

**NAME:** Patient NTC  
**ACC #:** NTC  
**DOB:** 1/1/1900  
**SEX:**

**COLLECTION DATE:**  
**RECEIVED DATE:**  
**REPORT DATE:** 3/30/2020

Unknown

# Comprehensive PGX Profile

## Risk Management

### Type III Hyperlipoproteinemia

#### Unknown Association with Type III Hyperlipoproteinemia

The patient's results for the APOE c.388 T>C (Cys130Arg) mutation and/or APOE c.526 C>T (Arg176Cys) mutations are indeterminate. The patient's risk for type III hyperlipoproteinemia cannot be estimated accurately. Consult with a genetic counselor for more information.

### Thrombophilia

#### Thrombosis Factors Tests Failed

The result of the F5 c.1601G>A variant (also known as Factor V Leiden) is indeterminate. The result of the F2 c.\*97G>A variant (also known as Factor II 20210G>A) is indeterminate. The patient's risk of thrombosis cannot be estimated accurately. Consult with a genetic counselor for more information.

### Hyperhomocysteinemia - Thrombosis

#### Unknown Risk of Hyperhomocysteinemia

The patient's results for the MTHFR c.665C>T variant and the MTHFR c.1286A>C variant are indeterminate. The patient's risk for hyperhomocysteinemia cannot be estimated accurately. Because the patient's risk for hyperhomocysteinemia cannot be estimated, consider consulting a genetic counselor for more information.



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	Candesartan (Atacand®) Eprosartan (Teveten®) Olmesartan (Benicar®) Telmisartan (Micardis®) Valsartan (Diovan®, Entresto®)		
	Antiarrhythmics	Amiodarone (Nexterone®, Pacerone®) Disopyramide (Norpace®) Quinidine (Quinidine®) Sotalol (Betapace®, Sorine®, Sotylize®)		
	Anticoagulants	Apixaban (Eliquis®) Betrixaban (Bevyxxa®) Dabigatran Etexilate (Pradaxa®) Edoxaban (Savaysa®) Fondaparinux (Arixtra®) Rivaroxaban (Xarelto®)		
	Antiplatelets	Prasugrel (Effient®) Ticagrelor (Brilinta®) Vorapaxar (Zontivity®)		
	Beta Blockers	Atenolol (Tenormin®) Bisoprolol (Zebeta®) Carvedilol (Coreg®) Labetalol (Normodyne®, Trandate®)		
	Statins	Fluvastatin (Lescol®)		
Diabetes	Sulfonylureas	Chlorpropamide (Diabinese®) Glimepiride (Amaryl®) Glipizide (Glucotrol®) Glyburide (Micronase®) Tolbutamide (Orinase®)		
Gastrointestinal	Antiemetics	Aprepitant (Emend-oral®) Fosaprepitant (Emend-IV®) Granisetron (Sancuso®, Sustol®) Rolapitant (Varubi®)		
Gaucher Disease	Endocrine-Metabolic Agents	Imiglucerase (Cerezyme®) Miglustat (Zavesca®) Taliglucerase alfa (Elelyso®) Velaglucerase alfa (Vpriv®)		



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CATEGORY	DRUG CLASS	STANDARD PRECAUTIONS	USE WITH CAUTION	CONSIDER ALTERNATIVES
Infections	Antifungals	Amphotericin B (AmBisome®, Abelcet®) Anidulafungin (Eraxis®) Caspofungin (Cancidas®) Fluconazole (Diflucan®) Isavuconazonium (Cresemba®) Itraconazole (Sporanox®) Micafungin (Mycamine®) Posaconazole (Noxafil®)		
	Anti-HIV Agents	Dolutegravir (Tivicay®, Triumeq®) Doravirine (Pifeltro®) Etravirine (Edurant®) Raltegravir (Isentress®, Dutrebis®) Rilpivirine (Intelence®)		
	Antimalarials	Proguanil (Malarone®)		
Pain	Fibromyalgia Agents	Milnacipran (Savella®)		
	Muscle Relaxants	Cyclobenzaprine (Flexeril®, Amrix®) Metaxalone (Skelaxin®) Methocarbamol (Robaxin®)		
	NSAIDs	Ketoprofen (Orudis®) Ketorolac (Toradol®) Nabumetone (Relafen®) Naproxen (Aleve®) Sulindac (Clinoril®)		
	Opioids	Alfentanil (Alfenta®) Buprenorphine (Butrans®, Buprenex®) Fentanyl (Actiq®) Hydromorphone (Dilaudid®, Exalgo®) Levorphanol (Levo Dromoran®) Meperidine (Demerol®) Morphine (MS Contin®) Oxymorphone (Opana®, Numorphan®) Sufentanil (Sufenta®) Tapentadol (Nucynta®)		
	Anti-ADHD Agents	Clonidine (Kapvay®) Guanfacine (Intuniv®)		

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CATEGORY	DRUG CLASS	STANDARD PRECAUTIONS	USE WITH CAUTION	CONSIDER ALTERNATIVES
Psychotropic	Anticonvulsants	Cannabidiol (Epidiolex®) 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®)		
	Antidementia Agents	Memantine (Namenda®)		
	Antidepressants	Duloxetine (Cymbalta®) Levomilnacipran (Fetzima®) Mirtazapine (Remeron®) Trazodone (Oleptro®) Vilazodone (Viibryd®)		
	Antipsychotics	Asenapine (Saphris®) Cariprazine (Vraylar®) Clozapine (Clozaril®) Fluphenazine (Prolixin®) Loxapine (Loxitane®, Adasuve®) Lurasidone (Latuda®) Olanzapine (Zyprexa®) Pimavanserin (Nuplazid®) Quetiapine (Seroquel®) Thiothixene (Navane®) Trifluoperazine (Stelazine®) Ziprasidone (Geodon®)		
	Benzodiazepines	Alprazolam (Xanax®) Clonazepam (Klonopin®)		
Rheumatology	Anti-Hyperuricemics and Anti-Gout Agents	Colchicine (Mitigare®) Febuxostat (Uloric®)		
	Immunomodulators	Apremilast (Otezla®) Tofacitinib (Xeljanz®)		
	5-Alpha Reductase Inhibitors for Benign Prostatic Hyperplasia	Dutasteride (Avodart®) Finasteride (Proscar®)		



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CATEGORY	DRUG CLASS	STANDARD PRECAUTIONS	USE WITH CAUTION	CONSIDER ALTERNATIVES
Urologicals	Alpha-Blockers for Benign Prostatic Hyperplasia	Alfuzosin (UroXatral®) Doxazosin (Cardura®) Silodosin (Rapaflo®) Terazosin (Hytrin®)		
	Antispasmodics for Overactive Bladder	Oxybutynin (Ditropan®) Solifenacin (Vesicare®) Trospium (Sanctura®)		
	Phosphodiesterase Inhibitors for Erectile Dysfunction	Avanafil (Stendra®) Sildenafil (Viagra®) Tadalafil (Cialis®) Vardenafil (Levitra®)		

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## Dosing Guidance

**Methotrexate**  
*Trexall*®

Unknown Risk for Methotrexate Toxicity (MTHFR: Unknown Phenotype)

INFORMATIVE

The patient's sensitivity for methotrexate cannot be predicted accurately. Use caution if this drug is prescribed.

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Gene	Genotype	Phenotype	Alleles Tested
ANKK1/DRD2	DRD2:Taq1A Indeterminate	Unknown Phenotype	DRD2:Taq1A
Apolipoprotein E	Indeterminate	Unknown Phenotype	ε2, ε4, (ε3 is reference)
COMT	Val158Met indeterminate	Unknown Phenotype	Val158Met
CYP1A2	Indeterminate	Unknown Phenotype	*1C, *1D, *1F, *1K, *1L, *1V, *1W
CYP2B6	Indeterminate	Unknown Phenotype	*6, *9
CYP2C19	Indeterminate	Unknown Phenotype	*2, *3, *4A, *4B, *6, *7, *8, *9, *10, *17
CYP2C9	Indeterminate	Unknown Phenotype	*2, *3, *4, *5, *6, *11
CYP2D6	Indeterminate	Unknown Phenotype	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *114, *14, *17, *29, *35, *41
CYP3A4	Indeterminate	Unknown Phenotype	*1B, *2, *3, *12, *17, *22
CYP3A5	Indeterminate	Unknown Phenotype	*2, *3, *6, *7, *8, *9
F2 F5	rs1799963 Indeterminate rs6025 Indeterminate	Thrombosis Factors Tests Failed	rs1799963, rs6025
MTHFR	c.665C>T Indeterminate	Unknown Phenotype	c.1286A>C, c.665C>T
MTHFR	c.1286A>C Indeterminate c.665C>T Indeterminate	Unknown Risk of Hyperhomocysteinemia	c.1286A>C, c.665C>T
OPRM1	A118G indeterminate	Unknown Phenotype	A118G
SLCO1B1	521T>C indeterminate	Unknown Phenotype	521T>C, 388A>G
VKORC1	-1639G>A Indeterminate	Unknown Phenotype	-1639G>A



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*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: Qitek Labs developed the Genotype test. The performance characteristics of this test were determined by Qitek Labs. 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.*

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**Patient Information Card**

This is a summary genetic report for your patient to share with other healthcare providers. The card can be cut out along the dashed line and carried with the patient.



		<p><b>REPORT DETAILS</b></p> <p>Patient: Patient NTC          DOB: 1/1/1900          ACC #: NTC</p>	
<p><b>Pharmacogenetic Test Summary</b></p>			
CYP2C19	Indeterminate	Unknown Phenotype	
CYP2C9	Indeterminate	Unknown Phenotype	
CYP2D6	Indeterminate	Unknown Phenotype	
CYP3A4	Indeterminate	Unknown Phenotype	
CYP3A5	Indeterminate	Unknown Phenotype	
MTHFR	c.665C>T Indeterminate	Unknown Phenotype	
MTHFR	c.1286A>C Indeterminate	Unknown Risk of Hyperhomocysteinemia	
VKORC1	-1639G>A Indeterminate	Unknown Phenotype	
<p>For a complete report contact Qitek Labs  <a href="http://www.qiteklabs.com">www.qiteklabs.com</a></p>			
			

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