The following 50 genes were tested:

ABL1, AKT1, ALK, APC, ATM, BRAF, CDH1, CDKN2A, CSF1R, CTNNB1, EGFR, ERBB2, ERBB4, EZH2, FBXW7, FGFR1, FGFR2, FGFR3, FLT3, GNA11, GNAQ, GNAS, HNF1A, HRAS, IDH1, IDH2, JAK2, JAK3, KDR, KIT, KRAS, MET, MLH1, MPL, NOTCH1, NPM1, NRAS, PDGFRA, PIK3CA, PTEN, PTPN11, RB1, RET, SMAD4, SMARCB1, SMO, SRC, STK11, TP53, VHL

These mutations, relevant in Lung Cancer, were tested for and determined to be absent:

- EGFR exon 18, G719X mutation (Not Found)
- EGFR exon 20, T790M mutation (Not Found)
- EGFR exon 21, L861Q mutation (Not Found)
- EGFR exon 19 deletion/insertion (Not Found)

CTNNB1

**DESCRIPTION**
The protein encoded by this gene is part of a complex of proteins that constitute adherens junctions (AJs). AJs are necessary for the creation and maintenance of epithelial cell layers by regulating cell growth and adhesion between cells. The encoded protein also anchors the actin cytoskeleton and may be responsible for transmitting the contact inhibition signal that causes cells to stop dividing once the epithelial sheet is complete. Finally, this protein binds to the product of the APC gene, which is mutated in adenomatous polyposis of the colon. Mutations in this gene are a cause of colorectal cancer (CRC), pilomatrixoma (PTR), medulloblastoma (MDB), and ovarian cancer. Alternative splicing results in multiple transcript variants. [provided by RefSeq, Aug 2016]

**ALTERATION DETECTED**

**PD-L1 EXPRESSION**

- **Positive**: Pembrolizumab, Nivolumab indicated
- **Detected**: Pembrolizumab, Nivolumab indicated

**RNA TEST RESULTS**

- **ALK GENE FUSION** Not detected
- **ROS1 GENE FUSION** Not detected

**IMMUNOTHERAPY TEST RESULTS**

- **Positive**: Pembrolizumab, Nivolumab indicated
- **Detected**: Pembrolizumab, Nivolumab indicated

**ALTERATIONS DETECTED**

**GENE**

- **BRAF**: No Reported Mutation
- **CTNNB1**: p.T40A; c.118A>G 3.9% None
- **ERBB4**: p.T265A; c.793A>G 5.8% None

**CTNNB1 DESCRIPTION**
The protein encoded by this gene is part of a complex of proteins that constitute adherens junctions (AJs). AJs are necessary for the creation and maintenance of epithelial cell layers by regulating cell growth and adhesion between cells. The encoded protein also anchors the actin cytoskeleton and may be responsible for transmitting the contact inhibition signal that causes cells to stop dividing once the epithelial sheet is complete. Finally, this protein binds to the product of the APC gene, which is mutated in adenomatous polyposis of the colon. Mutations in this gene are a cause of colorectal cancer (CRC), pilomatrixoma (PTR), medulloblastoma (MDB), and ovarian cancer. Alternative splicing results in multiple transcript variants. [provided by RefSeq, Aug 2016]

**ERBB4 DESCRIPTION**
This gene is a member of the Tyr protein kinase family and the epidermal growth factor receptor subfamily. It encodes a single-pass type I membrane protein with multiple cysteine rich domains, a transmembrane domain, a tyrosine kinase domain, a phosphotyrosine-binding domain, and a PDZ domain binding motif. The protein binds to and is activated by neuregulin and other factors and includes a variety of cellular responses including mitogenesis and differentiation. Multiple proteolytic events allow for the release of a cytoplasmic fragment and an extracellular fragment. Mutations in this gene have been associated with cancer. Alternatively spliced variants which encode different protein isoforms have been described; however, not all variants have been fully characterized. [provided by RefSeq, Jul 2008]