

## Structured Medical Report

Your task requires generating a structured medical report based on the provided data. Here's a suggested format:

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### Mycobacterium Tuberculosis Sequencing Report

## 1. Introduction

The following report presents the genomic sequencing results of a sputum sample from patient JOHN DOE, identified to carry Mycobacterium tuberculosis. The analysis was conducted to determine drug susceptibility and possible resistance profiles.

## 2. Detailed Observations

- **Sample Source:** Pulmonary sputum.
- **Sequenced From:** Cultured isolate.
- **Sequencing Methodology:** Whole genome sequencing using Illumina HiSeq 2500.
- **Pipeline and Reference:** ReSeqTB v.3.2C, H37RV (NC\_000962.3).
- **Date of Analysis:** 2017-Jan-05.

## 3. Possible Diagnoses

The presence of Mycobacterium tuberculosis with notable drug resistance suggests multidrug-resistant tuberculosis (MDR-TB).

## 4. Supporting Evidence

- **Lineage:** Mycobacterium tuberculosis, lineage 2.2.1 (East-Asian Beijing).
- **Drug Resistance Profile:**
- **First Line:** Resistant to Isoniazid and Rifampin.
- **Second Line:** Resistant to Capreomycin and Kanamycin; Intermediate resistance to Ofloxacin/Levofloxacin and Moxifloxacin.
- **Susceptible Drugs:** Ethambutol, Amikacin, Ethionamide, Streptomycin.
- **Mutations Detected:**
- Isoniazid: katG (Ser315Thr)
- Rifampin: rpoB (Ser450Leu)
- Capreomycin and Kanamycin: rrs (C1402T)

## 5. Pros and Cons

- **Pros:** Early identification of resistant strains allows for tailored treatment strategies.
- **Cons:** Resistance to multiple drugs complicates treatment and requires specialist consultation, particularly for pyrazinamide resistance and intermediate fluoroquinolone resistance.

## 6. Clinical Recommendations

- Initiate a tailored treatment regimen considering the resistance profile.
- Consult a specialist for guidance on pyrazinamide use and managing intermediate fluoroquinolone resistance.

- Regular follow-up and monitoring for treatment efficacy and potential side effects.

## **7. Conclusion**

The extensive drug resistance observed necessitates a more strategic approach to treatment. Continued surveillance and molecular analysis are advised to adjust therapies as needed.

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This structure comprehensively covers all necessary areas detailed in the sequencing report, making it understandable for both clinicians and patients.