Patient Name	Patient ID	Age	Gender	Order #
TESTING,83180				W3059771
Ordering Phys		**DOB**		
Client Order # W3059771	**Account Information** C7999998-STUSTEST 200 FIRST STREET SW ROCHESTER, MN 55901 (507)266-5730	**Report Notes**		
Collected 10/28/2009 06:00				
Printed 10/28/2009 11:45				

Test	Flag	Results	Unit	Reference Value	Perform Site*
Rapid DNA Extraction			REPORTED 10/28/2009 10:07		
Comment		See Comment			MCR
Genomic DNA was extracted.					
CYP2D6 Genotype			REPORTED 10/28/2009 10:06		
2D6 Phenotype Interpretation					MCR
Predicted extensive (normal) to ultra rapid metabolizer This patient has a genotype associated with an extensive (normal) to higher than normal enzymatic activity. It may be difficult to achieve therapeutic efficacy with normal drug doses and higher doses may be required. However, prodrugs may be converted to their active metabolites at greater than normal rates, resulting in adverse drug reactions. Caution should be observed with prodrugs such as codeine. Toxic, supra-therapeutic concentrations of morphine can be formed from codeine in CYP2D6 ultra rapid metabolizers. Additionally, these high morphine levels can be transferred to infants during breast feeding. There is a small residual risk of having a rare, undetected polymorphism which may result in extensive to intermediate metabolizer status. This should be considered if the predicted phenotype is discordant with clinical findings.					
2D6 Genotype Star Alleles		1/2A			MCR
See http://www.cypalleles.ki.se/cyp2d6.htm for a full description of CYP2D6 alleles.					
2D6 Duplication		NO DUP			MCR
2D6 Deletion		NO DEL			MCR
2D6 -1584c>g (*2A)		C/G			MCR
2D6 100c>t (*10)		C/C			MCR
2D6 124g>a (*12)		G/G			MCR
2D6 138inst (*15)		WT			MCR
2D6 883g>c (*11)		G/G			MCR
2D6 1023c>t (*17)		C/C			MCR
2D6 1707tdel (*6)		T/T			MCR
2D6 1758g>t/a (*8/*14)		G/G			MCR
2D6 1846g>a (*4)		G/G			MCR
2D6 2549adel (*3)		A/A			MCR
2D6 2613agadel (*9)		WT			MCR
2D6 2850c>t (*2)		C/T			MCR
2D6 2935a>c (*7)		A/A			MCR
2D6 2988g>a (*41)		G/G			MCR
2D6 Genotype Interpretation					MCR
This patient has one copy of an allele encoding CYP2D6 protein with normal activity and one copy of an allele with					

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increased activity. Additional descriptions of the effects of the star alleles on CYP2D6 function are found in the Mayo Test Catalog (http://www.mayomedicallaboratories.com/test-catalog/).					
2D6 Reviewed by Dennis J. O'Kane, Ph.D.		See Comment			MCR

Direct polymorphism analysis for -1584C>G, 100C>T, 124G>A, 138insT, 883G>C, 1023C>T, 1707T>del, 1758G>T, 1758G>A, 1846G>A, 2549A>del, 2613delAGA, 2850C>T, 2935A>C, 2988G>A, CYP2D6 gene deletion, and gene duplication is performed following PCR amplification. Direct DNA testing will not detect all the known mutations that result in decreased or inactive CYP2D6. Absence of a detectable gene mutation or polymorphism does not rule out the possibility that a patient has an intermediate or poor metabolizer phenotype. Based on the test sensitivity and currently available CYP2D6 polymorphism carrier frequencies, persons of Caucasian descent who tested negative for the above polymorphisms would be estimated to have a less than 1.4 percent residual risk for carrying one or more copies of an undetected poor metabolizer allele. This residual risk may be higher or lower in other ethnic groups. The frequency of polymorphisms causing poor metabolism is highest in the Caucasian population and lower in African Americans and Asians. Patients with an extensive (normal) or intermediate metabolizer genotype may have CYP2D6 enzyme activity inhibited by a variety of medications, or their metabolites. The following is a partial listing of drugs known to affect CYP2D6 activity as of the date of this report.

Drugs known to increase CYP2D6 activity:
Dexamethasone

Co-administration of this drug will increase the rate of excretion of CYP2D6 metabolized drugs, reducing that drug's effectiveness.

Drugs known to decrease CYP2D6 activity:
Amiodarone, bupropion, celecoxib, chlomipramine, chlorpheniramine, chlorpromazine, cimetidine, citalopram, cocaine, doxorubicin, duloxetine, fluoxetine, haloperidol, indinavir, methadone, metochlopramide, paroxetine, quinidine, ranitidine, ritonavir, sertraline, and triclopidine.

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Co-administration will decrease the rate of metabolism of
CYP2D6 metabolized drugs, increasing the possibility of toxicity.

Drugs that undergo metabolism by CYP2D6:
Alprenolol, amitriptyline, amphetamine, aripiprazole,
atomoxetine, chlorpromazine, clomipramine, codeine, desipramine,
dextramethorphan, diltiazem, disopyramide, duloxetine,
encainide, felbamate, flecainide, fluoxetine, fluvoxamine,
haloperidol, iloperidone, imipramine, labetalol, lidocaine,
mephobarbital, metoprolol, mexilitine, mirtazapine,
nortriptyline, oxycodone, paroxetene, perhenazine,
phenformin, propafenone, propranolol, respirdone, sertraline,
tamoxifen, thioridazine, timolol, tranadol, and venlafaxine.

Co-administration may decrease the rate of elimination
of other drugs metabolized by CYP2D6.

Investigational Use Only

* Performing Site:

MCR	Mayo Clinic Dpt of Lab Med & Pathology 200 First St SW Rochester, MN 55905	Lab Director: Franklin R. Cockerill, III, M.D.