Overview of the CarbaNP Test

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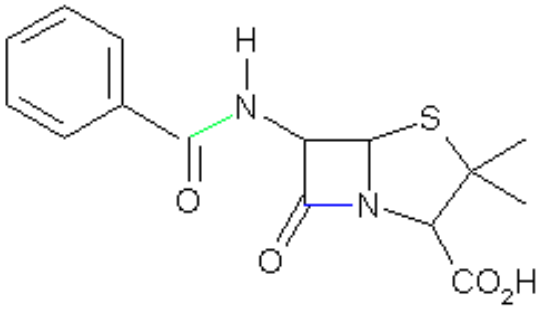
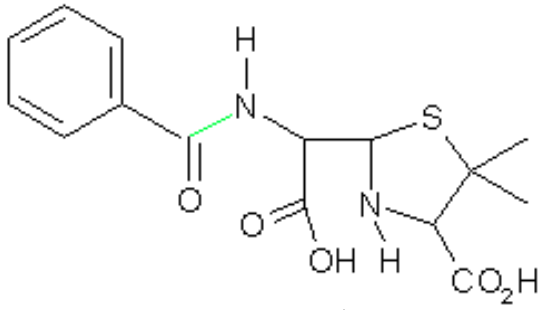


carbapenemase

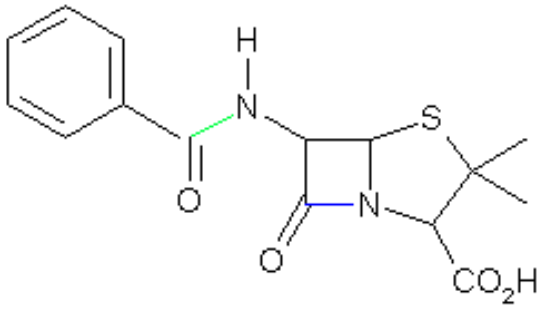


Active Beta-Lactam Ring

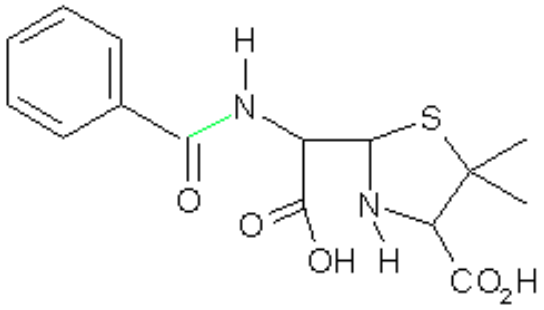
Inactive Beta-Lactam Ring
(hydrolyzed)

pH >8.2

pH <6.8



carbapenemase



Active Beta-Lactam Ring

Inactive Beta-Lactam Ring
(hydrolyzed)

Manufactured Carba NP-type Assays:

Carba NP (Biomerieux)

- CLSI-approved Method
- Make up stock solutions of reagents

Rapidec Carba NP (Biomerieux)

- Strip instead of tubes

Rapid Carb Screen (Rosco)

- Was FDA approved, recently removed
- Tablets instead of solutions (less prep work)

Basic Principle of Carba NP

1.) Gather materials (reagents, tubes, plates).

2.) Prepare two 1.5 mL tubes with lysis buffer for each isolate to be tested.

3.) Add organism to prepared tubes.

4.) Allow organism to lyse.

5.) Add lysate to saline in a clean tube.

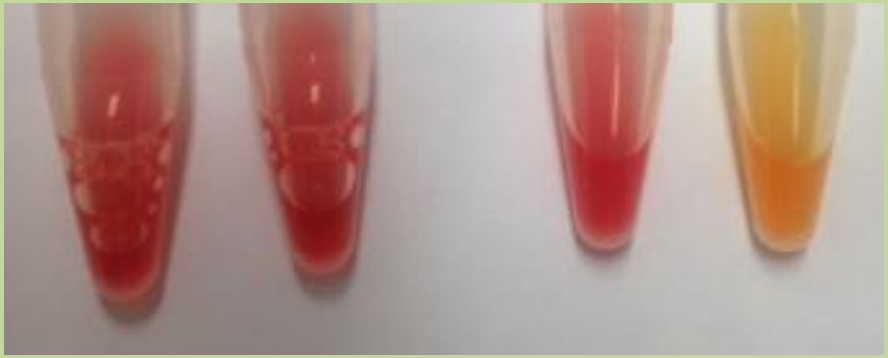
6.) Add imipenem to one tube of each set [1 control, 1 unknown].

7.) Incubate. Check for reaction every 30 minutes up to 2 hours.

Basic Principle of Carba NP

Non-carbapenemase producer

Carbapenemase Producer



- imipenem

+ imipenem

- imipenem

+ imipenem

Testing Details

- Cost of Test: $2-3 (@ ISDH)
- Kit Shelf Life: ~12 months
- Time to Test: 40 min. – 2 ½ hours
- Hands on Time: 20-30 min (batch)

Limitations of Testing

- Older cultures (>1d) may produce more indeterminate results
- Results are Media-dependent (do not use MAC)
- Weak carbapenemase-producers are difficult to detect:
  - SME
  - GES
  - OXA-48-like
- Mucoid strains may produce false-negative results
- More organism inoculum may produce more reliable results

NEXT UP: Wet Workshop - CarbaNP
THEN: LimsNet Demo