

The Gram staining technique is a differential staining method used to classify bacteria into two groups: Gram-positive and Gram-negative. This step is crucial: 4- Gram-positive bacteria retain the crystal violet-iodine complex due to their thick peptidoglycan layer, remaining purple. Gram-negative bacteria have a thinner peptidoglycan layer and an outer membrane, allowing the complex to be washed out, turning them colorless. The principle behind the Gram stain is based on the structural differences in bacterial cell walls.