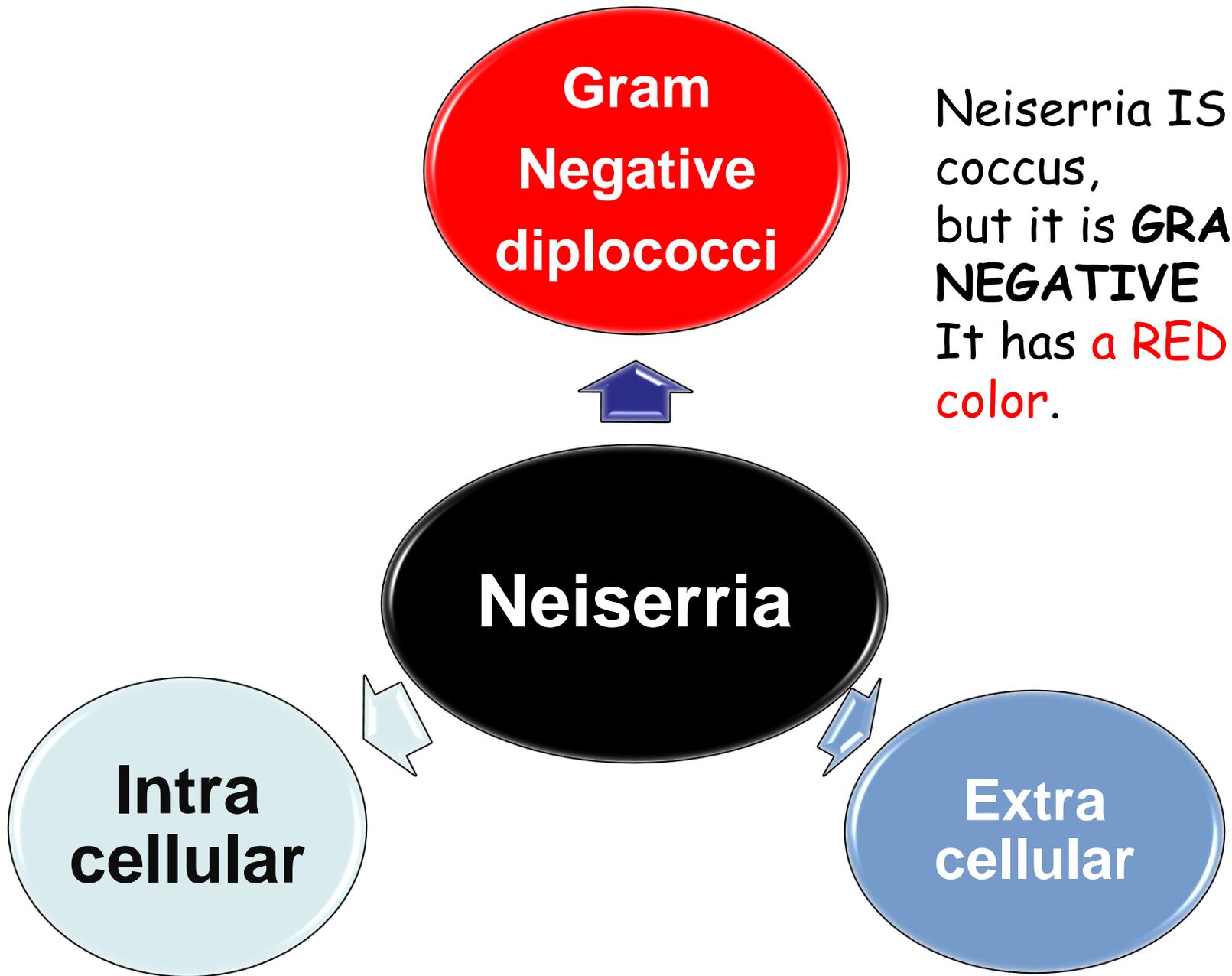


Gram Negative Bacteria



Modified by Batool B.



**Gram
Negative
diplococci**

Neisseria IS a
coccus,
but it is **GRAM
NEGATIVE**
It has a **RED**
color.

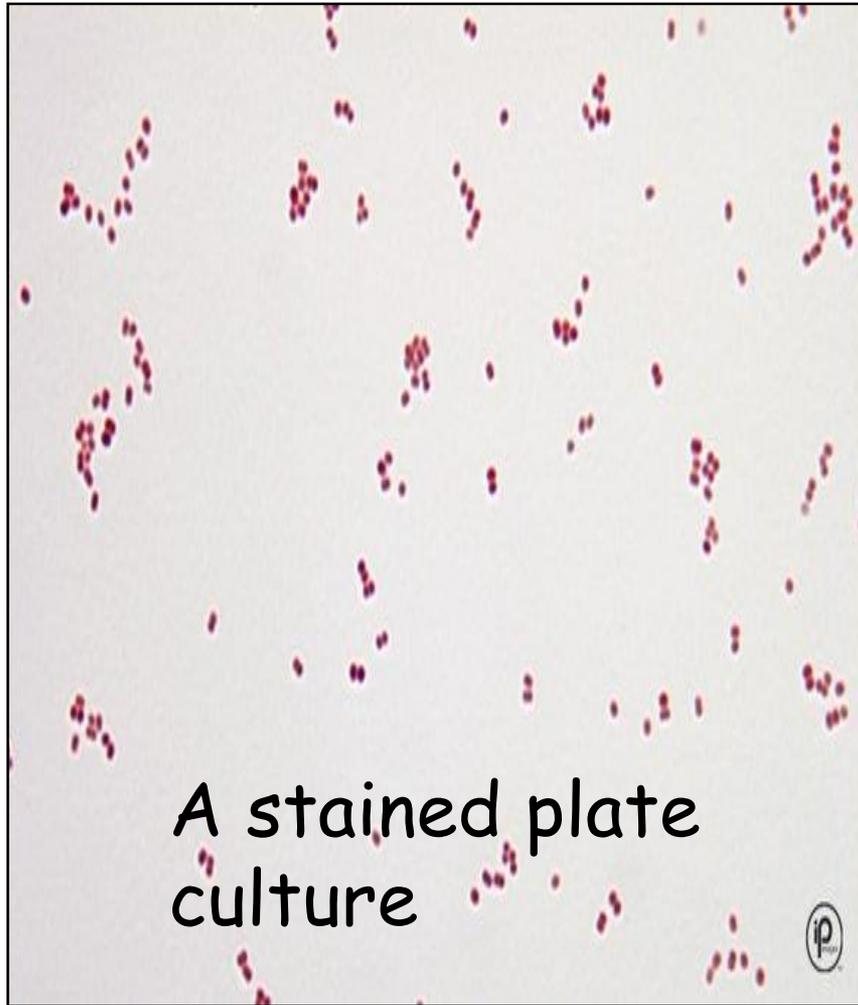
Neisseria

**Intra
cellular**

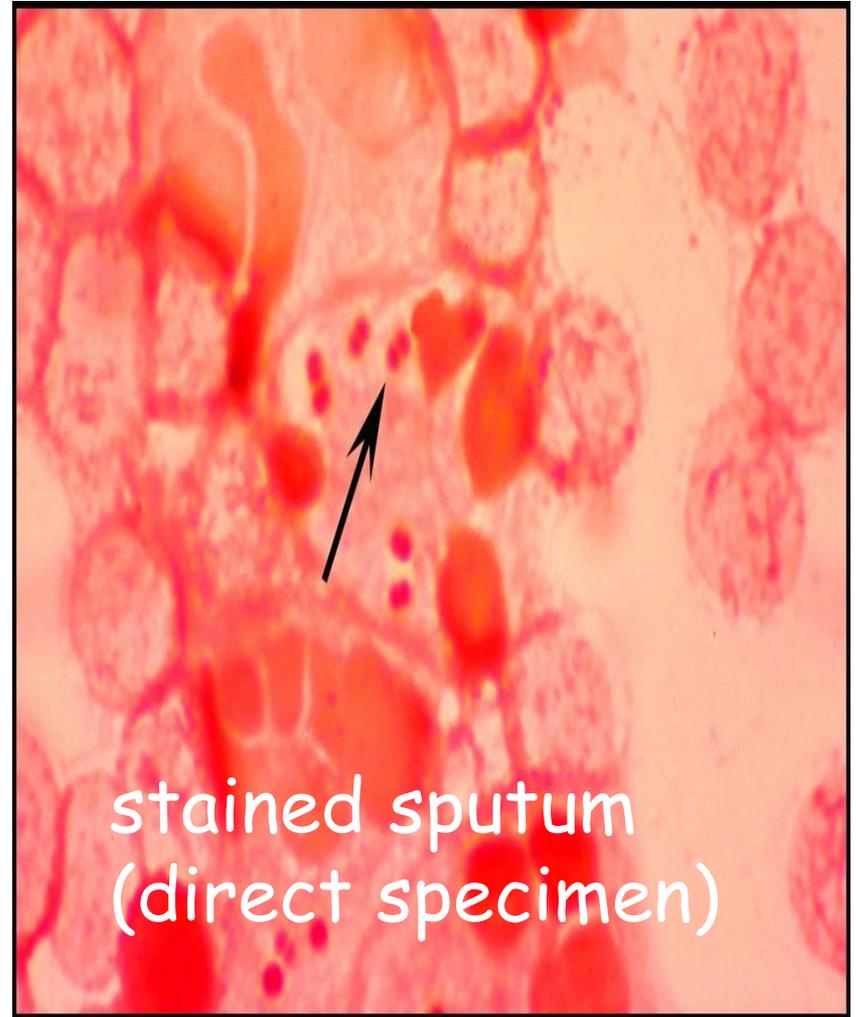
**Extra
cellular**

Neisseria

Description: Gram negative, kidney shaped diplococci.



Extracellular



Intracellular

We mainly obtain gram negatives from urine samples.

- We culture urine samples on macConkey agar, because in UTI we suspect gram negative bacteria to be responsible. MacConkey is selective only for G -ve bacteria.
- MacConkey is also differential between the lactose fermenters and non fermenters of gram negative bacteria.

1. Escherichia coli (E.coli)



It's a Strong lactose fermenter because it gave this prominent hot pink colour on MacConkey agar.

2. Klebsiella

- Special about it: it has **Large mucoid** Polysaccharide capsule .
So its colonies are mucoid in appearance.



It's a weak lactose fermenter. Notice how the colony colour is a lighter pink than *E.coli* had produced.

3. Enterobacter



Also a lactose fermenter but drier than the previous two.

4. Citrobacter

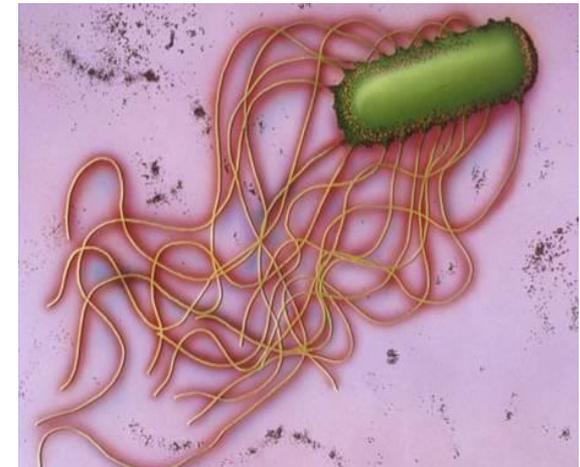
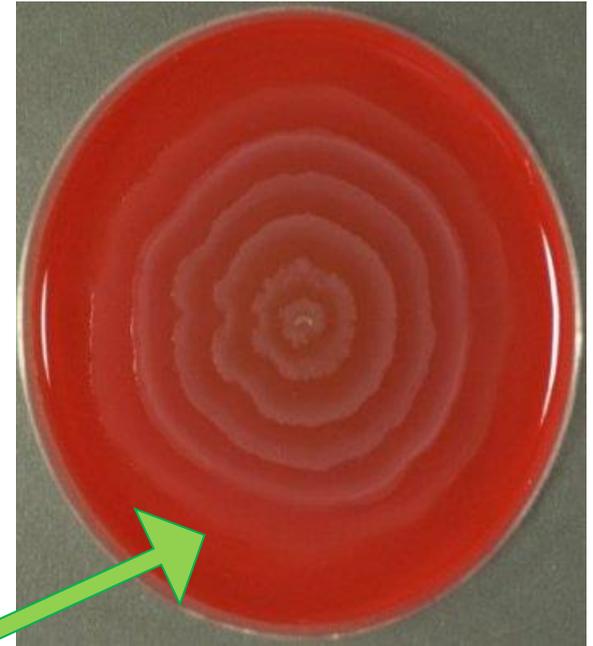


Strong lactose fermenter.

We can't differentiate between the previous ones just by the looks of their colonies because they're very similar (except Klebsiella with its mucoid look)

To further identify them we use biochemical tests.

Proteus

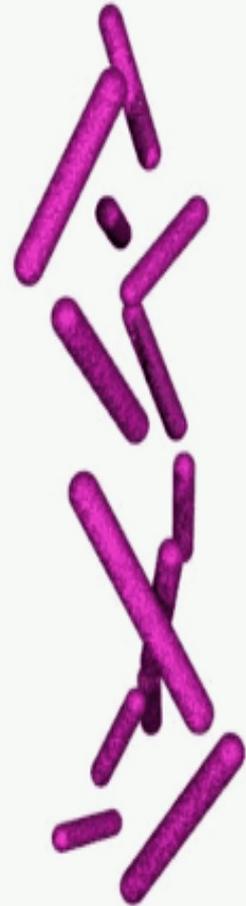


- Gram negative rods, **non lactose fermenter** (on MacConkey agar it doesn't show pink it gives beige colonies)
- **Swarming phenomenon on blood agar** due to its motility (because it's highly flagellated)
- We just put a bit of it from the loop in the middle and it spreads like that on its own
- Prevent swarming by culturing it on CLED or MacConkey media

Pseudomonas aeruginosa

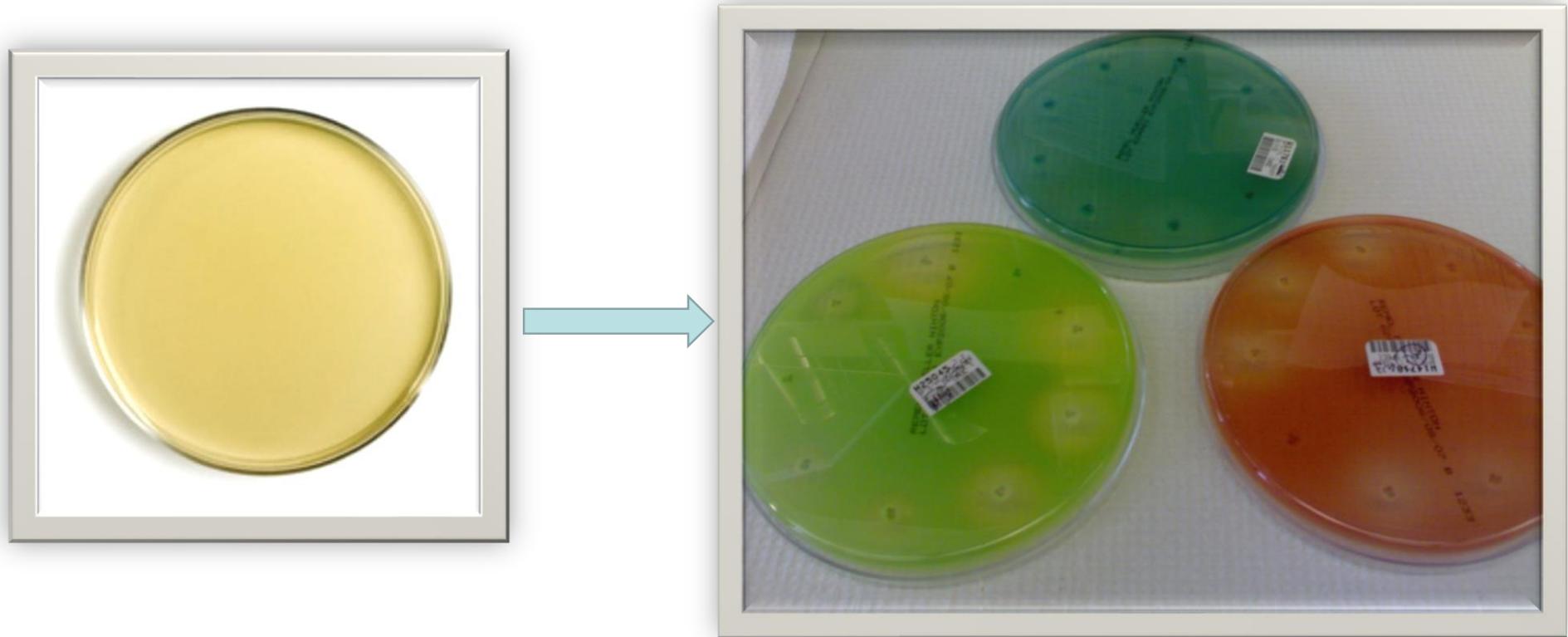
Identified by :

- **Gram negative rods**
- **odor** : grape-like (or apple) smell.
- **Oxidase positive.**
- Produce different pigments colors:
 - **Pyocyanine (blue-green)**
 - **Pyoverdinin (fluorescent yellow –greenish pigment).**
 - **Pyorubrin (red).**
 - **Pyomelanin (brown).**



*Pseudomonas
aeruginosa*

Pseudomonas aeruginosa on mueller hintion agar



We culture it on mueller-hintion agar because it has no colour (so the bacterial pigments show) and it's an enrichment media.



**Thank you
Any Question ??**