



Report Information

Name: Leslie Knope**Date of Report:** June 22, 2025**Data Source:** 23andMe**Report Version:** v2.0

About This Report

This report contains pharmacogenetic alleles and implications for drug response for the genetic data submitted. Both the genotypes presented and implicated medications are predictions based on the submitted data and published pharmacogenetics literature. This is not a clinical report and the data contained here in no way should be used as clinical guidance.

The information presented in this report is based on allele mappings and therapeutic implications developed by the [Clinical Pharmacogenomics Implementation Consortium](#) (CPIC®) and the [US Food and Drug Administration](#) (FDA). Gene2Rx is not affiliated with CPIC or the FDA in any way. The contents of this page have not been endorsed by CPIC or the FDA and are the sole responsibility of Gene2Rx.

This report includes information about how your pharmacogenetics may influence your response to drugs used for pain relief. This report does not contain information about all drugs used for pain relief, only those that have known pharmacogenetic interactions. If you do not see your medication listed here, there is currently no prescription guidance based on pharmacogenetics published by either the FDA or CPIC.

The implications of taking medication for which you may have an atypical response are based on probabilities. You may or may not experience any side effects or altered efficaciousness. Consult your healthcare provider before making any changes to your healthcare.

The quality of uploaded data is not verified and may contain errors that result in alterations to your pharmacogenetic report. Genotyping panels (such as those used by direct to consumer genetics services) offer an incomplete representation of an individual's genetics. You may harbor additional genetic variation that can affect drug response.

⚠ **Disclaimer:** Do not alter your medication dose or stop your medication without first consulting your healthcare provider.

Table of Contents

Table of Contents	2
-------------------	---




Therapeutic Guidance Legend	4
-----------------------------	---

Pain Management	4
-----------------	---

Pain Management	5
-----------------	---






Pharmacogenetics Summary

This table contains the specific variants identified in each of the genes assessed for your Gene2Rx report. These genes are important for modulating response to medications and have been determined to be clinically actionable for some medications.

GENE	GENOTYPE	PHENOTYPE
 CYP2C19	*1/*2	Intermediate Metabolizer
 CYP2C9	*1/*2	Intermediate Metabolizer
 CYP2D6	*4/*4	Poor Metabolizer

Legend

Symbols in the Gene Summary table represent the predicted function of the gene. A non-normal allele does not necessarily lead to a change in drug response.

-  Normal function
-  Decreased function
-  Increased function
-  Severely decreased or no function
-  Unknown function

Based on your genetics, you may have an atypical response to medications listed in this section.

Therapeutic Guidance Legend

- ✓ Normal therapeutic guidance
- ⚠ Alternate dosing recommended
- ✗ Alternate drug recommended

Pain Management

GENERIC NAME	BRAND NAMES	GENE	YOUR GENE PHENOTYPE	IMPLICATION	SOURCE
⚠ Codeine	Tylenol 3	CYP2D6	✗ Poor Metabolizer	CPIC: <i>Implication:</i> Greatly reduced morphine formation leading to diminished analgesia. <i>Therapeutic recommendation:</i> Avoid codeine use because of possibility of diminished analgesia. If opioid use is warranted, consider a non-tramadol opioid. FDA: Results in lower systemic active metabolite concentrations and may result in reduced efficacy.	CPIC, FDA
⚠ Meloxicam	Mobic	CYP2C9	⚠ Intermediate Metabolizer	CPIC: <i>Implication:</i> Mildly reduced metabolism <i>Therapeutic recommendation:</i> Initiate therapy with recommended starting dose. In accordance with the meloxicam prescribing information, use the lowest effective dosage for the shortest duration consistent with individual patient treatment goals. FDA: No FDA guidance for this phenotype	CPIC, FDA
⚠ Oliceridine	Olinvyk	CYP2D6	✗ Poor Metabolizer	Results in higher systemic concentrations and higher adverse reaction risk (respiratory depression and sedation). May require less frequent dosing.	FDA
⚠ Piroxicam	Feldene	CYP2C9	⚠ Intermediate Metabolizer	CPIC: <i>Implication:</i> Mildly reduced metabolism <i>Therapeutic recommendation:</i> Initiate therapy with recommended starting dose. In accordance with the prescribing information, use the lowest effective dosage for the shortest duration consistent with individual patient treatment goals. FDA: Results in higher systemic concentrations.	CPIC, FDA
⚠ Pitolisant	Wakix	CYP2D6	✗ Poor Metabolizer	Results in higher systemic concentrations. Use lowest recommended starting dosage. Refer to FDA labeling for specific dosing recommendations.	FDA
⚠ Tramadol	Ultram, ConZip	CYP2D6	✗ Poor Metabolizer	<i>Implication:</i> Greatly reduced O-desmethyltramadol (active metabolite) formation leading to diminished analgesia. <i>Therapeutic recommendation:</i> Avoid tramadol use because of possibility of diminished analgesia. If opioid use is warranted, consider a non-codeine opioid.	CPIC

Based on your genetics, you are likely to respond normally to medications listed in this section.

Pain Management

✓	GENERIC NAME	BRAND NAMES	GENE	YOUR GENE PHENOTYPE	IMPLICATION	SOURCE
✓	Carisoprodol	Soma	CYP2C19	↓ Intermediate Metabolizer	No FDA guidance for this phenotype	FDA
✓	Celecoxib	Celebrex	CYP2C9	↓ Intermediate Metabolizer	CPIC: <i>Implication:</i> Mildly reduced metabolism <i>Therapeutic recommendation:</i> Initiate therapy with recommended starting dose. In accordance with the prescribing information, use the lowest effective dosage for the shortest duration consistent with individual patient treatment goals. FDA: No FDA guidance for your genotype	CPIC, FDA
✓	Flurbiprofen	Ansaid, Ocufen, Strepfen	CYP2C9	↓ Intermediate Metabolizer	CPIC: <i>Implication:</i> Mildly reduced metabolism <i>Therapeutic recommendation:</i> Initiate therapy with recommended starting dose. In accordance with the prescribing information, use the lowest effective dosage for the shortest duration consistent with individual patient treatment goals. FDA: No FDA guidance for your genotype	CPIC, FDA
✓	Ibuprofen	Advil	CYP2C9	↓ Intermediate Metabolizer	<i>Implication:</i> Mildly reduced metabolism <i>Therapeutic recommendation:</i> Initiate therapy with recommended starting dose. In accordance with the prescribing information, use the lowest effective dosage for the shortest duration consistent with individual patient treatment goals.	CPIC
✓	Lornoxicam	Xefo	CYP2C9	↓ Intermediate Metabolizer	<i>Implication:</i> Mildly reduced metabolism <i>Therapeutic recommendation:</i> Initiate therapy with recommended starting dose. In accordance with the prescribing information, use the lowest effective dosage for the shortest duration consistent with individual patient treatment goals.	CPIC
✓	Tenoxicam	Mobiflex	CYP2C9	↓ Intermediate Metabolizer	<i>Implication:</i> Mildly reduced metabolism <i>Therapeutic recommendation:</i> Initiate therapy with recommended starting dose. In accordance with the prescribing information, use the lowest effective dosage for the shortest duration consistent with individual patient treatment goals.	CPIC

What do I do now?

If you find that you may have an atypical response to a medication you take or are considering taking, it is important that you first consult with your healthcare provider or a genetic counselor before making any changes.

Should I change medications or dosage based on my report?

No! Do not alter your medication dosage or stop taking your medication without first consulting your healthcare provider.

Why shouldn't I change my medication based on this report?

Direct-to-consumer data is not clinical grade, so anything included in the report should be used as a conversation starter with your healthcare provider to seek the appropriate clinical laboratory test.

Are these expert annotations?

Yes, The Clinical Pharmacogenetics Implementation Consortium (CPIC®) and the US Food and Drug Administration (FDA) have evaluated all pharmacogenetic associations presented in this report and believe there is sufficient scientific evidence to provide clinical guidance.

More questions?

Contact us at contact@gene2rx.com.