UNC HEALTH CARE

MEMORANDUM #16

TO: UNC Hospitals Attending Physicians, Housestaff, Nursing Coordinators, Department Heads and Supervisors

FROM: Margaret L. Gulley, MD, Director, Molecular Pathology Laboratory
Herbert C. Whinna, MD, PhD, Medical Director, McLendon Clinical Laboratories

DATE: March 31, 2015

SUBJECT: UNC Myeloid Mutation Panels

Effective April 1, 2015, the UNC Molecular Genetics Laboratory is pleased to announce a new test for detection of mutations occurring in myeloid neoplasms that may assist in diagnosis and determining prognosis. The UNC *Myeloid Mutation Panel* uses massively parallel sequencing (also known as next generation sequencing) to test selected regions of multiple genes that are frequently mutated in myeloid neoplasms.

Clinical indications for UNC *Myeloid Mutation Panel* include patients with established or suspected diagnoses of acute myeloid leukemia (AML), myelodysplastic syndrome (MDS), and/or myeloproliferative neoplasm (MPN). Ordering clinicians should specify which disease is of relevance in a given patient.

For AML indications, regions of: *ASXL1, CEBPA, DNMT3A, FLT3-TKD, IDH1, IDH2, KIT, NPM1, TET2, TP53* and *WT1* are tested. The UNC Myeloid Mutation Panel does not detect the *FLT3* internal tandem duplication, and a separate test ("FLT3-ITD" test) may be indicated to refine prognosis. Results may be used for classification and prognosis.

For MDS indications, regions of *ASXL1, ETV6, EZH2, NRAS, RUNX1, SF3B1* and *TP53* are tested. Results may be used to demonstrate clonality, assist in diagnosis, and refine prognosis.

For MPN indications, regions of *CALR, CSF3R, JAK2, MPL,* and *SETBP1* are tested. When present, a mutation may assist in diagnosis of polycythemia vera, essential thrombocythemia, primary myelofibrosis, atypical chronic myeloid leukemia, and/or chronic neutrophilic leukemia.

The UNC *Myeloid Mutation Panel* is run once a week. Acceptable sample types are bone marrow aspirate (1 mL, EDTA) or peripheral blood (3mL, EDTA) having at least 10% atypical or neoplastic cells, refrigerated for up to 24 hours. Unacceptable sample types include: fresh, frozen, and/or paraffin embedded tissue.

Analytical limit of detection is 5% minor allele frequency (10% mutant cells). Therefore, a minimum blast percentage (or neoplastic cell burden) of at least 10% is required. This test is NOT appropriate for minimal residual disease (MRD) monitoring.

For further information, contact the UNC Molecular Genetics Laboratory at 984-974-1825 or visit the laboratory website: https://labs.unchealthcare.org/directory/molecular_pathology/index_html.