# OncoScope

Privacy-First Cancer Genomics Analysis Report

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## Overall Risk Assessment

**80.3%**

**HIGH**
Overall Risk Level

Confidence Score: 96%

Actionable Mutations: 5

Pathogenic Variants: 4

Known Mutations: 5

## Individual Mutation Analysis

| Gene | Variant | Protein Change | Pathogenicity | Clinical Significance | Targeted Therapies |
|---|---|---|---|---|---|
| EGFR | c.2369C>T | p.T790M | 98.0% | PATHOGENIC | Osimertinib, Afatinib, Gefitinib, Erlotinib |
| TP53 | c.524G>A | c.524G>A; p.Gly175Arg | 95.0% | PATHOGENIC | Chemotherapy, Radiation Therapy, Immunotherapy (consider PD-1/PD-L1 inhibitors, but response may be limited due to protein dysfunction), Targeted therapies (depending on downstream pathway alterations) |
| KRAS | c.35G>A | G12D (Glycine to Aspartic Acid at position 12) | 98.0% | PATHOGENIC | KRAS G12C inhibitors (e.g., Sotorasib, Adagrasib) - *Note: While this is a G12D mutation, the development of G12C inhibitors has spurred research into G12D inhibitors. Currently, no FDA-approved G12D inhibitors exist, but research is ongoing.*, Combination therapies (e.g., with EGFR inhibitors, immunotherapy) - *Clinical trials are exploring combinations to |

| Gene | Variant | Protein Change | Pathogenicity | Clinical Significance | Targeted Therapies |
|---|---|---|---|---|---|
| | | | | | overcome resistance.* |
| PIK3CA | c.3140A>G | c.3140A>G; p.Glu1047Gly | 95.0% | PATHOGENIC | Alpelisib, PIK3CA inhibitors (e.g., Copanlisib, Futibatinib) |
| MET | c.3029C>T | c.3029C>T; p.Arg1010Cys | 85.0% | LIKELY PATHOGENIC | MET inhibitors (e.g., Capmatinib, Tepotinib, Selpercatinib, Encorafenib + Cetuximab) |

## Predicted Cancer Types

- Gastric Cancer: 10.2% likelihood
- Pancreatic Cancer: 7.1% likelihood
- Breast Cancer: 7.0% likelihood
- Colon Cancer: 7.0% likelihood
- Non-Small Cell Lung Cancer (NSCLC): 3.6% likelihood

## Clinical Recommendations

Immediate oncology consultation recommended due to high-risk mutation profile

Consider targeted therapy for EGFR mutation: Osimertinib, Afatinib, Gefitinib

Consider targeted therapy for TP53 mutation: Chemotherapy, Radiation Therapy, Immunotherapy (consider PD-1/PD-L1 inhibitors, but response may be limited due to protein dysfunction)

Consider targeted therapy for KRAS mutation: KRAS G12C inhibitors (e.g., Sotorasib, Adagrasib) - *Note: While this is a G12D mutation, the development of G12C inhibitors has spurred research into G12D inhibitors. Currently, no FDA-approved G12D inhibitors exist, but research is ongoing.*, Combination therapies (e.g., with EGFR inhibitors, immunotherapy) - *Clinical trials are exploring combinations to overcome resistance.*

Consider targeted therapy for PIK3CA mutation: Alpelisib, PIK3CA inhibitors (e.g., Copanlisib, Futibatinib)

Consider targeted therapy for MET mutation: MET inhibitors (e.g., Capmatinib, Tepotinib, Selpercatinib, Encorafenib + Cetuximab)

Enhanced surveillance recommended due to 5 pathogenic mutations

## Actionable Mutations

### EGFR - EGFR:c.2369C>T
Therapies: Osimertinib, Afatinib, Gefitinib, Erlotinib
FDA Approved: No
Clinical Trials Available: Yes

### TP53 - TP53:c.524G>A
Therapies: Chemotherapy, Radiation Therapy, Immunotherapy (consider PD-1/PD-L1 inhibitors, but response may be limited due to protein dysfunction), Targeted therapies (depending on downstream pathway alterations)
FDA Approved: No
Clinical Trials Available: Yes

### KRAS - KRAS:c.35G>A
Therapies: KRAS G12C inhibitors (e.g., Sotorasib, Adagrasib) - *Note: While this is a G12D mutation, the development of G12C inhibitors has spurred research into G12D inhibitors. Currently, no FDA-approved G12D inhibitors exist, but research is ongoing.*, Combination therapies (e.g., with EGFR inhibitors, immunotherapy) - *Clinical trials are exploring combinations to overcome resistance.*
FDA Approved: No
Clinical Trials Available: Yes

### PIK3CA - PIK3CA:c.3140A>G
Therapies: Alpelisib, PIK3CA inhibitors (e.g., Copanlisib, Futibatinib)
FDA Approved: No
Clinical Trials Available: Yes

### MET - MET:c.3029C>T
Therapies: MET inhibitors (e.g., Capmatinib, Tepotinib, Selpercatinib, Encorafenib + Cetuximab)
FDA Approved: No
Clinical Trials Available: Yes