BCR-ABL1 Mutation Analysis Services

The MolecularMD Clinical Laboratory offers sensitive, reproducible and highly specific BCR-ABL1 mutation testing to aid in patient selection for appropriate therapy and potential monitoring of treatment efficacy.

TEST DESCRIPTION

MolecularMD has designed and validated bi-directional direct (Sanger) sequencing assays to accurately identify mutations associated with BCR-ABL1 kinase therapy resistance. The assays target an extended region including the kinase domain, P-loop and SH2-SH3 regulatory domains, and enable detection of over 40 amino acid substitutions, including the T315I mutation.

Sequencing services are available for patients with either p190 or p210 BCR-ABL1 fusion transcripts. For p190 (e1a2) transcript patients, the MolecularMD assay includes primers for amplification and downstream sequencing of amino acids 30-510.

DISEASE RELEVANCE

- Chronic myelogenous leukemia (CML)
- Ph+ acute lymphocytic leukemia (ALL)

DRUG RELEVANCE

- ABL1 tyrosine kinase inhibitors

SENSITIVITY

- 10-20% mutant

RELATED ASSAYS

- One-step BCR-ABL1 quantification (p210 and p190)
- BCR-ABL1 Breakpoint Analysis

CLINICAL UTILITY

Targeted BCR-ABL1 kinase inhibitors are an effective first-line treatment for the majority of CML and Ph+ ALL patients. However, the treatment of patients with primary or acquired resistance to these therapies remains a challenge. Mutations in the kinase, P-loop and SH2-SH3 regulatory domains are responsible for the majority of the TKI resistance cases reported in the literature.\(^1,2\)

The efficacy of second and third generation drugs may correlate with specific mutations. A sensitive, specific and reproducible method for genotyping BCR-ABL1 in clinical samples provides crucial information to aid in appropriate selection of therapy options and enhances the potential for effective monitoring of treatment efficacy.

ASSAY SPECIFICATIONS

<table>
<thead>
<tr>
<th>Mutations Detected:</th>
<th>Alterations in codons 30-510</th>
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<tbody>
<tr>
<td>Sample Type:</td>
<td>Peripheral blood or bone marrow</td>
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<tr>
<td>Sample Requirements:</td>
<td>Peripheral blood: two (2) PAXgene RNA blood tubes or one (1) K(_2) EDTA blood tube; Bone marrow: one (1) 5 or 10 mL K(_2) EDTA tube</td>
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<td>Sensitivity:</td>
<td>10-20% mutant</td>
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<td>Standard TAT:</td>
<td>Eight (8) business days</td>
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EXPERIENCE

MolecularMD's centralized CLIA-certified and CAP-accredited molecular diagnostics laboratory has a proven track record in supporting pivotal international clinical research programs. We are a preferred provider of specialty molecular diagnostics services to pharmaceutical and biotech drug developers, offering assays that are rigorously validated to provide rapid and reproducible results that enable prompt clinical decision-making relevant for both solid tumors and hematological malignancies. Our experience and commitment to quality make MolecularMD a leader in reference lab services and an optimal partner for companion diagnostics development.

For more information on BCR-ABL1 Mutation Analysis Services, email bd@molecularmd.com or call +1 877-459-4979