

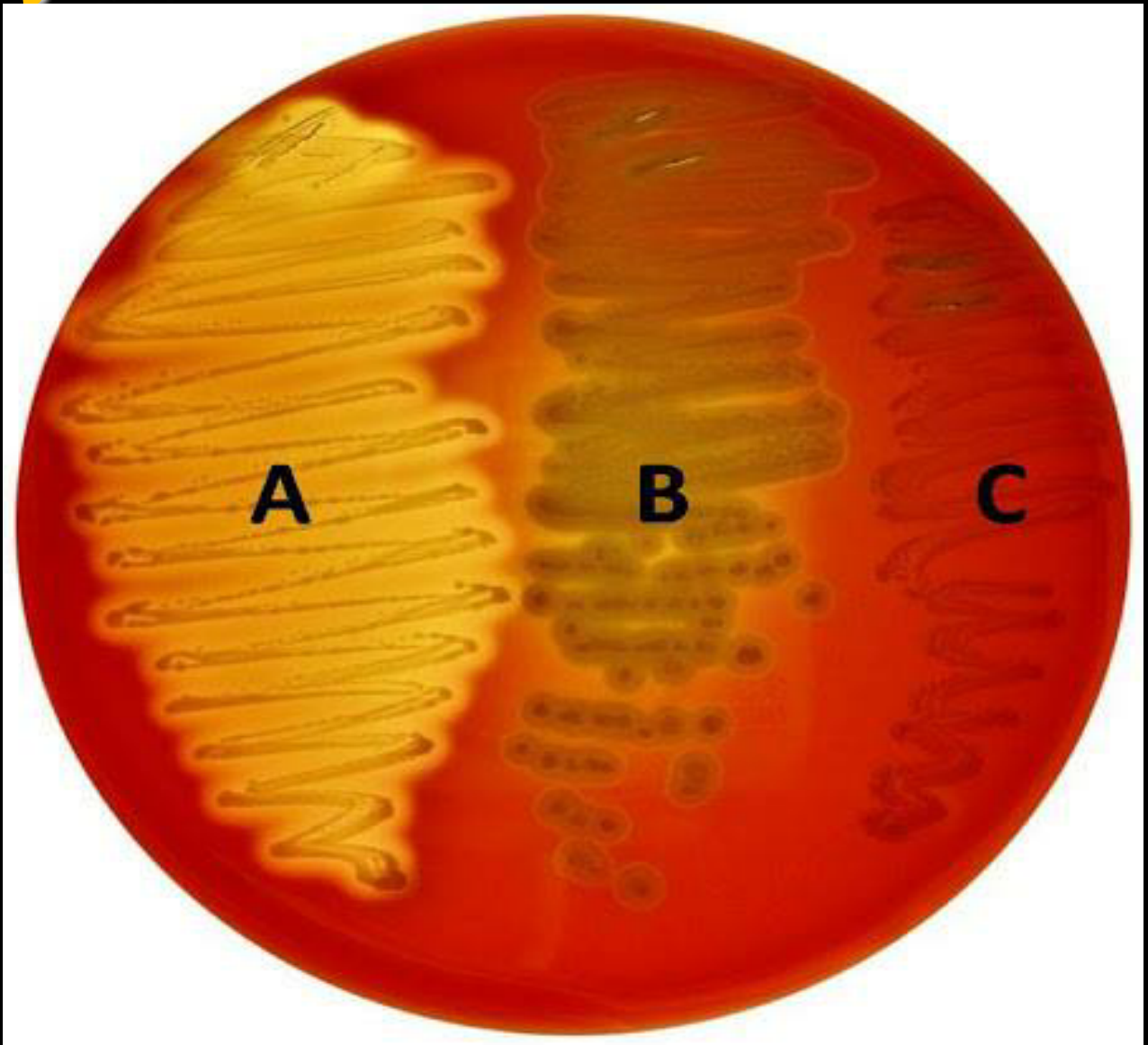
Throat Cultures:

- Indications:-
- To detect the presence of...
 - Group A β -hemolytic streptococci,
 - Diphtheria,
 - Gonococcal pharyngitis or
 - Thrush (Candida).
- The swab should touch posterior pharynx, both tonsils or tonsillar fossae.
- Inoculated onto a blood agar plate.
- If colonies of β -hemolytic streptococci are found a bacitracin disk is used.

A=Beta Hemolysis

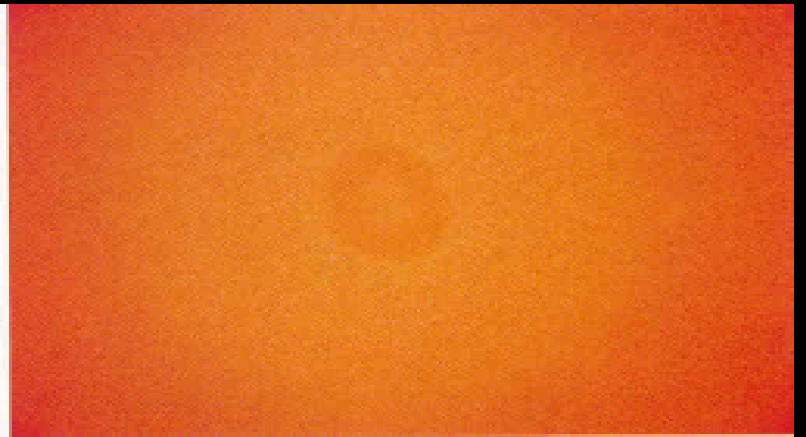
B=Alpha Hemolysis

C=Gamma

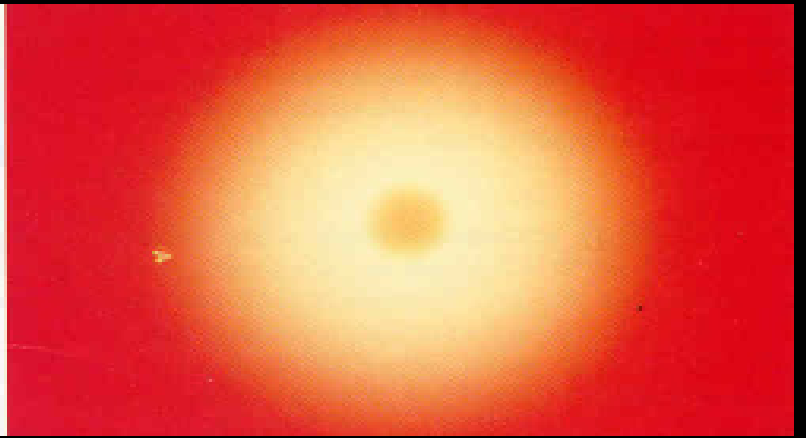
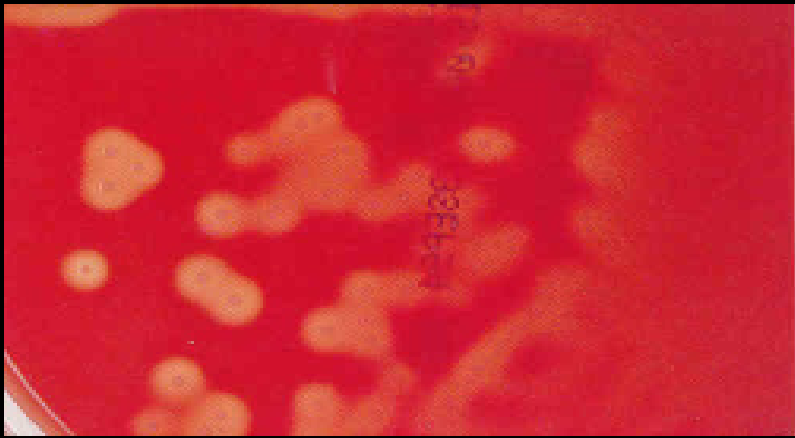


Hemolysis

alpha



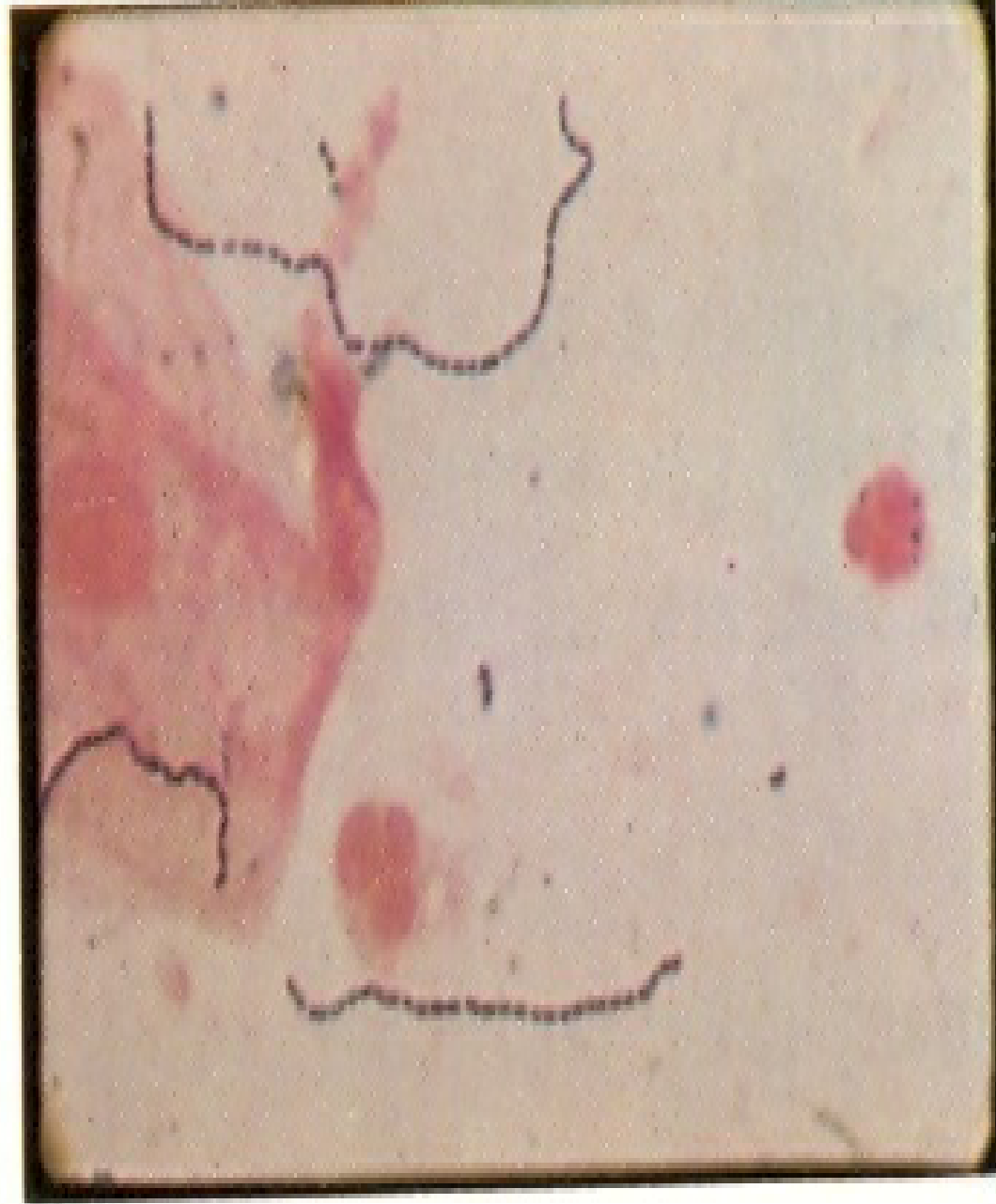
beta



gamma



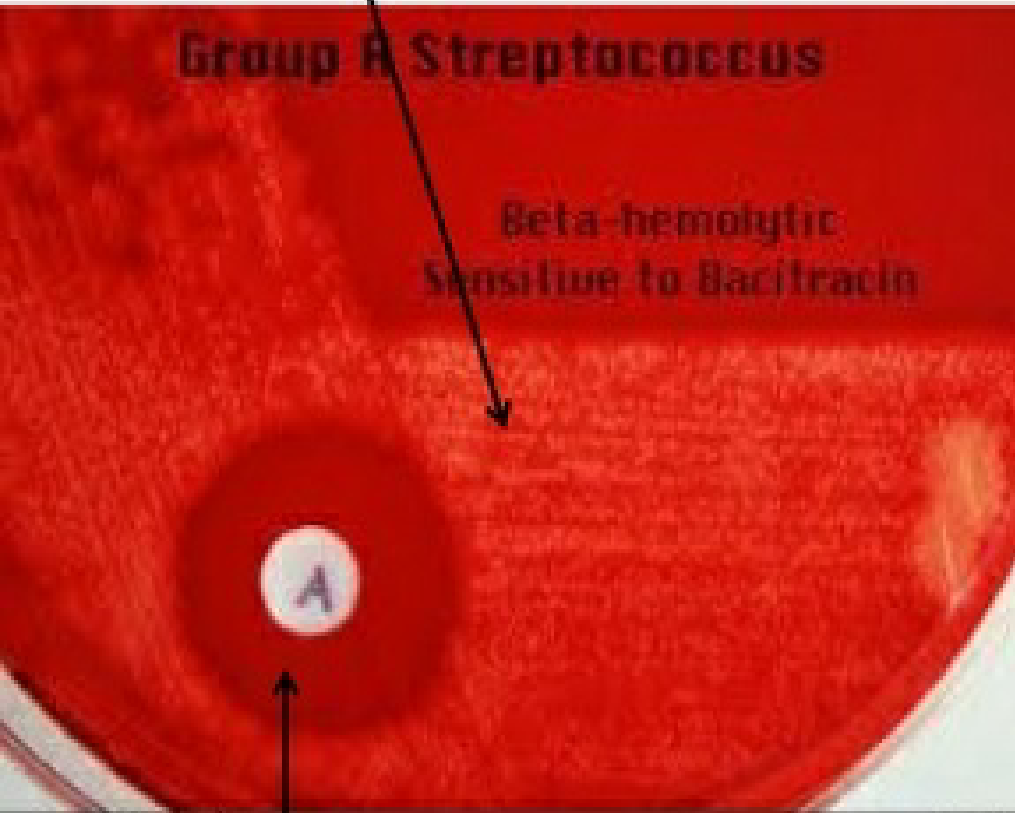
GROUP A STREPTOCOCCI



Beta hemolytic=
clear zone on
blood agar plate

Bacitracin test

Zone of growth
inhibition

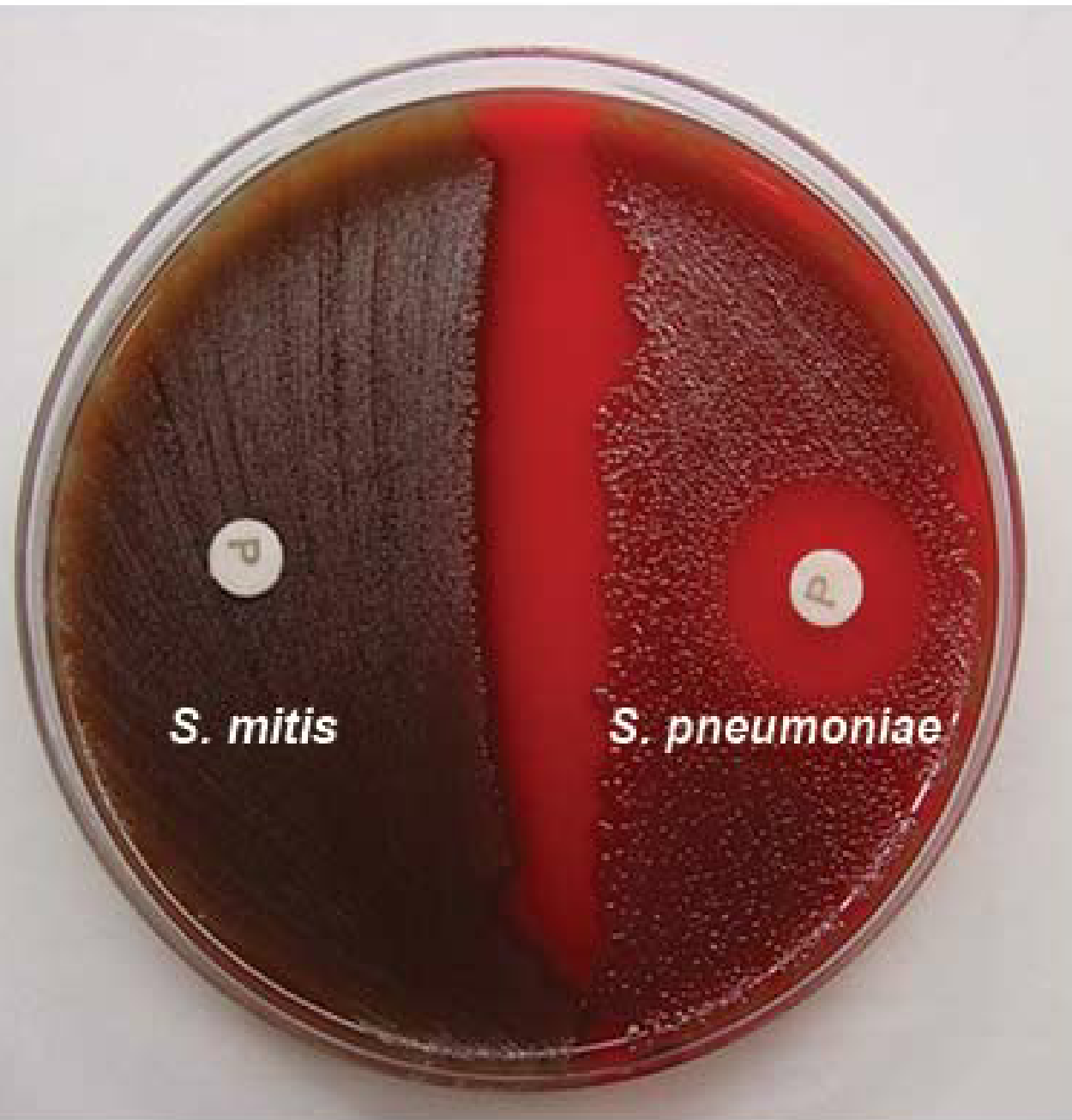


Zone of growth
inhibition

Streptococcus pyogenes (GAS)

Streptococcus agalactae (GBS)

RESPONSE TO OPTOCHIN



Left Side

S. mitis

Resistant to optochin

Right Side

S. pneumoniae

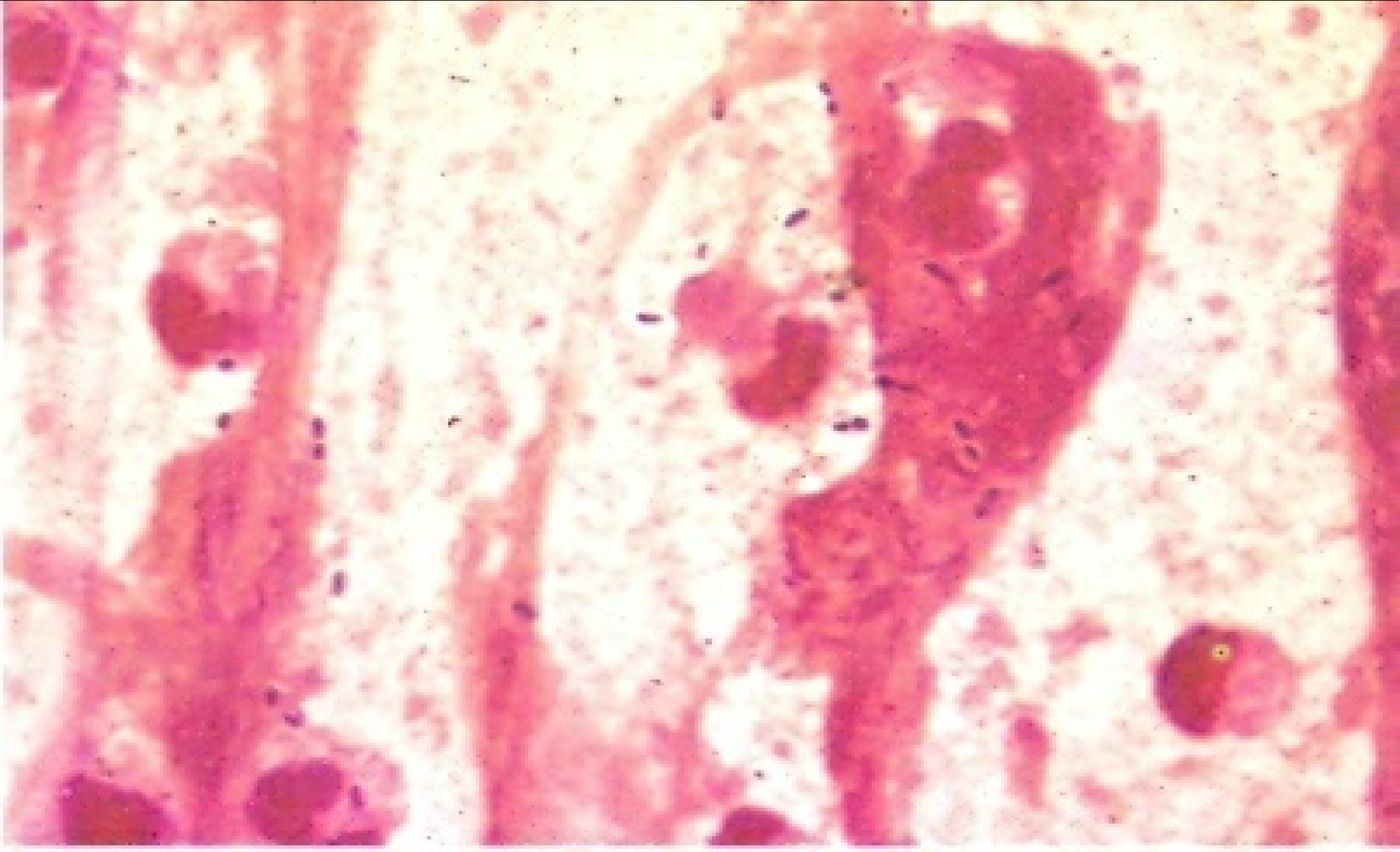
Susceptible to optochin

Sputum Cultures:

- Indications:-
- Pneumonia,
- Tuberculosis.
- Community-acquired pneumonia – Strep. Pneumoniae.
- Hospital-acquired pneumonia – S. aureus, & gram –ve rods such as K. pneumoniae & P. aeruginosa.
- Reliable specimen - > 25 leukocytes & < 10 epithelial cells/100 x field.

- If patient cannot cough → induction of sputum, transtracheal aspirate, bronchial lavage or lung biopsy.
- Culture of sputum on blood agar.
- For Legionella use charcoal-yeast agar which contains high concentration of iron & sulfur.
- Tuberculosis → acid-fast stain & culturing on special media which are incubated for at least 6 weeks.
- Aspiration pneumonia & lung abscess → anaerobic cultures.
- Mycoplasma – confirmed by ↑ in Ab titer.

SPUTUM SMEAR, DIPLOCOCCI & POLYMORPHONUCLEAR LEUKOCYTES





MTB cells

AFB Smear Positive

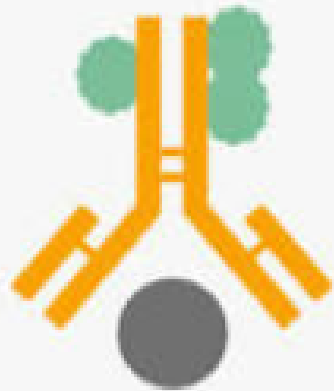
Colonies of *Mycobacterium tuberculosis* on
Lowenstein-Jensen (LJ) Medium



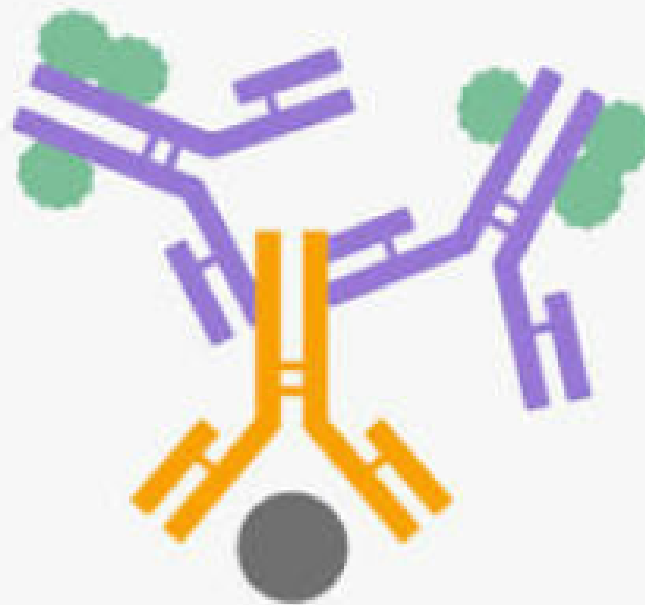
Spinal Fluid Cultures:

- Indication – meningitis,
- *Neisseria meningitidis*, *S. pneumoniae* & *H. influenzae*,
- Blood & chocolate agar (hematin & NAD are added to enhance the growth of *H. influenzae*).
- Examination of gram stained smear of sediment of centrifuge specimen followed by quellung test or immunofluorescence.

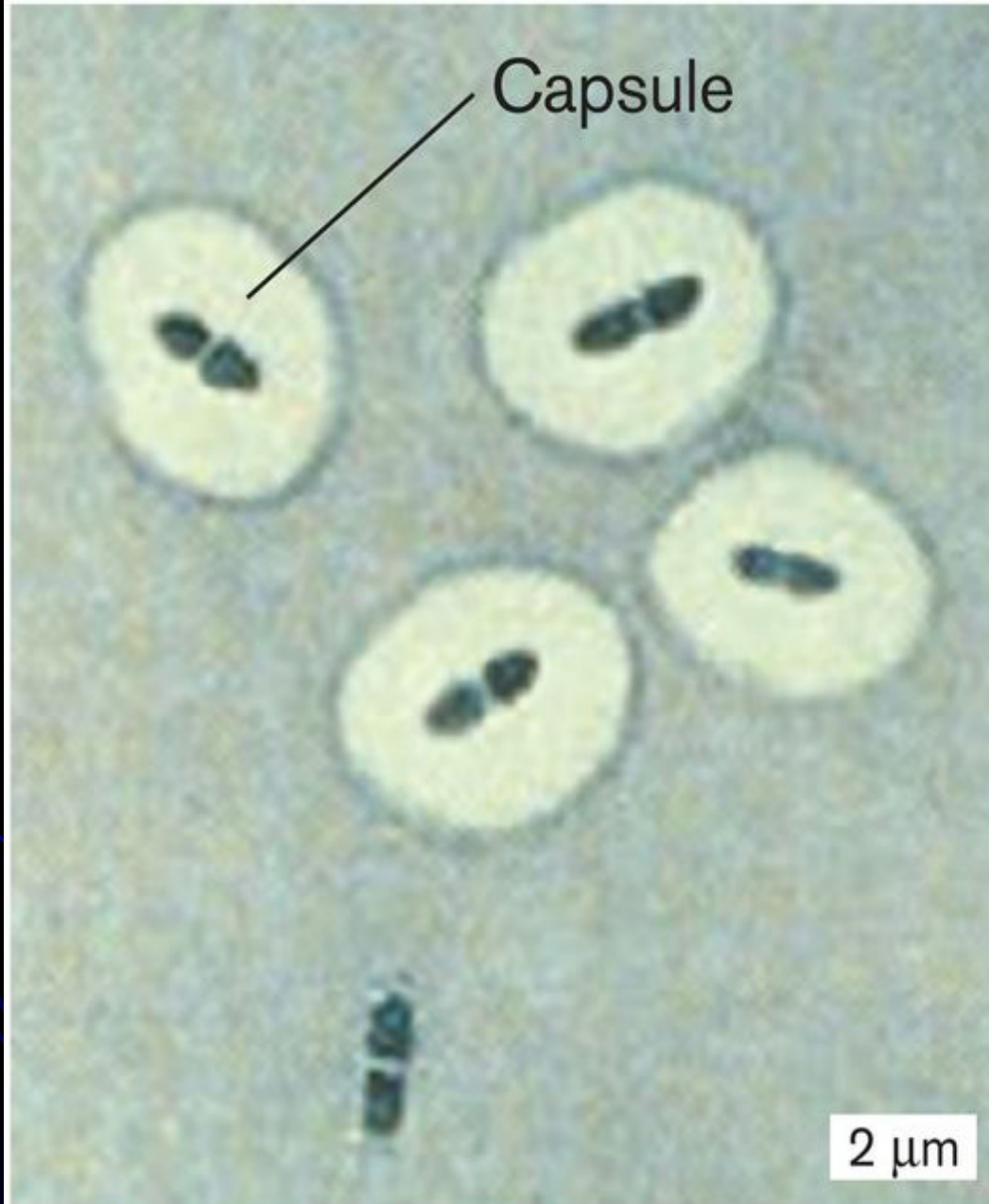
Direct
immunofluorescence



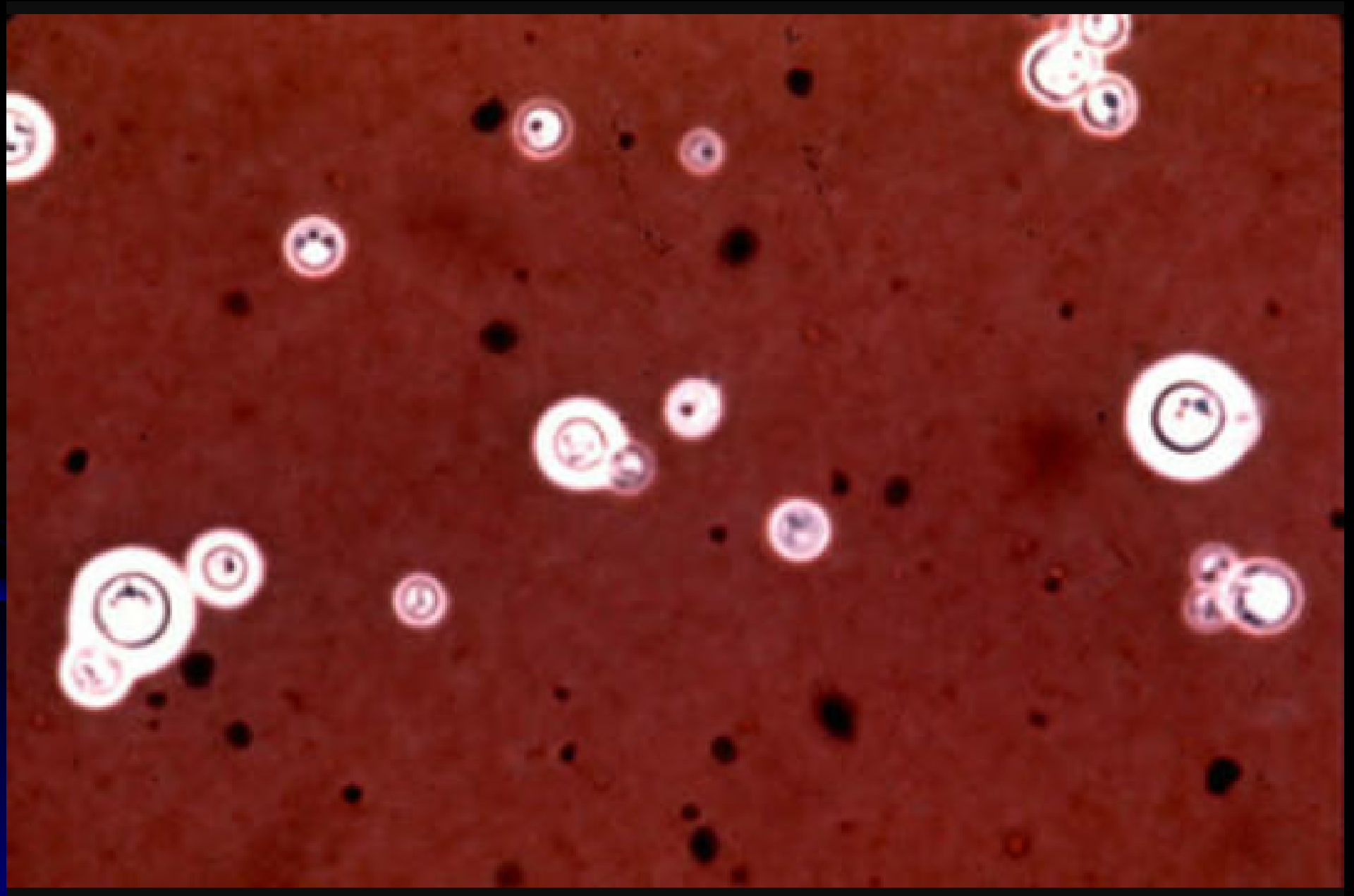
Indirect
immunofluorescence
or secondary detection



Streptococcus pneumoniae and capsule



- *Mycobacterium tuberculosis* → acid fast stain followed by culture for six weeks.
- *Cryptococcus neoformans* – india ink.
- Immunologic test to detect the presence of capsular antigen in the spinal fluid can be used to indentify *N. meningitidis*, *S. pneumoniae*, *H. influenzae*, group B streptococci, *E. coli*, & *C. neoformans*.
- The two test most frequently used are latex particle agglutnation & conterimmunoelctrophoresis.



Stool cultures:

- Indication:-
- Enterocolitis.

- Common bacterial pathogens:-
- Shigella,
- Salmonella,
- Campylobacter,
- E. coli O157.

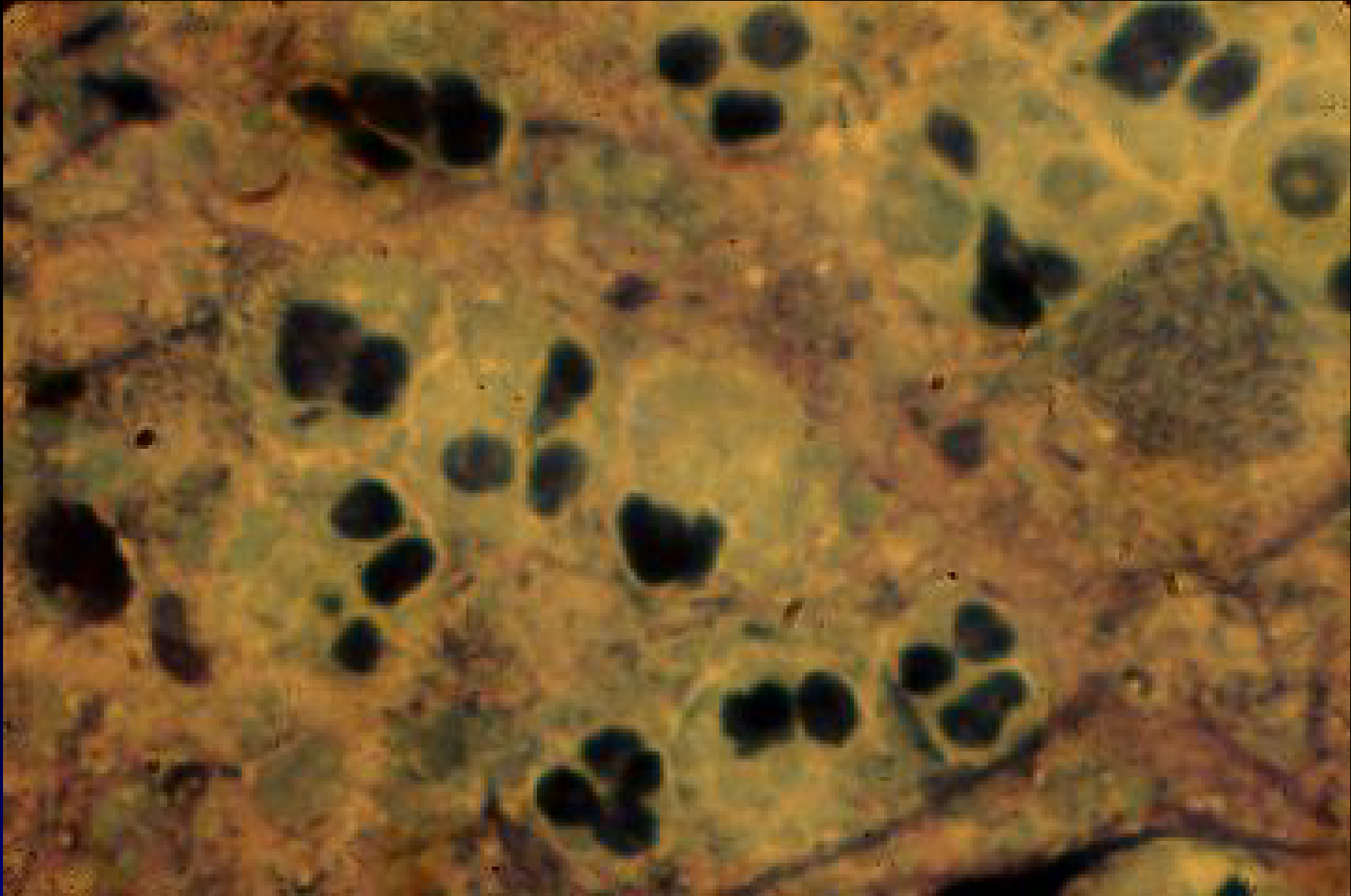
Direct microscopic examination:-

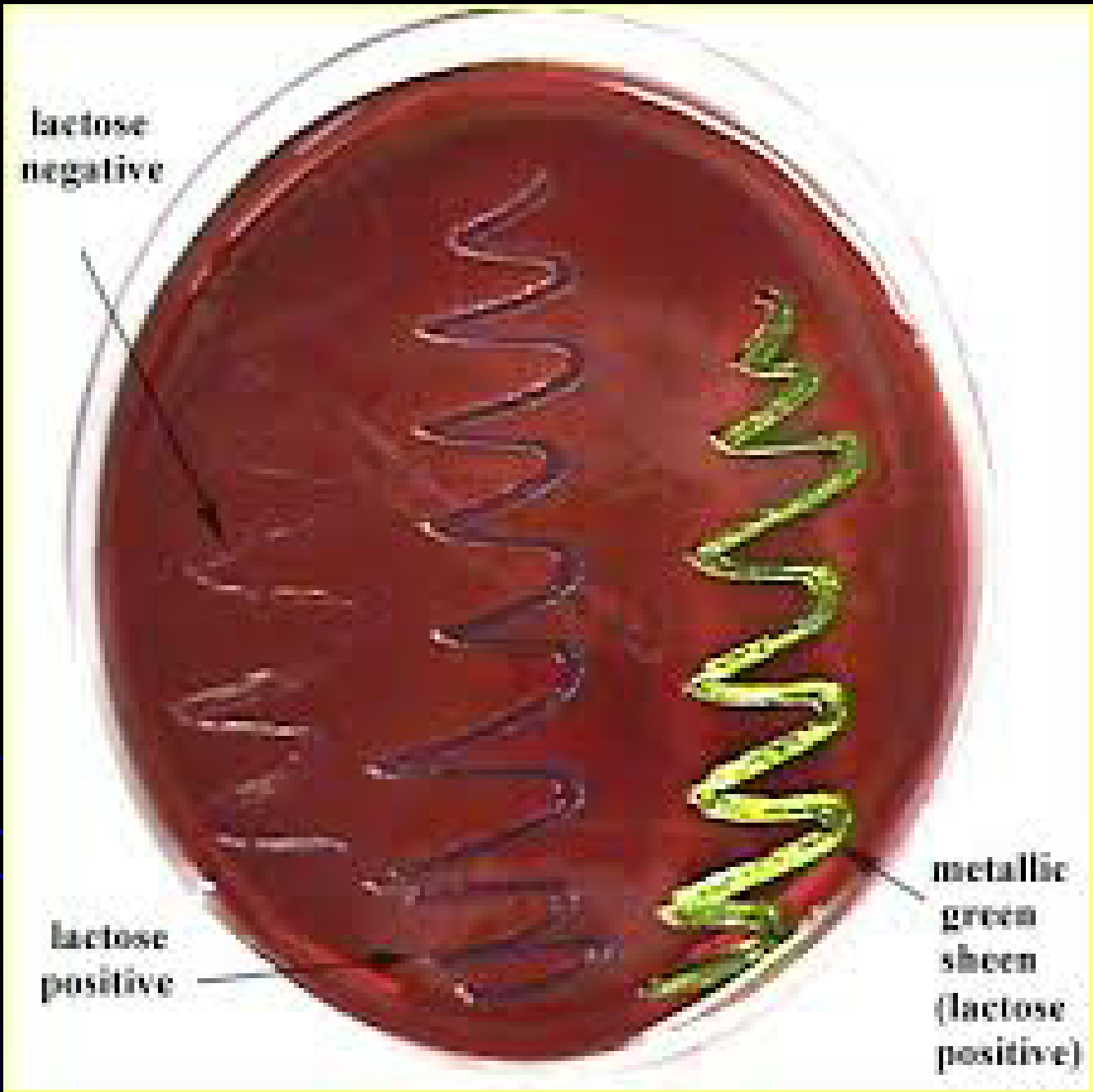
1. A methylene blue stain reveals many leukocytes – an invasive organism,
2. Gram stain.

Culture of salmonella and shigella:-

- Selective, differential media such as MacConkey or EMB agar is used.
- EBM agar:-
- Colonies of E. coli appear purple & have a green sheen,
- Colonies of salmonella and shigella appear colorless.

- Methylene blue stain for fecal leukocytes





**lactose
negative**

**lactose
positive**

**metallic
green
sheen
(lactose
positive)**