

The most crucial staining method is Gram staining. Not all bacteria can be seen with Gram stain; when exposed to a red dye like safranin, they turn colorless and stain pink. The reason for this discrepancy is that gram-positive bacteria can hold onto the crystal violet-iodine complex when a lipid solvent—typically acetone-alcohol—is present. Acetone-alcohol treatment causes gram-negative bacteria to lose their purple dye due to their thin peptidoglycan and outer lipid-containing membrane.