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ASHI No. 10-4-OR-03-1
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Comprehensive Pharmacogenomics Report

Patient Name: Doe, Jonathan
Ordering Facility: Safe Rx Doc
Ordering Physician: Dr. Jane Script

Sample ID: 150000099HLA
Date Sample Received: 01/23/2015
Date Sample Collected: 01/20/2015
Date Reported: 01/28/2015

Gene	Patient Genotype	Patient Phenotype	Indications
CYP2D6	*2/*41	Extensive (Normal) Metabolizer	The presence of at least one functional allele indicates normal metabolic activity. Follow standard dosing practices when administering drugs metabolized by CYP2D6. Commonly prescribed medications that are metabolized by this enzyme include Codeine, Oxycodone, Duloxetine (Cymbalta), Fluoxetine (Prozac), Tramadol and many others.
CYP2C19	*2/*2	Poor Metabolizer	Two non-functional alleles were detected indicating extremely low or non-existent enzymatic activity. Administration of alternative drugs that are not metabolized by CYP2C19, or usage of a reduced dose to prevent toxicity may be warranted. Commonly prescribed medications that are metabolized by CYP2C19 include Sertraline (Zoloft), Citalopram (Celexa), Carisoprodol (Soma), Diazepam (Valium), Omeprazole (Prilosec), and many others.
CYP2C9	*1/*1	Extensive (Normal) Metabolizer	Detection of two normal alleles indicates normal enzymatic activity. Follow standard dosing practices when administering drugs metabolized by CYP2C9. Commonly prescribed medications that are metabolized by CYP2C9 include Ibuprofen, Diclofenac (Voltaren), Celecoxib (Celebrex), Flurbiprofen (Ansaid), Piroxicam (Feldene), warfarin and many others.
CYP3A4	*1/*1	Reduced Expressor (Intermediate metabolizer)	CYP3A4 is responsible for the metabolism of approximately 50-60% of clinical drugs used today, including acetaminophen, codeine, cyclosporine A, diazepam, and erythromycin. It is also important for the metabolism of steroid hormones. Although most of the CYP3A4 haplotypes have not been indisputably shown to affect expression or activity in terms of pharmacodynamics or pharmacokinetics, the presence of a variant allele indicates decreased function of the enzyme activity. Coadministation of drugs metabolized by CYP3A4, however, should not be used in conjunction with CYP3A inhibitors and inducers. Potent inhibitors include Clarithromycin (Biaxin), diltiazem (Cardizem), grapefruit juice, itraconazole (Sporanox), verapamil (Calan), ritonavir, and others. Potent inducers include Carbamazepine, phenobarbital, phenytoin, rifampin and others.
CYP3A5	*1D/*1D/*3/*3	Non-expressor (poor metabolizer)	In this patient, drugs that are inactivated or activated by CYP3A5 are metabolized at a significantly reduced rate. Lower doses may be required in order to reduce the risk of adverse effects of the drug and to avoid unnecessary dosing.

For updated information about gene/drug interactions visit https://www.pharmgkb.org

Gene	Patient Genotype	Patient Phenotype	Indications
VKORC1	**G/A**	Moderately reduced Warfarin dose required	The GA genotype for VKORC1 is associated with a moderately reduced Warfarin dose requirement to achieve efficacy.
Factor II	**G/G**	Normal risk	The GG genotype for Leiden Factor II is present in ~98% of individuals. This genotype is also termed Leiden Factor II mutation negative and is not associated with an increased risk of venous thromboembolism.
Factor V	**G/G**	Normal risk	The GG genotype for Leiden Factor V is present in ~98% of individuals. This genotype is also termed Leiden Factor V mutation negative and is not associated with an increased risk of venous thromboembolism.
MTHFR	**T/T_A/A**	Reduced activity	This MTHFR genotype indicates reduced enzyme activity, and is associated with elevated plasma homocysteine levels and an increased risk for premature cardiovascular disease.
SLCO1B1	**T/T**	Normal activity	Normal metabolizer for statins. Standard doses are recommended for LDL-C reduction and CVD risk reduction.

*This test only detects specific targeted mutations. There is a possibility that other mutations in these genes are present that are not detected by this test. The content of this report is only provided as a guideline and does not supercede the judgement of the patient's pharmacist or physician. Drug metabolism is affected by many non-genetic factors so mutation testing is not a substitute for therapeutic drug monitoring. Some of these tests are not FDA approved and their performance charactersitics have been established by Kashi Clinical Laboratories.

*Methodology: Multiplexed PCR reactions were utilized to detect the most common, clinically significant variants in the genes of interest. CYP Variants tested include: CYP2D6- *1,*2,*3,*4,*5,*6,*7,*8,*9,*10,*11,*15*17,*29,*35,*41, Dup CYP2C19: *1,*2,*3,*4,*5,*6,*7,*8,*9,*10,*13,*17, CYP2C9: *1,*2,*3; CYP3A4 - *1,*13,*16,*17,*22 ; CYP3A5 - *1, *2,*3,*6,*7,*8,*9.

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