Patient Clinical Note

Genetic Counseling Note:	023456
Name:	Sample
Date of Birth:	09/08/1969
Lab:	Cygenex
Testing Ordered:	Pharmacogenomics Panel
Date:	03/24/2020
Status:	Reachable
Patient Access Code	G7864539G
Pharmacist / Genetic Counselor:	Robert T. PharmD

Potentially Relevant Findings

Current Medications: Duloxetine

This individual DOES NOT have ***actionable*** pharmacogenomic findings which may affect their ***current*** medication plan. Actionable findings include recommendations based upon publications by international pharmacogenetic expert groups, consortia or regulatory bodies (CPIC, DPWG, FDA, EMA). Recommendations are suitable for implementation in a clinical setting.

Gene	Phenotype	Drug (generic)	Interpretation	Potential alternatives
N/A	N/A	duloxetine	No applicable pharmacogenetic association	N/A

It is important to note that all medications this individual is taking may not be assessed via pharmacogenomic testing.

Drug-gene summary

Gene	Phenotype	Medications* potentially affected
CYP2B6	Intermediate metabolism	efavirenz
CYP2C19	Rapid metabolism	amitriptyline, citalopram, clomipramine, clopidogrel, doxepin, escitalopram, imipramine, lansoprazole, omeprazole, pantoprazole, voriconazole
CYP2C9	Intermediate metabolism	ibuprofen, flurbiprofen, celecoxib, lornoxicam, meloxicam, piroxicam, tenoxicam, phenytoin, warfarin
CYP2C9 / VKORC1 (-1639G>A)	Medium starting dose (3-4 mg per day)	warfarin
CYP2D6	Intermediate	amitriptyline, atomoxetine, aripiprazole, brexpiprazole, clomipramine, codeine, desipramine, doxepin, eliglustat, fluvoxamine, imipramine, nortriptyline, ondansetron, paroxetine, pimozide, pitolisant, tamoxifen, tramadol, trimipramine, venlafaxine, vortioxetine
CYP3A5	Intermediate metabolism	tacrolimus
SLCO1B1 (521T>C)	Normal function	simvastatin

*** Medication list based on Clinical Pharmacogenetics Implementation Consortium (CPIC) level A or B gene/drug pairs which have sufficient evidence for at least one prescribing action to be recommended. Medications highlighted do not necessarily have a drug-gene interaction with a prescribing recommendation based on the patient's phenotype.**

Cut on dotted line

* Medication list based on Clinical Pharmacogenetics Implementation Consortium (CPIC) level A or B gene/drug pairs which have sufficient evidence for at least one prescribing action to be recommended.

Medications highlighted do not necessarily have a drug-gene interaction with a prescribing recommendation based on the patient's phenotype. More details in the table below.

Potential drug-gene interactions:

The following medications may be useful to discuss with a physician to determine if alternative dosages and/or drugs should be prescribed as there are prescribing recommendations available AND this individual has a result that may impact their metabolism of this medication.

Gene	Phenotype	Drug (generic)	Interpretation	Potential alternatives
CYP2B6	Intermediate metabolizer	efavirenz	Consider initiating efavirenz with decreased dose of 400 mg/day. Higher dose-adjusted trough concentrations; increased risk of CNS adverse events.	rilpivirine, nevirapine, etravirine
CYP2C19	Rapid metabolizer	amitriptyline, clomipramine, doxepin, imipramine, trimipramine	Lower drug concentrations will increase probability of therapy failure. Consider higher doses or alternative drug	nortriptyline, desipramine
CYP2C19	Rapid metabolizer	escitalopram, citalopram	Lower drug concentrations will increase probability of therapy failure. Consider higher doses or alternative drug	fluoxetine, paroxetine
CYP2C19	Rapid metabolizer	sertraline	Initiate therapy with recommended starting dose. If no response to recommended maintenance dosing, consider alternative drug. Lower drug concentrations will increase probability of therapy failure	fluoxetine, paroxetine
CYP2C19	Rapid metabolizer	lansoprazole, omeprazole, pantoprazole	Consider higher dose. May have reduced effectiveness due to decreased drug plasma concentration.	famotidine, cimetidine
CYP2C19	Rapid metabolizer	voriconazole	Consider alternative medication. The probability of attainment of therapeutic voriconazole concentrations is modest with standard dosing	isavuconazole, liposomal amphotericin B, posaconazole
CYP2D6	Intermediate metabolizer	venlafaxine	Higher venlafaxine concentrations may occur leading to increased risk of side effects. A reduced conversion of venlafaxine to its active metabolite may lead to therapy failure. Consider lower doses or alternative drug	duloxetine, mirtazapine

CYP2D6	Intermediate metabolizer	codeine	Consider label recommended dosage. If no response, consider alternative analgesics such as morphine or a non-opioid	morphine, oxymorphone, buprenorphine, fentanyl, methadone and hydromorphone
CYP2D6	Intermediate metabolizer	tramadol	Reduced conversion of tramadol to a metabolite with a higher activity. Be alert to a reduced analgesia. In the case of inadequate effectiveness, try a dose increase or choose an alternative such as morphine or a non-opioid	morphine, oxymorphone, buprenorphine, fentanyl, methadone and hydromorphone
CYP2D6	Intermediate metabolizer	tamoxifen	Consider alternate therapy or higher tamoxifen dose. Avoid CYP2D6 inhibitors. Lower endoxifen concentrations; higher risk of breast cancer recurrence	aromatase inhibitors
CYP2D6	Intermediate metabolizer	pimozide	Use no more than 80% of the standard maximum dose. The risk of QT-prolongation is theoretically increased, due to increased drug plasma concentration	risperidone
CYP3A5	Intermediate metabolizer	tacrolimus	Increase starting dose 1.5 to 2 times recommended starting dose. Total starting dose should not exceed 0.3mg/kg/day. Use therapeutic drug monitoring to guide dose adjustments	cyclosporine, mycophenolate, sirolimus, everolimus
CYP2C9	Intermediate metabolism	phenytoin	Reduced phenytoin metabolism will increase probabilities of toxicities. Consider 25% reduction of recommended starting dose	carbamazepine, levetiracetam, lamotrigine
CYP2C9	Intermediate metabolism	meloxicam	Higher drug concentrations may increase the probability of toxicities. Initiate therapy with 50% of the lowest recommended starting dose, titrate dose upward to an effective dose or 50% of the maximum recommended dose with caution. Or consider an alternative	naproxen, aspirin, ketorolac, sulindac
CYP2C9	Intermediate metabolism	piroxicam, tenoxicam	Higher drug concentrations may increase the probability of toxicities.	naproxen, aspirin,

			Choose an alternative medication not metabolized by CYP2C9	ketorolac, sulindac
CYP2C9 / VKORC1 (1639G>A)	Medium starting dose (3-4 mg per day)	warfarin	The FDA-approved table recommends a starting dose of 3-4 mg per day based on this genetic result. Regular INR monitoring should still be used.	apixaban, lovenox, dabigatran

Background

This pharmacogenomics report analyzes genes that affect how a person might respond to certain medications, also known as drug-gene interactions. Other consultations with a genetic counselor and/or Doctor of Pharmacy may involve a more thorough review of drug-drug interactions and drug-allergy interactions.

Pharmacogenomics is a developing field; new genes/variants may be identified over time that may be relevant to this individual.

PGx testing should NOT be used to guide/alter medical management without the involvement of a physician.

Follow-up

Please share this information with your referring provider and/or your primary physician and consult with your doctor for more comprehensive assessment and any further recommendations regarding pharmacogenomics.

Physician Support

Physician support is offered for up to 60 days following the completion of a consultation note via our Snap support tool. In order to access this support, the physician needs to visit our site to create an account. If a physician account already exists, then please contact us directly for your login. Once logged in, you can input the patient access code to unlock the support for this patient

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