Molecular In My Pocket™…

# ONCOLOGY: *Molecular Biomarkers in Cutaneous Melanoma*

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

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

**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*:** National Comprehensive Cancer Network. Clinical Practice Guidelines in Oncology. Cutaneous Melanoma. Version 2.2019. March 12, 2019.