Final Report

Patient

Name: Heather Smith
Date of Birth: 1995-05-30
Sex: Male
Case Number: 9572
Diagnosis: Small cell lung cancer

Specimen Information

Primary Tumor Site: Lung
Specimen Site: Mediastinal lymph nodes
Specimen ID: 2885
Specimen Collected: 2023-05-12
Test Initiated: 2023-05-14

Ordered By

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	6 m/Mb Low	BENEFIT	pembrolizumab	level 2
ERBB2	IHC	Protien	Negative | 0	LACK OF BENEFT	trastuzumab, ado-trastuzumab emtansine, pertuzumab, fam-trastuzumab deruxtecan-nxki, lapatinib, neratinib, tucatinib	level 1

Cancer-Type Relevant Biomarkers

BioMarker	Method	Analyte	Result
PD-L1(SP142)	IHC	Protien	Positive| 1+, 31%
IKZF1	Seq	DNA-Tumor	Stable
BLM	Seq	DNA-Tumor	Fusion not detected
Mismatch repair status	IHC	Protien	Positive| 1+, 78%

Genomic Signatures

BioMarker	Method	Analyte	Result
Microsatellite instability	Seq	DNA tumor	Low
Tumor mutational burden	Seq	DNA tumor	6 mutations/Mb Low
Genomic loss of heterozygosity (LOH)	Seq	DNA tumor	High - 36% 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 %
ARID2	Seq	DNA tumor	Likely Pathogenic	p.K385L	3	c.1153_1154delinsTT	14.27
H3.3	Seq	DNA tumor	Likely Pathogenic	p.G1386D	19	3	4.16
BRAF	Seq	DNA tumor	Pathogenic	p.R132G	12	c.394_395delinsTC	28.79

Gene Variants of Unknown Significance

Gene	Method	Analyte	Variant Interpretation	Protien Alteration	Exon	DNA Alteration	Allele Frequency %
KRAS	Seq	DNA tumor	Variant of uncertain significance	p.H1038R	7	c.3113A>G	3.49
STAG2	Seq	DNA tumor	Variant of uncertain significance	p.R683G	18	c.1849G>T	20.84
IKZF1	Seq	DNA tumor	Variant of uncertain significance	p.R256fs*64	3	c.766_776del11	7.01

Immunohistochemistry Results

Biomarker	Result
AR	Positive| 3+, 58%
ER	Positive| 3+, 85%
PTEN	Positive| 3+, 68%
MLH1	Negative| 1+, 72%

Genes Tested with Indeterminate Results by Tumor DNA Sequencing

CHD6 PTCH1 KLF1 SRSF2 HRAS TOP2A

Specimen Information

Specimen ID: 2885

Specimen Collected: 2023-05-12

Specimen Recieved: 2023-05-14

Testing Initiated: 2023-05-14

Gross Description: 2885

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	anastrazole, letrozole, exemestane, fulvestrant, tamoxifen, goserelin, leuprolide
Anti hormonal therapy	PR	IHC	protein	anastrazole, 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