



Your Lab

Your Logo

PATIENT INFORMATION

NAME: Mr Website
ACC #: MW101317
DOB: 10/13/1996
SEX: Male

SPECIMEN DETAILS

SPECIMEN TYPE: Buccal Swab
COLLECTION DATE:
RECEIVED DATE:
REPORT DATE: 11/8/2017

PROVIDER INFORMATION

Test Facility

Comprehensive Pharmacogenetic Report

Current Patient Medications

Tramadol, Simvastatin, Sertraline



Simvastatin

Zocor

Intermediate Myopathy Risk (SLCO1B1: Decreased Function)

ACTIONABLE

Simvastatin plasma concentrations are expected to be elevated. **Consider avoiding simvastatin**, and prescribe an alternative statin or another hypolipidemic drug, or consider prescribing simvastatin at a lower starting dose (20 mg/day). Routine creatine kinase (CK) monitoring is also advised. **The FDA recommends against the 80 mg daily dose.** Although the association between the SLCO1B1 521C>T variant and myopathy risk is not clearly established for other statins such as atorvastatin, pitavastatin, rosuvastatin, and pravastatin, caution is advised if high doses of these statins are used in this patient. Fluvastatin plasma levels are not affected by the SLCO1B1 521C>T variant.



Tramadol

Ultram

Non-Response to Tramadol (CYP2D6: Poor Metabolizer)

ACTIONABLE

The patient will not experience adequate pain relief when taking tramadol. Avoid prescribing tramadol, and consider alternative opioids other than codeine or a non-opioid analgesic such as a NSAID or a COX-2 inhibitor. Unless contraindicated, available alternative opioids not sensitive to CYP2D6 function include: fentanyl, morphine, hydromorphone, oxycodone, and tapentadol.



Sertraline

Zoloft

Normal Sensitivity to Sertraline (CYP2C19: Intermediate Metabolizer)

ACTIONABLE

Sertraline can be prescribed at standard label-recommended dosage and administration.



A medication has potentially reduced efficacy, increased toxicity or the patient has an increased risk for the indicated condition.

ACTIONABLE

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. Guidelines may change as knowledge arises.



Guidelines exist for adjusting dosage, increased vigilance or the patient has a moderate risk for the indicated condition.

INFORMATIVE

There are insufficient or contradictory findings documenting the impact of a given genetic polymorphism or drug interaction. Recommendations are informative and implementation in a clinical setting is optional.



The medication can be prescribed according to standard regimens or the patient's risk for the indicated condition is not increased.



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Potentially Impacted Medications

CATEGORY	DRUG CLASS	STANDARD PRECAUTIONS	USE WITH CAUTION	CONSIDER ALTERNATIVES	
Cardiovascular	Angiotensin II Receptor Antagonists	Azilsartan (Edarbi, Edarbyclor) Candesartan (Atacand) Eprosartan (Teveten) Irbesartan (Avapro) Losartan (Cozaar, Hyzaar) Olmesartan (Benicar) Telmisartan (Micardis) Valsartan (Diovan, Entresto)			
	Antianginal Agents		Ranolazine (Ranexa)		
	Antiarrhythmics		Flecainide (Tambocor) Mexiletine (Mexitil) Propafenone (Rythmol)		
	Anticoagulants	Apixaban (Eliquis) Dabigatran Exetilate (Pradaxa) Edoxaban (Savaysa) Fondaparinux (Arixtra) Rivaroxaban (Xarelto)	Warfarin (Coumadin)		
	Antiplatelets	Prasugrel (Effient) Ticagrelor (Brilinta) Vorapaxar (Zontivity)		Clopidogrel (Plavix)	
	Beta Blockers	Atenolol (Tenormin) Bisoprolol (Zebeta) Labetalol (Normodyne, Trandate) Nebivolol (Bystolic) Propranolol (Inderal)	Carvedilol (Coreg) Timolol (Timoptic)	Metoprolol (Lopressor)	
	Diuretics	Torsemide (Demadex)			
	Statins		Atorvastatin (Lipitor) Fluvastatin (Lescol) Lovastatin (Mevacor, Altoprev, Advicor) Pitavastatin (Livalo) Pravastatin (Pravachol) Rosuvastatin (Crestor)	Simvastatin (Zocor)	
	Diabetes	Meglitinides	Nateglinide (Starlix) Repaglinide (Prandin, Prandimet)		
		Sulfonylureas	Chlorpropamide (Diabenese) Glimepiride (Amaryl) Glipizide (Glucotrol) Glyburide (Micronase) Tolbutamide (Orinase)		



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Gastrointestinal	Antiemetics	Aprepitant (Emend-oral) Dolasetron (Anzemet) Dronabinol (Marinol) Fosaprepitant (Emend-i.v) Granisetron (Sancuso, Sustol) Netupitant-Palonosetron (Akynteo) Ondansetron (Zofran, Zuplenz) Palonosetron (Aloxi) Rolapitant (Varubi)	Metoclopramide (Reglan)	
	Proton Pump Inhibitors	Dexlansoprazole (Dexilant, Kapidex) Esomeprazole (Nexium) Lansoprazole (Prevacid) Omeprazole (Prilosec) Pantoprazole (Protonix) Rabeprazole (Aciphex)		
Infections	Antifungals	Amphotericin B (AmBisome, Abelcet) Anidulafungin (Eraxis) Caspofungin (Cancidas) Fluconazole (Diflucan) Isavuconazonium (Cresemba) Itraconazole (Sporanox) Miconazole (Mycamine) Posaconazole (Noxafil) Voriconazole (Vfend)		
	Anti-HIV Agents	Dolutegravir (Tivicay, Triumeq) Raltegravir (Isentress, Dutrebis)		
	Antimalarials	Proguanil (Malarone)		
	Fibromyalgia Agents	Milnacipran (Savella)		
Pain	Muscle Relaxants	Carisoprodol (Soma) Cyclobenzaprine (Flexeril, Amrix) Metaxalone (Skelaxin) Methocarbamol (Robaxin)		
	NSAIDs	Ibuprofen (Advil, Motrin) Ketoprofen (Orudis) Ketorolac (Toradol) Nabumetone (Relafen) Naproxen (Aleve) Sulindac (Clinoril)	Celecoxib (Celebrex) Diclofenac (Voltaren) Flurbiprofen (Ansaid) Indomethacin (Indocin) Meloxicam (Mobic) Piroxicam (Feldene)	
	Opioids	Alfentanil (Alfenta) Buprenorphine (Butrans, Buprenex) Dihydrocodeine (Synalgos-DC) Fentanyl (Actiq) Hydromorphone (Dilaudid, Exalgo) Levorphanol (Levo Dromoran) Meperidine (Demerol) Morphine (MS Contin) Oxycodone (Opana, Numorphan) Sufentanil (Sufenta) Tapentadol (Nucynta)	Hydrocodone (Vicodin) Oxycodone (Percocet, Oxycontin)	Codeine (Codeine; Fioricet with Codeine) Tramadol (Ultram)



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	Anti-ADHD Agents	Clonidine (Kapvay) Guanfacine (Intuniv)	Atomoxetine (Strattera)	
	Anticonvulsants	Brivaracetam (Briviact) Carbamazepine (Tegretol, Carbatrol, Epitol) Eslicarbazepine (Aptiom) Ethosuximide (Zarontin) Ezogabine (Potiga) Felbamate (Felbatol) Gabapentin (Neurontin) Lacosamide (Vimpat) Lamotrigine (Lamictal) Levetiracetam (Keppra) Oxcarbazepine (Trileptal, Oxtellar XR) Perampanel (Fycompa) Pregabalin (Lyrica) Rufinamide (Banzel) Tiagabine (Gabitril) Topiramate (Topamax) Valproic Acid (Depakote, Depakene) Vigabatrin (Sabril)	Fosphenytoin (Cerebyx) Phenobarbital (Luminal) Phenytoin (Dilantin) Primidone (Mysoline) Zonisamide (Zonegran)	
	Antidementia Agents	Memantine (Namenda)	Donepezil (Aricept) Galantamine (Razadyne)	
Psychotropic	Antidepressants	Citalopram (Celexa) Desvenlafaxine (Pristiq) Escitalopram (Lexapro) Fluoxetine (Prozac, Sarafem) Levomilnacipran (Fetzima) Mirtazapine (Remeron) Sertraline (Zoloft) Trazodone (Oleptro) Vilazodone (Viibryd)	Amoxapine (Amoxapine) Duloxetine (Cymbalta) Fluvoxamine (Luvox) Maprotiline (Ludiomil) Nefazodone (Serzone) Vortioxetine (Trintellix)	Amitriptyline (Elavil) Clomipramine (Anafranil) Desipramine (Norpramin) Doxepin (Silenor) Imipramine (Tofranil) Nortriptyline (Pamelor) Paroxetine (Paxil, Brisdelle) Protriptyline (Vivactil) Trimipramine (Surmontil) Venlafaxine (Effexor)
	Antipsychotics	Asenapine (Saphris) Cariprazine (Vraylar) Clozapine (Clozaril) Loxapine (Loxitane, Adasuve) Lurasidone (Latuda) Olanzapine (Zyprexa) Paliperidone (Invega) Pimavanserin (Nuplazid) Quetiapine (Seroquel) Thiothixene (Navane) Trifluoperazine (Stelazine) Ziprasidone (Geodon)	Aripiprazole (Abilify, Aristada) Brexipiprazole (Rexulti) Chlorpromazine (Thorazine) Fluphenazine (Prolixin) Iloperidone (Fanapt) Perphenazine (Trilafon) Pimozide (Orap)	Haloperidol (Haldol) Risperidone (Risperdal) Thioridazine (Mellaril)
	Benzodiazepines	Alprazolam (Xanax) Clonazepam (Klonopin) Diazepam (Valium)	Clobazam (Onfi)	



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	Other Neurological Agents	Flibanserin (Addyi)	Deutetrabenazine (Austedo) Dextromethorphan / Quinidine (Nuedexta) Tetrabenazine (Xenazine) Valbenazine (Ingrezza)	
Rheumatology	Anti-Hyperuricemics and Anti-Gout Agents	Colchicine (Mitigare) Febuxostat (Uloric) Lesinurad (Zurampic)		
	Immunomodulators	Apremilast (Otezla) Tofacitinib (Xeljanz)	Leflunomide (Arava)	
Transplantation	Immunosuppressants	Tacrolimus (Prograf)		
Urologicals	5-Alpha Reductase Inhibitors for Benign Prostatic Hyperplasia	Dutasteride (Avodart) Finasteride (Proscar)		
	Alpha-Blockers for Benign Prostatic Hyperplasia	Alfuzosin (UroXatral) Doxazosin (Cardura) Silodosin (Rapaflo) Terazosin (Hytrin)	Tamsulosin (Flomax)	
	Antispasmodics for Overactive Bladder	Fesoterodine (Toviaz) Mirabegron (Myrbetriq) Oxybutynin (Ditropan) Solifenacin (Vesicare) Tropium (Sanctura)	Darifenacin (Enablex) Tolterodine (Detrol)	
	Phosphodiesterase Inhibitors for Erectile Dysfunction	Avanafil (Stendra) Sildenafil (Viagra) Tadalafil (Cialis) Vardenafil (Levitra)		



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Test Details

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*2	Intermediate Metabolizer	*2, *3, *4, *4B, *6, *7, *8, *9, *10, *17
CYP2C9	*1/*2	Intermediate Metabolizer	*2, *3, *4, *5, *6, *8, *9, *11, *13, *15, *27
CYP2D6	*4/*4	Poor Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *17, *29, *41, *5 (gene deletion), XN (gene duplication)
CYP3A4	*1/*1	Normal Metabolizer	*22
CYP3A5	*3/*3	Poor Metabolizer	*3, *3C, *6, *7
SLCO1B1	521T>C T/C	Decreased Function	521T>C
VKORC1 and CYP2C9	-1639G>A G/G, *1/*2	Mild Sensitivity to Warfarin	-1639G>A

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Lab Disclaimer: "xxx Laboratories" developed the Genotype test. The performance characteristics of this test were determined by "xxx Laboratories". It has not been cleared or approved by the U.S. Food and Drug Administration.

Translational Software Disclaimer: The information presented on this report is provided as general educational health information. The content is not intended to be a substitute for professional medical advice, diagnosis, or treatment. Only a physician, pharmacist or other healthcare professional should advise a patient on the use of the medications prescribed.

The pharmacogenetic assay involves use of reporting software and genotype-phenotype associations performed by Translational Software (www.translationalsoftware.com). The software has not been evaluated by the Food and Drug Administration. The software, and the report generated by the software, is not intended to diagnose, treat, cure, or prevent any disease. A qualified designee within the lab uses Translational Software to generate and subsequently review the report. The pharmacogenetic report is one of multiple pieces of information that clinicians should consider in guiding their therapeutic choice for each patient. It remains the responsibility of the health-care provider to determine the best course of treatment for a patient. Adherence to dose guidelines does not necessarily assure a successful medical outcome.

Approved by Houda Hachad, Pharm.D.