Myeloproliferative Neoplasm: A Diagnostic Approach to Bone Marrow Evaluation

Clinical suspicion of myeloproliferative neoplasm

Bone marrow testing begins with
- 70016 / Hematopathology Consultation, Wet Tissue
- CHRBM / Chromosome Analysis, Hematologic Disorders, Bone Marrow
- JAK2M / JAK2 V617F Mutation Detection, Bone Marrow*
- BADX / BCR/ABL1, Qualitative, Diagnostic Assay
  OR 922F / BCR/ABL1, Translocation 9;22, FISH

Bone marrow morphology: MPN?

Positive for BCR/ABL

Chronic myelogenous leukemia

NO

Erythrocytosis?

YES

Negative for JAK2 V617F Mutation

Complete blood count (CBC)

EPO / Erythropoietin (EPO), Serum

PV possible

JAKXM / JAK2 Exon 12 and Other Non- V617F Mutation Detection, Bone Marrow

PV

POSITIVE

NEGATIVE

Erythrocytosis Evaluation

REVP / Erythrocytosis Evaluation

YES

No further testing

NEGATIVE

PV possible

Not supportive of PV

PV

POSITIVE

NEGATIVE

Negative or Equivocal for JAK2 V617F Mutation

Positive for JAK2 V617F Mutation

Complete blood count (CBC)

Clinical findings

Bone marrow features

EPO / Erythropoietin (EPO), Serum

CALR / CALR Mutation Analysis, Myeloproliferative Neoplasm (MPN)*

MPLM / MPL Exon 10 Mutation Detection, Bone Marrow*

ET

PMF

MPN, not otherwise specified (ET or PMF)

POSITIVE

NEGATIVE

MPNR / Myeloproliferative Neoplasm (MPN), JAK2 V617F with Reflex to CALR and MPL

* If reflexive testing of JAK2 V617F, CALR, and MPL is desired, consider ordering MPNR / Myeloproliferative Neoplasm (MPN), JAK2 V617F with Reflex to 2 CALR and MPL

Legend
PV: Polycythemia vera
ET: Essential thrombocythemia
PMF: Primary myelofibrosis
MPN: Myeloproliferative neoplasm