

Patient	Specimen Information	Ordered By
Name: Beth Davis	Primary Tumor Site: Lung	
Date of Birth: 1990-05-14	Specimen Site: Mediastinal lymph nodes	
Sex: Female	Specimen ID: 7333	
Case Number: 9282	Specimen Collected: 2023-08-12	
Diagnosis: Small cell lung cancer	Test Initiated: 2023-08-13	

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	12 m/Mb Low	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
KLF4	Seq	DNA-Tumor	Stable
ZEB2	Seq	RNA-Tumor	Fusion not detected
Mismatch repair status	IHC	Protien	Negative 3+, 22%
ER	IHC	Protien	Positive 1+, 17%
TOP2A	Seq	DNA-Tumor	Fusion not detected

BioMarker	Method	Analyte	Result
PTPN11	Seq	RNA-Tumor	Mutation not detected

Genomic Signatures

BioMarker	Method	Analyte	Result
Microsatellite instability	Seq	DNA tumor	High
Tumor mutational burden	Seq	DNA tumor	12 mutations/Mb Low
Genomic loss of heterozygosity (LOH)	Seq	DNA tumor	Low - 3% 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 %
MSH2	Seq	DNA tumor	Benign	p.L755P	6	c.2305G>T	4.52
HBA2	Seq	DNA tumor	Pathogenic	p.K409Q	9	c.1225A>C	8.43
FLT3	Seq	DNA tumor	Likely Pathogenic	p.Y303H	2	3	18.58
HBB	Seq	DNA tumor	Benign	p.G12X	12	c.35G>T	8.55
PDGFRA	Seq	DNA tumor	Likely Pathogenic	p.V1092I	12	c.3689A>G	11.79
AKT1	Seq	DNA tumor	Benign	p.P253R	15	c.1647T>A	8.92

Gene Variants of Unknown Significance

Gene	Method	Analyte	Variant Interpretation	Protien Alteration	Exon	DNA Alteration	Allele Frequency %
XPC	Seq	DNA tumor	Variant of uncertain significance	p.K656E	3	c.1966A>G	18.49
STAT5B	Seq	DNA tumor	Variant of uncertain significance	p.N515H	17	>	10.19
DNMT3A	Seq	DNA tumor	Variant of uncertain significance	p.M1R	20	c.2T>G	10.51
SDHA	Seq	DNA tumor	Variant of uncertain significance	p.R225X	17	3	8.8

Immunohistochemistry Results

Biomarker	Result	Biomarker	Result
ERBB2	Positive 2+, 13%	AR	Negative 1+, 84%
PR	Negative 1+, 88%	MLH1	Negative 2+, 43%
PTEN	Negative 3+, 88%		
ER	Negative 3+, 65%		
PD-L1(SP142)	Negative 2+, 82%		

Genes Tested with Indeterminate Results by Tumor DNA Sequencing

HSP90B1 EZH2 NF1 RB1 NOTCH1

Specimen Information

Specimen ID: 7333

Specimen Collected: 2023-08-12

Specimen Recieved: 2023-08-13

Testing Initiated: 2023-08-13

Gross Description: 7333

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