Streptococcus viridans

Streptococcus viridans is a term for a large group of commensal Streptococcal bacteria that possess no lancefield antigens. These bacteria are gram-positive cocci that are catalase- negative and alpha-hemolytic. They can be differentiated from Streptococcus pneumoniae by optochin resistance and no bile solubility. The organisms are most abundant in the mouth as normal flora. One member of the group, S. mutans, is associated with dental caries. If they are introduced into the bloodstream, they have the capacity to cause subacute bacterial endocarditis, especially in individuals with previously damaged heart valves, due to a unique ability to synthesize dextrans. The dextrans allow the organisms to adhere to fibrin-platelet aggregates present on damaged heart valves.



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Characteristics

Gram-Positive
Graham-cracker Positive-angel
This organism stains positive on Gram stain due to thick peptidoglycan layer which absorbs crystal violet.

Cocci
Cockeyed
This bacterium has a spherical shape.

Catalase-Negative
Negative-cat
Characteristically, Streptococcus viridans is catalase-negative, which is helpful in distinguishing Streptococcus from Staphylococcal species that are catalase- positive.

Alpha-Hemolytic
Alpha Afro
This bacteria is alpha-hemolytic, which causes dark green colonies on blood agar. It is caused by hydrogen peroxide produced by bacterium, which oxidizes hemoglobin to green methemoglobin. Strep viridans may also be non-hemolytic (sometimes termed γ-hemolysis).

Optochin-Resistant
Resisting Octopus wearing Resistance-bandana
Optochin test aids in the differentiation between Streptococcus pneumoniae and Streptococcus viridans. Streptococcus viridans is optochin-resistant, meaning the growth of bacteria is not inhibited around an optochin disc, unlike Streptococcus pneumonia, which is optochin-sensitive.

Not Bile Soluble
No Bile sign on the bib
Streptococcus viridans can be differentiated from Streptococcus pneumoniae based on sensitivity to lysis by bile. Streptococcus pneumonia is bile soluble and will lyse in presence of bile, while Streptococcus viridans will not.

Normal Flora of Oropharynx
Flowers in the Mouth
The organisms are most abundant in the mouth as normal flora.

Synthesize Dextrans from Sucrose
Desk made from Sucker-roses
Certain strains of this bacteria (S. Sanguis and S. Mutans) may produce extracellular polysaccharides, also known as dextrans, by using sucrose as a substrate. Dextrans promote adherence of streptococcal bacteria to fibrin which is a factor of causing subacute bacterial endocarditis.

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Disease

Dental Caries

Dental Cavities

S. mutans is associated with dental caries.

Subacute Bacterial Endocarditis

Sub Bacteria-guy with In-donut-heart-cards

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