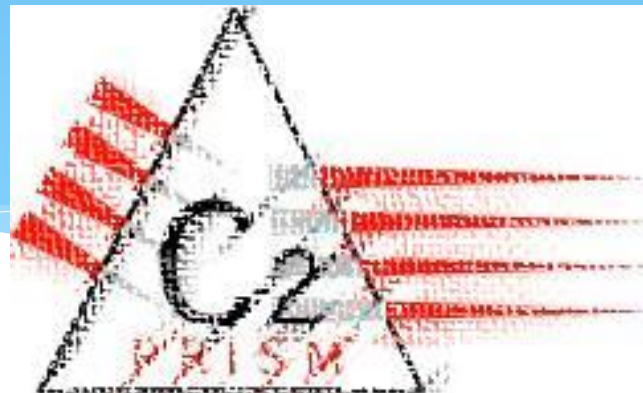


# Antibiotics Lab

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Mrs. Paulose



# Experimental Bacteria

- \* *Enterobacter aerogenes*

- \* Gram-Negative

- \* *Streptomyces griseus*

- \* Gram-Positive

- \* *Staphylococcus aureus*

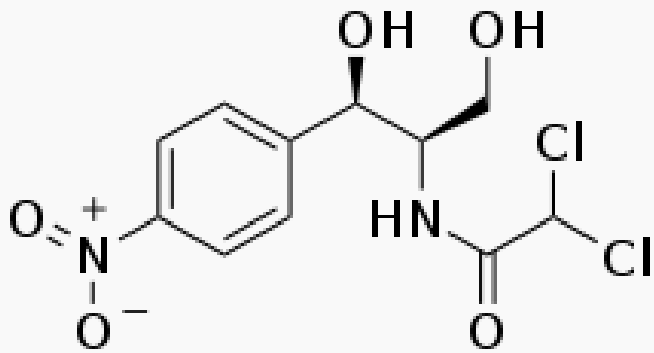
- \* Gram-Positive

# Experimental Antibiotics

- \* Chloramphenicol
- \* Tetracycline
- \* Penicillin

# Chloramphenicol

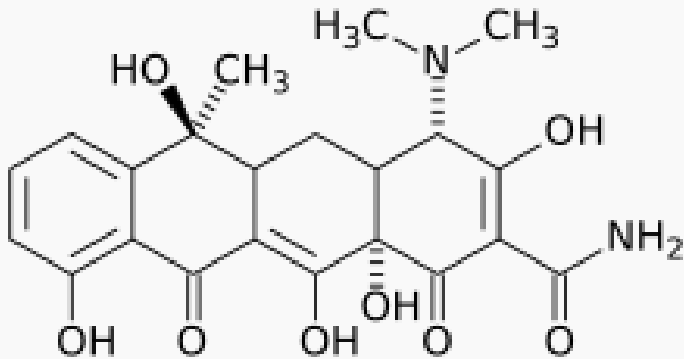
Broad Spectrum Antibiotic



- \* Works best against: Gram-Positive Bacteria and Gram-Negative Bacteria
- \* Functions by: Inhibiting protein synthesis

# Tetracycline

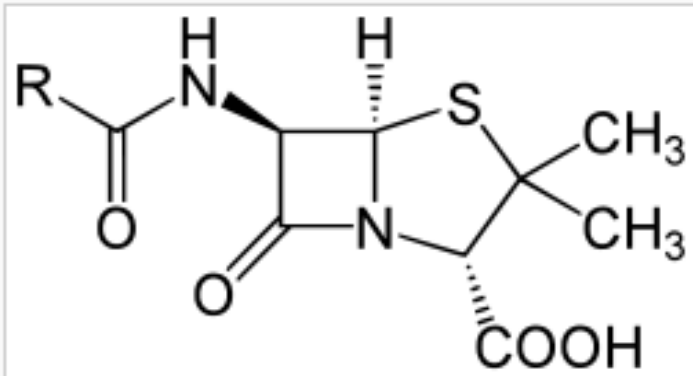
Broad Spectrum Antibiotic



- \* Works best against: Gram-Positive Bacteria
- \* Functions by: Inhibiting protein synthesis

# Penicillin

Narrow Spectrum Antibiotic



- \* Works best against: Gram-Positive Bacteria
- \* Functions by: Inhibiting cell wall formation

# Antibiotic Resistance

- \* Different antibiotics are able to fight a variety of microorganisms.
- \* However, some microorganism develop the ability to adapt to antibiotic treatments, rendering the treatment ineffective.
  - \* For example: Human Immunodeficiency Virus

# Lab Materials (per group)

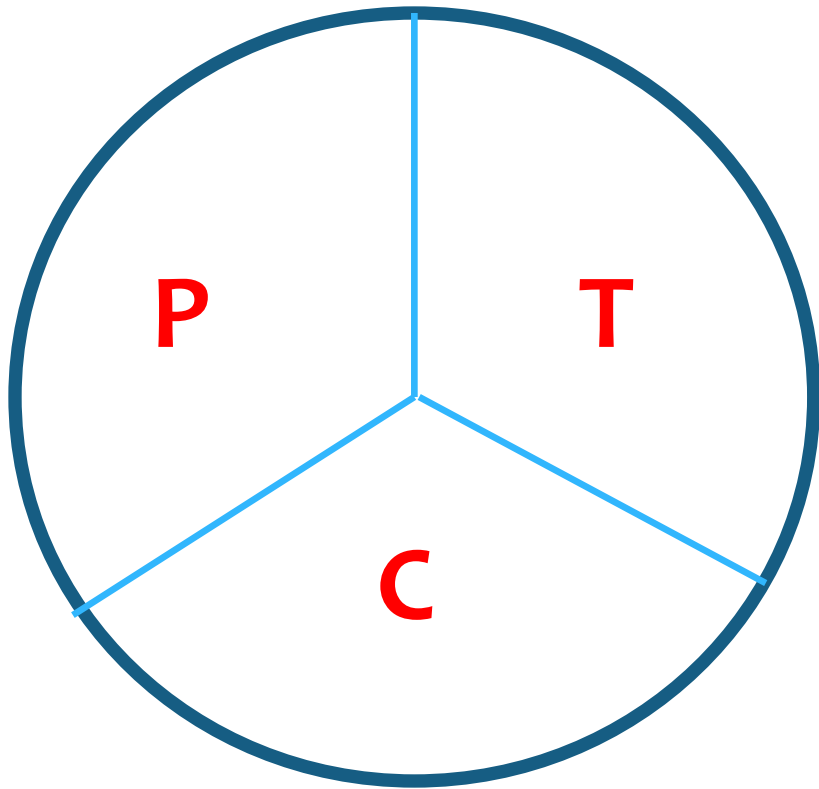
- \* 3 petri dishes
- \* 3 Ezaygel<sup>®</sup> bottles inoculated with one of the following bacteria:
  - (1) *Enterobacter aerogenes*
  - (1) *Streptomyces griseus*
  - (1) *Staphylococcus aureus*
- \* 3 Antibiotic discs
  - \* (1) Chloramphenicol
  - \* (1) Tetracycline
  - \* (1) Penicillin
- \* Climate controlled incubator
- \* Tape
- \* Ruler
- \* Marker



# Day 1

- \* Label both top and bottom plates.
- \* Pour each of the Eazygel bottles into their complimentary petri dishes.
- \* Place each of the three antibiotic disks in their labeled regions for each petri dish.
- \* Let dish settle for 40 minutes.
- \* Finally, use tape to seal the petri dish and place the dish in the incubator.

# Bottom Plate



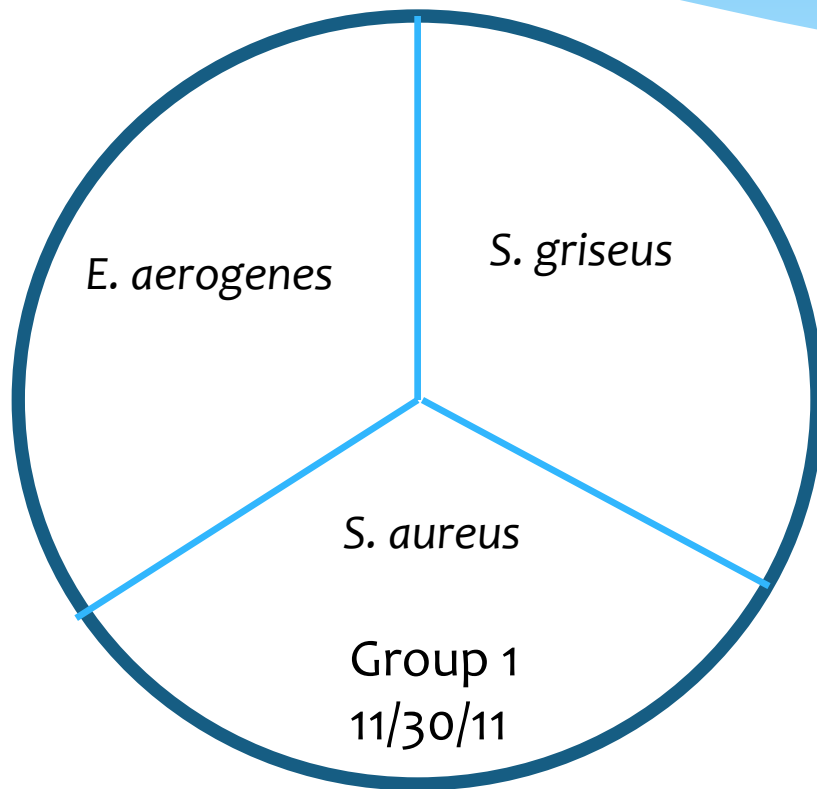
## Antibiotic Labeling

P- Penicillin

C- Chloramphenicol

T- Tetracycline

# Top Plate



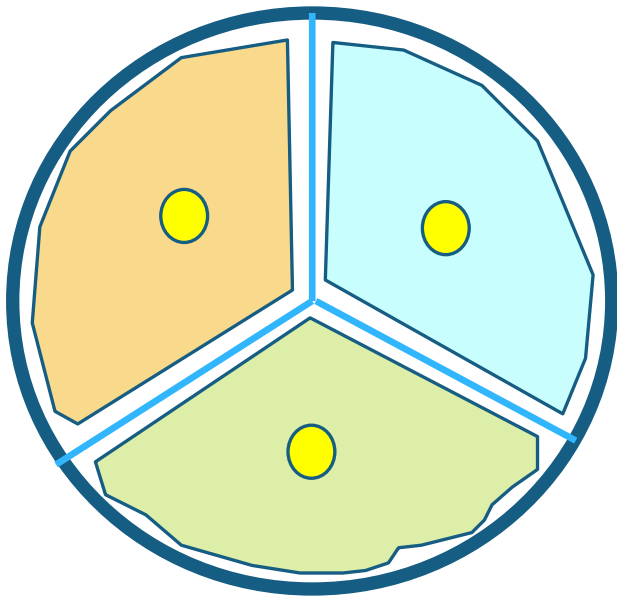
## Bacterial Labeling

Seal plate with tape

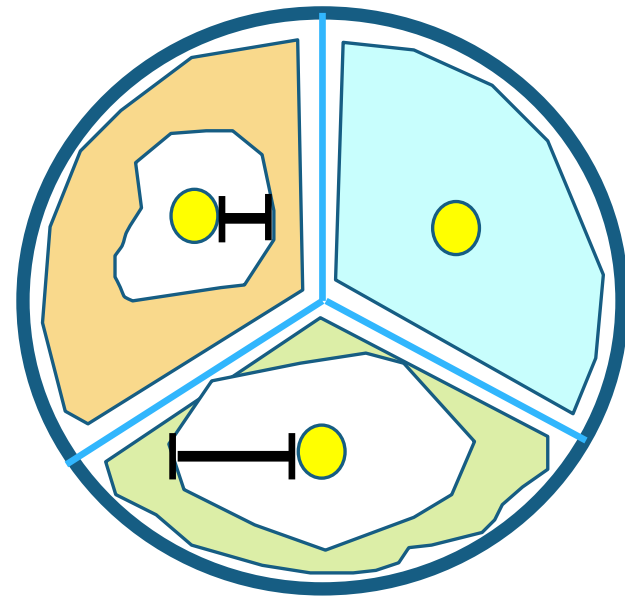
Never at any time  
should you remove the  
tape.

# Day 2

- Cleared Zone Measurements



Day 1



Day 2

# Table: Distance of Cleared Zone

|                     | Penicillin | Chloramphenicol | Tetracycline |
|---------------------|------------|-----------------|--------------|
| <i>S. Griseus</i>   | mm         | mm              | Mm           |
| <i>E. aerogenes</i> | mm         | mm              | mm           |
| <i>S. Griseus</i>   | mm         | mm              | mm           |

# Lab Observations

- \* *S. griseus*

- \* Which antibiotic worked best against this bacteria? Why?
- \* Which antibiotic worked the least against this bacteria?

- \* *E. aerogenes*

- \* Which antibiotic worked best against this bacteria? Why?
- \* Which antibiotic worked the least against this bacteria?

- \* *S. griseus*

- \* Which antibiotic worked best against this bacteria? Why?
- \* Which antibiotic worked the least against this bacteria?

# Focus Questions

- 1) What is a Gram-Positive bacteria?
- 2) What is a Gram-Negative bacteria?
- 3) If antibiotic A exhibited a cleared zone of 9mm and antibiotic B exhibited a cleared zone of 7mm, which antibiotic most successfully cleared the bacteria?
- 4) If the concentration of the antibiotic is doubled, would you expect the clear zone to double?
- 5) Which of the following mechanism of antibiotic action is more lethal to the cell?
  - 1) Inhibition of protein synthesis.
  - 2) Inhibition of cell wall formation.
- 6) Comment on “Bacterial Evolutional”