

Patient	Specimen Information	Ordered By
Name: Timothy Hamilton	Primary Tumor Site: Breast	
Date of Birth: 1954-04-30	Specimen Site: Lymph nodes (axillary	
Sex: Male	Specimen ID: 9727	
Case Number: 4157	Specimen Collected: 2023-06-06	
Diagnosis: Invasive ductal carcinoma	Test Initiated: 2023-06-08	

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	15 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
AR	IHC	Protien	Negative 1+, 7%
B2M	Seq	DNA-Tumor	Stable
HSD3B1	Seq	RNA-Tumor	Stable
ARID2	Seq	RNA-Tumor	Mutation not detected
DPYD	Seq	DNA-Tumor	Stable

BioMarker	Method	Analyte	Result
SF3B1	Seq	RNA-Tumor	Stable
HSD3B1	Seq	DNA-Tumor	Fusion not detected
AR	IHC	Protien	Positive 1+, 80%
PD-L1(SP142)	IHC	Protien	Positive 3+, 77%

Genomic Signatures

BioMarker	Method	Analyte	Result
Microsatellite instability	Seq	DNA tumor	Low
Tumor mutational burden	Seq	DNA tumor	15 mutations/Mb High
Genomic loss of heterozygosity (LOH)	Seq	DNA tumor	High - 19% 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 %
CSF1R	Seq	DNA tumor	Pathogenic	p.G12D	15	c.35_36delinsTA	9.7
FGFR4	Seq	DNA tumor	Likely Pathogenic	p.L367fs*46	5	c.1154_1155insTTGTC	26.48
CALR	Seq	DNA tumor	Likely Benign	p.R139H	8	c.416G>A	11.24
FGFR2	Seq	DNA tumor	Benign	p.D463H	13	c.1387G>C	16.31

Gene Variants of Unknown Significance

Gene	Method	Analyte	Variant Interpretation	Protien Alteration	Exon	DNA Alteration	Allele Frequency %
DDR2	Seq	DNA tumor	Variant of uncertain significance	p.I157T	9	c.1283C>T	8.91
MYD88	Seq	DNA tumor	Variant of uncertain significance	p.R1012X	2	.	18.77
PAX5	Seq	DNA tumor	Variant of uncertain significance	p.S252W	5	c.1115C>G	7.94
ZEB2	Seq	DNA tumor	Variant of uncertain significance	p.H1038R	19	c.3113A>G	4.57
DPYD	Seq	DNA tumor	Variant of uncertain significance	p.K656E	15	c.1966A>G	3.58
CALR	Seq	DNA tumor	Variant of uncertain significance	p.E1705V	5	c.5492G>A	3.95

Immunohistochemistry Results

Biomarker	Result
PMS2	Positive 3+, 6%
MSH2	Positive 1+, 16%
PR	Negative 1+, 24%
AR	Negative 3+, 30%

Genes Tested with Indeterminate Results by Tumor DNA Sequencing

MAPK1 CD74 FGFR1 MYOD1 APC

Specimen Information

Specimen ID: 9727

Specimen Collected: 2023-06-06

Specimen Recieved: 2023-06-08

Testing Initiated: 2023-06-08

Gross Description: 9727

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