGKB - 3

<https://www.pharmgkb.org/chemical/PA448497/clinicalAnnotation/613979643>

You have a variant in gene: **PTGS2**

preliminary data recommendation

If you are of Asian descent, this medication may be less effective for you.

Source: PMID: 29781520 <https://www.ncbi.nlm.nih.gov/pubmed/?term=29781520>

Adalimumab

Immunomodulatory Agents

Humira



Alfentanil

Alfenta



Opioids

Allopurinol

Zyloprim



Uricosuric/Antigout Agents

Almotriptan

Axert



Triptans

You have a variant in gene: **GNB3***preliminary data recommendation*

You may have a decreased likelihood of responding to this medication for treatment of migraines or cluster headaches.

 Source: PMID: 17361120 <https://www.ncbi.nlm.nih.gov/pubmed/?term=17361120>**Alprazolam**

Xanax



Psychotropics - Benzodiazepines

Amitriptyline

Elavil



Antidepressants - Tricyclic

You have a variant in gene: **CYP2D6 & CYP2C19**

Select an alternative medication

Source: CPIC - A

https://cpicpgx.org/content/guideline/publication/TCA/2016/TCA_2016.pdf**Amphetamine**

Adderall XR



ADHD - Stimulants and Non-Stimulants

You have a variant in gene: **CYP2D6**

Poor Metabolizer

Consider a lower starting dose or select an alternative medication that is not metabolized by CYP2D6

 Source: FDA <https://www.fda.gov/medical-devices/precision-medicine/table-pharmacogenetic-associations>**Aripiprazole**

Abilify



Psychotropics 2nd Generation Antipsychotics

You have a variant in gene: **CYP2D6**

Poor Metabolizer



If you choose to take this medication, dose should be reduced to 50% of the usual dose and then adjusted to achieve a good clinical response.

 Source: FDA <https://www.fda.gov/medical-devices/precision-medicine/table-pharmacogenetic-associations>

Asenapine

Saphris



Psychotropics 2nd Generation Antipsychotics

Atenolol

Tenormin



Beta-Blockers

Atomoxetine

Strattera



ADHD - Stimulants and Non-Stimulants

You have a variant in gene: **CYP2D6**



Poor Metabolizer



You have an increased risk of side effects from this medication. A dose adjustment is recommended for children and adolescents with this genetic profile.

Source: CPIC - A <https://cpicpgx.org/cpic-guideline-for-atomoxetine-based-on-cyp2d6-genotype/>

Benzhydrocodone

Apadaz



Opioids

Bisoprolol

Monacor



Beta-Blockers

Botulinum Toxin

Botox, Dysport, Xeomin



Other Pain Meds

Brexpiprazole

Rexulti



Psychotropics 2nd Generation Antipsychotics

You have a variant in gene: **CYP2D6**



Poor Metabolizer

If you choose to take this medication, consider a 50% dose reduction. If you are taking any medications in addition to Brexpiprazole that are strong/moderate CYP3A4 inhibitors, consider taking 25% of the usual dose

Source: FDA <https://www.fda.gov/medical-devices/precision-medicine/table-pharmacogenetic-associations>

Buprenorphine

BuTrans, Sublocade, Suboxone



Opioids

Bupropion

Contrave, Wellbutrin SR/XL, Zyban



Antidepressants - Others

Buspirone

Buspirone



Other

Caffeine

Caffeine



Other

You have a variant in gene: **CYP1A2***preliminary data recommendation*

You may have an increased risk of insomnia and, if pregnant spontaneous abortion, from high levels of caffeine consumption.


 Source: PharmGKB - 3
<https://www.pharmgkb.org/clinicalAnnotation/1449296290>

Carbamazepine

Tegretol



Anticonvulsants

 You have more than one gene variant impacting your predicted response to this medication.

Our recommendation for this medication is indicated by the coloured pill icon, but information on the possible effects of the other gene variants you have is also provided.

If the recommendations seem to **contradict** each other: your response to this medication may be unpredictable (consider an alternative medication if available).

If the recommendations **support** each other: the overall predicted impact may be more pronounced/amplified.

 You have a variant in gene: **HLA-B**



You have an increased risk of side effects from this medication, including Stevens-Johnson Syndrome and toxic epidermal necrolysis.

 Source: PharmGKB - 1A
<https://www.pharmgkb.org/clinicalAnnotation/981419263>

You have a variant in gene: **SCN1A**

Consider a higher than usual dose of this medication.

 Source: PharmGKB - 2B
<https://www.pharmgkb.org/gene/PA301/clinicalAnnotation/613978931>

You have a variant in gene: **EPHX1***preliminary data recommendation*

 rs1051740(T) Homozygote

You may need a higher than usual dose of this medication.

 Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA27829/clinicalAnnotation>

Carvedilol

Coreg



Beta-Blockers

You have a variant in gene: **CYP2D6**

 Poor Metabolizer



You are at risk of side effects, especially dizziness, as dose of this medication is increased.

 Source: FDA <https://www.fda.gov/medical-devices/precision-medicine/table-pharmacogenetic-associations>

Celecoxib

Celebrex



Nonsteroidal Inflammatory Drugs (NSAIDs)

Citalopram

Celexa



Antidepressants - SSRI

! You have more than one gene variant impacting your predicted response to this medication.

Our recommendation for this medication is indicated by the coloured pill icon, but information on the possible effects of the other gene variants you have is also provided.

If the recommendations seem to **contradict** each other: your response to this medication may be unpredictable (consider an alternative medication if available).

If the recommendations **support** each other: the overall predicted impact may be more pronounced/amplified.

! You have a variant in gene: **CYP2C19**



Rapid Metabolizer

You should select an alternative medication to Citalopram.

i Source: CPIC - A <https://cpicpgx.org/guidelines/guideline-for-selective-serotonin-reuptake-inhibitors-and-cyp2d6-and-cyp2c19/>

You have a variant in gene: **COMT**

preliminary data recommendation

You may have a reduced response to this medication.

i Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA117/clinicalAnnotation/1183680526>

You have a variant in gene: **FKBP5**

preliminary data recommendation

You may have a reduced response to this medication.

i Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA28162/clinicalAnnotation/1183617724>

You have a variant in gene: **GRIK4**

preliminary data recommendation

You may be more likely to respond to this medication.

i Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA28976/clinicalAnnotation/982030381>

You have a variant in gene: **HTR2A**

preliminary data recommendation

You may have a reduced response to this medication.

i Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA193/clinicalAnnotation/637880425>

Clobazam

Frisium



Psychotropics - Benzodiazepines

Clomipramine

Anafranil



Antidepressants - Tricyclic

You have a variant in gene: **CYP2D6 & CYP2C19**

Select an alternative medication

Source: CPIC - A

https://cpicpgx.org/content/guideline/publication/TCA/2016/TCA_2016.pdf**Clonazepam**

Rivotril



Psychotropics - Benzodiazepines

Clozapine

Clozaril



Psychotropics 2nd Generation Antipsychotics

You have a variant in gene: **CYP2D6**

Poor Metabolizer

If you choose to take this medication, a lower dose should be considered.

 Source: FDA <https://www.fda.gov/medical-devices/precision-medicine/table-pharmacogenetic-associations>**Codeine**

Codeine Contin, Mersyndol, Robaxacet-8, Tylenol with Codeine

* Other pain relief medications may also contain Codeine



Opioids

You have a variant in gene: **CYP2D6**

Poor Metabolizer

This drug is unlikely to be effective for you. Select an alternative medication that is not metabolized by gene CYP2D6, such as morphine or non-opioid analgesic medications.

 Source: CPIC - A <https://cpicpgx.org/guidelines/guideline-for-codeine-and-cyp2d6/>**Corticosteroids**

Corticosteroids



Immunosuppressants

You have a variant in gene: **FKBP5***preliminary data recommendation*

You may have a reduced response to this medication.

Source: PharmGKB - 3

<https://www.pharmgkb.org/clinicalAnnotation/1146391450>**Cyclophosphamide**

Procytox



Antineoplastic Agents

Cyclosporine

Neoral, Restasis (topical)

Immunosuppressants

You have a variant in gene: **CYP3A5***preliminary data recommendation*

Poor Metabolizer



You may need a lower than usual dose to reach target blood concentration. (Some studies do not support this association.)



Source: PharmGKB - 3

<https://www.pharmgkb.org/gene/PA131/clinicalAnnotation/655387053>**Desipramine**

Norpramin, Pertofrane

Antidepressants - Tricyclic

You have a variant in gene: **CYP2D6**

Poor Metabolizer



You have an increased risk of side effects from this medication. Select an alternative medication that is not metabolized by CYP2D6. If you choose to take this medication, your starting dose should be decreased by 50%.

Source: CPIC <https://cpicpgx.org/guidelines/guideline-for-tricyclic-antidepressants-and-cyp2d6-and-cyp2c19/>**Deutetrabenazine**

Austedo

Neurology-other (VMAT2 Inhibitor)

You have a variant in gene: **CYP2D6**

Poor Metabolizer



If you take this medication, you may experience higher systemic concentrations. The maximum recommended single dose is 25 mg and should not exceed 50 mg/day.

Source: FDA <https://www.fda.gov/medical-devices/precision-medicine/table-pharmacogenetic-associations>**Dexamethasone**

Maxidex®, Ozurdex®

Immunosuppressants

**Dextroamphetamine**

Adderall XR, Dexedrine

ADHD - Stimulants and Non-Stimulants

You have a variant in gene: **CYP2D6**

Poor Metabolizer

Consider a lower starting dose or select an alternative medication that is not metabolized by CYP2D6



Source: FDA

https://www.accessdata.fda.gov/drugsatfda_docs/label/2019/017078s052lbl.pdf**Diazepam**

Diastat, Valium

Psychotropics - Benzodiazepines



Diclofenac

Arthrotec, Cambia, Pennsaid, Voltaren



Nonsteroidal Inflammatory Drugs (NSAIDs)

Donepezil

Aricept



Cholinergic Agents

You have a variant in gene: **CYP2D6**

Poor Metabolizer

You may have altered plasma levels of this medication.

i Source: FDA <https://www.fda.gov/medical-devices/precision-medicine/table-pharmacogenetic-associations>

Doxepin

Silenor, Sinequan



Antidepressants - Tricyclic

You have a variant in gene: **CYP2D6 & CYP2C19**

Select an alternative medication

i Source: CPIC - A

https://cpicpgx.org/content/guideline/publication/TCA/2016/TCA_2016.pdf

Duloxetine

Cymbalta



Antidepressants - SNRI

! You have more than one gene variant impacting your predicted response to this medication.

Our recommendation for this medication is indicated by the coloured pill icon, but information on the possible effects of the other gene variants you have is also provided.

If the recommendations seem to **contradict** each other: your response to this medication may be unpredictable (consider an alternative medication if available).

If the recommendations **support** each other: the overall predicted impact may be more pronounced/amplified.

You have a variant in gene: **CYP1A2***preliminary data recommendation*

You may have increased levels of this medication in your body from a standard dose. Avoid smoking while taking this medication due to reduced effectiveness.

i Source: FDA

https://www.accessdata.fda.gov/drugsatfda_docs/label/2007/021427s009s011s013lbl.pdf

You have a variant in gene: **CYP2D6***preliminary data recommendation*

You may require a reduced dose of this medication.

i Source: FDA

https://www.accessdata.fda.gov/drugsatfda_docs/label/2007/021427s009s011s013lbl.pdf

You have a variant in gene: **GRIK4***preliminary data recommendation*

You may be more likely to respond to this medication.

i Source: PharmGKB - 3

<https://www.pharmgkb.org/gene/PA28976/clinicalAnnotation/982030381>

Elagolix

Orilissa



Other

You have a variant in gene: **SLCO1B1**

You may require a reduced dose of this medication.

Source: FDA <https://www.fda.gov/medical-devices/precision-medicine/table-pharmacogenetic-associations>

Eletriptan

Relpax®



Triptans

You have a variant in gene: **GNB3***preliminary data recommendation*

You may have a decreased likelihood of responding to this medication for treatment of migraines or cluster headaches.

Source: PMID: 17361120 <https://www.ncbi.nlm.nih.gov/pubmed/?term=17361120>

Escitalopram

Cipralex



Antidepressants - SSRI

You have more than one gene variant impacting your predicted response to this medication.

Our recommendation for this medication is indicated by the coloured pill icon, but information on the possible effects of the other gene variants you have is also provided.

If the recommendations seem to **contradict** each other: your response to this medication may be unpredictable (consider an alternative medication if available).

If the recommendations **support** each other: the overall predicted impact may be more pronounced/amplified.

You have a variant in gene: **CYP2C19**



Rapid Metabolizer

Select an alternative medication. If you choose to take this medication, plasma concentrations should be monitored and the dose increased to a maximum of 150% based on efficacy and side effects.

Source: CPIC - A <https://cpicpgx.org/guidelines/guideline-for-selective-serotonin-reuptake-inhibitors-and-cyp2d6-and-cyp2c19/>

You have a variant in gene: **COMT***preliminary data recommendation*

This medication may not be effective for you.

Source: PharmGKB - 3 <https://www.pharmgkb.org/gene/PA117/clinicalAnnotation/1183680526>

You have a variant in gene: **GRIK4***preliminary data recommendation*

You may be more likely to respond to this medication.

Source: PharmGKB - 3 <https://www.pharmgkb.org/gene/PA28976/clinicalAnnotation/982030381>

Esketamine

Esketamine



Other Pain Meds

Eszopiclone

Lunesta



Psychotropics - Z-Hypnotics

Etanercept

Brenzys, Enbrel, Erelzi



Immunomodulatory Agents

Fentanyl

Duragesic, Fentora

Opioids

You have a variant in gene: **ABCB1***preliminary data recommendation*

You may require a decreased dose of this medication.

Source: PharmGKB - 2A

<https://www.pharmgkb.org/gene/PA267/clinicalAnnotation/1450929222>**Fluoxetine**

Prozac

Antidepressants - SSRI



You have more than one gene variant impacting your predicted response to this medication.

Our recommendation for this medication is indicated by the coloured pill icon, but information on the possible effects of the other gene variants you have is also provided.

If the recommendations seem to **contradict** each other: your response to this medication may be unpredictable (consider an alternative medication if available).If the recommendations **support** each other: the overall predicted impact may be more pronounced/amplified.You have a variant in gene: **COMT***preliminary data recommendation*

This medication may not be effective for you.

Source: PharmGKB - 3

<https://www.pharmgkb.org/gene/PA117/clinicalAnnotation/1183680526>You have a variant in gene: **FKBP5***preliminary data recommendation*

You may have a reduced response to this medication.

Source: PharmGKB - 3

<https://www.pharmgkb.org/gene/PA28162/clinicalAnnotation/1183617724>You have a variant in gene: **GRIK4***preliminary data recommendation*

You may be more likely to respond to this medication.

Source: PharmGKB - 3

<https://www.pharmgkb.org/gene/PA28976/clinicalAnnotation/982030381>**Flurbiprofen**

Ansaid, Froben, Froben SR

Nonsteroidal Inflammatory Drugs (NSAIDs)



Fluvoxamine

Luvox



! You have more than one gene variant impacting your predicted response to this medication.

Our recommendation for this medication is indicated by the coloured pill icon, but information on the possible effects of the other gene variants you have is also provided.

If the recommendations seem to **contradict** each other: your response to this medication may be unpredictable (consider an alternative medication if available).

If the recommendations **support** each other: the overall predicted impact may be more pronounced/amplified.

! You have a variant in gene: **CYP2D6**

Poor Metabolizer

Consider an alternative medication that is not metabolized by CYP2D6. If you choose to take this medication, a 25-50% reduction in dose should be considered and dose then adjusted based on clinical response.

i Source: CPIC - A <https://cpicpgx.org/guidelines/guideline-for-selective-serotonin-reuptake-inhibitors-and-cyp2d6-and-cyp2c19/>

You have a variant in gene: **COMT**

preliminary data recommendation

This medication may not be effective for you.

i Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA117/clinicalAnnotation/1183680526>

You have a variant in gene: **GRIK4**

preliminary data recommendation

You may be more likely to respond to this medication.

i Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA28976/clinicalAnnotation/982030381>

Fosphenytoin

Cerebyx



Anticonvulsants

Frovatriptan

Frova



Triptans

You have a variant in gene: **GNB3**

preliminary data recommendation

You may have a decreased likelihood of responding to this medication for treatment of migraines or cluster headaches.

i Source: PMID: 17361120 <https://www.ncbi.nlm.nih.gov/pubmed/?term=17361120>

Gabapentin

Neurontin



Anticonvulsants

Galantamine

Reminyl



You have a variant in gene: **CYP2D6**



Poor Metabolizer

If you take this medication, you may experience higher systemic concentrations.

 Source: FDA <https://www.fda.gov/medical-devices/precision-medicine/table-pharmacogenetic-associations>

Golimumab

Simponi



Immunomodulatory Agents

Guanfacine

Intuniv XR



ADHD - Stimulants and Non-Stimulants

Haloperidol

Haldol



Psychotropics 1st Generation Antipsychotics

You have a variant in gene: **CYP2D6**



Poor Metabolizer

Select an alternative medication. If you choose to take this medication, consider a 50% dose reduction.

 Source: DPWG <https://www.pharmgkb.org/guidelineAnnotation/PA166104988>

Hydrocodone

Dalmacol, Dimetane Expectorant DC



Opioids

You have a variant in gene: **CYP2D6**

You may not receive sufficient pain relief from this medication. Start therapy at the recommended starting dose and consider an alternative medication if response is not adequate.

 Source: CPIC <https://cpicpgx.org/guidelines/guideline-for-codeine-and-cyp2d6/>

Ibuprofen

Advil, Motrin, Robax Platinum



Nonsteroidal Inflammatory Drugs (NSAIDs)

Iloperidone

Fanapt, Zomeril



Psychotropics 2nd Generation Antipsychotics

You have a variant in gene: **CYP2D6**



Poor Metabolizer



Consider a 50% dose reduction and monitor for side effects including QT prolongation

 Source: FDA <https://www.fda.gov/medical-devices/precision-medicine/table-pharmacogenetic-associations>

Imipramine

Impril, Tofranil



Antidepressants - Tricyclic

You have a variant in gene: **CYP2D6 & CYP2C19**

Select an alternative medication

i Source: CPIC - Ahttps://cpicpgx.org/content/guideline/publication/TCA/2016/TCA_2016.pdf**Infliximab**

Inflectra, Remicade, Renflexis



Immunomodulatory Agents

Ketamine

Ketalar



Other Pain Meds

Lacosamide

Vimpat



Anticonvulsants

You have a variant in gene: **SCN9A***preliminary data recommendation*

You may be less likely to respond to this medication.

i Source: PMID: 20942817 <https://www.ncbi.nlm.nih.gov/pubmed/?term=20942817>**Lamotrigine**

Lamictal



Anticonvulsants

You have a variant in gene: **HLA-B**

You may have an increased risk for severe cutaneous adverse reactions from this medication. Some studies do not support this association.

i Source: PharmGKB - 1A<https://www.pharmgkb.org/clinicalAnnotation/1447676595>**Lesinurad**

Zurampic



Other Pain Meds

Levomilnacipran

Fetzima



Antidepressants - SNRI

You have a variant in gene: **GRIK4***preliminary data recommendation*

You may be more likely to respond to this medication.

i Source: PharmGKB - 3<https://www.pharmgkb.org/gene/PA28976/clinicalAnnotation/982030381>

Lisdexamfetamine

Vyvanse

ADHD - Stimulants and Non-Stimulants

You have a variant in gene: **CYP2D6***preliminary data recommendation*

Consider a lower starting dose or select an alternative medication that is not metabolized by CYP2D6

Source: FDA

https://www.accessdata.fda.gov/drugsatfda_docs/label/2017/208510lbl.pdf

Lithium

Eskalith, Lithobid

Antidepressants - Others

You have a variant in gene: **ABCB1***preliminary data recommendation*

You may have an increased risk of suicide ideation when treated with this medication

Source: PharmGKB - 3

<https://www.pharmgkb.org/chemical/PA450243/clinicalAnnotation/982032743>

Lorazepam

Ativan

Psychotropics - Benzodiazepines

You have a variant in gene: **UGT2B15***preliminary data recommendation*

You may have higher than usual levels of this medication in your blood plasma after taking it.

Source: PMID: 30443442

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6235651/>

Lurasidone

Latuda

Psychotropics 2nd Generation Antipsychotics

**Meloxicam**

Mobicox

Nonsteroidal Inflammatory Drugs (NSAIDs)

**Meperidine**

Demerol

Opioids

**Methadone**

Metadol, Methadose

Opioids

You have a variant in gene: **COMT***preliminary data recommendation*

You may have an increased response to this medication. If you choose to take this medication, a lower dose should be considered. (Some studies do not support this association)

Source: PharmGKB - 3

<https://www.pharmgkb.org/gene/PA117/clinicalAnnotation/655385205>

Methotrexate

Metoject



! You have more than one gene variant impacting your predicted response to this medication.

Our recommendation for this medication is indicated by the coloured pill icon, but information on the possible effects of the other gene variants you have is also provided.

If the recommendations seem to **contradict** each other: your response to this medication may be unpredictable (consider an alternative medication if available).

If the recommendations **support** each other: the overall predicted impact may be more pronounced/amplified.

You have a variant in gene: **ABCB1**

preliminary data recommendation



You may have an increased risk of side effects from this medication, including toxicity. If you choose to take this medication, a lower than usual dose should be considered. (Some studies do not support this association.)

i Source: PharmGKB - 2A
<https://www.pharmgkb.org/gene/PA267/clinicalAnnotation/1296599132>

You have a variant in gene: **SLCO1B1**

preliminary data recommendation



You may have an increased risk of gastrointestinal toxicity from this medication.

i Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA134865839/clinicalAnnotation/655387942>

Methylphenidate

Concerta, Daytrana, Metadate, Ritalin



ADHD - Stimulants and Non-Stimulants

You have a variant in gene: **COMT**

preliminary data recommendation

You may have a reduced response to this medication.

i Source: PharmGKB - 3
<https://www.pharmgkb.org/chemical/PA450464/clinicalAnnotation/1450374881>

Metoclopramide

Metonia



Other

You have a variant in gene: **CYP2D6**



Poor Metabolizer



You may have an increased risk of side effects and decreased effectiveness from this medication

i Source: FDA <https://www.fda.gov/medical-devices/precision-medicine/table-pharmacogenetic-associations>

Metoprolol

Lopresor SR



Beta-Blockers

You have a variant in gene: **CYP2D6**



Poor Metabolizer

Consider an alternative medication. If you choose to take this medication, you should use a lower than usual dose.

i Source: PharmGKB - 2A
<https://www.pharmgkb.org/chemical/PA450480/clinicalAnnotation/1447681932>

Midazolam

Midazolam



Psychotropics - Benzodiazepines

You have a variant in gene: **CYP3A5***preliminary data recommendation*

You may need a lower than usual dose to reach target blood concentration. (Some studies do not support this association.)

Source: PharmGKB - 3
<https://www.pharmgkb.org/clinicalAnnotation/1447986938>

Milnacipran

Savella



Antidepressants - SNRI

You have a variant in gene: **GRIK4***preliminary data recommendation*

You may be more likely to respond to this medication.

Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA28976/clinicalAnnotation/982030381>

Mirtazapine

Remeron



Antidepressants - Others

You have more than one gene variant impacting your predicted response to this medication.

Our recommendation for this medication is indicated by the coloured pill icon, but information on the possible effects of the other gene variants you have is also provided.

If the recommendations seem to **contradict** each other: your response to this medication may be unpredictable (consider an alternative medication if available).

If the recommendations **support** each other: the overall predicted impact may be more pronounced/amplified.

You have a variant in gene: **CYP2D6**

Poor Metabolizer

Consider an alternative medication. If you choose to take this medication, you should consider 50% of the usual starting dose.

Source: PharmGKB - 2A
<https://www.pharmgkb.org/gene/PA128/clinicalAnnotation/1183619154>

You have a variant in gene: **FKBP5***preliminary data recommendation*

You may have a reduced response to this medication.

Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA28162/clinicalAnnotation/1183617724>

Morphine

Kadian, M-Eslon, MS Contin, Statex



Opioids

You have a variant in gene: **COMT***preliminary data recommendation*

You may have an increased response to this medication. If you choose to take this medication, a lower dose should be considered. (Some studies do not support this association)

Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA117/clinicalAnnotation/655385205>

Nadolol

Corgard



Beta-Blockers

Naloxone

Narcan, Suboxone, Targin



Other Pain Meds

Naltrexone

ReVia, Vivitrol



Other

Naproxen

Aleve, Anaprox, Maxidol, Naprosyn, Vimovo



Nonsteroidal Inflammatory Drugs (NSAIDs)

Naratriptan

Amerge



Triptans

You have a variant in gene: **GNB3***preliminary data recommendation*

You may have a decreased likelihood of responding to this medication for treatment of migraines or cluster headaches.

i Source: PMID: 17361120 <https://www.ncbi.nlm.nih.gov/pubmed/?term=17361120>**Nebivolol**

Bystolic



Beta-Blockers

You have a variant in gene: **CYP2D6**

Poor Metabolizer

Consider an alternative medication

i Source: FDA <https://www.fda.gov/medical-devices/precision-medicine/table-pharmacogenetic-associations>**Nifedipine**

Adalat® XL®



Calcium Channel Blockers

Nortriptyline

Aventyl



Antidepressants - Tricyclic

You have a variant in gene: **CYP2D6**

Poor Metabolizer



You have an increased risk of side effects from this medication. Select an alternative medication that is not metabolized by CYP2D6. If you choose to take this medication, your starting dose should be decreased by 50%.

i Source: CPIC - A <https://cpicpgx.org/guidelines/guideline-for-tricyclic-antidepressants-and-cyp2d6-and-cyp2c19/>

Olanzapine

Zyprexa

Psychotropics 2nd Generation Antipsychotics

You have a variant in gene: **CYP1A2***preliminary data recommendation*

You may require an increased dose of this medication.

 Source: PMID: 19636338 <https://www.ncbi.nlm.nih.gov/pubmed/?term=19636338>

Ondansetron

Ondissolve, Zofran

Other

You have a variant in gene: **ABCB1***preliminary data recommendation*

You may have an increased risk of side effects from this medication, including nausea and vomiting.

 Source: PharmGKB - 2A
<https://www.pharmgkb.org/chemical/PA450705/clinicalAnnotation>

Ospemifene

Selective Estrogen Receptor Modulators

**Oxazepam**

Serax

Psychotropics - Benzodiazepines

You have a variant in gene: **UGT2B15***preliminary data recommendation*

You may have higher than usual levels of this medication in your blood plasma after taking it.

 Source: PharmGKB - 3
<https://www.pharmgkb.org/chemical/PA450731/clinicalAnnotation/655387798>

Oxcarbazepine

Trileptal

Anticonvulsants



Oxycodone

OxyIR, OxyNeo, Oxycocet,
Oxycodan, Percocet, Supeudol, Targin



! You have more than one gene variant impacting your predicted response to this medication.

Our recommendation for this medication is indicated by the coloured pill icon, but information on the possible effects of the other gene variants you have is also provided.

If the recommendations seem to **contradict** each other: your response to this medication may be unpredictable (consider an alternative medication if available).

If the recommendations **support** each other: the overall predicted impact may be more pronounced/amplified.

! You have a variant in gene: **CYP2D6**

⦿ Poor Metabolizer

You may be less likely to respond to this medication.

i Source: PharmGKB - 2A
<https://www.pharmgkb.org/clinicalAnnotation/1183617979>

You have a variant in gene: **COMT**

preliminary data recommendation

You may have an increased response to this medication. If you choose to take this medication, a lower dose should be considered. (Some studies do not support this association)

i Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA117/clinicalAnnotation/655385205>

Paliperidone

Invega



Psychotropics 2nd Generation Antipsychotics

Paroxetine

Paxil

! You have more than one gene variant impacting your predicted response to this medication.

Our recommendation for this medication is indicated by the coloured pill icon, but information on the possible effects of the other gene variants you have is also provided.

If the recommendations seem to **contradict** each other: your response to this medication may be unpredictable (consider an alternative medication if available).

If the recommendations **support** each other: the overall predicted impact may be more pronounced/amplified.

! You have a variant in gene: **CYP2D6**



Poor Metabolizer

Select an alternative medication. If you choose to take this medication, you should consider using 50% of the usual starting dose and then adjusting dose based on clinical response.

i Source: CPIC - A <https://cpicpgx.org/guidelines/guideline-for-selective-serotonin-reuptake-inhibitors-and-cyp2d6-and-cyp2c19/>

You have a variant in gene: **COMT**

preliminary data recommendation

This medication may not be effective for you.

i Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA117/clinicalAnnotation/1183680526>

You have a variant in gene: **FKBP5**

preliminary data recommendation

You may have a reduced response to this medication.

i Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA28162/clinicalAnnotation/1183617724>

You have a variant in gene: **GRIK4**

preliminary data recommendation

You may be more likely to respond to this medication.

i Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA28976/clinicalAnnotation/982030381>

You have a variant in gene: **HTR1A**

preliminary data recommendation

You may have a reduced response to this medication.

i Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA192/clinicalAnnotation/1183617832>

Pentazocine

Talwin

Opioids

Perphenazine

Etrafon, Phenazine, Proavil, Trilafon

Psychotropics 1st Generation Antipsychotics

You have a variant in gene: **CYP2D6**

Poor Metabolizer



You may be at an increased risk of side effects resulting from higher plasma concentrations if the usual dose is used. Consider a decreased dose.

i Source: FDA <https://www.fda.gov/medical-devices/precision-medicine/table-pharmacogenetic-associations>

Phenytoin

Dilantin

Anticonvulsants

You have a variant in gene: **SCN1A***preliminary data recommendation*

Consider a higher than usual dose of this medication.

i Source: PharmGKB - 3

<https://www.pharmgkb.org/gene/PA301/clinicalAnnotation/613978937>

Pimozide

Orap

Psychotropics 1st Generation Antipsychotics

You have a variant in gene: **CYP2D6**

Poor Metabolizer



You are at increased risk for side effects/toxicity from this drug. In children, pimozide doses should not exceed 0.05 mg/kg/day. In adults, pimozide doses should not exceed 4 mg/day. Both adults and children should avoid dose increases for 14 days.

i Source: FDA <https://www.fda.gov/medical-devices/precision-medicine/table-pharmacogenetic-associations>

Piroxicam

Brexidol, Feldene

Nonsteroidal Inflammatory Drugs (NSAIDs)

**Pregabalin**

Lyrica

Anticonvulsants

**Propofol**

Diprivan

Other Pain Meds



Propranolol

Hemangirol, Inderal-LA

Beta-Blockers

You have a variant in gene: **CYP2D6**

Poor Metabolizer



If you choose to take this medication, you may be at increased risk for toxicity and lack of response.

Source: FDA <https://www.fda.gov/medical-devices/precision-medicine/table-pharmacogenetic-associations>

Protriptyline

Triptil

Antidepressants - Tricyclic

You have a variant in gene: **CYP2D6**

Poor Metabolizer



You may have an increased plasma levels from standard doses of this medication.

Source: FDA
<https://www.pharmgkb.org/chemical/PA451168/labelAnnotation/PA166104812>

Quetiapine

Seroquel

Psychotropics 2nd Generation Antipsychotics

**Remifentanyl**

Ultiva

Opioids

**Risperidone**

Risperdal

Psychotropics 2nd Generation Antipsychotics

You have a variant in gene: **CYP2D6**

Poor Metabolizer



You may have an increased risk of side effects from this medication. If you choose to take this medication, adjust the dosage to achieve good clinical response.

Source: PharmGKB - 2A
<https://www.pharmgkb.org/guidelineAnnotation/PA166104943>

Rizatriptan

Maxalt

Triptans

You have a variant in gene: **GNB3***preliminary data recommendation*

You may have a decreased likelihood of responding to this medication for treatment of migraines or cluster headaches.

Source: PMID: 17361120 <https://www.ncbi.nlm.nih.gov/pubmed/?term=17361120>

Sertraline

Zoloft



! You have more than one gene variant impacting your predicted response to this medication.

Our recommendation for this medication is indicated by the coloured pill icon, but information on the possible effects of the other gene variants you have is also provided.

If the recommendations seem to **contradict** each other: your response to this medication may be unpredictable (consider an alternative medication if available).

If the recommendations **support** each other: the overall predicted impact may be more pronounced/amplified.

! You have a variant in gene: **CYP2C19**

Rapid Metabolizer

If you do not respond to the usual starting dose, select an alternative medication not metabolized by CYP2C19.

i Source: CPIC - B <https://cpicpgx.org/guidelines/guideline-for-selective-serotonin-reuptake-inhibitors-and-cyp2d6-and-cyp2c19/>

You have a variant in gene: **COMT**

preliminary data recommendation

This medication may not be effective for you.

i Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA117/clinicalAnnotation/1183680526>

You have a variant in gene: **GRIK4**

preliminary data recommendation

You may be more likely to respond to this medication.

i Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA28976/clinicalAnnotation/982030381>

Siponimod

Mayzent



Immunomodulatory Agents

Sirolimus

Rapamune



Immunosuppressants

You have a variant in gene: **CYP3A5**

preliminary data recommendation

Poor Metabolizer

You may require a lower starting dose of this medication.

i Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA131/clinicalAnnotation/981203936>

Sufentanil

Sufenta



Opioids

You have a variant in gene: **COMT**

preliminary data recommendation

You may have an increased response to this medication. If you choose to take this medication, a lower dose should be considered. (Some studies do not support this association)

i Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA117/clinicalAnnotation/655385205>

Sumatriptan

Triptans

Imitrex

You have a variant in gene: **GNB3***preliminary data recommendation*

You may have a decreased likelihood of responding to this medication for treatment of migraines or cluster headaches.

i Source: PMID: 17361120 <https://www.ncbi.nlm.nih.gov/pubmed/?term=17361120>**Tacrolimus**

Immunosuppressants

Advagraf, Envarsus, Prograf

**Tapentadol**

Opioids

Nucynta

**Tenoxicam**

Nonsteroidal Inflammatory Drugs (NSAIDs)

Tenoxicam

**Tetrabenazine**

Monoamine Depleting Agent

Nitoman

You have a variant in gene: **CYP2D6**

Poor Metabolizer

If you take this medication, you may experience higher systemic concentrations. The maximum recommended single dose is 25 mg and should not exceed 50 mg/day.

i Source: FDA <https://www.fda.gov/medical-devices/precision-medicine/table-pharmacogenetic-associations>**Thioridazine**

Psychotropics 1st Generation Antipsychotics

Mellaril

You have a variant in gene: **CYP2D6**

Poor Metabolizer



Select an alternative medication. You have an increased risk of potentially fatal side effects from this medication.

i Source: FDA <https://www.fda.gov/medical-devices/precision-medicine/table-pharmacogenetic-associations>**Topiramate**

Anticonvulsants

Topamax



Tramadol

Durela, Ralivia, Tramacet, Tridural, Ultram, Zytram XL



Opioids

! You have more than one gene variant impacting your predicted response to this medication.

Our recommendation for this medication is indicated by the coloured pill icon, but information on the possible effects of the other gene variants you have is also provided.

If the recommendations seem to **contradict** each other: your response to this medication may be unpredictable (consider an alternative medication if available).

If the recommendations **support** each other: the overall predicted impact may be more pronounced/amplified.

! You have a variant in gene: **CYP2D6**



Poor Metabolizer

Select an alternative medication, not oxycodone or codeine. You may not receive sufficient pain relief from this medication.

i Source: PharmGKB - 1B

<https://www.pharmgkb.org/chemical/PA451735/clinicalAnnotation/1183618159>

You have a variant in gene: **COMT**

preliminary data recommendation

You may have an increased response to this medication. If you choose to take this medication, a lower dose should be considered. (Some studies do not support this association)

i Source: PharmGKB - 3

<https://www.pharmgkb.org/gene/PA117/clinicalAnnotation/655385205>

Trazodone

Desyrel, Oleptro



Antidepressants - Others

You have a variant in gene: **COMT**

preliminary data recommendation

This medication may not be effective for you.

i Source: PharmGKB - 3

<https://www.pharmgkb.org/gene/PA117/clinicalAnnotation/1183680526>

Trimipramine

Surmontil



Antidepressants - Tricyclic

You have a variant in gene: **CYP2D6 & CYP2C19**



Select an alternative medication

i Source: CPIC - A

https://cpicpgx.org/content/guideline/publication/TCA/2016/TCA_2016.pdf

Tropisetron

Nabovan



Other

Valdecoxib

Valdecoxib



Nonsteroidal Inflammatory Drugs (NSAIDs)

Venlafaxine

Effexor XR



! You have more than one gene variant impacting your predicted response to this medication.

Our recommendation for this medication is indicated by the coloured pill icon, but information on the possible effects of the other gene variants you have is also provided.

If the recommendations seem to **contradict** each other: your response to this medication may be unpredictable (consider an alternative medication if available).

If the recommendations **support** each other: the overall predicted impact may be more pronounced/amplified.

! You have a variant in gene: **CYP2D6**

Poor Metabolizer

Select an alternative medication. If you choose to take this medication, plasma metabolite levels and clinical response should be closely monitored to guide dose adjustments.

i Source: DPWG <https://www.pharmgkb.org/guidelineAnnotation/PA166104968>

You have a variant in gene: **FKBP5**

preliminary data recommendation

You may have a reduced response to this medication.

i Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA28162/clinicalAnnotation/1183617724>

You have a variant in gene: **GRIK4**

preliminary data recommendation

You may be more likely to respond to this medication.

i Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA28976/clinicalAnnotation/982030381>

Vilazodone

Viibryd



Antidepressants - Others

! You have more than one gene variant impacting your predicted response to this medication.

Our recommendation for this medication is indicated by the coloured pill icon, but information on the possible effects of the other gene variants you have is also provided.

If the recommendations seem to **contradict** each other: your response to this medication may be unpredictable (consider an alternative medication if available).

If the recommendations **support** each other: the overall predicted impact may be more pronounced/amplified.

You have a variant in gene: **COMT**

preliminary data recommendation

This medication may not be effective for you.

i Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA117/clinicalAnnotation/1183680526>

You have a variant in gene: **GRIK4**

preliminary data recommendation

You may be more likely to respond to this medication.

i Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA28976/clinicalAnnotation/982030381>

Vortioxetine

Trintellix



! You have more than one gene variant impacting your predicted response to this medication.

Our recommendation for this medication is indicated by the coloured pill icon, but information on the possible effects of the other gene variants you have is also provided.

If the recommendations seem to **contradict** each other: your response to this medication may be unpredictable (consider an alternative medication if available).

If the recommendations **support** each other: the overall predicted impact may be more pronounced/amplified.

! You have a variant in gene: **CYP2D6**

Poor Metabolizer

You should not exceed 10mg of this medication per day.

i Source: FDA <https://www.fda.gov/medical-devices/precision-medicine/table-pharmacogenetic-associations>

You have a variant in gene: **GRIK4**

preliminary data recommendation

You may be more likely to respond to this medication.

i Source: PharmGKB - 3
<https://www.pharmgkb.org/gene/PA28976/clinicalAnnotation/982030381>

Ziprasidone

Zeldox



Psychotropics 2nd Generation Antipsychotics

Zolmitriptan

Zomig



Triptans

You have a variant in gene: **GNB3**

preliminary data recommendation

You may have a decreased likelihood of responding to this medication for treatment of migraines or cluster headaches.

i Source: PMID: 17361120 <https://www.ncbi.nlm.nih.gov/pubmed/?term=17361120>

Zopiclone

Imovane



Psychotropics - Z-Hypnotics

Zuclophenthixol

Clopixol



Psychotropics 1st Generation Antipsychotics

You have a variant in gene: **CYP2D6**

Poor Metabolizer

You may have decreased metabolism of this medication

i Source: PGKB - 1A <https://www.pharmgkb.org/clinicalAnnotation/1183617478>

Analysis of Your Gene Profile

This section lists the genes tested and variants detected that are known to impact responses to the medications included in this report.

Genes are listed in alphabetical order, starting with the genes where variants impacting drug response were detected. At the end of this section, you will find a list of genes tested where NO variants known to impact responses to the drugs included in this report were detected.

GENE	VARIANT DETECTED	FUNCTION
ABCB1	rs1045642 (GA) rs2032582 (CA)	rs1045642(T) and rs2032582(T) Heterozygote Based on this genotype the patient may have abnormal ABCB1 function. Please consult a pharmacist for more information on how this ABCB1 genotype influences drug selection and dosing.
ATIC	rs4673993 (TC)	rs4673993(C) Heterozygote Based on this genotype the patient may have abnormal ATIC function. Please consult a pharmacist for more information on how this ATIC genotype influences drug selection and dosing.
CNIH3	rs10799590 (AA) rs1436175 (GA)	rs1436175(A) Heterozygote and rs10799590(A) Homozygote Based on this genotype the patient may have abnormal CNIH3 function. Please consult a pharmacist for more information on how this CNIH3 genotype influences drug selection and dosing.
CNR1	rs1049353 (TT)	rs1049353(T) Homozygote Based on this genotype the patient may have abnormal CNR1 function. Please consult a pharmacist for more information on how this CNR1 genotype influences drug selection and dosing.
COMT	rs13306278 (CT) rs4680 (GA)	rs13306278(T) Heterozygote; rs4680(A) Heterozygote Based on this genotype the patient may have abnormal COMT function. Please consult a pharmacist for more information on how this COMT genotype influences drug selection and dosing.
CREB1	rs2952768 (TC)	rs2952768(C) Heterozygote Based on this genotype the patient may have abnormal CREB1 function. Please consult a pharmacist for more information on how this CREB1 genotype influences drug selection and dosing.
CYP1A1	rs2606345 (AA)	rs2606345(A) Homozygote Based on this genotype the patient may have abnormal CYP1A1 function. Please consult a pharmacist for more information on how this CYP1A1 genotype influences drug selection and dosing.
CYP1A2	rs762551 (AA)	CYP1A2*1F Homozygote Based on this genotype the patient may have abnormal CYP1A2 function. Please consult a pharmacist for more information on how the CYP1A2*1F allele influences drug selection and dosing.

CYP2C19	rs12248560 (CT)	<p>Rapid Metabolizer</p> <p>This result signifies that the patient is predicted to be a rapid metabolizer of CYP2C19 substrates. This patient may be at risk for an adverse or poor response to medications that are metabolized by CYP2C19. To avoid an untoward drug response, dose adjustments or alternative therapeutic agents may be necessary for medications metabolized by CYP2C19. Please consult a pharmacist for more information about how CYP2C19 metabolic status influences drug selection and dosing.</p>
CYP2D6	rs1065852 (AA) rs3892097 (TT) CNV(1+N)	<p>Poor Metabolizer</p> <p>Based on the genotype result this patient is predicted to be a poor metabolizer of CYP2D6 substrates. This patient may be at a high risk for an adverse or poor response to medications that are metabolized by CYP2D6. To avoid an untoward drug response, dose adjustments or alternative therapeutic agents may be necessary for medications metabolized by the CYP2D6. Please consult a pharmacist for more information about how CYP2D6 metabolic status influences drug selection and dosing.</p>
CYP3A5	rs776746 (CC)	<p>Poor Metabolizer</p> <p>Based on the genotype result this patient is predicted to be a poor metabolizer of CYP3A5 substrates. This patient may be at a high risk for an adverse or poor response to medications that are metabolized by CYP3A5. To avoid an untoward drug response, dose adjustments or or alternative therapy may be necessary for medications metabolized by the CYP3A5. Please consult a pharmacist for more information about how CYP3A5 metabolic status influences drug selection and dosing.</p>
EPHX1	rs1051740 (TT)	<p>rs1051740(T) Homozygote</p> <p>Based on this genotype the patient may have abnormal EPHX1 function. Please consult a pharmacist for more information on how the EPHX1 genotype influences drug selection and dosing.</p>
FKBP5	rs4713916 (GG)	<p>rs4713916(G) Homozygote</p> <p>Based on this genotype the patient may have abnormal FKBP5 function. Please consult a pharmacist for more information on how the FKBP5 genotype influences drug selection and dosing.</p>
GRIK4	rs1954787 (CC)	<p>rs1954787(C) Homozygote</p> <p>Based on this genotype the patient may have abnormal GRIK4 function. Please consult a pharmacist for more information on how the GRIK4 genotype influences drug selection and dosing.</p>
HLA-B	rs1265110 (CT) rs2074491 (CC) rs2844682 (GA) rs4711240 (CC)	<p>Carries both HLA-B*40:01:01 and HLA-B*15:11:01</p> <p>A large number of HLA-B alleles have been identified. Some of these alleles have been associated with reactions to a large number of different drugs. This result signifies that the patient is likely positive for the HLA-B*40:01:01 allele and the HLA-B*15:11:01 allele. Please consult a pharmacist for more information on how this genotype influences drug selection and dosing.</p>
HTR1A	rs6295 (GG)	<p>rs6295(G) Homozygote</p> <p>Based on this genotype the patient may have abnormal HTR1A function. Please consult a pharmacist for more information on how the HTR1A genotype influences drug selection and dosing.</p>

HTR2A	rs7997012 (GG)	rs7997012(G) Homozygote Based on this genotype the patient may have abnormal HTR2A function. Please consult a pharmacist for more information on how the HTR2A genotype influences drug selection and dosing.
LTC4S	rs730012 (AC)	rs730012(C) Heterozygote Based on this genotype the patient may have abnormal LTC4S function. Please consult a pharmacist for more information on how the LTC4S genotype influences drug selection and dosing.
PTGS2	rs20417 (CG) rs5275 (AG)	rs5275(G) Heterozygote; rs20417(G) Heterozygote Based on this genotype the patient may have abnormal PTGS2 function. Please consult a pharmacist for more information on how the PTGS2 genotype influences drug selection and dosing.
RGMA	rs12442183 (CT)	rs12442183(T) Heterozygote Based on this genotype the patient may have abnormal RGMA function. Please consult a pharmacist for more information on how the RGMA genotype influences drug selection and dosing.
SCN1A	rs3812718 (CT)	rs3812718(T) Heterozygote Based on this genotype the patient may have abnormal SCN1A function. Please consult a pharmacist for more information on how the SCN1A genotype influences drug selection and dosing.
SCN9A	rs41268673 (GT)	rs41268673(T) Heterozygote Based on this genotype the patient may have abnormal SCN9A function. Please consult a pharmacist for more information on how the SCN9A genotype influences drug selection and dosing.
SLCO1B1	rs11045879 (TC) rs4149056 (TC)	rs11045879(C) Heterozygote; rs4149056(C) Heterozygote Based on this genotype the patient may have abnormal SLCO1B1 function. Please consult a pharmacist for more information on how the SLCO1B1 genotype influences drug selection and dosing.
UGT2B15	rs1902023 (AC)	rs1902023(C) Heterozygote Based on this genotype the patient may have abnormal UGT2B15 function. Please consult a pharmacist for more information on how the UGT2B15 genotype influences drug selection and dosing.

No Gene Variants Identified

ADRB2	BDNF	CACNA1B	CNR2	CYP2B6	CYP2C8
CYP2C9	CYP3A4	CYP3A7	DRD2/ANKK1	FAAH	GABRG2
GIRK2(KCNJ6)	GNB3	GP1BA	GSTP1	HLA-A	HTR2C
KCNG2	MC4R	MTHFR	MTRR	NRG1	OPRD1
OPRM1	PTGS1	rs10494334	TNFA	TRPV1	UGT1A4
UGT2B7	UMPS				

Test Information

Talking to Your Health Care Provider About Your Personalized Insights™ Report

Your Personalized Insights™ report is not intended to take the place of professional medical advice. We highly recommend sharing your report with your health care professional, as they may find the information contained in it useful for future reference when considering new medications for you. They will consider the test results in the context of other important variables including age, diet, organ function, and other medications you may have been prescribed, as well as the type, stage, and severity of the specific disease being treated, and the presence of any other health conditions.

Important: You should never alter your treatment plan or stop/start taking any medications without consulting with your health care team.

Although the science behind pharmacogenomics is well established, it is only just beginning to be incorporated into most medical practices. Below you will find some talking points that you may find helpful when sharing your Personalized Insights™ report with your health care professional/team:

- I ordered a Personalized Insights™ pharmacogenetic test from Inagene™ Diagnostics, and have received a personalized, confidential report based on my genetic profile. The report contains a personalized review of which medications I should avoid or use with caution based on my individual genetic profile.
- It was recommended that I share my report with you, as it may provide useful insights that could be used to help optimize my care now or in the future.
- I understand that any decisions about my treatment should only be made in consultation with you/my health care team, and should take many things into consideration, including my medical history, current treatment regimen and ongoing treatment response.

Note: It is recommended that you share online access to the FULL report with your health care team, as the online report is regularly updated with the latest medications and recommendations.

To create and print a shortened/customized version of this report that includes only those medications most relevant to you (for example, to include only those medications used in a specific therapeutic area, or to include only those medications currently being taken) log on to the on-line version of this report on your Inagene Portal account at <https://patients.inagene.com>, and click on the “Search and Customize My Results” tab at the top of the page.

To watch a video on how to search and customize your report, copy this URL into the browser:

https://www.youtube.com/watch?v=MnhI_0sLynA&ab_channel=InageneDiagnostics

To watch a video on how to share online access to your report, copy this URL into the browser:

https://www.youtube.com/watch?v=FZwlqqfAlfM&ab_channel=InageneDiagnostics

Contact Information

We recommend you share your Personalized Insights™ with your health care professional. And, if you have any questions you can contact us at customerservice@inagene.com

Glossary

Preliminary Data – These recommendations represent associations that have been published in at least one study but do not yet meet criteria for support from major pharmacogenetic consortia. We believe some of these associations will eventually reach this standard and they are thus included for information purposes only.

CPIC – Clinical Pharmacogenetics Implementation Consortium is a leading international consortium providing advice on the use of pharmacogenetic testing for patient care. On your report, CPIC letters represent a ranking scale as shown also on the CPIC website.

<https://cpicpgx.org>

We select only high level associations for recommendations.

PharmGKB – An NIH-funded resource that curates pharmacogenetic recommendations. On your report, PharmGKB letters represent a ranking scale that is also shown on the PharmGKB website.

<https://www.pharmgkb.org>

We select only high level associations for recommendations.

DPWG – Dutch Pharmacogenetics Working Group implement pharmacogenetic guidelines for Europe.

<https://upgx.eu/dutch-pharmacogenomics-guidelines-endorsed-in-europe>

FDA – The U.S. Food & Drug Administration create guidelines related to pharmacogenetics.

<https://www.fda.gov/drugs/scienceresearch/ucm572698.htm>

Metabolizer Status:

- A normal metabolizer status for a gene indicates that this gene codes for a protein with normal ability to break down

selected drugs.

- An intermediate metabolizer status indicates that the gene codes for a protein with less than normal activity and is thus likely to have reduced ability to break down certain drugs.
- A poor metabolizer status indicates that the gene codes for a protein with very low enzymatic activity and which will therefore be very slow to break down its target drugs.
- Rapid or Ultrarapid metabolizer status indicates that the gene codes for a protein with increased activity and speed for breaking down drugs relative to normal metabolizer status.

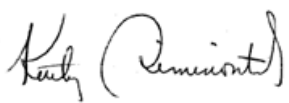
Information on how your genotype translates to your metabolizer status can be found through the Pharmacogene Variation Consortium (PharmVar - <https://www.pharmvar.org>). Likely poor or likely intermediate metabolizer status arises from genes that code for proteins with reduced function that have not yet been classified by PharmVar.

Method Technique

Genotyping was performed by hME assay using the Agena MassARRAY technology.

Testing Laboratory Information

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CANADA



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Interpretative comments in this report are predictions believed to be current at the time of the report. Test methodology is built and established by Inagene Diagnostics Inc. (INAGENE™) based on currently available published literature, and is not approved by FDA or Health Canada. These predictions and underlying methodology are subject to change, without notice, due to emerging findings and require interpretation by appropriately trained HCPs. Incidental findings during testing are not expected due to targeted methodology, and therefore will not be reported. In addition, currently unknown or unpublished variances may lead to a treatment response that contradicts noted interpretative comment. New findings leading to reclassification of previous interpretative comments will not be relayed to individuals; therefore, ongoing medical management and observation is required. Interpretative comments do not rule out other treatment related responses (e.g., a positive interpretative comment for a drug or medication does not indicate absence of adverse events associated with the treatment); standard precautions associated with drugs or medications should be taken into consideration.

Therefore, the information contained in this report: (1) is provided as a service and does not constitute medical or other professional advice nor should it be relied on as such, (2) is provided "AS IS" with all faults, with no warranties of any kind, expressed or implied, (3) are interpretations based on published research and testing methodology established by INAGENE™, (4) is believed to be current at the time of the report and subject to change without notice, (5) is not intended to diagnose nor make specific treatment recommendations, (6) is not intended to be comprehensive or prescriptive, (7) should only be used and implemented by qualified health care professionals, in the proper professional settings, complying with all ethical and legal obligations of the profession.

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Note:

In any genetic test, the decision to assign gene as “normal” is based on interrogating the most common and proven sites of functional variation. It is always possible that an undiscovered or untested site of variation may result in a loss-of-function allele being erroneously called “normal” or a gain-of-function allele being called “abnormal”.