WT1 EXONS 7 AND 9
MUTATION ANALYSIS

BloodCenter of Wisconsin's Diagnostic Laboratories offer testing for the detection of WT1 mutations.

BACKGROUND:
Acquired mutations of the Wilm's Tumor 1 (WT1) gene are found in ~10% of adults with cytogenetically normal acute myeloid leukemia (CN-AML)\(^1\). The majority of these mutations cluster in exons 7 and 9 and have been associated with a poor prognosis alone\(^1,2\), when associated with FLT3/ITD\(^3\), or not at all\(^4\).

WT1 mutations are also found in ~8-12% of pediatric AML, cluster in exons 7 and 9, and have been associated with a poor outcome, especially when associated with FLT3/ITD\(^5\).

The presence of one (WT1\(^{AG}\)) or two (WT1\(^{GG}\)) copies of the G allele of exon 7 WT1 synonymous single nucleotide polymorphism (SNP) rs16754 was found to be a favorable-risk marker in CN-AML adults, especially in high-risk patients\(^4\) and in pediatric AML, especially in low-risk patients\(^4\).

REASONS FOR REFERRAL:
• Risk assessment in newly diagnosed adults with CN-AML and pediatric AML
• Investigator initiated and pharmaceutical sponsored clinical trials

METHOD:
WT1 gene mutations are detected by a combination of PCR amplification, fragment analysis, and bidirectional sequencing of the coding regions and intron/exon junctions of exons 7 and 9. The DNA sequence is analyzed and compared to the published reference gene sequence.

LIMITATIONS:
The lower limit of detection of sequencing is approximately 20%. Sequencing is expected to detect >99% of variants within WT1 exons 7 and 9 that are present at an allele proportion of approximately 20% or greater.

REFERENCE INTERVAL:
Mutations are reported as mutation detected or mutation not detected using standard nomenclature. SNP rs16754 is reported in all cases. Other known polymorphisms are not reported but are available upon request.
SPECIMEN REQUIREMENTS:
3-5 ml EDTA (lavender top) whole blood or 2-5 ml EDTA bone marrow.

SHIPPING REQUIREMENTS:
Place the room temperature specimen and requisition in plastic bags, seal and insert in a Styrofoam container. Seal the Styrofoam container, place in a sturdy cardboard box and tape securely. Ship the package in compliance with your overnight carrier guidelines. Address package to:

Client Services/Molecular Oncology Laboratory
BloodCenter of Wisconsin
638 N. 18th Street
Milwaukee, WI 53233
800-245-3117, ext. 6250

TURNAROUND TIME: 5-10 days

CPT CODES: 81479

REFERENCES: