MAYO CLINIC
Mayo Medical Laboratories

Laboratory Service Report 1-800-533-1710

Patient Name	Patient ID	Age	Gender	Order #
REPORTVALIDATION,AUTOMATION DN...	RVDNPLB054	40	F	RVDNPLB054
Ordering Phys				**DOB** 01/01/1971
Client Order # RVDNPLB054	**Account Information**			**Report Notes**
Collected 11/18/2011 11:08	C7028846-DLMP ROCHESTER 3050 SUPERIOR DRIVE ROCHESTER,MN 55901			
Printed 11/21/2011 10:58				

Test	Flag	Results	Unit	Reference Value	Perform Site*
CYP2D6 Tamoxifen Genotype, Saliva			REPORTED 11/18/2011 13:37		
2D6 Tamoxifen Genotype Star Alleles		1/1			MCR
See http://www.cypalleles.ki.se/cyp2d6.htm for a full description of CYP2D6 alleles.					
2D6T Duplication		See Below			MCR
Result: Duplication Not Present					
2D6T Deletion		Deletion Not Present			MCR
2D6T -1584c>g (*2A)		C/C			MCR
2D6T 100c>t (*10)		C/C			MCR
2D6T 124g>a (*12)		G/G			MCR
2D6T 138inst (*15)		WT			MCR
2D6T 883g>c (*11)		G/G			MCR
2D6T 1023c>t (*17)		C/C			MCR
2D6T 1707tdel (*6)		T/T			MCR
2D6T 1758g>t/a (*8/*14)		G/G			MCR
2D6T 1846g>a (*4)		G/G			MCR
2D6T 2549adel (*3)		A/A			MCR
2D6T 2613agadel (*9)		WT			MCR
2D6T 2850c>t (*2)		C/C			MCR
2D6T 2935a>c (*7)		A/A			MCR
2D6T 2988g>a (*41)		G/G			MCR
2D6 Tamoxifen Genotype Interp					MCR
This patient has two copies of alleles encoding CYP2D6 protein with normal 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 Tamoxifen Reviewed by		Jamie Bruflat			MCR
2D6 Tamoxifen Phenotype Interp					MCR
Predicted extensive (normal) metabolizer. This patient has a genotype associated with the extensive (normal) tamoxifen metabolizer phenotype. Postmenopausal women with this phenotype and early stage breast cancer are not at increased risk for breast cancer recurrence when treated with tamoxifen as adjuvant therapy for early breast cancer. However, patients with this phenotype should not be coadministered moderate or potent CYP2D6 inhibitors, as these medications are known to decrease the metabolic activation of tamoxifen and may increase the risk of breast cancer relapse.					
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					

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* Report times for Mayo performed tests are CST/CDT

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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. Because antidepressants are often prescribed to alleviate the hot flashes that accompany tamoxifen therapy, it is particularly important to utilize an antidepressant that does not compromise CYP2D6 activity, which could reduce tamoxifen's efficacy. The following is a partial listing of drugs known to affect CYP2D6 activity as of the date of this report.

Drugs that inhibit CYP2D6 significantly: Amiodarone, bupropion, cimetidine, cinacalcet, cocaine, dexmedetomidine, duloxetine, fluoxetine, paroxetine, perazine, perphenazine, pergolide, pimozide, quinidine, sertraline, terbinafine, thioridazine, and ticlopidine.

Additional factors may modulate the treatment response to tamoxifen. Expression of estrogen receptor beta by the tumor, in the absence of estrogen receptor alpha, is a favorable prognostic indicator for tamoxifen therapy. However, expression of the Her2 receptor by the tumor may indicate tamoxifen resistance even if the CYP2D6 genotype indicates activation of sufficient endoxifen.
Analyte Specific Reagent. This test was developed and its performance characteristics determined by Mayo Clinic. It has not been cleared or approved by the U.S. Food and Drug Administration.

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

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