

| Patient | Specimen Information | Ordered By |
|---------------------------|--------------------------------|------------|
| Name: Monica Morales | Primary Tumor Site: Colorectal | |
| Date of Birth: 1942-08-20 | Specimen Site: Rectum | |
| Sex: Male | Specimen ID: 9850 | |
| Case Number: 6600 | Specimen Collected: 2023-12-25 | |
| Diagnosis: Lymphoma | Test Initiated: 2023-12-25 | |

| Biomarker | Method | Analyte | Result | Therapy association | | Biomarker level |
|-----------|--------|-----------|---------------------|---------------------|--|-----------------|
| ER | IHC | protein | Positive 3+, 100% | BENEFIT | abemaciclib, palbociclib, ribociclib, endocrine, therapy, everolimus | level 2 |
| PR | IHC | protein | Positive 2+, 95% | BENEFIT | abemaciclib, palbociclib, ribociclib, endocrine therapy | level 2 |
| TMB | seq | DNA tumor | 13 m/Mb High | BENEFIT | pembrolizumab | level 2 |
| ERBB2 | IHC | Protien | Negative 0 | LACK OF BENEFIT | trastuzumab, ado-trastuzumab emtansine, pertuzumab, fam-trastuzumab deruxtecan-nxki, lapatinib, neratinib, tucatinib | level 1 |

Cancer-Type Relevant Biomarkers

| BioMarker | Method | Analyte | Result |
|--------------|--------|-----------|---------------------|
| PTCH1 | Seq | RNA-Tumor | Fusion not detected |
| ER | IHC | Protien | Negative 2+, 23% |
| PHF6 | Seq | DNA-Tumor | Fusion not detected |
| PD-L1(SP142) | IHC | Protien | Positive 3+, 50% |
| ARID2 | Seq | RNA-Tumor | Fusion not detected |

Genomic Signatures

| BioMarker | Method | Analyte | Result |
|--------------------------------------|--------|-----------|---|
| Microsatellite instability | Seq | DNA tumor | Low |
| Tumor mutational burden | Seq | DNA tumor | 13 mutations/Mb High |
| Genomic loss of heterozygosity (LOH) | Seq | DNA tumor | High - 21% of tested genmoic segments exhibit LOH |

Genes Tested with Pathogenic Alterations or likely Pathogenic Alterations

| Gene | Method | Analyte | Variant Interpretation | Protien Alteration | Exon | DNA Alteration | Allele Frequency % |
|--------|--------|-----------|------------------------|--------------------|------|----------------|--------------------|
| BRCA1 | Seq | DNA tumor | Likely Benign | p.A374E | 10 | A | 36.65 |
| NCSTN | Seq | DNA tumor | Likely Benign | p.S163P | 8 | c.487T>C | 7.83 |
| STAT5B | Seq | DNA tumor | Likely Benign | p.L239R | 16 | c.1912A>T | 21.27 |
| ALK | Seq | DNA tumor | Likely Pathogenic | p.R139H | 9 | c.416G>A | 8.61 |
| SDHA | Seq | DNA tumor | Pathogenic | p.A1515S | 19 | 3 | 19.33 |
| HBB | Seq | DNA tumor | Benign | p.T862I | 8 | c.2524G>A | 1.54 |

Gene Variants of Unknown Significance

| Gene | Method | Analyte | Variant Interpretation | Protien Alteration | Exon | DNA Alteration | Allele Frequency % |
|------|--------|-----------|-----------------------------------|--------------------|------|----------------|--------------------|
| HBA2 | Seq | DNA tumor | Variant of uncertain significance | p.Y303H | 7 | c | 26.71 |
| IDH1 | Seq | DNA tumor | Variant of uncertain significance | p.R479H | 15 | c.1436G>A | 8.83 |
| PAX5 | Seq | DNA tumor | Variant of uncertain significance | p.G996R | 10 | c.1849G>T | 10.04 |
| KLF1 | Seq | DNA tumor | Variant of uncertain significance | p.C134W | 6 | c.402C>G | 11.55 |

Immunohistochemistry Results

| Biomarker | Result | Biomarker | Result |
|-----------|-------------------|--------------|-------------------|
| ER | Positive 3+, 52% | PD-L1(SP142) | Positive 1+, 21% |
| MSH6 | Positive 1+, 75% | PTEN | Negative 2+, 70% |
| AR | Positive 3+, 91% | | |
| PMS2 | Negative 1+, 93% | | |
| ERBB2 | Negative 2+, 18% | | |

Genes Tested with Indeterminate Results by Tumor DNA Sequencing

RNF43 ALK DICER1 MYD88 AKT1

Specimen Information

Specimen ID: 9850

Specimen Collected: 2023-12-25

Specimen Recieved: 2023-12-25

Testing Initiated: 2023-12-25

Gross Description: 9850

Pathological Diagnosis:

Left breast, central, 12:00, suspicious mass, 12-gauge core needle biopsy: Infiltrating moderately-differentiated mammary carcinoma, grade 2, Nottingham score 6 (architectural grade 3, nuclear grade 2, mitotic figures 1).

Dissection Information:

Molecular testing of this specimen was performed after harvesting of targeted tissues with an approved manual microdissection technique. Candidate slides were examined under a microscope and areas containing tumor cells (and separately normal cells, when necessary for testing) were circled. A laboratory technician harvested targeted tissues for extraction from the marked areas using a dissection microscope.

Clinical Trials Connector

| CHEMOTHERAPY CLINICAL TRIALS | | | | |
|------------------------------|-----------|--------|-----------|---|
| Drug class | Biomarker | Method | Analyte | Investigational agents |
| Anti hormonal therapy | ER | IHC | protein | anastrozole, letrozole, exemestane, fulvestrant, tamoxifen, goserelin, leuprolide |
| Anti hormonal therapy | PR | IHC | protein | anastrozole, letrozole, exemestane, fulvestrant, tamoxifen, goserelin, leuprolide |
| Anti inflammatory agents | PIK3CA | NGS | DNA tumor | aspirin |

| TARGETED THERAPY CLINICAL TRIALS | | | | |
|----------------------------------|-----------|--------|-----------|--|
| Drug class | Biomarker | Method | Analyte | Investigational agents |
| Akt inhibitors | ARID1A | NGS | DNA tumor | AZD5363, MK-2206, ipataserib |
| immunomodulatory agents | TMB | NGS | DNA tumor | avelumab, atezolizumab, durvalumab, ipilimumab, nivolumab, pembrolizumab |
| PARP inhibitors | NBN | NGS | DNA tumor | BGB-290, BMN-673, olaparib, rucaparib, talazoparib |
| Akt/mTor inhibitors | PIK3CA | NGS | DNA tumor | AZD5363, BYL719, MK-2206, ipataserib, everolimus, temsirolimus |