Precision Medicine Report

GENOMIC MEDICINE ANALYSIS

⚠ DRAFT REPORT - REQUIRES CLINICIAN REVIEW BEFORE SHARING WITH PATIENT

Patient Name:	**Sarah Anderson**
Patient ID:	PAT001-OVC-2025
Age / Sex:	58 years / Female
Diagnosis:	Stage IV High-Grade Serous Ovarian Cancer
Report Date:	February 7, 2026

Understanding Your Diagnosis

You have an advanced form of ovarian cancer that has spread beyond the ovaries to other parts of your body. While this is serious, there are effective treatments available that target your cancer's specific characteristics.

Positive Factors:

- ✓ Your BRCA1 mutation makes you eligible for FDA-approved PARP inhibitor therapy
- ✓ Your tumor shows strong immune cell infiltration, which may improve treatment response
- ✓ Spatial analysis shows organized immune structures that could respond to immunotherapy
- ✓ You have access to cutting-edge precision medicine approaches

Challenges:

- • The cancer has spread to distant sites (Stage IV disease)
- • Platinum-resistant disease limits some traditional chemotherapy options
- • TP53 mutation is common in this cancer type and affects cell growth control

Your Genomic Test Results

We analyzed your tumor's DNA to find changes that can guide treatment decisions. Here's what we found:

🧬 BRCA1 Gene - POSITIVE FOR TREATMENT

Pathogenic FDA-Approved Treatment Available

What this means: You inherited a change in the BRCA1 gene that increases cancer risk. The good news is that this same change makes your cancer very responsive to a class of targeted drugs called PARP inhibitors.
Treatment available: FDA-approved PARP inhibitors (olaparib, niraparib, rucaparib) are recommended for BRCA1-mutated ovarian cancer
Technical details: c.5266dupC (p.Gln1756Profs*74) - Germline pathogenic variant (VAF 52%)

🧬 TP53 Gene

Pathogenic

What this means: Your tumor has a change in the TP53 gene, which is found in over 95% of high-grade serous ovarian cancers. This affects how cells control their growth, but it doesn't change your treatment options.
Technical details: c.524G>A (p.R175H) - Somatic missense mutation (VAF 87%)

🧬 MYC Gene - CLINICAL TRIAL AVAILABLE

Likely Pathogenic

What this means: Your tumor has extra copies of the MYC gene, which helps cancer cells grow faster. This is being studied in clinical trials testing MYC-targeted therapies.
Treatment available: Clinical trials available for MYC-targeted combination therapies
Technical details: Amplification (copy number gain)

🧬 PIK3CA Gene - CLINICAL TRIAL AVAILABLE

Pathogenic

What this means: Your tumor has a change in the PIK3CA gene that activates cell growth pathways. Drugs targeting this pathway (like alpelisib) are FDA-approved for other cancers and being studied in ovarian cancer trials.
Treatment available: PI3K inhibitor clinical trials available
Technical details: c.3140A>G (p.H1047R) (VAF 34%)

Treatment Options

Based on your genomic profile and tumor characteristics, here are the recommended treatment approaches:

1. Olaparib (Lynparza) - FIRST-LINE RECOMMENDATION

FDA Approved

What it is: Olaparib is a PARP inhibitor that works especially well in cancers with BRCA1 mutations like yours. It prevents cancer cells from repairing their DNA, causing them to

die while leaving normal cells mostly unharmed.
Why we recommend this: FDA-approved specifically for BRCA-mutated ovarian cancer after platinum-based chemotherapy. Clinical trials show significantly longer progression-free survival (19.1 months vs 5.5 months) compared to placebo.
Expected response: 60-70% response rate in BRCA1-mutated ovarian cancer
Common side effects:

- Fatigue (most common)
- Nausea and mild stomach upset
- Low blood counts (monitored with regular blood tests)
- Decreased appetite

2. Dostarlimab (Jemperli) + Niraparib - COMBINATION THERAPY

NCCN Category 2A
What it is: This combination pairs an immunotherapy drug (dostarlimab) that helps your immune system recognize and attack cancer cells with a PARP inhibitor (niraparib) that damages cancer cell DNA.
Why we recommend this: Your spatial analysis shows immune structures that may respond well to this approach. The RUBY trial showed improved outcomes with this combination in similar patients.
Expected response: 35-45% in PD-L1 positive tumors
Common side effects: Immune-related reactions, fatigue, nausea, high blood pressure

3. Bevacizumab (Avastin) + Chemotherapy

FDA Approved
What it is: Bevacizumab blocks blood vessel growth to tumors, essentially cutting off their blood supply. Combined with chemotherapy, this can shrink tumors and slow cancer growth.
Why we recommend this: Your tumor shows high vascularity in spatial analysis, suggesting anti-angiogenic therapy may be effective.
Expected response: 50-60% response rate

Clinical Trials You May Qualify For

🔬 Immunotherapy + PARP Inhibitor Trial

Phase 3 Recruiting
Trial ID: NCT04417192
Title: Durvalumab and Olaparib with or without Chemotherapy in BRCA-Mutated Ovarian Cancer
Location: Multiple U.S. sites available
Why this might be good for you: This trial tests whether adding immunotherapy (durvalumab) to PARP inhibitor therapy (olaparib) works better than PARP inhibitor alone

in patients with BRCA mutations like yours. The combination may help your immune system work together with the targeted therapy.
To inquire: Search trial on ClinicalTrials.gov or ask your oncologist about local sites

🔬 Dual-Targeted Therapy Trial

Phase 2 Recruiting
Trial ID: NCT05116189
Title: Alpelisib Plus Olaparib in PIK3CA-Mutated Ovarian Cancer
Location: Multiple U.S. sites available
Why this might be good for you: Your tumor has both a PIK3CA mutation and a BRCA1 mutation. This trial tests whether combining drugs that target both pathways works better than targeting just one.
To inquire: Search trial on ClinicalTrials.gov or ask your oncologist about local sites

🔬 Cell Therapy Trial

Phase 2 Recruiting
Trial ID: NCT04739800
Title: Tumor-Infiltrating Lymphocyte (TIL) Therapy for Ovarian Cancer
Location: National Cancer Institute, Bethesda, MD
Why this might be good for you: Your spatial analysis shows your tumor has immune cells (TILs) actively trying to fight the cancer. This trial takes those immune cells from your tumor, grows millions of copies in the lab, and gives them back to you to attack the cancer.
Contact: NCI Patient Referral: 1-800-411-1222

What Your Tumor Microenvironment Shows

Spatial Analysis Summary: Your tumor shows active immune system involvement with immune cells trying to attack the cancer. The presence of organized immune structures (TLS) is a positive sign that may help immunotherapy work better. However, some immune cells show signs of being worn out, which is why combination therapy targeting both the cancer and boosting the immune system may be most effective.

Key Findings:

- ✓ Tertiary lymphoid structures (TLS) detected - associated with better treatment response
- ✓ CD8+ T cell infiltration present but with signs of exhaustion markers (PD-1 high)
- • Tumor cells show spatial clustering with necrotic regions, suggesting rapid growth
- • Stromal cells form barriers between immune cells and tumor cells in some regions

Monitoring and Follow-Up Plan

Regular Tests You'll Need:

Test	How Often	Why
CA-125 Blood Test	Every 8-12 weeks	Tracks tumor marker levels
CT Scan	Every 12-16 weeks	Shows tumor size changes
Blood Count (CBC)	Every 4 weeks	Monitors treatment effects
Metabolic Panel	Every 4-8 weeks	Checks organ function

⚠ **Warning Signs - Contact Your Care Team Immediately If You Experience:**

- Severe abdominal pain or swelling that doesn't go away
- Difficulty breathing or shortness of breath
- Severe nausea/vomiting preventing you from eating or drinking
- Fever over 100.4°F (38°C)
- Unusual bleeding or bruising
- Chest pain
- Sudden severe headache

24/7 Contact: Your oncology care team (contact information provided by your care center)

What This Means for Your Family

Your BRCA1 mutation was inherited (germline), which means you were born with it in all your cells. Each of your children has a 50% chance of inheriting this same mutation. Brothers, sisters, and parents may also carry it since it runs in families.

Recommended Actions for Family Members:

- First-degree relatives (children, siblings, parents) should consider BRCA1/2 genetic testing
- Female relatives who test positive should discuss enhanced breast cancer screening (MRI starting age 25-30)
- Male relatives who test positive have increased risk of prostate and breast cancer
- Consider cascade testing - if siblings test positive, their children should also be informed

🧬 **Genetic Counseling Recommended**
Ask your care team for a referral to genetic counseling services. They can help you and your family understand BRCA1 implications and coordinate testing for relatives.

Support Resources

📞 Organizations That Can Help:

National Ovarian Cancer Coalition

Phone: 1-888-682-7426 | **Web:** ovarian.org
Provides education, support groups, and connections to other ovarian cancer patients. Free resources and helpline.

Patient Advocate Foundation

Phone: 1-800-532-5274 | **Web:** patientadvocate.org
Assists with insurance appeals, medication copay assistance, and navigating treatment costs. Free case management services.

Cancer Support Community

Phone: 1-888-793-9355 | **Web:** cancersupportcommunity.org
Free support groups (in-person and online), counseling, and educational workshops for patients and families.

National Cancer Institute Cancer Information Service

Phone: 1-800-4-CANCER (1-800-422-6237) | **Web:** cancer.gov
Free information about cancer types, treatment options, clinical trials, and support resources.

FORCE (Facing Our Risk of Cancer Empowered)

Phone: 1-866-288-7475 | **Web:** facingourrisk.org
Support for individuals and families affected by hereditary cancers like BRCA mutations. Peer support and educational resources.

CancerCare

Phone: 1-800-813-4673 | **Web:** cancercare.org
Free professional counseling, support groups, educational workshops, and financial assistance for patients and families.

Important Disclaimer

This AI-generated summary must be reviewed by your healthcare team before any treatment decisions. It is not a substitute for professional medical advice. All treatment recommendations should be discussed with your oncologist who knows your complete medical history.

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Data Sources: mcp-fgbio (Genomics), mcp-spatialtools (Spatial Analysis), openimagedata (Histology), Clinical Trials MCP, multiomics

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