

Patient	Specimen Information	Ordered By
Name: Matthew Garner	Primary Tumor Site: Breast	
Date of Birth: 1933-08-06	Specimen Site: Lymph nodes (axillary	
Sex: Female	Specimen ID: 8056	
Case Number: 7925	Specimen Collected: 2023-11-25	
Diagnosis: Triple-negative breast cancer	Test Initiated: 2023-11-26	

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
PR	IHC	Protien	Negative  1+, 22%
PD-L1(SP142)	IHC	Protien	Positive  1+, 78%
AR	IHC	Protien	Positive  2+, 10%
BRCA1	Seq	RNA-Tumor	Mutation not detected

Genomic Signatures

BioMarker	Method	Analyte	Result
Microsatellite instability	Seq	DNA tumor	Low
Tumor mutational burden	Seq	DNA tumor	12 mutations/Mb Low
Genomic loss of heterozygosity (LOH)	Seq	DNA tumor	Low - 8% 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 %
ERCC2	Seq	DNA tumor	Benign	p.l66T	8	1	23.82
BTK	Seq	DNA tumor	Likely Pathogenic	p.R132C	11	c.394_395delinsTC	8.95
DDR2	Seq	DNA tumor	Likely Benign	p.Q338H	3	c.1014G>C	20.34

Gene Variants of Unknown Significance

Gene	Method	Analyte	Variant Interpretation	Protien Alteration	Exon	DNA Alteration	Allele Frequency %
RB1	Seq	DNA tumor	Variant of uncertain significance	p.E23Vfs*17	20	c.68_69delAG	13.36
SF3B1	Seq	DNA tumor	Variant of uncertain significance	p.D108H	19	c.439G>A	14.93
FGFR2	Seq	DNA tumor	Variant of uncertain significance	p.L239R	18	c.716T>G	12.4
JAK3	Seq	DNA tumor	Variant of uncertain significance	p.T875N	8	c.1848_1849delinsCT	4.35

Immunohistochemistry Results

Biomarker	Result
ER	Negative  2+, 9%
PMS2	Positive  2+, 70%
MLH1	Negative  3+, 17%
PTEN	Negative  3+, 66%
MSH6	Positive  3+, 91%

Biomarker	Result
MSH2	Positive  3+, 6%
PD-L1(SP142)	Positive  2+, 7%
AR	Negative  2+, 72%

Genes Tested with Indeterminate Results by Tumor DNA Sequencing

ALK      HBA2      PHF6      PHF6      NRAS      HRAS

Specimen Information

Specimen ID: 8056

Specimen Collected: 2023-11-25

Specimen Recieved: 2023-11-26

Testing Initiated: 2023-11-26

Gross Description: 8056

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