**Samples to Test:** Primary or recurrent tumors; formalin fixed paraffin embedded tissue (FFPE).

<table>
<thead>
<tr>
<th>Biomarker</th>
<th>Specific alterations Alternative terms</th>
<th>Indications</th>
<th>Result Interpretation Significance</th>
<th>Assays Techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BRAF</strong></td>
<td>Mutations at codon 600 (eg. V600E, V600K)</td>
<td>Therapeutic</td>
<td>Associated with sensitivity to BRAF and/or MEK inhibitors</td>
<td>NGS, pyrosequencing, Sanger sequencing, genotyping, PCR-based assays</td>
</tr>
<tr>
<td><strong>KIT</strong></td>
<td>Mutations in exon 11 and 13 (eg. codons W557, V559, L576, K642), mutations in exon 17 (eg D816H); and amplification</td>
<td>Therapeutic</td>
<td>Exon 11 and 13 mutations are associated with sensitivity to KIT inhibitors D816H mutation is associated with resistance to KIT inhibitors KIT amplification is associated with resistance to KIT inhibitors</td>
<td>NGS, pyrosequencing, Sanger sequencing, PCR-based assays, microarray</td>
</tr>
<tr>
<td><strong>NRAS</strong></td>
<td>Mutations in codon 12, 13, 61</td>
<td>Prognosis Therapeutic</td>
<td>Associated with poor survival May be associated with response to MEK inhibitors in some patients</td>
<td>NGS, pyrosequencing, Sanger sequencing, PCR-based assays</td>
</tr>
</tbody>
</table>

**Abbreviations:**

NGS: Next Generation Sequencing

**Where to test:** Testing should be performed in the laboratories that are certified under clinical laboratory improvement amendments of 1988 (CLIA-88) as qualified to perform high complexity (molecular pathology) testing.

**References:**


*“Molecular in My Pocket” reference cards are educational resources created by the Association of Molecular Pathology (AMP) for laboratory and other health care professionals. The content does not constitute medical or legal advice, and is not intended for use in the diagnosis or treatment of individual conditions. See www.amp.org for the full “Limitations of Liability” statement.*

Revised 7/2021