

Phys: **Test Practice**

Patient: **TEST8, TEST**

DOB: 10/10/1985

Age: 30Y

Gender: M

Phone:

Fasting: U

Spec#

Accession: **1510302053**

Coll. Date: 10/30/15

Recv. Date: 10/30/15

Print. Date: 03/22/16

Chart#:

Coll. Time:

Recv. Time: 15:00

Print. Time: 12:34:00

First reported on:

11/09/2015 04:07PM

Final report

Date: 11/12/2015 12:58PM

Test Name	In Range	Out of Range	Reference	Units
PHARMACOGENETIC (PLEASE SEE INTERPRETATION REPORT ATTACHED)				
CYP1A2				*1
CYP1A2	*1A/*1F			
CYP2B6				*1
CYP2B6	*1/*1			
CYP2D6				*1
CYP2D6	*1/*2			
CYP2C9				*1
CYP2C9	*1/*2			
CYP2C19				*1
CYP2C19	*1/*1			
CYP3A4				*1
CYP3A4	*1/*1			
CYP3A5				*1
CYP3A5	*3/*3			
MTHFR				*1
MTHFR	AC/CT			
OPRM1				*1
OPRM1	A/G			
VKORC1				*1
VKORC1	G/G			

Comprehensive Pharmacogenetic Report Created for: Test Test8

Patient: Test Test8 DOB: 10/10/1985
 Accession #: 1511025006 Gender: M
 Sample Type: Blood Race:
 Collection Date: 10/30/2015 Received Date: 11/2/2015
 Ordered By: Report Generated:
 Additional Comment: No additional comments on specimen condition.
 Indications for Testing: None Specified

Test Details

Assay	Results	Phenotype	Clinical Consequences
CYP2C19	*1/*1	Normal Metabolizer	Consistent with a typical CYP2C19 activity. This test did not identify risks for side effects or loss of efficacy with drug substrates.
CYP2C9	*1/*2	Intermediate Metabolizer	Consistent with a moderate deficiency in CYP2C9 activity. Potential risk for side effects or loss of efficacy with drug substrates.
CYP2D6	*1/*2	Normal Metabolizer	Consistent with a typical CYP2D6 activity. This test did not identify risks for side effects or loss of efficacy with drug substrates.
CYP3A5	*3/*3	Poor Metabolizer	Consistent with a poor CYP3A5 activity. This phenotype is the most common in the general population. Caution is advised when prescribing narrow therapeutic index drugs. Alternative drugs or dose adjustment may be required if CYP3A inhibitors or inducers are co-prescribed.
CYP3A4	*1/*1	Normal Metabolizer	Consistent with a typical CYP3A4 activity. Caution is advised when prescribing narrow therapeutic index drugs. Alternative drugs or dose adjustment may be required if CYP3A inhibitors or inducers are co-prescribed.
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	VKORC1 is the site of action of warfarin. The patient may require an increase in warfarin dose.
CYP2B6	*1/*1	Normal Metabolizer	Consistent with a typical CYP2B6 activity. This test did not identify risks for side effects or loss of efficacy with drug substrates.
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	Consistent with a typical CYP1A2 activity in absence of inducing substances. Rapid Metabolism occurs in presence of inducers such as barbiturates, cruciferous vegetables, carbamazepine, rifampin and smoking.
COMT	Val158Met AG	Intermediate COMT Activity	Consistent with a reduced catechol O-methyltransferase (COMT) function.
ANKK1/DRD2	DRD2:Taq1A GG	Unaltered DRD2 function	Consistent with a normal dopamine receptor D2 function.
OPRM1	A118G AG	Altered OPRM1 Function	Consistent with a reduced OPRM1 receptor signaling efficiency induced by exogenous opioids. This is associated with a possible reduced analgesia following standard opioid doses and a favorable response to naltrexone.
MTHFR	1298A>C AC 677C>T CT	No Increased Risk of Hyperhomocysteinemia	The patient's reduced MTHFR activity is not a risk factor for hyperhomocysteinemia. Unless other risk factors are present, the patient is not expected to have an increased risk for venous thromboembolism (VTE).

Potentially Impacted Medications

Category	Standard Precautions	Use With Caution	Consider Alternatives
5-Alpha Reductase Inhibitors for Benign Prostatic Hyperplasia	Dutasteride (Avodart) Finasteride (Proscar)		

Laboratory Director:

Category	Standard Precautions	Use With Caution	Consider Alternatives
Alpha-Blockers for Benign Prostatic Hyperplasia	Alfuzosin (UroXtral) Doxazosin (Cardura) Silodosin (Rapaflo) Tamsulosin (Flomax) Terazosin (Hytrin)		
Angiotensin II Receptor Antagonists	Irbesartan (Avapro)		
Antiaddictives	Bupropion (Wellbutrin, Zyban, Aplenzin, Contrave) Naltrexone (Vivitrol)		
Anti-ADHD Agents	Amphetamine (Adderall) Atomoxetine (Strattera) Clonidine (Kapvay) Dextroamphetamine (Dexedrine) Guanfacine (Intuniv) Lisdexamfetamine (Vyvanse)	Dexmethylphenidate (Focalin) Methylphenidate (Ritalin)	
Antianginal Agents	Ranolazine (Ranexa)		
Antiarrhythmics	Flecainide (Tambocor) Mexiletine (Mexitol) Propafenone (Rythmol)		
Anticoagulants	Apixaban (Eliquis) Dabigatran Etexilate (Pradaxa) Edoxaban (Savaysa) Fondaparinux (Arixtra) Rivaroxaban (Xarelto)	Warfarin (Coumadin)	
Anticonvulsants	Carbamazepine (Tegretol, Carbatrol) Eslicarbazepine (Aptiom) Ethosuximide (Zarontin) Ezogabine (Potiga) Felbamate (Felbatol) Gabapentin (Neurontin) Lacosamide (Vimpat) Lamotrigine (Lamictal) Levetiracetam (Keppra) Oxcarbazepine (Trileptal) Perampanel (Fycompa) Phenobarbital (Luminal) Pregabalin (Lyrica) Primidone (Mysoline) Rufinamide (Banzel) Tiagabine (Gabitril) Topiramate (Topamax) Valproic Acid (Depakote, Depakene) Vigabatrin (Sabril) Zonisamide (Zonegran)	Fosphenytoin (Cerebyx) Phenytoin (Dilantin)	
Antidementia Agents	Donepezil (Aricept) Galantamine (Razadyne) Memantine (Namenda)		

Laboratory Director:

Category	Standard Precautions	Use With Caution	Consider Alternatives
Antidepressants	Amitriptyline (Elavil) Amoxapine (Amoxapine) Citalopram (Celexa) Clomipramine (Anafranil) Desipramine (Norpramin) Desvenlafaxine (Pristiq) Doxepin (Silenor) Duloxetine (Cymbalta) Escitalopram (Lexapro) Fluoxetine (Prozac, Sarafem) Fluvoxamine (Luvox) Imipramine (Tofranil) Levomilnacipran (Fetzima) Maprotiline (Ludiomil) Mirtazapine (Remeron) Nefazodone (Serzone) Nortriptyline (Pamelor) Paroxetine (Paxil, Brisdelle) Protriptyline (Vivactil) Sertraline (Zoloft) Trimipramine (Surmontil) Venlafaxine (Effexor) Vilazodone (Viibryd) Vortioxetine (Brintellix)		
Antiemetics	Dolasetron (Anzemet) Metoclopramide (Reglan) Ondansetron (Zofran) Palonosetron (Aloxi)		
Antifungals	Voriconazole (Vfend)		
Antiplatelets	Clopidogrel (Plavix) Prasugrel (Effient) Ticagrelor (Brilinta) Vorapaxar (Zontivity)		
Antipsychotics	Aripiprazole (Abilify) Asenapine (Saphris) Chlorpromazine (Thorazine) Fluphenazine (Prolixin) Haloperidol (Haldol) Iloperidone (Fanapt) Lurasidone (Latuda) Paliperidone (Invega) Perphenazine (Trilafon) Pimozide (Orap) Quetiapine (Seroquel) Risperidone (Risperdal) Thioridazine (Mellaril) Thiothixene (Navane) Trazodone (Oleptro) Trifluoperazine (Stelazine) Ziprasidone (Geodon)	Clozapine (Clozaril) Olanzapine (Zyprexa) Tetrabenazine (Xenazine)	

Laboratory Director:

Category	Standard Precautions	Use With Caution	Consider Alternatives
Antispasmodics for Overactive Bladder	Darifenacin (Enablex) Fesoterodine (Toviaz) Mirabegron (Myrbetriq) Oxybutynin (Ditropan) Solifenacin (Vesicare) Tolterodine (Detrol) Trospium (Sanctura)		
Benzodiazepines	Alprazolam (Xanax) Clonazepam (Klonopin) Diazepam (Valium)		
Beta Blockers	Carvedilol (Coreg) Labetalol (Normodyne, Trandate) Metoprolol (Lopressor) Nebivolol (Bystolic) Propranolol (Inderal) Timolol (Timoptic)		
Fibromyalgia Agents	Milnacipran (Savella)		
Immunosuppressants	Tacrolimus (Prograf)		
Muscle Relaxants	Carisoprodol (Soma) Cyclobenzaprine (Flexeril, Amrix) Metaxalone (Skelaxin) Methocarbamol (Robaxin)	Tizanidine (Zanaflex)	
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) Codeine (Codeine; Fioricet with Codeine) Dihydrocodeine (Synalgos-DC) Hydromorphone (Dilaudid, Exalgo) Levorphanol (Levo Dromoran) Meperidine (Demerol) Methadone (Dolophine) Morphine (MS Contin) Oxycodone (Percocet, Oxycontin) Oxymorphone (Opana, Numorphan) Sufentanil (Sufenta) Tapentadol (Nucynta) Tramadol (Ultram)	Fentanyl (Actiq) Hydrocodone (Vicodin)	
Phosphodiesterase Inhibitors for Erectile Dysfunction	Avanafil (Stendra) Sildenafil (Viagra) Tadalafil (Cialis) Vardenafil (Levitra)		

Laboratory Director:

Category	Standard Precautions	Use With Caution	Consider Alternatives
Proton Pump Inhibitors	Dexlansoprazole (Dexilant, Kapidex) Esomeprazole (Nexium) Lansoprazole (Prevacid) Omeprazole (Prilosec) Pantoprazole (Protonix) Rabeprazole (Aciphex)		
Statins	Atorvastatin (Lipitor) Lovastatin (Mevacor) Simvastatin (Zocor)	Fluvastatin (Lescol)	
Sulfonylureas	Glimepiride (Amaryl) Glipizide (Glucotrol) Glyburide (Micronase) Tolbutamide (Orinase)		

Laboratory Director:

Alleles tested: ANKK1/DRD2 DRD2:Taq1A; COMT Val158Met; CYP1A2 *1C, *1D, *1F, *1K, *1L, *1V, *1W; CYP2B6 *6, *9; CYP2C19 *2, *3, *4, *4B, *6, *7, *8, *9, *10, *17; CYP2C9 *2, *3, *4, *5, *6, *8, *11, *27; CYP2D6 *2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41, *5 (gene deletion), XN (gene duplication); CYP3A4 *1B, *2, *3, *12, *17, *22; CYP3A5 *2, *3, *3C, *6, *7, *8, *9; MTHFR 1298A>C, 677C>T; OPRM1 A118G; VKORC1 -1639G>A

Disclaimer: Only a physician, pharmacist or other healthcare professional should advise a patient on the use of information in this report. Any information in our final report about genotype-phenotype relationships is drawn from literature, as found at the time of the report. This information is likely to change based on new research, different drugs, etc. The physiological effect of any given phenotype depends on individual clinical profile. A number of factors are typically considered when predicting a phenotype for a patient, including, but not limited to, age, medications, lifestyle, comorbidities etc. It is important to interpret genotyping test results in the context of an individual's profile. It remains the responsibility of the health-care provider to determine the best course of treatment for a patient.

Methodology: DNA was extracted using MagMAX™ Express-96 Magnetic Particle Processor and Real-Time PCR was run on TaqMan Open Array™ plates, using QuantStudio™ 12K Flex Platform. The SNP genotyping component of the test consists of 55 TaqMan® SNP Assays for 53 loci, which include single base and short insertion/deletion polymorphisms. The copy number component consists of one TaqMan® Copy Number Assay for the CYP2D6 gene. Genotyping calls are made by the TaqMan Genotyper Software. Copy Number Variation analysis is performed using CopyCaller software. During validation, the overall accuracy and reproducibility of at least 99% was obtained across all concentrations, when compared to bi-directional dideoxy sequencing performed by independent third-party company (SeqWright.)

Limitations: This test will not detect all the known mutations that result in altered or inactive tested genes. Absence of a detectable gene mutation or polymorphism does not rule out the possibility that a patient has intermediate or high sensitivity phenotypes due to the presence of an undetected polymorphism or due to drug-drug interactions.

CLIA #:

Patient Information Card

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

Patient Name	DOB	Requisition ID	VKORC1	-1639G>A G/G	Low Warfarin Sensitivity
Test Test8	10/10/1985	1511025006	MTHFR	1298A>C AC 677C>T CT	No Increased Risk of Hyperhomocysteinemia
Pharmacogenetic Test Summary					
CYP2C19	*1/*1	Normal Metabolizer			
CYP2C9	*1/*2	Intermediate Metabolizer			
CYP2D6	*1/*2	Normal Metabolizer			
CYP3A4	*1/*1	Normal Metabolizer			
CYP3A5	*3/*3	Poor Metabolizer			