ALBERTA PRECISION LABORATORIES
Leaders in Laboratory Medicine

Laboratory Bulletin

DATE:	17 March 2025
TO:	All Pathologists and Hematologists/Oncologists in the South Sector
FROM:	Molecular Pathology Program, Alberta Precision Laboratories
RE:	**Combined *FLT3/NPM1* Testing for New Diagnosis Acute Myeloid Leukemia**

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Key Message

- Starting March 27, 2025, all samples received for *FLT3* testing in Alberta Precision Laboratories Molecular Pathology South Sector, will have combined *FLT3* and *NPM1* testing performed and reported. This new assay will include *FLT3* internal tandem duplication (ITD) with allelic ratio, *FLT3* D835 mutations (tyrosine kinase domain [TKD]), and *NPM1* hotspot insertion mutations.

Background

- *FLT3* internal tandem duplications (ITDs) and allelic ratio, *FLT3* D835 mutations (tyrosine kinase domain [TKD] mutations), and *NPM1* insertion mutations are key diagnostic, prognostic and predictive markers in acute myeloid leukemia (AML). Expedited testing is clinically required to make treatment decisions, in advance of full next generation sequencing (NGS) profiling.
- The current state in the South Sector is to perform expedited *FLT3* ITD and D835 qualitative testing for all new diagnoses of AML. *FLT3* ITD positive samples are sent to Edmonton for allelic ratio testing. *NPM1* status, and mutations in other genes, are assessed on Myeloid NGS testing.
- A laboratory developed test has been designed and validated by the Molecular Pathology laboratory to cover *FLT3* ITD with allelic ratio, *FLT3* D835, and *NPM1* hotspot insertion mutations in a single assay.

How this will impact you

- No change in ordering practice is necessary. All “FLT3 Mutation Analysis” orders in Molecular Pathology South will now automatically trigger *FLT3* ITD with allelic ratio, *FLT3* D835, and *NPM1* mutation testing. The testing will be performed in a single assay with findings issued across two reports (one for *FLT3,* one for *NPM1)* with the same target turnaround time (TAT) as current *FLT3* testing (5 calendar days).
- This test is intended for testing of newly diagnosed AML cases and **IS NOT SUITABLE** for minimal residual disease (MRD) monitoring. The assay requires at least 10% neoplastic cells to avoid false negative results.

Action Required

- **Pathologists, Oncologists and Hematologists:**
  - Be aware when ordering and reviewing *FLT3* results that *FLT3* ITD with allelic ratio, *FLT3* D835, and *NPM1* insertion testing will be performed and reported.

Effective **March 27, 2025**

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Questions/Concerns

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Approved by

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