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**Lab Dept:** Microbiology/Virology

**Test Name:** SUSCEPTIBILITY, MYCOBACTERIUM  
TUBERCULOSIS COMPLEX, PYRAZINAMIDE

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***General Information***

**Lab Order Codes:** TBPZA

**Synonyms:** Antibiotic Susceptibility, Mycobacterium tuberculosis; MTB (Mycobacterium tuberculosis); Tuberculosis (TB)

**CPT Codes:** 87188 – Susceptibility, Mycobacterium tuberculosis Complex, Pyrazinamide  
87153 – Mtb PZA Confirmation, pncA Sequencing (if appropriate)

**Test Includes:** Susceptibility testing of Mycobacterium tuberculosis complex isolates growing in pure culture against pyrazinamide.

Confirming M tuberculosis complex resistance to pyrazinamide (if appropriate)

When this test is ordered the additional test will always be performed at an additional charge. If resistance to pyrazinamide is detected, the reflex test for confirmation of resistance will be performed at an additional charge.

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***Logistics***

**Test indications:** This test uses an FDA-cleared commercial system for rapid broth susceptibility testing of M tuberculosis complex against PZA. Since the literature indicates that broth testing of PZA can, at times, produce falsely resistant results, resistance to PZA by the broth method is automatically confirmed by pncA DNA sequencing. The pncA gene of M tuberculosis complex is responsible for activation of the prodrug PZA and hence PZA activity. Variations in the pncA gene and upstream promoter region have been reported to account for the majority (70%-97%) of PZA-resistant isolates. However, 3% to 30% of PZA-resistant isolates do not have a corresponding pncA variant and other genes (eg, rpsA) may also play a role.

**Lab Testing Sections:** Microbiology/Virology - Sendouts

**Referred to:** Mayo Clinic Laboratories – Mayo Test: TBPZA

**Phone Numbers:** MIN Lab: 612-813-6280

STP Lab: 651-220-6550

**Test Availability:** Daily, 24 hours

**Turnaround Time:** 10 – 21 days

**Special Instructions:** [Infectious Specimen Shipping Guidelines](#)

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### ***Specimen***

**Specimen Type:** Organism

**Container:** Middlebrook 7H10 agar slant

**Draw Volume:** Isolate

**Processed Volume:** Same as Draw Volume

**Collection:** Organism must be in pure culture, actively growing

**Special Processing:** Lab Staff: Place specimen in a large infectious container (T146) and label as an etiologic agent/infectious substance.

Store and ship in room temperature.

**Patient Preparation:** None

**Sample Rejection:** Agar plate

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### ***Interpretive***

**Reference Range:** Results are reported as susceptible or resistant.

INTERPRETATION: Mycobacterium tuberculosis complex isolates are reported as susceptible or resistant to pyrazinamide at the critical concentration.

**Critical Values:** N/A

**Limitations:** For resistant organisms, confirmatory testing using pncA DNA sequencing is automatically performed and the presence or absence of pncA variations associated with pyrazinamide resistance is reported.

In vitro susceptibility does not guarantee clinical response. Therefore, the decision to treat with a particular agent should not be based solely on the antimicrobial susceptibility testing result.

Susceptibility testing should be performed on pure culture isolates of Mycobacterium tuberculosis complex.

Some variants associated with pyrazinamide resistance that may occur outside of the pncA promoter and gene region and may therefore not be confirmed by DNA sequencing of this target.

**Methodology:** Broth Dilution at Critical Drug Concentrations

**References:** [Mayo Clinic Laboratories](#) (December 2022)