

Gram Staining

Biology

What the stain distinguishes, and why it matters clinically.

Gram-positive

- Thick peptidoglycan layer
- Stains purple
- No outer membrane
- More susceptible to penicillin
- Staphylococcus, Streptococcus

Gram-negative

- Thin peptidoglycan
- Stains pink
- Outer membrane with LPS
- More antibiotic resistant
- E. coli, Salmonella, Pseudomonas

THE DIFFERENCE THAT MATTERS

The outer membrane in Gram-negatives blocks many antibiotics, which is why they are generally harder to treat.

LPS in the outer membrane is an endotoxin: released on cell death, it can trigger septic shock.