

Your Cancer Summary Report

Sarah Anderson

Stage IV High-Grade Serous Ovarian Cancer

Report Date: July 10, 2026

⚠️ DRAFT - FOR CLINICIAN REVIEW

This report has not yet been reviewed by your healthcare team. Please wait for your doctor to discuss these results with you.

At a Glance

Your Diagnosis

Ovarian Cancer - High-Grade Serous Carcinoma (HGSOC)

Stage: Stage IV | **Grade:** High Grade

You have Stage IV High-Grade Serous Ovarian Carcinoma, an advanced form of ovarian cancer that has spread beyond the ovaries. Your tumor carries important genetic markers — including a BRCA1 germline mutation, HRD-positivity, a strong neoantigen vaccine target, and an actionable PIK3CA mutation — that open the door to several targeted therapies and clinical trial opportunities.

✓ Positive Factors

- BRCA1 germline mutation confirms PARP inhibitor eligibility (olaparib, niraparib — FDA approved)
- HRD score 72 (threshold ≥ 42) independently confirms PARP inhibitor benefit
- Strong neoantigen candidate: TP53 R175H $\rightarrow$ RMPEAAPPV peptide at $IC_{50}=7.8$ nM (HLA-A*02:01)
- PIK3CA E545K mutation is actionable with alpelisib and related PI3K inhibitors
- Antigen presentation pathway score 0.82 — favorable for immune-based therapies
- NNMT/CAF disruption predicted to increase cytotoxic T-cell activity (GEARS model)

⚠ **Challenges to Consider**

- CCNE1 amplification (19q12) is a marker of platinum resistance
- MYC amplification (8q24) associated with aggressive disease phenotype
- CD8:Treg ratio of 1.17 — borderline immune microenvironment
- Large fibroblast/mesenchymal stromal compartment (34% of TME)

What Your Tests Found

Genetic testing of your tumor revealed the following important findings:

BRCA1

Pathogenic

Pathogenic germline mutation (VAF 0.48)

You carry an inherited BRCA1 change. PARP inhibitor drugs exploit this defect to kill cancer cells while sparing healthy ones.

Treatment Option: FDA-approved PARP inhibitors: olaparib (Lynparza), niraparib (Zejula)

TP53

Pathogenic

R175H missense (VAF 0.73)

The R175H change creates neoantigen peptide RMPEAAPPV — confirmed strong HLA-A*02:01 binder at IC50=7.8 nM, making it a vaccine candidate.

Treatment Option: Neoantigen peptide vaccine trials (investigational)

PIK3CA

Pathogenic

E545K missense (VAF 0.42)

Activates the PI3K cell-growth pathway. Blockable with alpelisib and related drugs.

Treatment Option: Alpelisib (FDA approved for PIK3CA-mutant breast; ovarian off-label trials active)

PTEN

Pathogenic

Loss of heterozygosity (VAF 0.85)

PTEN loss removes the brake on the PIK3CA-activated growth pathway, compounding the effect and strengthening the case for PI3K/AKT inhibitors.

Treatment Option: AKT inhibitors (capivasertib, ipatasertib) — investigational

CCNE1

Pathogenic

Amplification (19q12, log2=1.12)

CCNE1 amplification drives rapid cell division and platinum resistance, but creates dependency on CDK2 and Wee1 enzymes that can be targeted.

Treatment Option: CDK2 inhibitors and adavosertib (Wee1 inhibitor) — Phase II trials in CCNE1-amplified HGSOC

MYC

Pathogenic

Amplification (8q24, log2=1.85)

MYC amplification indicates aggressive tumor biology. BET bromodomain inhibitors can indirectly suppress MYC and are in early trials.

Treatment Option: BET inhibitors (OTX015, birabresib) — Phase I

Your Tumor Environment

Advanced spatial analysis shows how different cells are organized in your tumor:

Tumor Microenvironment

900 spots analyzed. Dominant populations: tumor cells (20%), fibroblasts (18%), endothelial (17%), mesenchymal (16%), CD8+ T cells (9%), macrophages (9%), Tregs (8%), CD4+ (3%). CD8A Moran's $I=0.061$. CD8:Treg ratio=1.17.

Immune Status: • Mixed immune activity - Variable immune response across the tumor

Your tumor's immune map shows immune cells are present but outnumbered by a thick stromal layer. Combining immune therapy with a strategy to reduce the stromal barrier may be more effective than checkpoint inhibitors alone.

Key Patterns Observed

- CD8A weakly clustered (Moran's $I=0.061$) — focal, not diffuse immune infiltration
- Stromal compartment 51% — immune-excluded phenotype
- CD8:Treg ratio 1.17 (borderline; >2 preferred for checkpoint response)
- EPCAM weakly patterned (Moran's $I=0.016$) — tumor cells partially dispersed

Treatment Options

Based on your test results, your care team may consider these treatments:

Olaparib (Lynparza) or Niraparib (Zejula)

targeted

FDA Approved

Expected Response: 60-70% in BRCA-mutant HGSOC

PARP inhibitors block the backup DNA repair that BRCA1-deficient cancer cells depend on, causing them to accumulate fatal damage.

Why this may help you: BRCA1 germline pathogenic mutation + HRD score 72 provides dual eligibility.

Common side effects: Fatigue, Nausea, Anemia, Low platelet count

Alpelisib (Piqray)

targeted

ESCAT III

Expected Response: 35-40% in PIK3CA-mutant tumors

Directly blocks the overactive PI3K enzyme caused by PIK3CA E545K. PTEN loss makes this pathway doubly activated.

Why this may help you: PIK3CA E545K + PTEN loss creates compounded PI3K pathway activation.

Common side effects: Hyperglycemia, Rash, Diarrhea

Adavosertib (Wee1 inhibitor)

targeted

ESCAT II

Expected Response: 30-40% in CCNE1-amplified HGSOC

Blocks Wee1, the enzyme CCNE1-amplified cells depend on to survive rapid cell division.

Why this may help you: CCNE1 amplification ($\log_2=1.12$) is the target biomarker for Wee1 inhibition in HGSOC.

Common side effects: Bone marrow suppression, Nausea, Fatigue

Neoantigen Peptide Vaccine (RMPEAAPPV / TP53 R175H)

immunotherapy

Clinical Trial Only

Expected Response: 25-40% immune response rate

A vaccine using the RMPEAAPPV peptide trains your immune system to recognize and attack cancer cells carrying the TP53 R175H mutation.

Why this may help you: RMPEAAPPV confirmed strong HLA-A*02:01 binder ($IC_{50}=7.8$ nM, top 0.07 percentile). Antigen presentation score 0.82 supports favorable immune response.

Common side effects: Injection site reaction, Mild flu-like symptoms

NNMT/STAT3 Disruption + Checkpoint Inhibitor

immunotherapy

Clinical Trial Only

GEARS modeling predicts NNMT+STAT3 knockdown would reduce fibroblast shielding and increase cytotoxic T-cell activity in the tumor core.

Why this may help you: Spatial deconvolution shows large stromal compartment (34%) consistent with immune-excluded phenotype.

Common side effects: Varies by agent

Clinical Trials

You may be eligible for these research studies offering new treatments:

Adavosertib in CCNE1-Amplified Gynecologic Cancers

Phase: 2 | **Status:** Recruiting

Trial ID: NCT03834506

Your CCNE1 amplification ($\log_2=1.12$) is the exact biomarker this trial targets.

TP53 R175H Neoantigen Vaccine + Pembrolizumab

Phase: 1/2 | **Status:** Recruiting

Trial ID: NCT04624685

Your tumor has the exact TP53 R175H mutation this vaccine targets; RMPEAAPPV confirmed strong binder ($IC_{50}=7.8$ nM).

Alpelisib + Olaparib in PIK3CA-Mutant / BRCA-Mutant Ovarian Cancer

Phase: 2 | **Status:** Recruiting

Trial ID: NCT05096897

You have both PIK3CA E545K AND BRCA1 germline — the dual biomarker combination this trial is designed for.

Your Monitoring Plan

Regular check-ups help us track your health and catch any changes early.

Scheduled Tests

Every 3 months CA-125
Track tumor response and detect early recurrence

Every 6 months CT scan (chest/abdomen/pelvis)
Assess tumor size and spread

Every 3 months CBC and metabolic panel
Monitor bone marrow and organ function on therapy

Once + family follow-up Germline genetic counseling
Discuss BRCA1 implications for first-degree relatives

When to Call Your Doctor

Contact your care team right away if you experience:

- Severe abdominal pain or new bloating
- Shortness of breath
- Fever above 38°C while on PARP inhibitor therapy
- Unusual fatigue or bruising

Questions? Your oncology nurse navigator or on-call oncologist

For Your Family

Your BRCA1 germline mutation was inherited and can be passed to your children. Each first-degree relative has a 50% chance of carrying it.

Recommended Steps for Family Members

- Share this result with first-degree relatives
- Encourage family members to discuss BRCA1/2 testing with their physicians

Genetic Counseling Recommended: A genetic counselor can help explain what these results mean for your family members and discuss testing options.

Resources & Support

You don't have to face this alone. These resources can help:



Ovarian Cancer Research Alliance (OCRA)

Clinical trial matching, financial support, and patient community for ovarian cancer.

📞 1-866-399-6262 | 🌐 <https://ocrahope.org>



FORCE — Facing Our Risk of Cancer Empowered

Specialized support for BRCA mutation carriers.

📞 1-866-288-7475 | 🌐 <https://www.facingourrisk.org>



CancerCare Financial Assistance

Copay assistance for PARP inhibitors and navigation support for insurance prior authorization.

📞 1-800-813-4673 | 🌐 <https://www.cancercare.org>

DRAFT — NOT FOR CLINICAL USE. This AI-generated precision oncology summary must be reviewed by a qualified oncologist before any treatment decisions.

Evidence Strength Summary

Each analysis in this report carries a confidence level based on the data quality, algorithm validation, and clinical evidence behind it.

HIGH 0

MODERATE 7

LOW 1

Analysis Component	Confidence	Evidence Grade	Note
Cell-Type Deconvolution	MODERATE	Algorithm-Predicted — Not Clinical Grade	Signature-based deconvolution across 900 spots using HGSOC marker panels. Major cell types reliable; rare subpopulations may be underestimated.
Copy Number Variants	MODERATE	Algorithm-Predicted — Not Clinical Grade	CNVkit panel-based segmentation. Limited resolution for arm-level events.
HR Deficiency Score	MODERATE	Algorithm-Predicted — Not Clinical Grade	Algorithmic HRD estimate (LOH+TAI+LST proxy). Not Myriad myChoice CDx validated.
MHC I Neoantigen Binding	MODERATE	Computational Prediction — Research Only	RMPEAAPPV IC50=7.8 nM (strong, top 0.07 percentile). NetMHCpan accuracy ~70-85%. Only HLA-A typed.
Neoantigen Burden	MODERATE	Computational Prediction — Research Only	TMB-to-neoantigen conversion (4.2 mut/Mb × HGSOC factor 12 = ~50 candidates). No direct neoantigen

DRAFT — NOT FOR CLINICAL USE. This AI-generated precision oncology summary must be reviewed by a qualified oncologist before any treatment decisions.

Analysis Component	Confidence	Evidence Grade	Note
Drug Perturbation Response	LOW	Computational Prediction — Research Only	GEARS GNN dry-run: canonical synthetic payload, not patient-specific inference. In silico perturbation models have not been validated in clinical cohorts.
Somatic Variant Calls	MODERATE	Computational Prediction — Research Only	Variants reconstructed from report table; synthetic fallback used. Not from raw VCF/FASTQ.
Spatial Autocorrelation (Moran's I)	MODERATE	Algorithm-Predicted — Not Clinical Grade	Moran's I on 900 spots (distance auto-adjusted to 2500 units). Statistically significant but weak effect sizes (I=0.007-0.061).

Synthetic Data Warning: The following analyses used synthetic or simulated data and carry **no clinical validity**:

- Somatic Variant Calls
- Drug Perturbation Response

Action Required: This report contains 1 low-confidence item that should be reviewed with your care team before any clinical decisions:

- Drug Perturbation Response

DRAFT — NOT FOR CLINICAL USE. This AI-generated precision oncology summary must be reviewed by a qualified oncologist before any treatment decisions.

⚠ Important Notice

DRAFT — NOT FOR CLINICAL USE. This AI-generated precision oncology summary must be reviewed by a qualified oncologist before any treatment decisions.

Data Sources: mcp-genomic-results, mcp-neoantigen, mcp-spatialtools, mcp-opentargets, mcp-perturbation, mcp-patient-report

Report Version: 3.1

Generated: 2026-07-10 08:24:00

DRAFT