Memorandum – Molecular Genetics #47

To: UNC Health Attending Physicians, House staff, Nursing Coordinators, Department Heads and Supervisors

From: Karen E. Weck, MD, Medical Director, Molecular Genetics Laboratory
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Date: September 3, 2026

Subject: **Addition of *CYP2C19* *35 Variant Testing to Clopidogrel (Plavix) Response Genotyping (LAB5657)**

Effective **September 8, 2026**, the UNC Molecular Genetics Laboratory will expand the Clopidogrel (Plavix) Response Genotyping (*CYP2C19*) assay to include testing for the ***CYP2C19**35** variant.

Currently, the assay includes analysis of the ***CYP2C19* *2, *3, and *17 variants.** The addition of *CYP2C19**35 enhances the test's ability to identify clinically relevant *CYP2C19* genotypes associated with clopidogrel metabolism and response. The *CYP2C19*35* no function allele has been characterized to have high allele frequency in African populations (2-3%) and is likely the ancestral allele arising to the common *CYP2C19*2* no function allele.

Individuals with loss of function (poor metabolism) variants *CYP2C19*2, CYP2C19*3,* or *CYP2C19*35* are at increased risk for thrombotic cardiovascular events due to decreased drug efficacy. In contrast, the fast (ultra)-metabolizing variant *CYP2C19*17* is associated with increased drug activation and lower platelet reactivity.

There will be **no changes to test ordering procedures in Epic**. Providers should continue to order the test as they do currently.

For additional information or questions contact the UNCMC Molecular Genetics Lab at (984) 974-1825.

UNC_CYP2C19_Webflyer

Website: https://www.uncmedicalcenter.org/mclendon-clinical-laboratories/directory/molecular-pathology-and-genetics/

References:

1. Pratt VM, et al. Recommendations for Clinical CYP2C19 Genotyping Allele Selection: A Report of the Association for Molecular Pathology. J Mol Diagn. 2018 May;20(3):269-276.
2. Williams AK, et al. CYP2C19 Genotype-Guided Antiplatelet Therapy and 30-Day Outcomes After Percutaneous Coronary Intervention. Circ Genom Precis Med. 2019 Feb;12(2):e002441.
3. Lee CR, et al. Clinical Pharmacogenetics Implementation Consortium (CPIC) guideline for CYP2C19 genotype and Clopidogrel Therapy: 2022 Update. Clin Pharm Ther 2022. https://cpicpgx.org/guidelines/guideline-for-clopidogrel-and-cyp2c19/ [accessed 6/30/26].
4. CYP2C19 Clinical Pharmacogenetics Implementation Consortium (CPIC) guidelines https://cpicpgx.org/gene/cyp2c19/ [accessed 6/30/26].
5. Amarjit S, et al. The CYP2C19 Intron 2 Branch Point SNP is the Ancestral Polymorphism Contributing to the Poor Metabolizer Phenotype in Livers with CYP2C19*35 and CYP2C19*2 Alleles. Drug Metab Dispos 2015; 43:1226-1235.