PRECIPIO EXPECT MORE
203-787-1717
203-901-1289

MOLECULAR

Patient: John A. Doe
DOB/Gender: 10/10/44 (74 yrs) - Male
Patient ID/MRN: 123456
Date Collected: 01/02/2024

Case# XX-00000
Status: Final

Report Category:
Detected

Provider: Jane Smith, M.D.
Hospital Oncology Center
Tel: 800-123-4567
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DIAGNOSIS:

Bone marrow, aspirate:
HemeScreen™ AML results reveal:
- Negative for IDH1 mutations
- **Positive for FLT3 exon 20 mutation**
- Negative for KIT mutation
- Negative for IDH2 mutations
- **Positive for NPM1 exon 11 mutation**
- Negative for CEBPA mutations

INTERPRETATION

CEBPA (CCAAT/enhancer binding protein a) mutations can be seen in 15% ~ 19% of patients. CEBPA mutations have a favorable prognosis, when no FLT3 mutation is present; regardless of cytogenetic abnormalities.

FLT3 (fms-like tyrosine kinase) mutation is an unfavorable prognostic marker. FLT3-ITD is the most common mutation. FLT3-TKD mutations (seen in <5% of cases) when combined with NPM1 mutation has a greater overall prognosis. FLT3 inhibitors are often paired with chemotherapy for treatment.

NPM1 (Nucleophosmin 1) mutations are most common (~ 50% of cases), and are usually seen in conjunction with other AML-associated mutations. NPM1 mutations have been suggested as a monitoring tool for MRD due to its stable nature during the course of disease. NPM1 mutation has a favorable prognosis when it is the only abnormality.

IDH1 (isocitrate dehydrogenase 1) mutation is generally associated with decreased complete remission. IDH1 mutation is often paired with NPM1 mutation and normal cytogenetics. IDH1 mutation has poor prognosis, especially when paired with FLT3. When IDH1 is paired with cytogenetic abnormalities such as PML/RARA, the overall prognosis worsens. IDH1 mutation alone has a more favorable outcome.

IDH2 (isocitrate dehydrogenase 2) mutation is generally paired with normal cytogenetics and does not affect overall prognosis. IDH2 mutations are often not associated with other prognostic AML mutations, such as FLT3, CEBPA and NPM1, however can be associated with IDH1 mutation.

KIT mutation expression is found in approximately 80% of cases. KIT mutation has a poor prognosis and clinical outcome. RUNX1 cytogenetic mutation is commonly associated with KIT mutation. Treatments include chemotherapy as well as inhibitors such as Dasatinib and Radotinib.

REFERENCES:

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METHOD:

Melting curve analysis in combination with real-time PCR is a natural extension of continuously monitored PCR within each cycle. During high resolution DNA melting analysis (HRM or HRMA), melting curves are produced using dyes that fluoresce in the presence of double-stranded DNA (dsDNA). Using specialized instruments designed to monitor fluorescence during heating; as the temperature increases, the fluorescence decreases, producing a characteristic melting profile.

This assay can detect mutations with a minimum sensitivity of 2% depending on the wild type background in the specimen. Although molecular testing is highly accurate rarely false-positive and false-negative diagnostic errors may occur.

HRM analysis was performed using HRM v3.1 Thermo Fisher software to discriminate DNA sequences based on their composition, length, GC content, or strand complementarities.

Electronically Signed By: Frank Bauer, MD, Precipio, Inc. (01/08/2024 12:39)

Disclaimer: The adequacy of staining is verified by the appropriate positive and negative controls. The reagents used for these assays (flow cytometry, cytogenetics, molecular, IHC & histology) are analyte specific reagents (ASR) or research use only (RUO). Their performance characteristics have been validated by Precipio, Inc., in its locations (New Haven, CT & Omaha, NE). They have not been reviewed by the FDA. The FDA has deemed that such approval is unwarranted. These assays are for clinical use and should not be viewed as experimental or "research use only". This laboratory is CLIA & CAP certified to perform high complexity clinical testing. Images that may be included within this report are representative of the patient but not all testing in its entirety and should not be used to render a result. For BM biopsy, IHC provides additional information for diagnosis that is not provided by Flow Cytometry and the samples for each procedure are derived from different specimens (biopsy and aspirate, respectively).

Patient: John A. Doe
Case #: XX-00000
Received Information: 2 green-top tube(s), 1 lavender-top tube(s)
Received: 01/03/2024 10:15
Reported: 01/08/2024 13:32