

## Gram staining

In 1884 Danish Physician , Hans Christian's gram development a staining technique called gram staining that delineates two generally different groups of bacteria . The contrasting staining reactions are due to the fundamental differences in cell walls of gram positive and gram negative bacteria. In gram staining, the first step is to treat the bacteria with crystal violet dye. During this process, both gram positive and gram negative cell wall affix the dye. In the second step, bacterial cells are treated with grams iodine. In this step dye crystals trapped in the cell wall of gram positive bacteria. Where as in gram negative bacteria, iodine makes no effect. In the third step, bacteria are treated with alcohol, crystals remain in cell wall of gram positive bacteria in where as alcohol partially dissolves the cell wall of gram negative cell and loses dye. In the 4<sup>th</sup> step of gram staining, bacterial cells are treated with surfranin(counter stain). Counter stain with red dye has no effect on gram positive cell, and the cells appeared as blue color. Whereas red dye stains the colourless gram negative cell and they appeared as red.