| Patient Name | Patient ID | Age | Gender | Order # |
|---|---|---|---|---|
| REPORTVALIDATION,AUTOMATION DN... | RVDNPLB048 | 40 | F | RVDNPLB048 |
| **Ordering Phys** | | | | **DOB** 01/01/1971 |
| **Client Order #** RVDNPLB048 | **Account Information** | | | **Report Notes** |
| **Collected** 11/18/2011 11:03 | C7028846-DLMP Rochester<br>3050 Superior Drive<br>Rochester, MN 55901 | | | |
| **Printed** 07/26/2013 15:15 | | | | |

| Test | Flag | Results | Unit | Reference Value | Perform Site* |
|---|---|---|---|---|---|
| **CYP2D6 Genotype, Saliva** | | | | | |
| **RECEIVED:** **REPORTED:** 11/18/2011 13:37 | | | | | |
| 2D6 Genotype Star Alleles | | 1/1 | | | MCR |
| See http://www.cypalleles.ki.se/cyp2d6.htm for a full description of CYP2D6 alleles. | | | | | |
| 2D6 Duplication | | See Below | | | MCR |
| Result:Duplication Not Present | | | | | |
| 2D6 Deletion | | Deletion Not Present | | | MCR |
| 2D6 -1584c>g (*2A) | | C/C | | | 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/C | | | MCR |
| 2D6 2935a>c (*7) | | A/A | | | MCR |
| 2D6 2988g>a (*41) | | G/G | | | MCR |
| 2D6 Genotype Interpretation | | | | | 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 Reviewed by | | Jamie Bruflat | | | MCR |
| 2D6 Phenotype Interpretation | | | | | 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, | | | | | |

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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 and rifampin. Co-administration of these drugs 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, cinacalcet, citalopram, cocaine, dexmedetomidine, diphenhydramine, doxepine, duloxetine, escitalopram, fluoxetine, haloperidol, halofantrine, hydroxyzine, indinavir, levomepromazine, methadone, metochlopramide, moclobemide, paroxetine, perazine, pergolide, perphenazine, pimozide, quinidine, ranitidine, ritonavir, sertraline, tegaserod, terbinafine, thioridazine and triclopidine. 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, bufuradol, carvedilol, chlorpheniramine, chlorpromazine, clomipramine, codeine, debrisoquine, desipramine,

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dextramethorphan, dexfenfluramine, diltiazem, disopyramide, donepezil, duloxetine, encainide, flecainide, fluoxetine, fluvoxamine, haloperidol, iloperidone, imipramine, labetalol, lidocaine, metoclopramide, methoxyamphetamine, metoprolol, mexilitine, minaprine, mirtazapine, nebivolol, nortriptyline, oxycodone, ondansetron, paroxetene, pergolide, perhexiline, perphenazine, promethazine, phenformin, pimozide, propafenone, propranolol, risperidone, sparteine, sertraline, tamoxifen, thioridazine, tegaserod, timolol, tramadol, venlafaxine and zuclopenthixol. Co-administration may decrease the rate of elimination of other drugs metabolized by CYP2D6.
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.

* Performing Site:

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|---|---|---|
| MCR | Mayo Clinic Dpt of Lab Med & Pathology<br>200 First St SW Rochester, MN 55905 | Lab Director: |