

# Staphylococci



## Coagulase positive

*S. aureus*

*S. intermedius*

*S. schlieferi*

*S. sciuri*

## Coagulase negative

*S. epidermidis*

*S. hominis*

*S. haemolyticus* etc.

*S. aureus* 

Microscopy: G+cocci in clumps

Cultivation: **blood agar** with haemolysis  
10% NaCl



Morphology: **yellow** pigment

### Factors of virulence:

bounded coagulase (clumping factor)

free coagulase

catalase, hyaluronidase

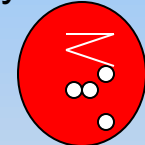
toxins – enterotoxins

haemolysins, TSST 1, exfoliatins

staphylococci coag. negative

Microscopy: G+cocci in clumps 

Cultivation: **blood agar** without haemolysis  
10% NaCl



Morphology: **white** pigment

### Factors of virulence:

slimy - biofilm

catalase



## *S. aureus*

### Pathogenicity:

Skin diseases (abscess, furuncle aj.)  
wound infections, bone infections, sepsis  
enterotoxigenesis, toxic shock syndrom  
exfoliative dermatitis

### Therapy: common used ATB

oxacillin, cefalotin, septrin, erythromycin, (ampicillin)

*MRSA* (methicilin resistant)

vancomycin, teicoplanin, rifampicin, linezolid

*VRSA* (vancomycin resistant) - linezolid

### Diagnostic:

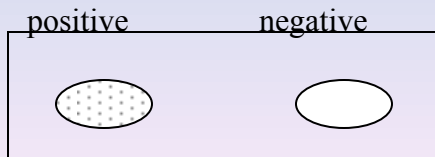
**Microscopy:** G+cocci in clumps

**Cultivation:** blood agar with haemolysis  
10% NaCl, yellow pigment

**Biochemistry:** catalase +

**Enzyme detection:** rapid latex test (glass)

Bounded coagulase (clumping factor)+



## Staphylococci coag. negative

### Pathogenicity: oportunne pathogens

often in: drug users, immunocompromised patients  
patients with medical devices  
endocarditis, sepsis, bloodstream catheter infections

### Therapy: common used ATB

oxacillin, cefalotin, septrin, erythromycin, (ampicillin)  
– often resistant -  
vancomycin, rifampicin, teicoplanin are used

### Diagnostic:

**Microscopy:** G+cocci in clumps

**Cultivation:** blood agar without haemolysis  
10% NaCl, white pigment

**Biochemistry:** catalase +

**Enzyme detection:** latex test (on glass)

free coagulase (clumping factor)-

**Free coagulase + (test tube)**

Less often used



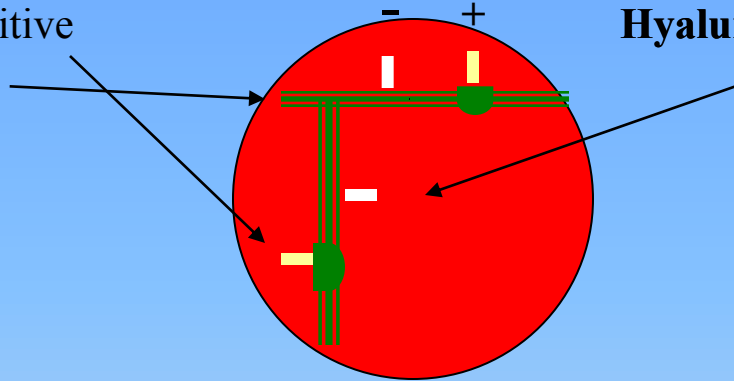
**free coagulase – negative**



**Hyaluronidase positive**

*Streptococcus equi*

**Hyaluronidase negative**



In case of insurance biochemistry: **Staphytest**

Staphytest

**More tests** in NRL for staphylococci (Prague):

fagotyping, DNase detection

PCR, toxin detection

**Special methods:**

detection of a biofilm

**Other catalase positive cocci**

*Micrococcus*

*Kocuria, Kytococcus* etc. }

Part of the normal skin flora, oportunne patogens able to cause sepsis/endocarditis in immunocompromised patients.