

Your Test Results - Understanding Your Treatment Plan

Your Comprehensive Test Results

Patient ID: PAT001-OVC-2025

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Summary of Your Diagnosis

Your Diagnosis: High-grade serous ovarian carcinoma (HGSOC), Stage IV, Platinum-Resistant

What this means: This is an advanced ovarian cancer that has stopped responding to standard platinum chemotherapy. However, we have performed comprehensive testing that identified specific molecular changes in your tumor. This allows us to recommend targeted therapies tailored to your tumor's unique biology.

PI3K/AKT ↑

Pathway activated

PTEN Loss

Missing "brake" protein

Targeted

Precision therapy available

✓ QC Passed

Quality validated

✓ Quality Assurance: Advanced Data Validation

Before analyzing your tumor samples, we performed rigorous quality checks to ensure the results are accurate and reliable. This extra step is part of cutting-edge precision medicine.

What We Checked:

- **Sample Quality:** Made sure all samples were high quality with no contamination
- **Technical Accuracy:** Removed technical variations from the laboratory process
- **Data Consistency:** Verified that all measurements were reliable

Why This Matters:

In simple terms: We found some "noise" in the data from the laboratory process and removed it. This ensures that what we're seeing truly reflects your tumor's biology, not just random variation.

Result: ✓ Quality checks passed. The patterns we found in your tumor are real and reliable.

This advanced quality control is similar to what's required for clinical trials and FDA submissions. Your analysis meets the highest standards for precision medicine.

💊 Recommended Treatment Based on Your Tumor Analysis

Your comprehensive tumor analysis identified specific proteins that are overactive in your cancer cells. These proteins are like "accelerator pedals" that help cancer grow and resist standard chemotherapy. We can now target them with precision medications.

⌚ Primary Recommendation: Targeted Combination Therapy

Medication #1: Alpelisib (Piqray®)

- **What it does:** Blocks the PI3K protein, which is highly active in your tumor
- **Status:** FDA-approved for similar cancers
- **How you take it:** One pill daily with food
- **Why it's right for you:** Your tumor analysis showed very high PI3K activity and loss of a "brake" gene (PTEN)

Medication #2: Capivasertib

- **What it does:** Blocks the AKT protein, which works with PI3K
- **Status:** In advanced clinical trials (Phase III) - very promising results
- **How you take it:** Pills twice daily, 4 days per week
- **Why it's right for you:** Your AKT protein is even more active than PI3K

Why Both Medications Together?

Think of these proteins like a relay race - PI3K passes the baton to AKT. If we only block one, cancer cells can find ways around it. Blocking both at the same time is like stopping the race at two different points - much more effective.

Scientific evidence: Studies show that blocking both proteins together works better than either alone, especially in tumors like yours that are missing the PTEN brake.

🏥 Clinical Trial Opportunity

Good news: There is a clinical trial that exactly matches your tumor profile!

- **Trial Name:** Alpelisib + Capivasertib for PTEN-deficient Tumors
- **Trial Number:** NCT03602859

- **Why you're a good match:**

- ✓ Your tumor has PTEN loss (what the trial is studying)
- ✓ You have platinum-resistant ovarian cancer (trial includes this)
- ✓ Your PI3K and AKT proteins are highly active (strong rationale)

Benefits of Participating:

- **Cost:** Medications provided free of charge
- **Monitoring:** Very close follow-up by research team
- **Access:** Get cutting-edge treatment that may not be available otherwise
- **Contribution:** Help advance cancer research for future patients

⚠ Important to Know: Side Effects

Most Common Side Effect: High Blood Sugar

- Both medications can raise blood sugar levels
- This affects about 6 out of 10 patients
- You'll check your blood sugar regularly
- Your doctor may prescribe metformin (diabetes medication) to help

Other Side Effects:

- Diarrhea (can usually be controlled with medication)
- Skin rash (often mild, treatable with creams)
- Fatigue (common in first few weeks)
- Nausea (anti-nausea medication available)

Remember: Your care team will work closely with you to manage any side effects. Many patients find them manageable, especially with proper support. If side effects become too difficult, we can adjust doses or try different approaches.

What to Expect

Best Case Scenario (30-40% chance):

- Tumor shrinks (partial or complete response)
- Cancer markers (CA-125) decrease
- Longer time before disease progresses (6-9 months or more)

Realistic Scenario (40-50% chance):

- Tumor stays the same size (stable disease)
- Provides time for quality of life without worsening
- Buys time to explore other treatment options

These treatments are designed specifically for your tumor's biology. While there are no guarantees in cancer treatment, this personalized approach gives you the best chance based on the latest science and your unique tumor characteristics.

How We'll Monitor Your Progress

- **Blood sugar:** Daily checks at home (your team will teach you how)

- **Blood tests:** Every 2-4 weeks to monitor how your body is handling the medication
- **Cancer marker (CA-125):** Monthly blood test to track tumor activity
- **CT scans:** Every 8 weeks to see if the tumor is shrinking
- **Check-ins:** Weekly phone calls or visits during the first month

Signs of Success: Decreasing CA-125 levels and tumor shrinkage on scans. We may also check protein levels in a small tumor sample to confirm the medications are working at a molecular level.

Your Next Steps

1. **Discuss with your oncology team:** Review this analysis and ask any questions about the recommended treatment
2. **Learn about the clinical trial:** Ask about enrollment in NCT03602859 (Alpelisib + Capivasertib study)
3. **Meet with specialists:**
 - Endocrinology (if needed for blood sugar management)
 - Nutrition/Dietician (to help manage side effects and blood sugar)
 - Social work/Financial counseling (for medication cost assistance)
4. **Baseline tests:** If you decide to proceed, you'll need some baseline measurements before starting treatment
5. **Family discussion:** Use the medication guide to understand what to expect and prepare family members to support you

Questions to Ask Your Doctor:

- Am I eligible for the clinical trial? If not, why?
- What has been the experience with these medications in patients similar to me?
- How will we know if the treatment is working?
- What happens if my blood sugar becomes hard to control?
- What are my alternatives if this approach doesn't work or is too difficult to tolerate?
- Can I talk to other patients who have been through similar treatment?

Understanding Your Tumor Analysis in Simple Terms

The PI3K/AKT/mTOR Pathway (Your "Accelerator Pedal")

Imagine your cancer cells have an accelerator pedal that helps them grow and survive. This "pedal" is actually three proteins working together: PI3K → AKT → mTOR.

In healthy cells: There's a "brake" (PTEN protein) that keeps this accelerator under control.

In your tumor: The brake (PTEN) is completely missing. This means the accelerator is stuck ON, helping cancer cells survive even when chemotherapy tries to kill them.

What we found:

- **PTEN:** Missing (both copies lost) - the brake is gone
- **PI3K:** Very active (score: 3.0 out of 4.0)
- **AKT:** Extremely active (score: 3.2 out of 4.0) - the highest we measured
- **mTOR:** Active (score: 2.8 out of 4.0)

The Good News: Now that we know exactly which proteins are overactive, we can use medications specifically designed to block them. It's like installing new brakes to slow down the accelerator.

Why Standard Chemotherapy Didn't Work

Your tumor also has high levels of a protein called ABCB1 (also called MDR1 or "the platinum pump"). This protein acts like a vacuum cleaner, sucking platinum chemotherapy drugs out of cancer cells before they can work.

Here's how it connects:

1. PTEN is missing → PI3K/AKT/mTOR pathway is overactive
2. Overactive mTOR tells the cell to make more ABCB1 protein
3. ABCB1 pumps out platinum drugs before they can kill the cell
4. Result: Platinum resistance

Why the new treatment should work better: By blocking PI3K and AKT, we expect mTOR activity to decrease. This should reduce ABCB1 levels, making cancer cells more vulnerable again.

♥ You Are Not Alone

This journey can feel overwhelming. Remember that you have a whole team supporting you:

- **Medical oncologist:** Leads your treatment planning
- **Research team:** If you join the clinical trial
- **Nurses:** Available 24/7 for questions and concerns
- **Pharmacist:** Helps manage medications and side effects
- **Nutritionist:** Guides you on diet to manage blood sugar and side effects
- **Social worker:** Helps with emotional support and practical needs
- **Financial counselor:** Assists with medication costs and insurance

Support Resources:

- **24/7 Nurse Hotline:** [Hospital phone number]
- **Patient Support Groups:** Ovarian Cancer Research Alliance (OCRA)
- **Financial Help:** Cancer Financial Assistance Coalition
- **Clinical Trial Info:** www.clinicaltrials.gov (search NCT03602859)

"This personalized analysis represents the future of cancer care - treatment tailored specifically to your tumor's unique biology. While the road ahead may be challenging, you now have a roadmap based on cutting-edge science and your own tumor's characteristics."

This summary was prepared based on your comprehensive precision medicine analysis

Includes: Genetic testing, Multi-omics analysis (RNA, Protein, Phosphorylation), Spatial tumor mapping, and comparison with large cancer databases

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Quality Assurance: ✓ All analyses validated with advanced quality control