

Which is not a toxemic infection?

- +relapsing fever
- tetanus
- gas gangrene
- botulism
- diphtheria

Which is not a toxemic infection?

- +psittacosis
- tetanus
- gas gangrene
- botulism
- diphtheria

Which is a toxemic infection?

- +botulism
- psittacosis
- typhus
- tuberculosis

Which is a toxemic infection?

- +diphtheria
- psittacosis
- typhus
- tuberculosis

Which is a toxemic infection?

- +tetanus
- relapsing fever
- gonorrhea
- syphilis

Which genus does not have coiled bacteria?

- +Francisella
- Treponema
- Borellia
- Campylobacter
- Leptospira

Which genus does not have coiled bacteria?

- +Streptococcus
- Treponema
- Borrelia
- Campylobacter
- Leptospira

Which genus does not have coiled bacteria?

- +Neisseria
- Treponema
- Borellia
- Campylobacter
- Leptospira

The bacteria of this genus are coiled:

- +Treponema
- Streptococcus
- Staphylococcus
- Shigella
- Neisseria

The bacteria of this genus are coiled:

- +Leptospira
- Streptococcus

Staphylococcus
Shigella
Neisseria

Gram-positive rods are the bacteria of the genus:
+Clostridium
Esherichia
Salmonella
Shigella
Francisella

Gram-positive rods are the bacteria of the genus:
+Corynebacterium
Esherichia
Salmonella
Shigella
Francisella

Gram-positive rods are the bacteria of the genus:
+Mycobacterium
Esherichia
Salmonella
Shigella
Francisella

Gram-positive rods are the bacteria of the genus:
+Bacillus
Treponema
Salmonella
Shigella
Neisseria

Gram-negative rods are the bacteria of the genus:
+Esherichia
Clostridium
Mycobacterium
Corynebacterium

Gram-negative rods are the bacteria of the genus:
+Salmonella
Clostridium
Corynebacterium
Bacillus

Gram-negative rods are the bacteria of the genus:
+Bordetella
Mycobacterium
Corynebacterium
Bacillus

Gram-negative rods are the bacteria of the genus:
+Francisella
Mycobacterium
Corynebacterium
Bacillus

Vaccination is administered in case of:
+anthrax
relapsing fever
gonorrhea
psittacosis
syphilis

Vaccination is administered in case of:

- +pertussis
- relapsing fever
- gonorrhea
- psittacosis
- syphilis

Vaccination is administered in case of:

- +diphtheria
- paratyphoid fever
- gonorrhea
- mycoplasmosis
- candidiasis

Vaccination is administered in case of:

- +tetanus
- listeriosis
- scarlet fever
- syphilis

Vaccination is administered in case of:

- +cholera
- gonorrhea
- Lyme disease
- Legionnaires' disease

Vaccination is not administered in case of:

- +relapsing fever
- tularemia
- typhus
- anthrax
- typhoid fever

Vaccination is not administered in case of:

- +syphilis
- diphtheria
- typhus
- pertussis
- typhoid fever

Vaccination is not administered in case of:

- +gonorrhea
- brucellosis
- plague
- tuberculosis

Vaccination is not administered in case of:

- +scarlet fever
- anthrax
- typhus
- tetanus

Vaccination is not administered in case of:

- +borreliosis
- brucellosis
- typhoid fever
- diphtheria

Vaccination is not administered in case of:

- +colibacillosis (E.coli infection)
- brucellosis
- typhoid fever
- diphtheria

Gram-negative cocci are the bacteria of the genus:

- +Veilonella
- Treponema
- Salmonella
- Shigella
- Corynebacterium

Gram-negative cocci are the bacteria of the genus:

- +Neisseria
- Treponema
- Salmonella
- Shigella
- Corynebacterium

Gram-positive cocci are the bacteria of the genus:

- +Streptococcus
- Treponema
- Shigella
- Corynebacterium
- Neisseria

Gram-positive cocci are the bacteria of the genus:

- +Staphylococcus
- Salmonella
- Shigella
- Corynebacterium
- Neisseria

Which genus of bacteria has H-antigen?

- +Salmonella
- Staphylococcus
- Shigella
- Corynebacterium
- Neisseria

Which genus of bacteria has H-antigen?

- +Esherichia
- Staphylococcus
- Shigella
- Corynebacterium
- Neisseria

Which genus of bacteria has H-antigen?

- +Vibrio
- Streptococcus
- Shigella
- Mycobacterium

Which genus of bacteria does not have H-antigen?

- +Shigella
- Vibrio
- Salmonella
- Esherichia

Which genus of bacteria does not have H-antigen?

- +Streptococcus
- Vibrio
- Salmonella
- Esherichia

Which genus of bacteria has K-antigen?

- +Esherichia

Corynebacterium
Treponema
Leptospira

Which genus of bacteria has K-antigen?

+Salmonella
Corynebacterium
Treponema
Leptospira

The bacteria of this genus are aerobes:

+Neisseria
Shigella
Salmonella
Esherichia

The bacteria of this genus are aerobes:

+Mycobacterium
Shigella
Salmonella
Esherichia

The bacteria of this genus are not facultative anaerobes:

+Neisseria
Shigella
Salmonella
Esherichia

The bacteria of this genus grow as R-colonies (rough):

+Mycobacterium
Shigella
Salmonella
Esherichia

The bacteria of this genus grow as R-colonies (rough):

+Yersinia
Vibrio
Streptococcus
Salmonella

The bacteria of this genus grow as R-colonies (rough):

+Bacillus
Bordetella
Brucella
Salmonella

The bacteria of this genus grow as S-colonies (smooth):

+Brucella
Bacillus
Mycobacterium
Yersinia

The bacteria of this genus grow as S-colonies (smooth):

+Esherichia
Bacillus
Mycobacterium
Yersinia

Bacterioscopy is used in the diagnosing procedure of:

+gonorrhea
Legionnaires' disease
colibacillosis (E.coli infection)
brucellosis

Bacterioscopy is used in the diagnosing procedure of:

- +syphilis
- Legionnaires' disease
- listeriosis
- brucellosis

Bacterioscopy is used in the diagnosing procedure of:

- +anthrax
- Legionnaires' disease
- E.coli infection (escherichiosis)
- typhus

Bacterioscopy is not used in the diagnosing procedure of:

- +Legionnaires' disease
- anthrax
- tuberculosis
- gas gangrene

Bacterioscopy is not used in the diagnosing procedure of:

- +typhus
- relapsing fever
- meningococcal meningitis
- cholera

Bacterioscopy is not used in the diagnosing procedure of:

- +brucellosis
- anthrax
- plague
- cholera

A therapeutic serum is used to treat:

- +diphtheria
- typhus
- relapsing fever
- cholera

A therapeutic serum is used to treat:

- +tetanus
- tuberculosis
- plague
- E.coli infection (escherichiosis)

A therapeutic serum is used to treat:

- +botulism
- syphilis
- Lyme disease
- E.coli infection (escherichiosis)

A skin test is used in the diagnosing procedure of:

- +tuberculosis
- typhus
- relapsing fever
- meningococcal meningitis
- cholera

A skin test is used in the diagnosing procedure of:

- +anthrax
- syphilis
- listeriosis
- leptospirosis

A therapeutic vaccine is used to treat:

+gonorrhea
tuberculosis
plague
E.coli infection (escherichiosis)

A therapeutic serum is used to treat:

+brucellosis
syphilis
cholera
paratyphoid fever

Which infectious agent causes a highly hazardous infectious disease?

+Yersinia pestis
Neisseria gonorrhoeae
Leptospira interrogans
Haemophilus influenzae

Which infectious agent causes a highly hazardous infectious disease?

+Vibrio cholerae
Shigella flexneri
Clostridium perfringens
Bacteroides fragilis

All these infectious agents except one cause atypical pneumonia. Which one does not?

+Streptococcus pneumoniae
Coxiella burnetii
Legionella pneumophila
Chlamydiphila pneumonia

Dark-field microscopy is used to study:

+Treponema pallidum
Escherichia coli
Rickettsia
Staphylococcus
Chlamydia

The spore-forming bacteria are:

+Clostridia
Streptococci
Neisseria
Salmonella
Corynebacteria

Which infectious agent causes relapsing fever?

+Borrelia recurrentis
Bordetella pertussis
Salmonella typhi
Rickettsia prowazekii
Yersinia pestis

Which infectious agent causes anthrax?

+Bacillus anthracis
Corynebacterium diphtheriae
Bacteroides fragilis
Klebsiella pneumoniae
Pseudomonas aeruginosa

The first-choice medicinal drug to treat a chlamydia infection is:

+azithromycin
ampicillin
nystatin
gentamicin
clindamycin

Which bacterium produces an enterotoxin?

- +Vibrio cholerae
- Clostridium tetani
- Corynebacterium diphtheriae
- Bacillus anthracis

According to its mechanism of action related to a target cell the Botulinum toxin is:

- +a blocker of a nerve signal transmission
- an inhibitor of protein synthesis
- an activator of the adenylate cyclase system
- exfoliatin
- hemolysin

The diphtheria toxin is:

- +a histotoxin
- an endotoxin
- a neurotoxin
- an enterotoxin
- a leukocidin

What is a characteristic feature of both chlamydia and rickettsia?

- +obligate intracellular parasitism
- disjunctive reproduction
- ability to accumulate glycogen
- the presence of elementary bodies

The bacteria of this genus are gram-negative rods:

- +Shigella
- Clostridium
- Treponema
- Corynebacterium
- Neisseria

Vaccination is performed in case of:

- +tularemia
- relapsing fever
- gonorrhea
- psittacosis
- syphilis

The bacteria of this genus are gram-positive rods:

- +Corynebacterium
- Treponema
- Salmonella
- Shigella
- Neisseria

The bacteria of this genus are gram-positive rods:

- +Mycobacterium
- Esherichia
- Salmonella
- Shigella
- Francisella

Which of the following vaccines is divergent:

- +tuberculosis
- pertussis
- plague
- cholera
- brucellosis

The causative agent of whooping cough is:

+Bordetella pertussis
Yersinia pestis
Staphylococcus aureus
Bacillus anthracis

The bacteria of this genus are not gram-negative rods:

+Corynebacterium
Escherichia
Salmonella
Shigella
Francisella

Escherichia coli is grown on the following culture medium:

+Endo agar
bismuth sulfite agar
egg-yolk salt agar
Rappaport broth
alkaline agar

The cultural property of salmonella typhi growth on bismuth sulfite agar is:

+black-coloured bacterial colonies with metallic lustre
yellow-coloured smooth bacterial colonies
green-coloured rough bacterial colonies
transparent convex bacterial colonies

The Salmonella genus bacteria are:

+gram-negative motile rods
gram-positive motile rods
spore-forming
gram-negative cocci

The following is used in case of typhoid post-exposure (emergency) prevention for exposed humans:

+bacteriophage
split vaccine
toxoid
penicillin
multivalent immunoglobulin

The vaccine for specific prevention of typhoid is:

+inactivated whole-cell vaccine
chemical vaccine
combination vaccine
multivalent vaccine

The Escherichia genus bacteria are:

+gram-negative motile rods
gram-positive motile rods
spore forming
gram-negative cocci

The feature characteristic of E.coli growth on Endo agar is:

+red-coloured bacterial colonies with metallic lustre
semi-transparent bacterial colonies with uneven edges
colorless smooth bacterial colonies
blue-coloured matte bacterial colonies with even edges

Salmonella pathogenicity factors are:

+endotoxin and microcapsule
capsule and hyaluronidase
plasma coagulase and erythrogenin
permeases

The following property helps to differentiate between pathogenic diarrhea-causing Escherichia coli and potentially pathogenic Escherichia coli:

- +antigenic structure
- the ability to produce endotoxin
- the ability to utilize lactose
- the ability to produce H₂S (hydrogen sulfide)

The property which helps to single out pathogenic diarrhea-causing Escherichia coli is:

- +a set of pathogenicity factors
- being lactose negative
- the structure of the cell wall
- production of H₂S (hydrogen sulfide)

The conditions for the cultivation of Enterobacteriaceae family bacteria are:

- +at temperature +37°C
- microaerophilic conditions
- anaerobic conditions
- at room temperature
- in the organisms of sensitive animals

The properties of Salmonella genus bacteria are:

- +lactose negative, produce hydrogen sulfide
- immotile, lactose positive
- motile, do not produce hydrogen sulfide;
- gram-positive, motile

This enrichment growth medium is used to culture salmonellas:

- +selenite broth
- peptone water
- sugar broth
- salt broth

The properties of the Escherichia genus bacteria are:

- +motile, do not produce hydrogen sulfide
- lactose negative, produce hydrogen sulfide
- immotile, lactose positive
- gram-positive, motile

The following medications are used to treat bacterial intestinal infections:

- +eubiotics and bacteriophages
- bacteriophages and vitamins
- antibiotics and immunoglobulins
- immunoglobulins and interferons

The growth medium for salmonella pure culture isolation is:

- +bismuth sulfite agar
- meat peptone agar
- egg-yolk salt agar
- blood agar
- alkaline agar

This sugar is fermented to acid by salmonellas:

- +glucose
- sucrose
- lactose
- maltose
- mannitol

Escherichia coli pathogenicity factors are:

- +endotoxin and microcapsule
- capsule and hyaluronidase
- plasma coagulase and erythrogenin
- permeases

Shigellae pathogenicity factors are:
+invasive proteins and exotoxin
Vi-antigen and endotoxin
exotoxin and flagella
hemolysin and endotoxin

The colonies of shigellae on Endo agar are:
+colorless, semi-transparent
blue-coloured with the smooth edge
red-coloured, convex
green-coloured with a metallic sheen

All the following are the serotypes of vibrio cholerae except:
+Choleraesuis
Ogawa
Inaba
Hikojima

Vibrio cholerae forms:
+flagella
spores
capsules
cysts

The selective growth medium for vibrio cholerae is:
+alkaline agar
sugar agar
saline agar
serum agar

The morphology of shigellae is:
+gram (-) immotile rods
gram (+) rods
gram (-) motile rods
gram (-) immotile cocci
gram (+) cocci

The following sugar is fermented to acid by shigellae:
+glucose
lactose
maltose
sucrose

The serogroups of vibrio cholerae are differentiated according to the structure of:
+somatic antigens
capsule antigens
flagellar antigens
exotoxins

The growth media for vibrio cholerae is:
+peptone water
selenite broth
meat peptone broth
salt broth

Vibrio cholerae pathogenicity factors are:
+enterotoxin and neuraminidase
invasive proteins and capsule
Vi-antigen and endotoxin
leukocidin and endotoxin

The properties of the Shigella genus bacteria are:

+lactose negative, immotile
motile, lactose positive
microaerophilic
produce hydrogen sulfide

The growth medium used for shigella pure culture isolation is:

- +Endo agar
- Olkenitsky's medium
- Rappaport broth
- Kligler medium

Vibrio cholerae on liquid growth media forms:

- +a membrane in 6 hours
- diffuse opacity in 12 hours
- a membrane in 18 hours
- precipitate in 3 hours

What is a characteristic of Vibrio cholerae growth in a liquid growth media:

- +forms a film, the broth remains transparent
- diffuse cloudiness of the broth
- forms a film, the broth becomes cloudy

The test which is used to differentiate between classical and El-Tor biotypes of vibrio cholera is:

- +chicken erythrocytes agglutination
- hemadsorption test
- precipitation reaction
- complement fixation test

This reaction is used to define the antigenic structure of shigella:

- +agglutination
- neutralization
- flocculation
- precipitation

This helps to differentiate between classical and El-Tor biotypes of vibrio cholerae:

- +sensitivity to specific bacteriophages
- agglutination of sheep's erythrocytes
- sensitivity to penicillin
- their relation to Inaba serum

The Vibrio cholerae bacteria are:

- +gram-negative curved motile rods
- gram-positive motile rods
- gram-positive immotile rods
- gram-negative motile cocci

The selective growth medium for Vibrio cholerae is:

- +thiosulfate-citrate-bile salts-sucrose agar (TCBS)
- egg-yolk salt agar
- bismuth sulfite agar
- meat peptone agar

The growth medium for Corynebacteria pure culture isolation is:

- +blood tellurite agar
- alkaline agar
- bismuth-sulfite agar
- egg-yolk salt agar
- serum agar

The property of a pertussis infectious agent (Bordetella pertussis) is:

- +it needs special growth media
- it is biochemically active
- it is resistant to environmental conditions

it grows on only simple culture media

The vaccine for specific prevention of tuberculosis is:

- +live
- molecular
- whole-cell
- chemical

The staining method used for a tuberculosis infectious agent (*Mycobacterium tuberculosis*) is:

- +Ziehl-Neelsen stain
- Aujeszky stain
- Gram stain
- Neisser stain

The property of *Bordetella pertussis* is:

- +gram-negative small rods
- large rods
- gram-positive small rods
- gram-negative curved rods
- diplobacilli

The volutin granules in *Corynebacterium* are detected with the help of this staining method:

- +Neisser stain
- Ziehl-Neelsen stain
- Burri-Gin's stain
- Aujeszky stain

The medication for pre-exposure specific prevention of diphtheria contains:

- +toxoid
- antitoxin
- antibiotic substance
- aciclovir

The colonies of *Mycobacterium tuberculosis* are:

- +gray with the irregular margin, non-transparent
- black convex
- colorless, semi-transparent
- gray with a metallic sheen

The growth medium for *Bordetella* cultivation is:

- +Bordet-Gengou agar
- Wilson and Blair medium
- Kitt-Tarozzi medium
- Shkolnikova medium

The property of *Corynebacterium diphtheriae* is:

- +it is biochemically active
- it does not need special growth media
- it is sensitive to environmental conditions
- it grows on only simple culture media

The staining method for *Bordetella pertussis* is:

- +Gram stain
- Ziehl-Neelsen stain
- Aujeszky stain
- Neisser stain

The growth medium for *Corynebacterium* culturing is:

- +Clauberg medium
- Kligler medium
- Hottinger medium
- Rappaport medium

The culture medium for culturing Bordetella is:

- +Bordet-Gengou medium
- Endo medium
- Clauberg medium
- Ploskirev medium

The property characteristic of Mycobacterium tuberculosis is:

- +gram-positive large rods
- gram-positive small rods
- gram-negative curved rods
- gram-negative small ovoid rods

The property of Mycobacterium tuberculosis is:

- +it needs special growth media
- it is sensitive to environmental conditions
- it grows on only simple culture media

The properties characteristic of Corynebacterium diphtheriae are:

- +gram-positive large rods
- gram-positive small rods
- gram-negative curved rods
- gram-negative small ovoid rods

The medication for specific treatment of diphtheria contains:

- +antitoxin
- toxoid
- eubiotic
- interferon

The optimum growth medium for mycobacteria culturing is:

- +Löwenstein-Jensen medium
- Wilson and Blair medium
- Kitt-Tarozzi medium
- Bordet-Gengou agar

Staphylococci can affect:

- +any tissue in human body
- skin and mucous membranes
- internal organs
- ears, nasopharynx, sinuses

Pneumonia streptococci are:

- +elongated diplococci surrounded by capsule
- spherical, assembled in grapes
- spherical, assembled in chains
- diplococci in the shape of coffee beans, Gram-negative

Meningococci are divided into serogroups according to the differences in:

- +capsular antigens
- somatic antigens
- flagellar antigens
- cell wall antigens

Gonorrhea causing bacteria are:

- +Gram-negative diplococci
- Gram-positive diplococci
- Gram-negative streptobacilli
- Gram-positive streptobacteria
- Gram-negative coccobacilli

What colonies do pathogenic streptococci form on blood agar?

- +small greyish with hemolysis
- small yellow with hemolysis

large yellow without hemolysis
large white with hemolysis

Scarlet fever causing bacteria are:
+hemolytic streptococci of serogroup A
streptococci of serogroup B
streptococci of serogroup C
streptococci of serogroup D

Gonococcal vaccine is used for:
+vaccine treatment
creating stable antitoxic immunity
creating passive immunity

Meningococcal bacteria are:
+Gram-negative ovoid diplococci
Gram-positive ovoid diplococci
Gram-negative rods
Gram-positive rods with volutin granules
Gram-negative coccobacilli

The property of *Staphylococcus aureus* is the following:
+it needs special growth media
it is biochemically non-active
it has an H-antigen
it has a Vi-antigen

The bacteria which cause scarlet fever are:
+gram-positive, round, arranged in a chain
gram-positive diplococci of elongated shape surrounded by a capsule
gram-negative, round, arranged as grapes bunches
gram-negative diplococci of coffee beans shape

The property of *Neisseria gonorrhoeae* is the following:
+it needs special growth media
it is biochemically active
it has an H-antigen
it grows on simple culture media

Which diagnostic method is not used for diagnosing cholera?
+skin allergy test
Bacteriological
serological
bacterioscopic

Which assay is used to determine *Vibrio cholerae* serovars?
+agglutination
precipitation
complement fixation
neutralization

Which assay is used to evaluate the toxigenicity of *Corynebacterium diphtheriae*?
+precipitation test
immunofluorescence assay
indirect hemagglutination assay
hemagglutination assay

The test sample for the microbiological diagnosis of scarlet fever is:
+pharynx swabs
blood serum
urine
wound discharge
feces

The 2-nd stage of colibacilosis bacteriological diagnosis includes:
+agglutination assay with the material from 10 colonies
precipitation test with the material from 1 colony
flocculation test with the material from 5 colonies

What do typical *Corynebacterium mitis* colonies look like?
+black small rough-surfaced
large black flat
glossy grey small
glossy black small
grayish small rough-surfaced

What do typical *Corynebacterium gravis* colonies look like?
+greyish large rough-surfaced
large black flat
glossy grey small
glossy black small
black small rough-surfaced

Specify the assay which is used to detect antibodies in case of gonorrhea:
+complement fixation test;
immunofluorescence assay;
indirect hemagglutination assay;
precipitation test;
neutralization test.

Choose the serodiagnostic test which is used to diagnose typhoid fever:
+Widal's
Bordet-Gengou's
Wright's
Hedelson's

The growth medium for shigella bacteria isolation is:
+Ploskirev's;
Olkenitsky's;
Rappaport's;
Klauberg's.

The inoculation of gonorrhea test sample is done on:
+serum agar
alkaline agar
egg-yolk agar
liver agar

The production of corynebacteria toxin is related to:
+lysogenization
cord factor
volutin granules
glucose fermentation
microcapsule

Streptococci pneumonia in sputum are:
+diplococci of elongated shape surrounded by a capsule;
round-shaped, arranged as grapes bunches;
round-shaped, arranged in a chain;
diplococci of coffee bean shape.

The pigment of *Pseudomonas aeruginosa* bacterial colonies is:
+green
brown
black
red

The immunity after diphtheria is:

- +antitoxic
- long-term
- antibacterial
- short-term

The growth medium for culturing Pseudomonas aeruginosa is:

- +meat-peptone agar
- egg-yolk salt agar
- potato charcoal agar
- blood-tellurite agar

Which diagnosticum is used in Widal test:

- +suspended dead bacteria
- sera with antibodies against O- and H-antigens
- phages preparations
- animal RBCs

The following assay is used to define the antigenic structure of Escherichia:

- +agglutination assay
- hemagglutination assay
- complement fixation test
- precipitation reaction

The Shigella bacteria:

- +are lactose negative
- form spores
- have H-antigen

What is the culture medium used for accumulating Vibrio cholerae when isolating it from the pathogenic material:

- +alkaline peptone water
- sugar broth
- saline broth
- selenite broth

What is the growth medium for culturing streptococci?

- +blood agar
- beef-extract agar
- egg-yolk salt agar
- casein-charcoal agar
- hepatic agar

In case of typhoid fever the source of infection is:

- +sick people
- domestic animals
- the environment

Which bacterium does not belong to the main representatives of genus Staphylococcus:

- +pyogenes
- aureus
- epidermidis
- saprophyticus

All these mycobacteria cause tuberculosis in humans **except:**

- +M. kansasii
- M. tuberculosis
- M. avium
- M. bovis
- M. africanum

Staphylococci phage typing is aimed at:

- +detecting the source and the transmission ways of the infection

isolating a pure culture
identifying staphylococci
detecting antibiotic sensitivity

Which medium is not used to detect the saccharolytic activity of microorganisms?

- +Muller
- Kliegler
- Levin
- Endo

Which material for microbiological study should be taken from a patient with suspected diphtheria?

- +mucus from the oropharynx
- rectal swabs
- urine
- cerebrospinal fluid

The pathogenicity of *Mycobacterium tuberculosis* is related to:

- +proteins of the cell wall
- hemolysin
- flagella
- neuraminidase

The 3-rd stage of cholera diagnosis includes:

- +serotypes differentiation
- inoculation on specific growth media
- evaluation of the growth features on MacConkey's medium
- detection of motility

The 1-st stage of tuberculosis diagnosis includes:

- +inoculation on specific growth media
- phage typing
- biochemical properties evaluation
- electron microscopy

The morphological characteristic of *Pseudomonas aeruginosa* is:

- +they are motile
- they are immotile
- they are large gram-positive rods
- they are spore-producing

The morphological characteristic of *Pseudomonas aeruginosa* is:

- +they are gram-negative rods of a medium size
- they are immotile
- they are large gram-positive rods
- they are spore-producing

Point out the characteristic property of *Neisseria gonorrhoeae*:

- +it ferments glucose
- it ferments sucrose
- it is resistant in the environment
- it produces hydrogen sulfide

The study material for the bacteriological diagnosis of shigellosis is:

- +rectal swabs
- blood
- urine
- wound discharge
- sputum

The study material for the bacteriological diagnosis of shigellosis is:

- +feces
- blood
- urine

wound discharge
sputum

Which preparation is used for the serological diagnosis of typhoid fever:

- +Vi-diagnosticum
- bacteriophages
- adsorbed monoreceptor serum
- non-adsorbed serum

The rapid test for cholera diagnosis is:

- +immunofluorescence assay
- compliment fixation test
- indirect hemagglutination assay
- precipitation test
- hemagglutination assay

The rapid test for cholera diagnosis is:

- +polymerase chain reaction
- compliment fixation test
- indirect hemagglutination assay
- precipitation test
- hemagglutination assay

This preparation is used for pertussis prevention:

- +combination vaccine
- attenuated vaccine
- divergen vaccine
- bacteriophages
- eubiotics

The morphological characteristic of Yersinia pseudotuberculosis is:

- +they are gram-negative rods of a medium size
- they produce spores
- they are gram-negative cocci
- they are gram-positive rods

The antigen of Esherichia coli is:

- +somatic
- ribosomes
- proteins of the cell wall
- polypeptides of the capsule
- mycolic acids

The antigen of Esherichia coli is:

- +polysaccharides of the capsule
- ribosomes
- proteins of the cell wall
- polypeptides of the capsule
- mycolic acids

Point out the pathogenicity factor of Legionella pneumophila:

- +superoxide dismutase
- enterotoxin
- capsule
- lecithinase
- peroxidase

Point out the pathogenicity factor of Legionella pneumophila:

- +endotoxin
- enterotoxin
- capsule
- lecithinase
- peroxidase

The material for bacteriological diagnosis of listeriosis is:

- +cerebrospinal fluid
- urine
- bile
- wound discharge

The material for bacteriological diagnosis of listeriosis is:

- +blood
- urine
- bile
- wound discharge

The following assay is used for typhoid fever serodiagnosis:

- +enzyme-linked immunosorbent assay
- complement fixation test
- precipitation test
- hemagglutination assay
- neutralization test

The following feature is studied during the 2-nd stage of the bacteriological diagnosis for scarlet fever:

- +the properties of hemolysis
- motility
- sensitivity to bacteriophages
- saccharolytic properties

Point out *Streptococcus pneumoniae* pathogenicity factor:

- +M protein
- flagella
- enterotoxin
- endotoxin

Point out *Streptococcus pneumoniae* pathogenicity factor:

- +capsule
- flagella
- enterotoxin
- endotoxin

This feature is studied during the 3-rd stage of the staphylococcal infection diagnosis:

- +saccharolytic properties
- the smears of the study material
- the properties of hemolysis
- the growth features on egg-yolk salt agar
- the catalase test results

This feature is studied during the 3-rd stage of the staphylococcal infection diagnosis:

- +phage types (phagovars)
- the smears of the study material
- the properties of hemolysis
- the growth features on egg-yolk salt agar
- the catalase test results

The growth media for *Yersinia enterocolitica* culturing is:

- +MacConkey agar
- Wilson and Blair's
- Kitt-Tarozzi's
- Mueller-Hinton agar

Point out the antigen of *Salmonella* genus bacteria:

- +polysaccharides of the capsule
- ribosomes
- proteins of the cell wall
- polypeptides of the capsule

mycolic acids

Point out the antigen of *Salmonella* genus bacteria:

- +somatic
- ribosomes
- proteins of the cell wall
- polypeptides of the capsule
- mycolic acids

The study material for pertussis bacteriological diagnosis is:

- +nasopharyngeal swabs
- rectal swabs
- wound discharge
- cerebrospinal fluid

The study material for pertussis bacteriological diagnosis is:

- +sputum
- rectal swabs
- wound discharge
- cerebrospinal fluid

The preparation used for the staphylococcal infection treatment is:

- +antibiotics
- genetically engineered vaccine
- antiseptics
- toxoids
- eubiotics

The preparation used for the post-exposure (urgent) prevention of diphtheria is:

- +immunoglobulin
- combination vaccine
- attenuated vaccine
- bacteriophages
- eubiotics

Point out the property characteristic of *Yersinia pseudotuberculosis*:

- +it is a psychrophile
- it needs only special growth media
- it is resistant to heating
- it has mycolic acids

Point out the property characteristic of *Yersinia pseudotuberculosis*:

- +it has H-antigen
- it needs only special growth media
- it is resistant to heating
- it has mycolic acids

The following is not the antigen of *Neisseria gonorrhoeae*:

- +flagella
- lipopolysaccharides of the outer membrane
- proteins of the outer membrane
- pili
- capsules

The following feature is studied at the 2-nd stage of listeriosis bacteriological diagnosis:

- +hemolysis characteristics
- sensitivity to bacteriophages
- saccharolytic properties
- the catalase test results

The following feature is studied at the 2-nd stage of listeriosis bacteriological diagnosis:

- +pure culture smear
- sensitivity to bacteriophages

saccharolytic properties
the catalase test results

The preparation for the staphylococcal infection prevention is:
+immunoglobulins
combination vaccine
eubiotics
divergent vaccine

The preparation for the staphylococcal infection prevention is:
+toxoids
combination vaccine
eubiotics
divergent vaccine

The study materials for the bacteriological diagnosis of typhoid fever are all the following except:
+saliva
blood
urine
bile
feces

The study materials for the bacteriological diagnosis of typhoid fever are all the following except:
+wound discharge
blood
urine
bile
feces

The assay for the serodiagnosis of Legionnaires' disease is:
+immunofluorescence assay
precipitation test
hemadsorption assay
hemagglutination assay
neutralization test

The assay for the serodiagnosis of Legionnaires' disease is:
+enzyme-linked immunosorbent assay
precipitation test
hemadsorption assay
hemagglutination assay
neutralization test

The following feature is studied at the 2-nd stage of pertussis bacteriological diagnosis:
+the pure culture smear
motility
sensitivity to bacteriophages
saccharolytic properties
the results of the neutralization test

The following feature is studied at the 2-nd stage of pertussis bacteriological diagnosis:
+the results of the agglutination test
motility
sensitivity to bacteriophages
saccharolytic properties
the results of the neutralization test

The following feature is evaluated at the 3-rd stage of colibacillosis diagnosis:
+antigenic properties
the smears of the study material
the growth features on bismuth sulfite agar
the growth features on Endo agar
the pure culture smear

The following feature is evaluated at the 3-rd stage of colibacillosis diagnosis:

- +biochemical properties
- the smears of the study material
- the growth features on bismuth sulfite agar
- the growth features on Endo agar
- the pure culture smear

Point out the preparation which is used for the treatment of the meningococcal infection:

- +antibiotics
- antiseptics
- toxoids
- eubiotics
- bacteriophages

Point out the characteristic property of *Bordetella pertussis*:

- +they form S-colonies in 3-5 days
- psychrophiles
- they form R-colonies in 48 hours
- it is resistant to heating
- thermophiles

Point out the antigen of *Yersinia enterocolitica*:

- +somatic
- proteins of the capsule
- proteins of the pili
- mycolic acids

The 1-st stage of Legionnaires' disease diagnosis includes:

- +infecting chicken embryos
- inoculation on chocolate agar
- inoculation on meat-peptone agar
- neutralization test

The following feature is studied at the 3-rd stage of shigellosis diagnosis:

- +the growth features on Kligler's medium
- the smear of the study material
- the growth features on MacConkey's medium
- the pure culture smear
- the results of the precipitation test

The following feature is studied at the 3-rd stage of shigellosis diagnosis:

- +the results of the agglutination test
- the smear of the study material
- the growth features on MacConkey's medium
- the pure culture smear
- the results of the precipitation test

The growth media for the culturing of *Salmonella* genus bacteria is:

- +Rappaport's medium
- Monsur's medium
- Korthof's medium
- Kitt-Tarozzi's medium

Which growth medium is used to isolate Typhoid fever blood culture?

- +Rappaport medium
- beef-extract agar
- egg-yolk salt agar
- Endo medium

Point out the biological properties of *Staphylococcus aureus*:

- +ferments mannitol
- it is a strict anaerobe

microaerophile
psychrophile
catalase-negative

The following procedure is held at the 2-nd stage of typhoid fever bacteriological diagnosis:
+agglutination assay
precipitation test
flocculation test
detection of phage types

The following procedure is held at the 2-nd stage of typhoid fever bacteriological diagnosis:
+microscopy of the pure culture smear
precipitation test
flocculation test
detection of phage types

The 3-rd stage of cholera diagnosis includes:

+serotypes differentiation
evaluation of the growth features on Monsur's medium
evaluation of the growth features on MacConkey's medium
detection of motility
detection of bacteria's shape

The 3-rd stage of cholera diagnosis includes:

+biotypes differentiation
evaluation of the growth features on Monsur's medium
evaluation of the growth features on MacConkey's medium
detection of motility
detection of bacteria's shape

Point out the preparation which is used for shigellosis treatment:

+antibiotics
antiseptics
antitoxins
toxoids
vaccines

Point out the preparation which is used for shigellosis treatment:

+bacteriophages
antiseptics
antitoxins
toxoids
vaccines

Point out the characteristic property of Escherichia coli:

+it forms S-colonies in 24 hours
psychrophile
it does not grow on simple culture media
it forms R-colonies in 72 hours

The material for Legionnaires' disease diagnosis is:

+sputum
vaginal swab
wound discharge
rectal swab
ear swab

The 1-st stage of the staphylococcal infection diagnosis includes:

+inoculation on blood agar
infecting chicken embryos
inoculation on meat-peptone agar
agglutination assay
dark-field microscopy

The 1-st stage of the staphylococcal infection diagnosis includes:

- +inoculation on egg-yolk salt agar
- infecting chicken embryos
- inoculation on meat-peptone agar
- agglutination assay
- dark-field microscopy

This feature is considered at the 2-nd stage of tuberculosis bacteriological diagnosis:

- +the speed of the culture growth
- sensitivity to bacteriophages
- saccharolytic properties
- hemolysis features
- sensitivity to antibiotics

This feature is considered at the 2-nd stage of tuberculosis bacteriological diagnosis:

- +morphological characteristics of the culture
- sensitivity to bacteriophages
- saccharolytic properties
- hemolysis features
- sensitivity to antibiotics

Which microbiological method is **not** used to diagnose tuberculosis?

- +biological
- bacterioscopic
- bacteriological
- skin allergy tests
- serological

Point out the preparation which is used for the treatment of the salmonella-caused infection:

- +antibiotics
- antiseptics
- antitoxins
- toxoids
- antifungal (antimycotic) medications

Point out the biological properties of Corynebacterium diphtheriae:

- +it produces cystinase
- psychrophile
- it have 5 serotypes
- it is aerotolerant

The study material for tuberculosis diagnosis is:

- +sputum
- vaginal swab
- wound discharge
- rectal swab
- ear swab

The preparation for meningococcal meningitis prevention is:

- +molecular vaccine
- attenuated vaccine
- divergent (closely-related, cross-protective) vaccine
- toxoid
- antibiotics

The following features are studied at the 3-rd stage of salmonellosis diagnosis:

- +antigenic properties
- the growth features on bismuth-sulfite agar
- the smears of the study materials
- the growth features on Endo agar

Point out the pathogenicity factor of Yersinia enterocolitica:

+cytotoxin
invasion/ aggression enzymes
neuraminidase
erythrogenin

Point out the pathogenicity factor of Yersinia enterocolitica:

+enterotoxin
invasion/ aggression enzymes
neuraminidase
erythrogenin

Meningococci are cultured on:

+serum agar
egg-yolk agar
blood agar
alkaline agar

Bacillus anthracis is:

+gram+ rod-shaped
gram+ coccus
gram- rod-shaped
gram- coccus
gram+ coccibacterium

The pathogenicity factors of Yersinia pestis are:

+exotoxin and hemolysins
hyaluronidase and endotoxin
endotoxin and flagella
capsule and fibrinolysin

The property of Francisella tularensis is:

+it needs special growth media
it is biochemically active
it has H-antigen
it grows on only simple culture media

The peculiarity of Bacillus anthracis pure culture grown on meat-peptone agar is:

+the absence of capsule
the absence of flagella
formation of flagella
the absence of peptidoglycan

Pathogenicity factors of Bacillus anthracis are:

+exotoxin and capsule
hyaluronidase and endotoxin
endotoxin and flagella
capsule and fibrinolysin

Brucella bacteria are:

+gram- rods;
gram+ cocci;
gram+ rods;
gram- cocci.

Yersinia pestis forms the following structures in a sick person's body:

+capsules
spores
flagella
cysts
druses

The growth medium for Francisella tularensis pure culture isolation is:

+egg-yolk agar

liver agar
serum agar
potato agar

The growth medium for *Bacillus anthracis* cultivation is:

+meat-peptone agar
egg-yolk salt agar
alkaline agar
chocolate agar
serum agar

Brucella pathogenicity factors are:

+capsule and endotoxin
exotoxin and hemolysins
endotoxin and flagella
neuraminidase and exotoxin

Yersinia pestis is:

+gram- rod of ovoid shape
gram+ rod with blunt ends
gram+ coccus
gram- coccus
gram+ coccibacterium

The property of *Bacillus anthracis* is:

+it ferments gelatin
it doesn't ferment glucose
it doesn't ferment starch
it is motile

The property of *Yersinia pestis* is:

+it forms rough colonies
it is aerobic
it grows only at 37C
it is aerotolerant

Brucella species are all the following except:

+*B. saprophyticus*
B. melitensis
B. abortus
B. suis

The growth medium for *Yersinia pestis* pure culture isolation is:

+meat-peptone agar
egg-yolk salt agar
potato charcoal agar
blood-tellurite agar

Francisella tularensis is:

+gram- rod
gram+ coccus
gram+ rod
gram- coccus

Lyme disease is transmitted through the bites of:

+Ixodidae (hard) ticks
fleas
Argasidae (soft) ticks
mosquitoes

Treponema pallidum (causing syphilis) has this property:

+it stains pale-pink with Romanovsky-Giemsa stain
it is gram+

it has 20-40 primary coils
it has 5-6 primary coils

Leptospira bacteria:

+are thin light-coloured spiral filaments with hook-like bent ends
have 8-12 coils
stain pale-pink with Romanovsky-Giemsa stain
form spores

Borrelia bacteria:

+are spiral-shaped with 3-8 coils
are thin light-coloured spiral filaments with hook-like bent ends
stain red with Ziehl-Neelsen stain
are gram+ microorganisms

Leptospira bacteria have the following peculiarities on liquid growth media:

+no visible changes
diffuse opacity
membrane and precipitate
membrane, transparent broth
precipitate, transparent broth

Treponema pallidum has the following type of motion:

+all mentioned here
bending motion
forward linear motion
pendulum-like motion
corkscrew motion

Treponema pallidum resistance in the environment:

+they are rather resistant to low temperature in humid conditions
they are not sensitive to heating
they are resistant to sunlight
they are not sensitive to drying

The serotypes of Leptospira are differentiated according to the specificity of:

+lipopolysaccharide antigen
protein antigen
flagellar antigen
Vi-antigen

This microscopy technique is used to detect relapsing fever causative agents:

+dark field
electron
fluorescence
light (optical)

The growth media for Leptospira cultivation is:

+Korthof's
Clauberg's
Kligler's
Rappaport's

The differential staining method for Spirochaete bacteria is:

+Romanovsky-Giemsa
Burri-Gin's
Ziehl-Neelsen
Neisser

Borrelia in the environment are:

+sensitive to drying
not sensitive to heating
not sensitive to disinfectants

persistent in soil for a long time

Treponema pallidum pathogenicity factors are:
+outer membrane proteins and endotoxin
erythrogenic toxin and hemolysins
endotoxin and spores
capsule and endotoxin

The causative agent of epidemic relapsing fever is:

- +B. recurrentis
- B. burgdorferi
- B. melitensis
- B. pertussis

The property of leptospirosis pathogen is:

- +they form secondary coils
- they have “seagull wing” bends
- they grow on simple culture media
- they form capsules

What assay is used as a screening test for syphilis:

- +compliment fixation test
- immunofluorescence assay
- hemadsorption assay
- hemagglutination assay
- neutralization test

Ascoli thermal precipitation test is used to diagnose:

- +anthrax
- plague
- tularaemia
- brucellosis

The following procedure is held during the rapid test of leptospirosis:

- +detection of antibodies with the help of the enzyme-linked immunosorbent assay
- detection of antigens in blood with the help of the hemagglutination inhibition assay
- detection of antigens in blood with the help of the enzyme-linked immunosorbent assay
- detection of antibodies with the help of the precipitation test

All these methods are used to diagnose relapsing fever **except:**

- +bacteriological
- bacterioscopic
- bioassay
- serological

The causative agent of endemic relapsing fever is:

- +B. duttonii
- B. burgdorferi
- B. melitensis
- B. recurrentis
- B. pertussis

The 2-nd stage of anthrax diagnosis includes:

- +the evaluation of the sensitivity to bacteriophages
- the microscopy of the “hanging drop” preparation
- saccharolytic properties evaluation
- inoculation on meat-peptone agar
- flocculation test

The 1-st stage of brucellosis diagnosis includes:

- +infecting laboratory animals
- inoculation on chocolate agar
- inoculation on meat-peptone agar

neutralization test

The preparation for anthrax prevention is:

- +immunoglobulins
- toxoid
- molecular vaccine
- bacteriophages
- eubiotics

The preparation for anthrax prevention is:

- +live vaccine
- toxoid
- molecular vaccine
- bacteriophages
- eubiotics

Which reaction is used for the serological diagnosis of brucellosis:

- +Wright test
- Widal test
- Ascoli test
- Wassermann test

How is the disease caused by Treponema pallidum transmitted:

- +vertically (from mother to child)
- through food
- through water

Anthrax bacteria are:

- +large blunt-pointed rods
- ovoid rods, exhibiting bipolar staining
- small Gram-positive rods

Which microscopy method is used to detect the causative agent of syphilis:

- +darkfield microscopy
- electron microscopy
- Ziehl-Neelsen staining
- Romanowsky-Giemsa staining

Which arthropods transmit plague:

- +fleas
- ticks
- bedbugs
- lice

What is used for Burnet test:

- +brucellin
- pestin
- anthraxin
- tularin

What morphological properties do spirochetes have:

- +they are curved
- they are diplobacteria
- they are branching bacteria
- they form of spores

What is used for specific prevention of plague:

- +live vaccine
- inactivated vaccine
- toxoid
- multipartial vaccine
- specific prevention is not performed

This assay is used for Lyme disease serodiagnosis:

- +indirect immunofluorescence assay
- complement fixation test
- indirect hemagglutination assay
- neutralization test

This assay is used for Lyme disease serodiagnosis:

- +enzyme-linked immunosorbent assay
- complement fixation test
- indirect hemagglutination assay
- neutralization test

Which assay is used as a screening test for syphilis:

- +microprecipitation
- agglutination
- hemagglutination inhibition
- neutralization

Which assay is used for the serological diagnosis of anthrax:

- +Ascoli test
- Wright test
- Widal test
- Wassermann test

Which serologic assay is used to diagnose brucellosis:

- +Heddelson test
- Bordet-Gengou test
- Wassermann test
- Widal reaction

Treponema pallidum forms the following structures in a sick person's body:

- +cysts
- spores
- flagella
- capsules

The property of leptospirosis pathogen is:

- +it needs special growth media
- it is biochemically active
- it has Vi-antigen
- it grows on simple culture media

Point out the antigen of Brucella melitensis:

- +somatic antigen
- ribosomal antigen
- cell wall antigen
- flagellar antigen

Point out the antigen of Brucella melitensis:

- +capsule antigen
- ribosomal antigen
- cell wall antigen
- flagellar antigen

The following procedure is performed at the 3-rd stage of plague diagnosis:

- +biochemical properties evaluation
- bacterioscopy of study material smears
- toxicogenicity evaluation
- antibodies detection
- electron microscopy

The following procedure is performed at the 3-rd stage of plague diagnosis:

- +phage typing

bacterioscopy of study material smears
toxigenicity evaluation
antibodies detection
electron microscopy

This preparation is used for anthrax treatment:
+antibiotics
genetically engineered vaccine
toxoids
antiseptics
bacteriophages

This preparation is used for anthrax treatment:
+immunoglobulin
genetically engineered vaccine
toxoids
antiseptics
bacteriophages

The preparation for plague prevention is:
+antibiotics
combination vaccine
divergent vaccine
bacteriophages
eubiotics

The preparation for plague prevention is:
+attenuated vaccine
combination vaccine
divergent vaccine
bacteriophages
eubiotics

This preparation is used for leptospirosis treatment:
+immunoglobulin
genetically engineered vaccine
toxoids
eubiotics
bacteriophages

This preparation is used for leptospirosis treatment:
+antibiotics
genetically engineered vaccine
toxoids
eubiotics
bacteriophages

Point out the pathogenicity factor of Francisella tularensis:
+endotoxin
erythrogenin
enterotoxin
superoxide dismutase
M protein

Point out the assay which is not used for syphilis serodiagnosis:
+hemagglutination assay
immonofluorescence assay
complement fixation test
indirect hemagglutination assay
enzyme-linked immunosorbent assay

The morphological characteristic of Leptospira genus bacteria is:
+they are gram-negative

they form capsules
they produce spores
they are branched

The morphological characteristic of Leptospira genus bacteria is:

+they form cysts
they form capsules
they produce spores
they are branched

Point out the antigens of Yersinia pestis:

+somatic
ribosomal
lipoteichoic
flagellar

The study material for syphilis diagnosis is:

+blood serum
pleural cavity fluid
wound discharge
feces

The study material for syphilis diagnosis is:

+lymph node aspirate
pleural cavity fluid
wound discharge
feces

The rapid test for leptospirosis diagnosis is:

+enzyme-linked immunosorbent assay
immunofluorescence assay
compliment fixation test
indirect hemagglutination assay
precipitation test
hemagglutination assay

The rapid test for leptospirosis diagnosis is:

+polymerase chain reaction
immunofluorescence assay
compliment fixation test
indirect hemagglutination assay
precipitation test
hemagglutination assay

The study material for brucellosis diagnosis is:

+blood serum
lymph node aspirate
pleural cavity fluid
wound discharge
feces

The rapid test for plague diagnosis is:

+polymerase chain reaction
compliment fixation test
indirect hemagglutination assay
precipitation test
hemagglutination assay

The rapid test for plague diagnosis is:

+immunofluorescence assay
compliment fixation test
indirect hemagglutination assay
precipitation test

hemagglutination assay

The 1-st stage of anthrax diagnosis includes:
+inoculation on meat-peptone agar
inoculation on chocolate agar
infecting chicken embryos
infecting monkeys

This assay is used to detect antibodies in case of relapsing fever:
+enzyme-linked immunosorbent assay
complement fixation test
indirect hemagglutination assay
hemagglutination inhibition assay

This assay is used to detect antibodies in case of relapsing fever:
+indirect immunofluorescence assay
complement fixation test
indirect hemagglutination assay
hemagglutination inhibition assay

Point out the preparation which is used for leptospirosis prevention:
+vaccines
bacteriophages
antiseptics
eubiotics
antitoxins

All these are the components of a spirochete cell **except**:
+spores
cytoplasmic cylinder
cell wall
fibrillar motility apparatus

The cultural property of Brucella genus bacteria is:
+they form smooth colonies
they form rough colonies
they grow on simple culture media
they are psychrophiles

The 1-st stage of plague diagnosis includes:
+inoculation on meat-peptone agar
inoculation on egg-yolk salt agar
infecting chicken embryos
dark-field microscopy

This feature is considered at the 3-nd stage of anthrax diagnosis:
+sensitivity to antibiotics
the growth features on blood agar
the results of the dark-field microscopy
spores position

Brill-Zinsser disease is:
+endogenous relapse
reinfection
superinfection
secondary infection

Rickettsia differ from the majority of bacteria by:
+the ability to multiply only in living cells
the absence of the membrane which surrounds the nucleoid
the presence of mesosomes
the presence of the internal axial filament

Chlamydia have the following property:
+they are gram–
they have a branched shape
they are eukaryotes
they cause opacity on liquid growth media.

Mycoplasma have the following property:
+they are able to grow on culture media
they form reticular bodies
they have a cell wall
they belong to eukaryotes

Rickettsia are:
+gram– immotile rods
gram+ motile rods
gram– branched bacteria
gram– cocci

The property of rickettsia is:
+they are obligate intracellular parasites
they are gram+
they have cocci shape
they are eukaryotes

The property of chlamydia is:
+they form elementary bodies
they have a thick cell wall
they are able to grow on solid culture media
they have a coiled shape

Mycoplasma differ from the majority of bacteria by:
+the absence of the cell wall
the absence of the membrane which surrounds the nucleoid
the presence of mesosomes
the ability to multiply only in living cells
the presence of the internal axial filament

Chlamydia psittaci is a causative agent of:
+ornithosis
trachoma
respiratory chlamydia infection
urogenital chlamydia infection

Chlamydia trachomatis is a causative agent of:
+urogenital infection
ornithosis
relapsing fever
endemic typhus fever

Mycoplasma resistance in the environment:
+they are sensitive to disinfectants
they are not sensitive to ultraviolet radiation
they are not sensitive to heating
they persist in the environment for a long time

The staining method to detect rickettsia is:
+Zdrodovsky stain
Loeffler stain
Neisser stain
Aujeszky stain

The property of mycoplasma is:
+they have cocci shape

they are gram+
they are eukaryotes
they are obligate intracellular parasites

Rickettsia are cultured:
+in chicken embryos
on blood agar
in the anaerobic culture apparatus
on serum media

The morphology of mycoplasma is examined with the help of:
+phase-contrast microscopy
light microscopy
fluorescence microscopy

Chlamydia differ from the majority of bacteria by:
+the ability to multiply only in living cells
the absence of the cell wall
the absence of the membrane which surrounds the nucleoid
the presence of mesosomes
the presence of the internal axial filament

The basic diagnostic method of chlamydia-caused urogenital infection is:
+serodiagnostic method
bacteriological method
allergy skin test

Which insects do not transmit rickettsia infection?
+mosquitoes
lice
ticks
fleas

How are chlamydiae cultured?
+on cell cultures
on special culture media
on blood media

The property of Rickettsia is:
+thin cell wall
coiled shape
eukaryotes
they are gram+

What is the causative agent of endemic typhus?
+Rickettsia typhi
Rickettsia prowazekii
Leptospira interrogans
Serratia marcessens

The morphological characteristic of Mycoplasma genus bacteria is:
+they are gram-negative
they form a capsule
they form flagella
they are gram-positive

Point out the pathogenicity factor of Rickettsia prowazekii:
+adhesins
flagella
neuraminidase
spores
plasmids

Point out the pathogenicity factor of Rickettsia prowazekii:

+microcapsule

flagella

neuraminidase

spores

plasmids

The morphological feature of Chlamydia trachomatis is:

+they are gram-negative cocci

they produce spores

they are gram-positive rods

they form flagella

Point out the pathogenicity factors of Rickettsia typhi:

+microcapsule

flagella

neuraminidase

spores

plasmids

Point out the pathogenicity factors of Rickettsia typhi:

+adhesins

flagella

neuraminidase

spores

plasmids

The assay used for psittacosis serodiagnosis is:

+enzyme-linked immunosorbent assay

precipitation test

complement fixation test

neutralization test

The assay used for psittacosis serodiagnosis is:

+immunofluorescence assay

precipitation test

complement fixation test

neutralization test

These features are considered at the 2-nd stage of the bacteriological diagnosis of the mycoplasma infection:

+cultural properties

sensitivity to bacteriophages

saccharolytic properties

sensitivity to antibiotics

The conditions for Mycoplasma pneumoniae culturing are:

+3 days at 37°C

1-2 weeks at 25°C

24 hours at 37°C

5 days at 43°C

2-3 weeks at 8°C

The cultural property of Mycoplasma genus bacteria growth on a nutrient agar is:

+colonies with a raised center

black-coloured bacterial colonies with a metallic sheen

yellow-coloured smooth bacterial colonies

green-coloured rough bacterial colonies

The vaccine for specific prevention of epidemic typhus is:

+live

molecular

whole-cell

chemical

What is used for specific prevention of endemic typhus?

- +specific prevention is not performed
- live vaccine
- inactivated vaccine
- toxoid
- multipartial vaccine

What is used for specific prevention of psittacosis?

- +specific prevention is not performed
- live vaccine
- inactivated vaccine
- toxoid
- multipartial vaccine

What is used for specific prevention of mycoplasma infection?

- +specific prevention is not performed
- live vaccine
- inactivated vaccine
- toxoid
- multipartial vaccine

The morphological characteristic of *Mycoplasma pneumoniae* is:

- +they are polymorphic (multiform)
- they form a capsule
- they form flagella
- they are gram-positive
- they produce spores

The study material for psittacosis microbiological diagnosis is:

- +blood serum
- urine
- wound discharge
- feces

The assay used for a chlamydia infection serodiagnosis is:

- +enzyme-linked immunosorbent assay
- precipitation test
- complement fixation test
- neutralization test

The property of *Mycoplasma pneumoniae* is:

- +the absence of peptidoglycan
- formation of flagella
- formation of spores
- the absence of ribosomes

The following procedure is held during the rapid test of *Mycoplasma pneumoniae* infection:

- +detection of antigens in sputum with the help of the immunofluorescence assay
- detection of antibodies with the help of the hemagglutination inhibition assay
- detection of antigens in blood with the help of the enzyme-linked immunosorbent assay
- detection of antibodies with the help of the precipitation test

Chlamydia trachomatis forms:

- +reticular bodies
- flagella
- spores
- capsules

The property of *Chlamydia* is:

- +it is not sensitive to environmental conditions
- it is biochemically active
- it does not need special growth media

it grows on only simple culture media

Which diagnostic method is **not** used to diagnose mycoplasma infection?

- +skin allergy test
- bacteriological
- serological
- polymerase chain reaction

The preparation used for chlamydia infection treatment is:

- +antibiotics
- genetically engineered vaccine
- antiseptics
- toxoids
- eubiotics

The preparation used for mycoplasma infection treatment is:

- +antibiotics
- genetically engineered vaccine
- antiseptics
- toxoids
- eubiotics

Clostridia are:

- +Gram-positive spore-forming rods
- Gram-negative spore-forming rods
- Gram-positive spore-forming cocci
- Gram-negative spore-forming cocci
- Gram-positive non-sporeforming rods

The preparation used for botulism treatment is:

- +antitoxic serum
- killed vaccine
- toxoid
- antimicrobial serum.

Which assay is used to detect clostridia toxigenicity?

- +neutralization
- agglutination
- precipitation
- complement fixation
- immunofluorescence

Transmission route of tetanus is:

- +contact
- airborne
- fecal-oral
- through blood

Clostridia isolation from the intact material is conducted on:

- +bismuth sulfite agar
- alkaline agar
- egg-yolk salt agar
- serum agar

What is typical of botulism bacteria:

- +look like tennis rackets
- small rods
- large thick rods
- thin curved rods
- look like drumsticks

The test material in case of gas gangrene is:

- +wound discharge

cerebrospinal fluid
feces
urine

The basic microbiological diagnostic method of botulism is:
+serological
bacterioscopic
bacteriological
skin allergy test

Cl. botulinum serotypes are differentiated according to the structure of:
+exotoxins
flagellar antigens
somatic antigens
capsular antigens

Clostridia isolation from the biomaterial is performed on:
+Kitt-Tarozzi medium
Olkenitsky's medium
Clauberg medium
Kligler medium

What is a pathogenicity factor of tetanus bacteria:
+exotoxin
capsule
endotoxin
pili

Choose a rapid test which is used for botulism diagnosis:
+enzyme-linked immunosorbent assay
immunofluorescence assay
complement fixation test
hemagglutination assay
precipitation test

This staining method is used to detect the spores of Clostridium bacteria:
+Aujeszky stain
Neisser stain
Burri-Gin's stain
Gram stain

Pre-exposure (scheduled) mass immunization is held in case of this clostridia-caused infection:
+tetanus
botulism
gas gangrene
Clostridium difficile infection

Transmission route of botulism is:
+fecal-oral
airborne
vector-borne
parenteral

What is used for specific prevention of botulism?
+toxoid
live vaccine
multipartial vaccine
antiseptics
bacteriophages

What is the toxin of tetanus bacteria?
+tetanolysin
fibrinolysin

erythrolisin
plasma coagulase

C_{lostridium} perfringens serovars are distinguished according to the structure of:
+exotoxins
flagellar Ag
somatic Ag
capsular Ag

Which growth medium is used for the culturing of anaerobes:
+thioglycolate medium
egg-yolk salt agar
peptone water
serum agar

What conditions are necessary for the culturing of anaerobic bacteria:
+the absence of oxygen in the air
the presence of 10% carbon dioxide in the air
the presence of nitrogen
the presence of 5% oxygen in the air

This feature is considered at the 3-rd stage of botulism diagnosis:
+the results of the neutralization test
the results of the agglutination test
inoculation on blood broth
inoculation on liver agar

The following preparation is used for tetanus treatment:
+antitoxins
vaccines
toxoids
antiseptics
bacteriophages

The following preparation is used for tetanus treatment:
+antibiotics
vaccines
toxoids
antiseptics
bacteriophages

Choose a rapid test which is used for tetanus diagnosis:
+enzyme-linked immunosorbent assay
complement fixation test
hemagglutination assay
precipitation test

Point out the preparation which is used for botulism treatment:
+polyvalent sera
antiseptics
toxoids
eubiotics
bacteriophages

Point out the biological property of Clostridium tetani:
+resistance to the environmental factors
the ability to form cysts
high biochemical activity
they are gram-negative
the temperature of culturing is 20°C

Point out the biological property of Clostridium tetani:
+anaerobes

the ability to form cysts
high biochemical activity
they are gram-negative
the temperature of culturing is 20°C

The morphological characteristic of Clostridium tetani pathogens is:

- +they produce spores
- they are branched
- they form cysts
- they are gram-negative cocci
- they are gram-negative rods

Point out the pathogenicity factors of Clostridium perfringens:

- +exotoxins
- endotoxins
- pili
- cysts

The preparations for tetanus prevention is:

- +toxoids
- bacteriophages
- antibiotics
- antiseptics

This feature is considered at the 3-rd stage of botulism diagnosis:

- +the results of the neutralization test;
- the results of the agglutination test;
- the growth features on blood agar;
- the growth features on Kitt-Tarozzi's medium;
- spores position

The morphological characteristic of Clostridium perfringens bacteria is:

- +they are gram-positive rods
- they are gram-positive cocci
- they are gram-negative cocci
- they are gram-negative rods

The preparation used for gas gangrene treatment is:

- +antibiotics
- vaccines
- toxoids
- antiseptics
- bacteriophages
- antifungal (antimycotic) medications
- eubiotics

The preparation used for gas gangrene treatment is:

- +antitoxins
- vaccines
- toxoids
- antiseptics
- bacteriophages
- antifungal (antimycotic) medications
- eubiotics

Which epidemiological feature is **not** typical of leprosy?

- +the source is rodents
- the source is a sick person
- it is transmitted by contact
- airborne

Which biological models can be used for culturing leprosy pathogen?

- +armadillos

guinea pigs
rabbits
golden hamsters

The class of higher fungi is:

+Ascomycetes
Chitridiomycetes
Oomycetes
Hypochitridiomycetes

The class of imperfect fungi is:

+Deuteromycetes
Basiciliomycetes
Ascomycetes
Zigomycetes

The morphological (structural) property characteristic of higher fungi is:

+septate mycelium
they produce zygosporangia
nonseptate mycelium
they form mesosomes

The pathogenic agents of dermatophytoses belong to the following genus:

+Microsporum
Aspergillus
Candida
Histoplasma
Mucor

The class of lower fungi is:

+Zigomycetes
Basiciliomycetes
Ascomycetes
Deuteromycetes

The free spores formed during asexual reproduction of fungi are called:

+conidia
sterigmata
oospores
teleomorphs

The property characteristic of fungi is:

+they are gram-positive
they are prokaryotes
they have no Golgi apparatus
they are gram-negative
they have axostyle

The pathogenic agents of dermatophytoses belong to the following genus:

+Trichophyton
Aspergillus
Candida
Histoplasma
Mucor

The growth medium for fungi culturing is:

+Czapek medium
Klauberg's medium
Kligler medium
Ploskirev's medium
Olkenitsky's medium

The class of fungi which does not cause human diseases is:

+Hypochitridiomycetes
Basiciliomycetes
Ascomycetes
Zigomycetes

The structures which are formed during sexual reproduction of fungi are called:

+teleomorphs
sterigmata
sporangia
conidia

The morphological (structural) property characteristic of lower fungi is:

+nonseptate mycelium
septate mycelium
they produce ascospores
they form mesosomes.

The growth medium for fungi culturing is:

+Sabouraud agar
Klauberg's medium
Ploskirev's medium
Shkolnikova medium
Olkenitsky's medium

The conditions for dermatophytes culturing are:

+1-2 weeks at 25°C
24 hours at 37°C
5 days at 43°C
2-3 weeks at 8°C

Typhoid fever is caused by:
+*S. typhi*
S. paratyphi
S. schottmuelleri
S. typhimurium

Scarlet fever is caused by:
+*Streptococcus pyogenes*
Chlamydia trachomatis
Mycoplasma pneumonia
Streptococcus pneumonia

Q fever is caused by:
+*Coxiella burnetii*
Escherichia coli
Leptospira interrogans
Shigella flexneri

Gas gangrene is caused by:
+*Clostridium perfringens*
Bacteroides fragilis
Legionella pneumophila
Clostridium botulinum

The taxonomic status of the epidemic meningitis bacterium is:

+genus *Neisseria*, species *N. meningitidis*
genus *Streptococcus*, species *S. meningitidis*
genus *Neisseria*, species *N. perflava*
genus *Streptococcus*, species *S. flexneri*

The causative agent of botulism forms:
+flagella
capsules

cysts
druses

The causative agent of scarlet fever forms:
+capsules
flagella
cysts
druses

The causative agent of Lyme disease forms:
+fibrils
cysts
capsules
druses

Which diagnostic preparation is used in the Wright test?
+suspended dead bacteria
sera with anti-O and anti-H antibodies
phages preparations
animal RBCs

Which diagnostic preparation is used in the Ascoli test?
+sera with antibodies
suspended dead bacteria
phages preparations
animal RBCs

Which diagnostic preparation is used in the Wassermann test?
+treponemal antigen
sera with antibodies
suspended dead bacteria
phages preparations
human RBCs

What is a characteristic feature of Escherichia coli growth in liquid culture media?
+diffuse cloudiness of the broth
forms a film, the broth remains transparent
forms a film, the broth becomes cloudy
forms a precipitate without clouding the broth

What is a characteristic feature of Shigella flexneri growth in liquid culture media?
+diffuse cloudiness of the broth
forms a film, the broth remains transparent
forms a film, the broth becomes cloudy
forms a precipitate without clouding the broth

What is a characteristic feature of Salmonella typhi growth in liquid culture media?
+diffuse cloudiness of the broth
forms a film, the broth remains transparent
forms a film, the broth becomes cloudy
forms a precipitate without clouding the broth

Which preparation is used for the Mantoux test?
+tuberculin
pestin
anthraxin
tularin
brucellin

The preparation used for the Diaskintest contains:
+antigens of mycobacteria
treponemal antigen
sera with antibodies

suspended dead bacteria

The conditions for the culturing of Streptococcus bacteria are:
+microaerophilic conditions
anaerobic conditions
at room temperature
at temperature +4°C
in the organisms of sensitive animals

The conditions for the culturing of Clostridium bacteria are:
+anaerobic conditions
microaerophilic conditions
at room temperature
at temperature +4°C
in the organisms of sensitive animals

The conditions for the culturing of Yersinia bacteria are:
+at temperature +28°C
microaerophilic conditions
anaerobic conditions
at room temperature
in the organisms of sensitive animals

The conditions for the culturing of Neisseria bacteria are:
+microaerophilic conditions
anaerobic conditions
at room temperature
at temperature +4°C
in the organisms of sensitive animals

The conditions for the culturing of Mycobacterium bacteria are:
+aerobic conditions
microaerophilic conditions
anaerobic conditions
at room temperature
at temperature +4°C

The conditions for the culturing of Staphylococcus bacteria are:
+aerobic conditions
anaerobic conditions
at room temperature
at temperature +4°C

The conditions for the culturing of Chlamydia bacteria are:
+in the organisms of sensitive animals
microaerophilic conditions
anaerobic conditions
at room temperature
at temperature +4°C

Neisseria pathogenicity factors are:
+an endotoxin and a polysaccharide capsule
a polypeptide capsule and an exotoxin
plasma coagulase and erythrogenin
permeases

The pathogenicity factors of the scarlet fever causative agent are:
+leucocidin and erythrogenin
an endotoxin and a microcapsule
a capsule and hyaluronidase
permeases

Corynebacterium diphtheria pathogenicity factors are:

+an exotoxin and a microcapsule
an endotoxin and spores
plasma coagulase and erythrogenin
permeases end leucocidin

Bordetella pertussis pathogenicity factors are:
+an endotoxin and an exotoxin
plasma coagulase and hyaluronidase
leucocidin and erythrogenin
permeases

Leptospira pathogenicity factors are:
+plasma coagulase and fibrinolysin
spores and a capsule
leucocidin and erythrogenin
permeases

The pathogenicity factors of the epidemic meningitis causative agent are:
+hyaluronidase and pili
plasma coagulase and erythrogenin
permeases and an exotoxin
spores and leucocidin

Clostridium botulinum pathogenicity factors are:
+an exotoxin and hemolysins
an endotoxin and a microcapsule
a capsule and hyaluronidase
plasma coagulase and erythrogenin

The antigen of Streptococcus pyogenes is:
+a polysaccharide of the cell wall
proteins of the outer membrane
ribosomes
polypeptides of the capsule
mycolic acids

The antigen of Streptococcus pneumoniae is:
+a polysaccharide of the capsule
ribosomes
lipopolysaccharides of the outer membrane
mycolic acids

The antigen of Bordetella pertussis is:
+somatic
ribosomes
proteins of the cell wall
mycolic acids

The antigen of Bacillus anthracis is:
+polypeptides of the capsule
ribosomes
lipopolysaccharides of the outer membrane
mycolic acids

The antigen of Francisella tularensis is:
+somatic
ribosomes
proteins of the cell wall
mycolic acids

The antigen of Clostridium tetani is:
+flagella
ribosomes

lipopolysaccharides of the outer membrane
mycolic acids

The study material for the microbiological diagnosis of gonorrhea is:
+urine sediment
cerebrospinal fluid
wound discharge
feces

The study material for the microbiological diagnosis of leptospirosis is:
+urine
pharyngeal swabs
rectal swabs
wound discharge
feces

The study material for the microbiological diagnosis of salmonellosis is:
+feces
pharyngeal swabs
cerebrospinal fluid
urine
wound discharge

The study material for the microbiological diagnosis of epidemic meningitis is:
+cerebrospinal fluid
rectal swabs
urine
wound discharge
feces

The study materials for the microbiological diagnosis of anthrax are all the following ones except:
+cerebrospinal fluid
blood
urine
sputum
wound discharge
feces

The study material for the microbiological diagnosis of cholera is:
+feces
pharyngeal swabs
cerebrospinal fluid
sputum
wound discharge

The study material for the microbiological diagnosis of tetanus is:
+blood serum
pharyngeal swabs
urine
sputum
feces

The rapid test for scarlet fever diagnosis is:
+enzyme-linked immunosorbent assay (ELISA)
compliment fixation test
indirect hemagglutination assay
precipitation test
hemagglutination assay

The rapid test for tuberculosis diagnosis is:
+polymerase chain reaction
compliment fixation test
indirect hemagglutination assay

precipitation test
hemagglutination assay

The rapid test for epidemic meningitis diagnosis is:
+latex agglutination assay
immunofluorescence assay
compliment fixation test
indirect hemagglutination assay
precipitation test

The rapid test for tularemia diagnosis is:
+immunofluorescence assay
compliment fixation test
indirect hemagglutination assay
precipitation test
hemagglutination assay

The rapid test for typhus diagnosis is:
+enzyme-linked immunosorbent assay (ELISA)
precipitation test
hemagglutination assay
hemadsorption assay
neutralization test

The assay for the serodiagnosis of pertussis is:
+agglutination assay
immunofluorescence assay
precipitation test
hemadsorption assay
neutralization test

The assay for the serodiagnosis of epidemic meningitis is:
+indirect hemagglutination assay
precipitation test
hemadsorption assay
hemagglutination assay
neutralization test

The assay for the serodiagnosis of tularemia is:
+indirect hemagglutination assay
precipitation test
hemadsorption assay
hemagglutination assay
neutralization test

The assays for the serodiagnosis of typhus are all the ones mentioned below except:
+precipitation test
indirect hemagglutination assay
agglutination assay
compliment fixation test
enzyme-linked immunosorbent assay (ELISA)

The preparation for gonorrhea prevention is:
+specific prevention is not performed
a combination vaccine
eubiotics
a divergent vaccine
toxoids

The preparation for scarlet fever prevention is:
+specific prevention is not performed
a combination vaccine
eubiotics

a divergent vaccine
toxoids

The preparation for the pneumococcal infection prevention is:
+an inactivated vaccine
immunoglobulins
eubiotics
a divergent vaccine
toxoids

The preparation for pertussis prevention is:
+an inactivated vaccine
immunoglobulins
eubiotics
a divergent vaccine
specific prevention is not performed

The preparation for syphilis prevention is:
+specific prevention is not performed
a combination vaccine
eubiotics
a divergent vaccine
toxoids

The preparation for salmonellosis prevention is:
+bacteriophages
an inactivated vaccine
a multipartial vaccine
immunoglobulins

The preparation for shigellosis prevention is:
+bacteriophages
immunoglobulins
toxoids
antiseptics
a divergent vaccine

The preparation for brucellosis prevention is:
+a live vaccine
specific prevention is not performed
toxoids
antiseptics

The preparation for tularemia prevention is:
+a live vaccine
specific prevention is not performed
toxoids
eubiotics
antiseptics

The preparation for cholera prevention is:
+an inactivated vaccine
eubiotics
a divergent vaccine
specific prevention is not performed
a toxoid (anatoxin)

The preparation for relapsing fever prevention is:
+specific prevention is not performed
a combination vaccine
eubiotics
a divergent vaccine
toxoids

Point out the preparation which is used for scarlet fever treatment:

- +antibiotics
- antiseptics
- toxoids
- vaccines

Point out the preparation which is used for pertussis treatment:

- +antibiotics
- antiseptics
- eubiotics
- toxoids
- vaccines

Point out the preparation which is used for tuberculosis treatment:

- +antibiotics
- antiseptics
- eubiotics
- toxoids
- vaccines

Point out the preparation which is used for shigellosis treatment:

- +bacteriophages
- immunoglobulins
- toxoids
- antiseptics
- a divergent vaccine

Which is not a toxemic infection?

+relapsing fever

tetanus

gas gangrene

botulism

diphtheria

Which is not a toxemic infection?

+psittacosis

tetanus

gas gangrene

botulism

diphtheria

Which is a toxemic infection?

+botulism

psittacosis

typhus

tuberculosis

Which is a toxemic infection?

+diphtheria

psittacosis

typhus

tuberculosis

Which is a toxemic infection?

+tetanus

relapsing fever

gonorrhea

syphilis

Which genus does not have coiled bacteria?

+Francisella

Treponema

Borellia

Campylobacter

Leptospira

Which genus does not have coiled bacteria?

+Streptococcus

Treponema

Borrelia

Campylobacter

Leptospira

Which genus does not have coiled bacteria?

+Neisseria

Treponema

Borellia

Campylobacter

Leptospira

The bacteria of this genus are coiled:

+Treponema

Streptococcus

Staphylococcus

Shigella

Neisseria

The bacteria of this genus are coiled:

+Leptospira

Streptococcus

Staphylococcus
Shigella
Neisseria

Which is a bacterial infection?
+scarlet fever
rabies
yellow fever
chickenpox
tick-borne encephalitis

Which is a bacterial infection?
+pertussis
rabies
hemorrhagic fever with renal syndrome
chickenpox
tick-borne encephalitis

Which is a bacterial infection?
+relapsing fever
rabies
yellow fever
measles
tick-borne encephalitis

Which is a bacterial infection?
+anthrax
influenza
yellow fever
chicken pox
tick-borne encephalitis

Which is a bacterial infection?
+syphilis
infectious mononucleosis
yellow fever
chicken pox
tick-borne encephalitis

Which is a bacterial infection?
+typhoid fever
rabies
yellow fever
chicken pox
rubella

Which is a bacterial infection?
+Q-fever
poliomyelitis
yellow fever
Crimean-Congo hemorrhagic fever
tick-borne encephalitis

Which is a bacterial infection?
+Lyme disease
AIDS
yellow fever
smallpox
tick-borne encephalitis

Which is a bacterial infection?
+tularemia
rubella

measles
chickenpox
rabies

Which is a bacterial infection?

+parapertussis
rabies
yellow fever
chickenpox
tick-borne encephalitis

Which is not a bacterial infection?

+rabies
scarlet fever
pertussis
typhus
relapsing fever

Which is not a bacterial infection?

+chickenpox
typhoid fever
pertussis
typhus

Which is not a bacterial infection?

+yellow fever
Boutonneuse fever
parapertussis
relapsing fever

Which is not a bacterial infection?

+tick-borne encephalitis
meningococcal meningitis
tuberculosis
anthrax

Which is not a bacterial infection?

+rubella
pertussis
listeriosis
Legionnaires' disease

Which is not a bacterial infection?

+poliomyelitis
syphilis
gonorrhea
typhus
relapsing fever

Which is not a bacterial infection?

+influenza
tuberculosis
diphtheria
pertussis

Which is not a bacterial infection?

+infectious mononucleosis
meningococcal meningitis
botulism
gas gangrene

Which is not a bacterial infection?

+mumps

meningococcal meningitis
relapsing fever
tick-borne rickettsial disease

Gram-positive rods are the bacteria of the genus:

+Clostridium

Esherichia

Salmonella

Shigella

Francisella

Gram-positive rods are the bacteria of the genus:

+Corynebacterium

Esherichia

Salmonella

Shigella

Francisella

Gram-positive rods are the bacteria of the genus:

+Mycobacterium

Esherichia

Salmonella

Shigella

Francisella

Gram-positive rods are the bacteria of the genus:

+Bacillus

Treponema

Salmonella

Shigella

Neisseria

Gram-negative rods are the bacteria of the genus:

+Esherichia

Clostridium

Mycobacterium

Corynebacterium

Gram-negative rods are the bacteria of the genus:

+Salmonella

Clostridium

Corynebacterium

Bacillus

Gram-negative rods are the bacteria of the genus:

+Bordetella

Mycobacterium

Corynebacterium

Bacillus

Gram-negative rods are the bacteria of the genus:

+Francisella

Mycobacterium

Corynebacterium

Bacillus

Vaccination is administered in case of:

+anthrax

relapsing fever

gonorrhea

psittacosis

syphilis

Vaccination is administered in case of:

- +pertussis
- relapsing fever
- gonorrhea
- psittacosis
- syphilis

Vaccination is administered in case of:

- +diphtheria
- paratyphoid fever
- gonorrhea
- mycoplasmosis
- candidiasis

Vaccination is administered in case of:

- +tetanus
- listeriosis
- scarlet fever
- syphilis

Vaccination is administered in case of:

- +cholera
- gonorrhea
- Lyme disease
- Legionnaires' disease

Vaccination is not administered in case of:

- +relapsing fever
- tularemia
- typhus
- anthrax
- typhoid fever

Vaccination is not administered in case of:

- +syphilis
- diphtheria
- typhus
- pertussis
- typhoid fever

Vaccination is not administered in case of:

- +gonorrhea
- brucellosis
- plague
- tuberculosis

Vaccination is not administered in case of:

- +scarlet fever
- anthrax
- typhus
- tetanus

Vaccination is not administered in case of:

- +borreliosis
- brucellosis
- typhoid fever
- diphtheria

Vaccination is not administered in case of:

- +colibacillosis (E.coli infection)
- brucellosis
- typhoid fever
- diphtheria

Gram-negative cocci are the bacteria of the genus:

- +Veilonella
- Treponema
- Salmonella
- Shigella
- Corynebacterium

Gram-negative cocci are the bacteria of the genus:

- +Neisseria
- Treponema
- Salmonella
- Shigella
- Corynebacterium

Gram-positive cocci are the bacteria of the genus:

- +Streptococcus
- Treponema
- Shigella
- Corynebacterium
- Neisseria

Gram-positive cocci are the bacteria of the genus:

- +Staphylococcus
- Salmonella
- Shigella
- Corynebacterium
- Neisseria

Which genus of bacteria has H-antigen?

- +Salmonella
- Staphylococcus
- Shigella
- Corynebacterium
- Neisseria

Which genus of bacteria has H-antigen?

- +Esherichia
- Staphylococcus
- Shigella
- Corynebacterium
- Neisseria

Which genus of bacteria has H-antigen?

- +Vibrio
- Streptococcus
- Shigella
- Mycobacterium

Which genus of bacteria does not have H-antigen?

- +Shigella
- Vibrio
- Salmonella
- Esherichia

Which genus of bacteria does not have H-antigen?

- +Streptococcus
- Vibrio
- Salmonella
- Esherichia

Which genus of bacteria has K-antigen?

- +Esherichia

Corynebacterium
Treponema
Leptospira

Which genus of bacteria has K-antigen?
+Salmonella
Corynebacterium
Treponema
Leptospira

The bacteria of this genus are aerobes:
+Neisseria
Shigella
Salmonella
Esherichia

The bacteria of this genus are aerobes:
+Mycobacterium
Shigella
Salmonella
Esherichia

The bacteria of this genus are not facultative anaerobes:
+Neisseria
Shigella
Salmonella
Esherichia

The bacteria of this genus grow as R-colonies (rough):
+Mycobacterium
Shigella
Salmonella
Esherichia

The bacteria of this genus grow as R-colonies (rough):
+Yersinia
Vibrio
Streptococcus
Salmonella

The bacteria of this genus grow as R-colonies (rough):
+Bacillus
Bordetella
Brucella
Salmonella

The bacteria of this genus grow as S-colonies (smooth):
+Brucella
Bacillus
Mycobacterium
Yersinia

The bacteria of this genus grow as S-colonies (smooth):
+Esherichia
Bacillus
Mycobacterium
Yersinia

Bacterioscopy is used in the diagnosing procedure of:
+gonorrhea
Legionnaires' disease
colibacillosis (E.coli infection)
brucellosis

Bacterioscopy is used in the diagnosing procedure of:

- +syphilis
- Legionnaires' disease
- listeriosis
- brucellosis

Bacterioscopy is used in the diagnosing procedure of:

- +anthrax
- Legionnaires' disease
- E.coli infection (escherichiosis)
- typhus

Bacterioscopy is not used in the diagnosing procedure of:

- +Legionnaires' disease
- anthrax
- tuberculosis
- gas gangrene

Bacterioscopy is not used in the diagnosing procedure of:

- +typhus
- relapsing fever
- meningococcal meningitis
- cholera

Bacterioscopy is not used in the diagnosing procedure of:

- +brucellosis
- anthrax
- plague
- cholera

A therapeutic serum is used to treat:

- +diphtheria
- typhus
- relapsing fever
- cholera

A therapeutic serum is used to treat:

- +tetanus
- tuberculosis
- plague
- E.coli infection (escherichiosis)

A therapeutic serum is used to treat:

- +botulism
- brucellosis
- Lyme disease
- E.coli infection (escherichiosis)

A skin test is used in the diagnosing procedure of:

- +tuberculosis
- typhus
- relapsing fever
- meningococcal meningitis
- cholera

A skin test is used in the diagnosing procedure of:

- +anthrax
- syphilis
- listeriosis
- leptospirosis

A therapeutic vaccine is used to treat:

+gonorrhea
tuberculosis
plague
E.coli infection (escherichiosis)

A therapeutic serum is used to treat:

+brucellosis
diphtheria
cholera
paratyphoid fever

Which infectious agent causes a highly hazardous infectious disease?

+Yersinia pestis
Neisseria gonorrhoeae
Leptospira interrogans
Haemophilus influenzae

Which infectious agent causes a highly hazardous infectious disease?

+Vibrio cholerae
Shigella flexneri
Clostridium perfringens
Bacteroides fragilis

All these infectious agents except one cause atypical pneumonia. Which one does not?

+Streptococcus pneumoniae
Coxiella burnetii
Legionella pneumophila
Chlamydiophila pneumonia

Dark-field microscopy is used to study:

+Treponema pallidum
Escherichia coli
Rickettsia
Staphylococcus
Chlamydia

The spore-forming bacteria are:

+Clostridia
Streptococci
Neisseria
Salmonella
Corynebacteria

Which infectious agent causes relapsing fever?

+Borrelia recurrentis
Bordetella pertussis
Salmonella typhi
Rickettsia prowazekii
Yersinia pestis

Which infectious agent causes anthrax?

+Bacillus anthracis
Corynebacterium diphtheriae
Bacteroides fragilis
Klebsiella pneumoniae
Pseudomonas aeruginosa

The first-choice medicinal drug to treat a chlamydia infection is:

+azithromycin
ampicillin
nystatin
gentamicin
clindamycin

Which bacterium produces an enterotoxin?

- +Vibrio cholerae
- Clostridium tetani
- Corynebacterium diphtheriae
- Bacillus anthracis

According to its mechanism of action related to a target cell the Botulinum toxin is:

- +a blocker of a nerve signal transmission
- an inhibitor of protein synthesis
- an activator of the adenylate cyclase system
- exfoliatin
- hemolysin

The diphtheria toxin is:

- +a histotoxin
- an endotoxin
- a neurotoxin
- an enterotoxin
- a leukocidin

Which are viral infections?

- +yellow fever and tick-borne encephalitis
- Lyme disease and scarlet fever
- pertussis and meningococcal meningitis
- psittacosis and typhus

Which are not viral infections?

- +Lyme disease and scarlet fever
- mumps and measles
- rabies and poliomylitis
- yellow fever and tick-borne encephalitis

What is a characteristic feature of both chlamydia and rickettsia?

- +obligate intracellular parasitism
- disjunctive reproduction
- ability to accumulate glycogen
- the presence of elementary bodies

Which scientist is the founder of the physiological approach in microbiology?

- +L. Pasteur
- A. van Leeuwenhoek
- L.A. Zilber
- P. Ehrlich
- D. I. Ivanovsky

Which scientist is the founder of the physiological approach in microbiology?

- +R .Koch
- I. I. Mechnikov
- P. Ehrlich
- A.A. Smorodintsev
- N.A. Krasilnikov

Which scientist is the founder of immunology?

- +I.I. Mechnikov
- L. Pasteur
- L.A. Zilber
- R.Koch
- D. I. Ivanovsky

Which scientist is the founder of immunology?

- +P. Ehrlich

E. Jenner
H.M. Temin
A. van Leeuwenhoek
N.A. Krasilnikov

Who discovered microbes?

+A. van Leeuwenhoek
Hippocrates
Lucretius
L. Pasteur
R. Koch

Who developed the bacteriological method (the technique of growing bacteria) and introduced it into the field of microbiology?

+R. Koch
A. van Leeuwenhoek
L. Pasteur
Z.V. Yermolyeva
I.I. Mechnikov

A. van Leeuwenhoek is known for:

+the invention of the first microscope
the discovery of viruses
the discovery of fermentation
the discovery of phagocytosis
producing a rabies vaccine

Preventive vaccines against the smallpox were firstly invented by:

+E. Jenner
L. Pasteur
A. van Leeuwenhoek
Hippocrates
R. Koch.

Who discovered Vibrio cholerae?

+Koch
Hansen
Loeffler
Pasteur
Eberth

Who discovered the typhoid bacillus?

+Eberth
Hansen
Loeffler
Koch
Pasteur

Who discovered the tuberculosis pathogen?

+R. Koch
I.I. Mechnikov
F. Loeffler
L. Pasteur
N.A. Krasilnikov

Who introduced heating up to 120 °C in a steam generator as a sterilization technique?

+L. Pasteur
R. Koch
Sh. Kitasato
J. Lister
N.I. Pirogov

Fermentation was discovered by:

+L. Pasteur
A. van Leeuwenhoek
I.I. Mechnikov
R.Koch
D.I. Ivanovsky

Which scientist is known for developing vaccine production techniques as well as prevention methods against anthrax and rabies?

+L. Pasteur
A. van Leeuwenhoek
I.I. Mechnikov
R.Koch
D.I. Ivanovsky

Who introduced the theory of normal microflora?

+I.I. Mechnikov
P.V. Tsiklinskaya
L.G. Peretz
R. Koch
D.I. Ivanovsky

D.I. Ivanovsky is known for:

+the discovery of viruses
the discovery of fermentation
the invention of the first microscope
the discovery of phagocytosis
the production of the rabies vaccine

Louis Pasteur is known for:

+the production of the rabies vaccine
the discovery of phagocytosis
the introduction of the pure bacterial culture isolation technique
the invention of the first microscope
the discovery of viruses

The microbial nature of fermentation was discovered by:

+L. Pasteur
E. Haeckel
R. Hooke
I.I. Mechnikov
R.Koch

Who developed the production of attenuated (weakened) microorganisms strains?

+L. Pasteur
E. Jenner
R.Koch
P. Ehrlich
D. Bergey

Who introduced the differential staining technique based on the cell wall composition?

+H. Gram
A. van Leeuwenhoek
R.Koch
L. Pasteur
I.I. Mechnikov

Who discovered antibiotics?

+A. Fleming
L. Pasteur
R. Koch
D.K. Zabolotny
D.I. Ivanovsky

Who introduced chemotherapy first?

- +Ehrlich
- Domagk
- Woodson
- Pasteur

Bacteria are measured in:

- +micrometres
- millimetres
- nanometres
- centimetres
- angstroms

The resolving power of an optical microscope is:

- +the capacity to show the separate images of two points which are close together
- the capacity to observe the movement of an object
- the capacity to determine the size of an object
- the indicator of the refraction of the immersion system
- the indicator of the magnification of an object

The magnification of an optical microscope equals:

- +the magnification of the objective lens multiplied by the magnification of the eyepiece
- the difference between the magnification of the objective lens and the magnification of the eyepiece
- the sum of the magnification of the objective lens and the magnification of the eyepiece
- the magnification of the objective lens
- the magnification of the eyepiece

The optical components of an optical microscope include everything except:

- +tube
- condenser
- objective lens
- eyepiece
- collector

Which microorganisms are gram-negative?

- +meningococci
- streptococci
- corynebacteria
- actinomycetes
- bacilli

Which microorganisms are gram-negative?

- +gonococci
- staphylococci
- clostridia
- mycoplasma
- fungi

Which microorganisms are gram-negative?

- +chlamydia
- pneumococci
- bifidobacteria
- mycobacteria
- actinomycetes

Which microorganisms are gram-positive?

- +streptococci
- meningococci
- borrelia
- Vibrio cholerae
- E.coli

Which microorganisms are gram-positive?

+mycobacteria
chlamydia
spirochetes
gonococci
mycoplasma

Which microorganisms are gram-positive?

+pneumococci
treponema
shigella
rickettsiach
gonococci

The distinctive feature of gram-negative bacteria is:

+they stain red in the Gram-staining method
there are teichoic acids in their cell wall
they stain the blue-violet in the Gram-staining method
the basic component of their cell wall is a peptidoglycan
there are lipoteichoic acids in their cell wall

The distinctive feature of gram-positive bacteria is:

+ they stain the blue-violet in the Gram-staining method
they stain red in the Gram-staining method
the basic component of their cell wall is a lipopolysaccharide
their cell wall is O-antigen
they do not have a multilayered peptidoglycan

The structure which prevents discoloration in gram-positive bacteria is a:

+cell wall
outer membrane
lipopolysaccharide
plasma membrane
capsule

The basic taxonomic unit in microbiology is:

+species
kingdom
class
order
family

The basic taxon of prokaryotes is:

+species
strain
clone
genus
family

What is the proper order of taxonomic units from the largest to the smallest:

+kingdom, order, class, family, genus, species
kingdom, species, family, class, order
kingdom, family, order, genus, species
kingdom, species, genus, family, class, order

The basic principle of Bergey's identification of bacteria is:

+according to the composition of the cell wall and Gram-staining
according to the virulence degree
according to the antibiotic sensitivity
according to the relation to molecular oxygen
according to the presence of the nucleus

What is the strain of microorganisms?

+an identified pure culture of a certain microorganism species

the total number of offspring which have been grown from one microbial cell
the total number of bacteria which have grown on a growth medium
the total number of bacteria which are visible during the microscopy of native material
a population of microorganisms which inhabit one biotope

A clone is:

- +a genetically homogenous pure culture of microorganisms which have originated from one cell
- a set of phenotypically and genetically similar strains of microbes
- an archival strain
- a set of microbes with low heterogeneity degree which have the same origin
- a population of one bacterial species which has been grown on the same growth medium in an isolated colony

A pure culture is a bacterial population of one:

- +species
- morphovar
- biovar
- serotype
- chemotype

A species is a population of microorganisms which are similar in everything except:

- +sexual reproduction
- morphology
- biochemical activity
- antigenic properties
- pathogenicity

A population of microorganisms which has been grown from one cell on a solid growth medium is a:

- +colony
- strain
- biovar
- pure culture
- serotype

A population of microorganisms of one species is a:

- +pure culture
- strain
- colony
- biovar
- serotype

A population of microorganisms produced from one microbial cell is a:

- +clone
- strain
- colony
- pure culture
- phagovar

A variation within a species of microorganisms is a/an:

- +serotype
- strain
- clone
- isolate
- domain

The basic shapes of microorganisms are:

- +cocci, rods, spiral, branching
- bacilli, bacteria
- cocci, rods, mycoplasma
- diplococci, streptococci, staphylococci
- clostridia, bacilli

Spiral bacteria include:

- +borrelia

bacilli
actinomycetes
streptococci
pseudomonas

Spiral bacteria include:

+spirilla
clostridia
mycobacteria
staphylococci
E. coli

Spiral bacteria include all the ones mentioned below except:

+rickettsia
treponema
borrelia
leptospira

Diplococci include:

+meningococci
Pseudomonas aeruginosa (blue-pus bacillus)
bacilli
mycobacteria
shigella

Diplococci include:

+gonococci
E.coli
clostridia
listeria
staphylococci

All the bacteria mentioned below are rod-shaped except:

+streptococci
bacilli
clostridia
coccobacteria
enterobacteria

All the bacteria mentioned below are spherical except:

+coccobacteria
staphylococci
streptococci
pneumococci
sarcinae

Which bacteria are arranged as grape-like clusters?

+staphylococci
meningococci
streptococci
tetracocci
pneumococci

Streptococci are:

+chain-forming cocci
grape-like clusters of cocci
packet-forming cocci
defective cocci
gram-negative cocci

Streptococci are:

+gram-positive cocci arranged in pairs and in a chain
gram-negative cocci arranged in pairs and in a chain

gram-positive cocci arranged as grape-like clusters
gram-negative cocci arranged as grape-like clusters
spore-forming gram-positive cocci

Sarcinae are:

+packet-forming cocci
grape-like clusters of cocci
chain-forming cocci
cocci arranged in pairs
gram-negative cocci

Bacteria whose cells divide in two perpendicular planes forming packets of 8, 16, 32 bacteria are known as:

+sarcinae
tetracocci
micrococci
staphylococci
streptococci

Diplococci are:

+cocci arranged in pairs
cocci arranged as grape-like clusters
chain-forming cocci
packet-forming cocci
monococci

Staphylococci are:

+ cocci arranged as grape-like clusters
spiral cells with 8-12 coils
chain-forming cocci
cells which look like bent rods (comma-like shape)
chain-forming rods

Vibrions are:

+ cells which look like bent rods (comma-like shape)
cocci arranged as grape-like clusters
spiral cells with 8-12 coils
chain-forming cocci
chain-forming rods

All the groups of pathogens mentioned below are infectious for humans except:

+viroids
viruses
prions
fungi
bacteria

Class Mollicutes includes:

+mycoplasma
rickettsia
chlamydia
spirochetes
actinomycetes

Bacteria are:

+unicellular prokaryotes
multicellular prokaryotes
unicellular eukaryotes
multicellular eukaryotes
acellular

Prokaryotic microorganisms include:

+spirochetes
mold fungi

viuses
prions

Prokaryotic microorganisms include:

+chlamydia
yeasts of Candida genus
protozoa
blue-green algae

Which microorganisms studied by Microbiology are not prokaryotic?

+viruses
actinomycetes
bacteria
mycoplasma
chlamydia

The basic structural difference of eukaryotes is:

+a well-defined nucleus
the presence of a cell wall
peptidoglycan in the cell wall
a nucleoid
ribosomes 70S

L-forms of bacteria are:

+the way to escape immune surveillance
gram-positive
formed under the influence of aminoglycosides
the causative agents of acute infections
sensitive to β-lactam antibiotics

The morphological properties of bacteria are:

+shape, size, combination
the capacity to take up different stains
the way they grow on growth media
conditions for culturing
the presence of a nucleoid

Plasmids:

+are extrachromosomal factor of heredity
participate in the cell division
are formed with accumulation of metabolites
are intracellular inclusions
are a virulence factor of microorganisms

Sterilization is:

+a complete removal of all the types of microorganisms and their spores from the objects of the environment
a complete removal of all the pathogenic microorganisms from the objects of the environment
a complete removal of all the potentially pathogenic (opportunistic) and pathogenic microorganisms from the objects of the environment
a partial removal of all the pathogenic microorganisms from the objects of the environment

Disinfection is:

+ elimination of pathogenic and potentially pathogenic (opportunistic) microorganisms on the objects of the environment
elimination of pathogenic microorganisms in the organs and tissues of the body
elimination of pathogenic microorganisms and their spores
elimination of potentially pathogenic (opportunistic) microorganisms with chemical substances
preventing microorganisms from contaminating wounds, medicinal drugs and other objects

Antibiotics are:

+chemotherapeutic substances of natural, semi-synthetic or synthetic origin which in small concentrations inhibit the reproduction or cause the death of sensitive microorganisms and tumor cells inside a macroorganism
biologically active substances synthesized by plants

antibiotic-like substances of bacterial origin which inhibit the reproduction of homologous and similar species
chemotherapeutic substances of synthetic origin which in small concentration cause the inhibition or death of microorganisms and tumor cells
any substance preventing the growth of microorganisms

A gene is a:
+fragment of DNA molecule
specific protein
chromosome
nucleotide triplet
plasmid

A genotype is the total number of:
+the gene of a bacterial cell
all the traits and properties of a bacterial cell
the genes of all the species in a population

A genotype (choose one wrong statement):
+includes the nucleotide sequences of mitochondrial DNA
is the total number of all the genes in a bacterial cell
provides phenotypical variability within normal limits
participates in the realization of genetic information depending on environmental conditions
is passed to daughter cells

Phenotype is the total number of:
+all the traits and properties of a bacterial cell
the genes of a bacterial cell
the genes of all the species in a population
the genes of a bacterial cell and plasmids

Phenotype:
+is the total number of all the traits and properties of a bacterial cell
is the total number of the genes of a bacterial cell
changes in strict correspondence with the change of the genotype
is inherited
realizes all the genetic opportunities of a cell

A mutation is:
+a change of a nucleotide sequence in DNA
the transfer of isolated DNA from a donor cell to a recipient cell
the transfer of a DNA segment from cell to cell with the help of a bacteriophage
the transfer of plasmids
the repair of damaged genetic material

Mutations are:
+a stable hereditary change of a trait
the transfer of genetic material with the help of a bacteriophage
the repair of damaged DNA segments

Recombination is:
+the production of bacterial offspring which has the traits of both a donor and a recipient
the transfer of genetic material with the help of a bacteriophage
the repair of damaged DNA segments
a stable hereditary change of a trait

Conjugation is:
+the exchange of genetic material between the bacterial cells of different gender
the repair of damaged DNA
the transfer of genetic material with the help of highly polymerized DNA
the transfer of genetic material with the help of temperate bacteriophages

Transduction is:
+the transfer of a DNA segment from one bacterial cell to another with the help of a bacteriophage

the transfer of plasmids
the transfer of genetic material with the help of F-pilli
the determination of the primary sequence of nucleic acids

Transformation is:
+the transfer of genetic material with the help of highly polymerized DNA
the exchange of genetic material between bacterial cells of different gender
the repair of damaged DNA
the transfer of genetic material with the help of temperate bacteriophages

The transfer of genetic information with the help of a phage is:

+transduction
transformation
viropexis
lysogeny
phage conversion

Transposons:

+are mobile genetic elements
independent replicons which are extrachromosomal inheritance factors
participate in DNA repair
participate in specific transduction

Transposons:

+are nucleotide sequences
are amino acid sequences
are able to change their position within only one replicon
are able to replicate in an autonomous state

Plasmids:

+are independent replicons which are extrachromosomal inheritance factors
participate in DNA repair
participate in specific transduction
are mobile genetic elements

A polymerase chain reaction (PCR) is:
+a multicycle process of DNA replication
a bacterial genome sequencing
a multicycle process of protein sequences
used for bacterial phage typing
measured by photolorimetry

What is not true for antigens?

+normal microbiota species are not antigens
they are substances, cells
they are genetically foreign
they cause the immune response
they interact with the products of the immune response

Antigens as substances are:

+proteins
lipids
polysaccharides
nucleic acids
salts

Antigenicity is:

+capacity to stimulate antibodies production
immunologic affinity
capacity to cause an infectious disease
the capacity of macrophages to participate in phagocytosis
production of interferon

Monotrichous microbes have:

- +one flagellum at the pole of a cell
- a bundle of flagella at one pole
- flagella covering the whole surface
- flagella at both poles
- no flagella

Lophotrichous microbes have:

- +a bundle of flagella at one pole
- one flagellum at the pole of a cell
- flagella covering the whole surface
- flagella at both poles
- no flagella

Amphitrichous microbes have:

- + flagella at both poles
- a bundle of flagella at one pole
- one flagellum at the pole of a cell
- flagella covering the whole surface
- no flagella

Atrichous microbes have:

- + no flagella
- flagella at both poles
- a bundle of flagella at one pole
- one flagellum at the pole of a cell
- flagella covering the whole surface

Peritrichous microbes have:

- + flagella covering the whole surface
- no flagella
- flagella at both poles
- a bundle of flagella at one pole
- one flagellum at the pole of a cell

Bacterial spores are:

- +dormant reproductive cells
- intracellular inclusions
- a form of reproduction
- a virulence factor
- plasmids

Branching microorganisms include:

- +actinomycetes
- spirilla
- vibrions
- spirochetes
- bacilli

Autotrophs are the microbes whose source of carbon is:

- +only CO₂
- polyphosphates
- lipids
- different organic compounds
- carbohydrates

Phototrophs are the microbes whose source of energy is:

- +solar energy
- redox reactions

penetrating radiation
X-rays
electricity

The cultural properties of bacteria are:

- +the speed and type of growth of cultures on growth media
- the morphology of bacteria
- capacity to take up stains
- type of metabolism
- type of respiration

The cultural properties of bacteria are:

- +the morphology of colonies
- the morphology of bacteria
- capacity to cause a disease
- type of metabolism
- intensity of metabolism

The bacteriological diagnosing method (the microbiological culture technique) is used to:

- +isolate and identify the bacteria which are the causative agents of diseases
- detect antibodies in a patient's blood serum
- detect antigens in the test material
- isolate and identify the viruses which are the causative agents of diseases

Normal microflora (microbiota) is an open microbiocoenosis of:

- +the human body cavities which have a connection with the external environment
- all the body cavities of the human
- the body cavities which do not have a connection with the external environment
- anaerobic microorganisms which inhabit different biotopes
- potentially pathogenic (opportunistic) microorganisms which inhabit different biotopes

A biofilm is:

- +a structured assemblage of microbes on the surface of mucous membranes
- the growth of isolate colonies
- the bacterial lawn growth on agar
- the growth of bacteria in broth
- secretory IgA on the surface of mucous membranes

The most correct and complete definition of dysbiosis (dysbacteriosis) is:

- +the changes in the species and number of the biotope normal microbiota which are outside the physiological normal limits
- the decrease in the number of typical coliform bacteria in a certain biotope in the body
- the increase of the total number of putrefying and spore-forming bacteria in the biotope
- short-time changes in the microbiota of the intestine
- the decrease of the counter-regulatory and enzymatic activity of the typical coliform bacteria

Dysbiosis (dysbacteriosis) is:

- + the changes in the species and number of the human normal microbiota which are outside the physiological normal limits
- the disruption in the human normal microbiota
- the numerical disruption in the human normal microbiota
- the presence of pathogenic microbiota

Dysbiosis (dysbacteriosis) is:

- +the disruption in the number and species content of microbiota
- a hospital-acquired infection
- transmitted through contact
- an infectious disease
- inherited

Dysbiosis (dysbacteriosis):

- +is always secondary
- is an infectious disease

does not affect human health
is always primary
does not have any clinical manifestations

The dysbiosis of the intestine is accompanied with all the following manifestations **except:**

- +the increase of colonization resistance
- the decrease in the number of bifidobacteria
- the presence of hemolyzing E.coli
- the presence of a great amount of Candida species yeast
- the increase in the number of potentially pathogenic (opportunistic) microorganisms

Bacteriophages are:

- +obligatory bacterial parasites
- obligatory viral parasites
- prokaryotes
- eukaryotes
- infectious agents causing human diseases

Bacteriophages are:

- +the viruses of bacteria
- macrophages
- prokaryotes
- eukaryotes
- prions

Phage (lysogenic) conversion is:

- +the change in the properties of bacteria which occurs when bacteria acquire additional genetic information brought by the genome of a temperate phage
- a stage of the interaction between a virulent bacteriophage and a bacterial cell
- the transfer of genes from a donor cell to a recipient cell with the help of a virulent bacteriophage
- the transfer of genes from a donor cell to a recipient cell with the help of a temperate bacteriophage
- the interaction between a temperate bacteriophage and a bacterial cell

The titer of a bacteriophage is:

- +the maximal dilution of phage-containing material in which the complete lysis of sensitive culture is still observed
- the minimal dilution of phage-containing material in which the complete lysis of sensitive culture is still observed
- the maximal dilution of phage-containing material in which the complete lysis of sensitive culture is not observed any longer
- the minimal dilution of phage-containing material in which the complete lysis of sensitive culture is not observed any longer
- the maximal dilution of the indicator strain of bacteria in which the lytic activity of phage-containing material is still observed

A prophage is:

- +the DNA of a temperate phage integrated into a bacterial chromosome
- the precursor of a phage particle at the stage of the phage offspring assembly
- the DNA of a virulent phage integrated into bacterial chromosome
- the DNA of a virulent bacteriophage
- a defective phage

Commensalism is a type of symbiosis during which:

- +one organism lives benefiting from the other while not causing any harm to it
- one organism continues the process caused by the other relieving it from metabolites
- the coexistence of microbes and a macroorganism which is beneficial for both
- one organism benefits from the other while causing harm to it
- the coexistence of two microorganisms which is beneficial for both

Mutualism is:

- + the coexistence of different organisms which is beneficial for both
- one organism continues the process caused by the other relieving it from metabolites

one organism lives benefiting from the other while not causing any harm to it
the intensification of physiological functions and properties of bacteria which occurs if they are cultured together
the stimulation of a microbe multiplication by another species which occurs if they are cultured together

Microbiocoenosis is:

- +a community of microorganisms' populations which inhabit a certain biotope
- a place of a microbial population's habitation
- the total number of the individuals of one species which inhabit a certain biotope
- the cooperative functioning different biocoenoses
- the coexistence of microbes and a microorganism beneficial for both

Biotope is:

- +a place of habitation of a microbial population
- the total number of the individuals of one species which inhabit a certain biotope
- a community of microorganisms' populations which inhabit a certain biotope
- the cooperative functioning different biocoenoses
- the total number of the individuals of one species which inhabit a certain biocoenosis

An infectious process is:

- +a process of penetration and multiplication of microbes in a microorganism accompanied by the damage done to the tissue and organs and the development of adaptive defense response
- a process of penetration of a microbe into an organism
- the inflammation caused by microbes or their toxins
- a process which occurs when microbes fill an ecological niche in an organism
- the imbalance between pathogens and resident microbiota

A potential capacity of a microorganism to cause an infectious process in a macroorganism that is sensitive to it is known as:

- +pathogenicity
- antigenicity
- aggressiveness
- toxigenicity
- adhesiveness

A recurrence of an endogenous infection is known as a:

- +relapse (recidivism)
- superinfection
- reinfection
- mixed infection
- autoinfection

A reinfection:

- +is a subsequent infection caused by the same microbe after a complete recovery
- the appearance of the manifestations of the same disease after a seeming recovery caused by the pathogen which have remained in the body
- occurs when a new infection process caused by another microbe joins the existing infectious process
- an infectious disease caused by one pathogenic species
- a long persistence of dormant microbes in the body

The infections caused during medical procedures are known as:

- +iatrogenic
- anthroponotic
- superinfections
- opportunistic
- focal infections

Bacteremia occurs when:

- +a pathogen is present in blood but does not multiply in it
- blood becomes the place of habitation and multiplication of microbes
- distant purulent foci appear in the internal organs
- bacterial toxins get into blood
- a great number of bacteria and their toxins get into blood

Toxigenicity of microorganisms is the:

- +capacity to produce exotoxins
- capacity to produce endotoxins
- capacity to produce bacteriocins
- capacity to produce beta-lactamase
- capacity to produce lipids

DLm is a unit of measurement of:

- +virulence of microbes
- infectivity
- toxigenicity
- immunogenicity

Serotyping is an/a:

- +identification of an unknown culture of a microorganism with the help of a known diagnostic serum
- detection of specific antibodies in a patient's blood serum with the help of a known antigen
- determination of a microorganism's serotype with the help of a known antigenic diagnosticum
- detection of unknown antibodies in a patient's blood serum with the help of an erythrocyte antigenic diagnosticum
- detection of antibodies in a patient's blood serum with the help of a diagnostic serum

Serodiagnostic assay is:

- +detetion of unknown antibodies in a patient's blood serum with the help of a known antigenic diagnosticum
- detection of specific antibodies in a patient's blood serum with the help of a known monospecific serum
- identification of the microbial species isolated from a patient
- diagnosis of an infectious disease with the detection of microbial antigens in a patient's blood serum
- identification of a serotype of a microorganism with the help of a known monospecific serum

Tinctorial properties of bacteria are:

- +the capacity to retain stains
- the resistance to environmental and chemical factors
- the belonging to a particular genus or species
- antibiotic sensitivity
- sensitivity to bacteriophages

Antigens of microorganisms can be everything **except**:

- +isoantigenic
- somatic
- capsule
- flagellar
- toxins

H-antigen of bacteria is located in the:

- +flagella
- cell wall
- capsule
- outer membrane

K-antigen of bacteria is located in the:

- +capsule
- cell wall
- outer membrane
- flagella

Vi-antigen of bacteria is located in:

- +capsule
- cell wall
- outer membrane
- flagella

O-antigen of gram-negative bacteria is located in:

- +outer membrane

mesosomes
capsule
flagella

Immunobiological preparations include everything **except**:

+antibiotics
vaccines
immune sera
immunoglobulin preparations
immunomodulators

The national vaccination schedule includes a compulsory vaccine against:

+diphtheria
leptospirosis
typhoid fever
haemophilus influenzae infections
rabies

The national vaccination schedule includes a compulsory vaccine against:

+tetanus
meningococcal infection
yellow fever
plague
hepatitis A

The national vaccination schedule includes a compulsory vaccine against:

+hepatitis B
tick-borne encephalitis
cholera
herpes viruses
brucellosis

The national vaccination schedule includes a compulsory vaccine against:

+pertussis
plague
tularemia
Pseudomonas aeruginosa
hepatitis C

The national vaccination schedule includes a compulsory vaccine against:

+measles
haemophilus influenzae infection
meningococcal infection
salmonella infection
dysentery

The national vaccination schedule includes a compulsory vaccine against:

+mumps
brucellosis
smallpox
chickenpox
yersiniosis

The national vaccination schedule includes a compulsory vaccine against everything **except**:

+rotavirus infection
tetanus
diphtheria
tuberculosis
rubella

The infectious diseases that can be prevented by vaccines in Russia are all the following **except**:

+salmonella infection
diphtheria

pertussis
measles
polyomyelitis

A live attenuated vaccine is used to prevent:

+tuberculosis
botulism
tetanus
cholera
diphtheria

Which preparation is used for the pre-exposure (scheduled) prophylaxis (prevention) of diphtheria:

+DPT vaccine
BCG vaccine
diphtheria antitoxin serum
diphtheria exotoxin
a cephalosporin antibiotic

Which vaccine is used for the specific pre-exposure (scheduled) prevention of hepatitis B:

+genetically engineered
live
inactivated
subunit
adsorbed

The immunity which is produced by DPT vaccine is:

+antitoxic (to diphtheria and tetanus) and antimicrobial (to pertussis)
antimicrobial (to tetanus and diphtheria)
antitoxic and antimicrobial (to diphtheria and tetanus)
antitoxic (to pertussis) and antimicrobial (to diphtheria and tetanus)
antitoxic (to pertussis and tetanus)

Which vaccine is multivalent?

+DPT
BCG
plague vaccine
mumps vaccine

According to the Russian vaccination schedule newborns should be vaccinated in the first 24 hours of their life against:

+hepatitis B
tuberculosis
pertussis
diphtheria
tetanus

Vaccines can be of all these types **except**:

+semi-synthetic
live (attenuated)
killed (inactivated)
toxoids (anatoxins)
genetically engineered

Vaccines contain:

+microorganisms
microorganisms' metabolic by-products
immune complexes
immunocompetent cells
cytokines

Vaccines contain everything **except**:

+live pathogenic microorganisms
killed pathogenic microorganisms

live attenuated strains of microorganisms
inactivated toxins of microorganisms
protective antigens

What do vaccines cause to produce in the human body?

- +active immunity
- post-serum immunity
- passive immunity
- species immunity
- tolerance state

The immunity which is produced by vaccines is:

- +active artificially acquired
- innate
- active naturally acquired
- passive naturally acquired
- passive artificially acquired

Vaccines should comply with all these requirements **except:**

- +tolerogenicity
- high immunogenicity
- they should be harmless
- they should not be reactogenic
- minimal sensitization

Live vaccines contain the strains of microorganisms:

- +with a decreased virulence
- with an initial virulence
- with changed antigenic properties
- with an increased virulence
- inactivated by UV-rays

The advantage of live vaccine is:

- +high immunity level
- high reactogenicity
- the immunity is formed straight after the vaccination
- they provide a life-long immunity
- they are easy to produce

Which groups of people are forbidden to receive live vaccines?

- +people with both primary and acquired immunodeficiencies
- newborns
- teenagers
- people with chronic diseases
- people over 50 and older

Live vaccines have all these properties **except:**

- +a life-long immunity
- high immunogenicity
- residual virulence
- the capacity to multiply in the human body
- the absence of prominent adverse reactions

Chemical vaccines:

- +contain protective antigens
- contain whole microbial cells
- contain haptens
- possess an immunosuppressive effect
- are administered only once

The vaccine which is used for the specific prevention of measles is:

- +live
- genetically engineered

killed
chemical
adsorbed

What does not belong to corpuscular vaccines?

- +toxoids (anatoxins)
- subcellular vaccines
- subvirion cells
- whole cell vaccines

What is the name of live vaccines which are produced with the use of weakened strains of microorganisms?

- +attenuated
- divergent
- vector
- recombinant
- molecular

The production of the attenuated strains of microorganisms includes everything **except:**

- +selecting high-virulence strains
- selectiong low-virulence strains
- culturing in unfavorable conditions
- serial passage by infecting resistant animals

The production of live attenuated vaccines involves:

- +the decrease of the virulence of microorganisms while culturing them in unfavorable conditions
- the treatment of exotoxins with 0.4 % formalin solution
- the extraction of protective antigens from a microbial cell
- the inactivation of highly immunogenic strains of microorganisms though heating or chemical treatment
- chemical synthesis

The production of these vaccines involves the transfer of genes controlling necessary antigenic determinants into the genome of other microorganisms which start synthesizing a corresponding antigen:

- +genetically engineered
- chemical
- anti-idiotypic
- attenuated
- inactivated

Vaccines with an adjuvant are known as:

- +adsorbed
- recombinant vector
- inactivated
- toxoids (anatoxins)
- live attenuated

What is the effect produced by adjuvants on the immune system?

- +non-specific activation
- non-specific suppression
- specific suppression
- specific activation

Chemical vaccines are produced:

- +from protective antigens extracted from a microbial cell
- by the transfer of the genes controlling necessary antigenic determinants into the genome of other microorganisms which start synthesizing a corresponding antigen
- from the strains of highly immunogenic microorganism which are inactivated with physical methods with the use of anti-idiotypic antibodies

Killed vaccines are produced:

- + from the strains of highly immunogenic microorganism which are inactivated with physical and chemical methods
- the treatment of exotoxins with 0.4 % formalin solution
- with the use of anti-idiotypic antibodies

by the decrease of the virulence of microorganisms while culturing them in unfavorable conditions with the use of an adjuvant

The production of diagnostic agglutinating sera involves:

- +hyperimmunization of laboratory animals with a corresponding antigen
- vaccination of a healthy person
- an agglutination reaction
- non-specific desensitization of the organism
- it is taken from sick people

What is the aim of using antigenic diagnosticum?

- +to detect specific antibodies
- to determine a serotype
- to detect precipitinogen
- to produce a hemolytic serum

Antitoxic immunity is provided by:

- +immunization with a toxoid (anatoxin)
- injection of an endotoxin
- application of an antimicrobial serum
- immunization with any protein
- using subunit viral vaccines

What is used for the serotherapy of infectious diseases?

- +immune sera
- toxoids (anatoxins)
- chemical drugs
- vaccines
- antibiotics

Immune sera and immunoglobulins contain:

- +specific antibodies
- vaccine strains
- killed microorganisms
- adjuvants
- toxoids (anatoxins)

Immune sera and immunoglobulins are used in case of infectious diseases for:

- +seroprophylaxis, serotherapy
- serotherapy, vaccine therapy
- vaccine therapy, vaccine prophylaxis
- vaccine prophylaxis, serotherapy
- seroprophylaxis, vaccine therapy

Homologous immune sera are produced:

- +from vaccinated people, from donated and placental blood
- by the hyperimmunization of horses with a corresponding toxoid (anatoxin)
- with the use of antiidiotypic antibodies
- by the treatment of exotoxins with 0.4 % formalin solution
- by hyperimmunization of rabbits with a corresponding antigen

Heterologous sera and immunoglobulins are produced:

- +by hyperimmunization of horses
- from donors' blood
- from abortion blood
- from placental blood
- by the attenuation method

Toxoids (anatoxins) contain:

- +inactivated bacterial exotoxins
- a somatic antigen
- inactivated bacterial endotoxins
- bacterial exotoxins

antitoxins

The immunity produced by a diphtheria toxoid is:

- +antitoxic
- antibacterial
- anti-idiotypic
- antiviral
- mixed

The production of antitoxic sera involves:

- + the hyperimmunization of horses with a corresponding toxoid (anatoxin)
- the treatment of exotoxins with 0.4 % formalin solution
- the use of antiidiotypic antibodies
- hyperimmunization of rabbits with a corresponding antigen
- serial passage by infecting resistant animals

To produce an antitoxic serum laboratory animals are immunized with:

- +a toxoid (anatoxin)
- the suspended matter of 24 hour bacterial culture
- antitoxins
- an exotoxin
- antibodies

Immune sera are used for:

- +immunotherapy and post-exposure (urgent) immunoprophylaxis
- pre-exposure (scheduled) immunoprophylaxis
- producing an artificial active immunity
- vaccination and revaccination
- producing a natural immunity

The criterion for the evaluation of serological tests with paired sera from a patient is:

- +the increase of the antibody titer
- the norm of controls
- avidity of antibodies
- the time of collecting the serum
- the diagnostic titer

The duration of the immunity produced by sera and immunoglobulins depends on:

- +the half-life of Ig
- the spectrum of activity of the drug
- the manufacturer
- the body reactivity
- a patient's age

According to their composition antibodies are:

- +glycoproteins
- lipopolysaccharides
- nucleoproteins
- gamma-globulins
- albumins

If a serum is administered intravenously the effect of the drug begins:

- +immediately
- in 12 hours
- in 48 hours
- in 10 days
- starting from the 3-nd week

The properties of bacteria studied with the help of microscopy are:

- +morphological and tinctorial
- cultural
- antigenic
- toxigenic

biochemical

The aim of bacterioscopy is:

- +to examine the morphology of microorganisms
- to produce the pure culture of microorganisms
- to create the model of an infectious process
- to detect microbial antigens
- to detect the DNA of a pathogen in a biological sample

Which properties of bacteria is studied with the help of microscopy are:

- +morphological
- cultural
- antigenic
- biochemical
- antibiotic sensitivity

Which **is not** a kind of optical microscopy?

- +electron microscopy
- phase-contrast microscopy
- dark-field microscopy
- oil immersion microscopy

Which type of microscopy is used to study the motility of bacteria by the hanging drop method?

- +dark-field
- fluorescent
- oil immersion
- electron

Which technique is used to study the motility of microorganisms in a native sample?

- +dark-field microscopy
- fuchsin staining
- fluorochrome treatment
- Loeffler stain
- Morozov silver stain

Which type of microscopy is used to examine the ultrastructure of bacteria and viruses?

- +electron
- fluorescent
- dark-field
- phase-contrast
- oil immersion

Native non-stained samples are prepared for this type of microscopy:

- +phase contrast
- optical
- fluorescent
- electron
- oil immersion

Which type of microscopy is used to detect the antigens of microorganisms with the help of labeled antibodies?

- +fluorescent
- phase contrast
- optical
- electron
- oil immersion

Which type of sample is prepared to determine the motility of living bacteria?

- + a “squashed drop” sample
- an impression smear
- twin smears
- a Burri smear

Dark-field microscopy is based on:

- +the diffraction of light while the object is illuminated from the side
- the fluorescence of an object in the visible spectrum
- the interference of light waves
- the absorption of light by an object
- the transmission of light by an object

Fluorescent microscopy is based on:

- +the capacity of some substances to emit light under the influence of short-wave length radiation
- the decrease of the intensity of object illumination by means of lowering the condenser and narrowing the diaphragm
- the conversion of phase oscillations into amplitude oscillations by optical devices
- the submersion of an immersion objective lens into immersion oil to prevent additional diffraction of a light beam
- the examination of microorganisms in fixed stained specimens

What **is not** the advantage of microscopy as a method of infectious diseases diagnosis?

- +the determination of virulence
- the possibility of rapid testing
- simplicity and availability
- it can have an independent diagnostic significance
- it helps to determine a clinically significant quantity of potentially pathogenic microorganisms

The advantage of the immersion system is:

- +the increase of the resolving power of an optical microscope
- a 3D image of an object
- a higher magnification of the objective lens
- a higher magnification of the eyepiece
- the use of UV-rays

Which procedure is compulsory before the staining of a sample?

- +the fixation of a sample
- treating a sample with a developer
- drying a sample
- rinsing a sample with water
- treating a sample with immersion oil

Aniline dyes include all the ones mentioned below **except:**

- +Lugol's iodine
- fuchsine
- methylene blue
- crystal violet
- neutral red

The method to detect chlamydia is:

- +Giemsa staining
- Zdrodovsky staining
- Gram staining
- methylene blue staining
- Morozov silver staining

Acid-fast bacteria are:

- +mycobacteria
- mycoplasma
- streptococci
- Pseudomonas aeruginosa
- meningococci

What is the correct order of using the reagents in Ziehl-Neelsen staining technique?

- +carbol fuchsine, sulfuric acid, methylene blue
- methylene blue, carbol fuchsine, sulfuric acid
- sulfuric acid, carbol fuchsine, methylene blue
- carbol fuchsine, methylene blue, sulfuric acid
- methylene blue, sulfuric acid, carbol fuchsine

What is the correct order of the basic stages in Aujeszky's staining technique?

- +hydrochloric acid, heating until vapor appears, fixation of a sample, Ziehl-Neelsen staining
- fixation of a sample, Neisser staining, heating until vapor appears, hydrochloric acid
- fixation of a sample, hydrochloric acid, heating until vapor appears, Neisser staining
- fixation of a sample, hydrochloric acid, heating until vapor appears, Ziehl-Neelsen staining
- hydrochloric acid, fixation of a sample, Lugol's iodine staining, heating until vapor appears

What is the correct order of using the reagents in Burri-Gins staining technique?

- +a drop of India ink, fixation of a sample with alcohol, heating, Pfeiffer fuchsine
- fixation of a sample with alcohol, heating, a drop of India ink, Pfeiffer fuchsine
- fixation of a sample with alcohol, a drop of India ink, heating, methylene blue
- a drop of India ink, heating, fixation of a sample with alcohol, methylene blue
- fixation of a sample with alcohol, heating, basic fuchsine, a drop of India ink

Which dyes are used in Giemsa staining technique?

- + methylene blue, azure, eosin
- crystal violet, azure and methylene blue
- crystal violet, eosin and basic fuchsine
- methylene blue and vesuvine
- methylene blue, azure and basic fuchsine

Which staining technique is used to detect inclusions in bacteria:

- +Neisser stain
- Aujeszky stain
- Giemsa stain
- Burri-Gins stain
- Zdrodovsky stain

Dark-field microscopy is used to examine:

- +Treponema pallidum
- E.coli
- staphylococci
- chlamydia
- rickettsia

Phase-contrast microscopy is used to examine:

- +mycoplasma
- E.coli
- staphylococci
- pneumococci
- mycobacteria

Giemsa stain is used to detect:

- +borrelia
- actinomyces
- mycoplasma
- staphylococci
- clostridia

Zdrodovsky stain is used to detect:

- +rickettsia
- corynebacteria
- gonococci
- Vibrio cholerae
- pneumococci

Ziehl-Neelsen stain is used to detect:

- +mycobacteria
- shigella
- actinomyces
- corynebacteria
- clostridia

Neisser stain is used to detect:

- + corynebacteria
- mycobacteria
- salmonella
- borrelia
- streptococci

Morozov silver stain is used to detect:

- +treponema
- Vibrio cholerae
- chlamydia
- mycoplasma
- fungi

The morphology of bacteria depends on:

- +the structure of the cell wall
- the consistency of the growth medium
- the composition of the growth medium
- the stains which are used
- the fixation technique

If we know the structure of bacteria we can do all the things mentioned below **except**:

- +evaluate the immune status of a macroorganism
- identify bacteria
- produce vaccines
- study pathogenicity factors
- develop disinfection and sterilization techniques

Which bacterial structures **are not** the targets for antimicrobial drugs?

- +capsules
- the cell wall
- the plasma membrane
- ribosomes

The obligate organelles of a prokaryotic cell are all the ones mentioned below **except**:

- +plasmids
- mesosomes
- the nucleoid
- the cell wall
- ribosomes

The detection of these structures is significant for a differential diagnosis:

- +spores
- the nucleoid
- the plasma membrane
- ribosomes
- mesosomes

Spore-forming bacteria are:

- +bacilli
- spirilla
- cocci
- enterobacteria
- chlamydia

Spore-forming bacteria are:

- +clostridia
- spirochetes
- coccobacteria
- sarcinae
- rickettsia

For some prokaryotes the formation of spores is:
+the way they react to any harmful effect produced on the cell
the way of reproduction
the accumulation of certain nutrients
an obligatory stage of the microbial life cycle
the protection of the cell from phagocytosis

Which structure of a bacterial cell is facultative?
+a flagellum
the plasma membrane
nucleoid
ribosomes

What belongs to the additional structures of bacteria?
+villi
the periplasm
the plasma membrane
the nucleoid

What belongs to the surface structures of bacteria?
+capsules
the cell wall
the plasma membrane
the periplasm
plasmids

Which structures belong to intracellular inclusions of bacteria?
+glycogen granules
mitochondria
ribosomes
plasmids
nucleoli

Which structures belong to intracellular inclusions of bacteria?
+volutin granules
contractile vacuoles
ribosomes
the nucleoid
mesosomes

The presence of volutin granules is a diagnostic characteristic of:
+Corynebacterium diphtheriae
E.coli
clostridia
botulism
Bacillus anthracis
shigella

Which microbes do not have a cell wall?
+mycoplasma
actinomycetes
spirochetes
chlamydia
rickettsia

The rigidity of the cell wall is provided by:
+peptidoglycan
proteins
teichoic acids
lipopolysaccharides
phospholipids

The bacterial cell wall possesses all the properties mentioned below **except**:

- +it participates in protein synthesis
- it contains the basic antigens of a microbial cell
- it determines the shape of a bacterium
- it protects from environmental effects
- it can determine the result of Gram staining

The cell wall of gram-negative bacteria does not include:

- +teichoic acids
- peptidoglycan
- proteins of the outer membrane
- lipopolysaccharide

The basic structural component of the cell wall in gram-negative bacteria is:

- +lipopolysaccharides
- teichoic acids
- lipoteichoic acids
- mycolic acids
- proteins

The basic structural component of the cell wall in gram-positive bacteria is:

- +peptidoglycan
- teichoic acids
- mycolic acids
- lipopolysaccharides
- lipids

What is contained only in the cell wall of gram-positive bacteria?

- +a teichoic acid
- lipopolysaccharide
- murein
- protein
- peptidoglycan

The function of lipopolysaccharide is:

- +O-antigen
- enzymatic
- exotoxin
- messenger
- protein synthesis

A property of lipopolysaccharide is:

- +it is an endotoxin
- it is thermolabile
- it contains peptidoglycan
- it is an exotoxin
- it stores the nutrients of a cell

Where is lipopolysaccharide located in a bacterial cell?

- +in the outer membrane of gram-negative bacteria
- in the plasma membrane
- in the outer membrane of gram-positive bacteria
- in mesosomes
- in the capsule

What is contained in the cell wall of gram-positive bacteria?

- +multilayered peptidoglycan, teichoic and lipoteichoic acids
- single-layered peptidoglycan, lipopolysaccharide in the outer membrane
- a phospholipid bilayer, teichoic and lipoteichoic acids
- lipopolysaccharide in the outer membrane
- multilayered peptidoglycan, lipopolysaccharide in the outer membrane

What is contained in the cell wall of gram-negative bacteria?

- + single-layered peptidoglycan, lipopolysaccharide in the outer membrane

multilayered peptidoglycan, teichoic and lipoteichoic acids
single-layered peptidoglycan, teichoic and lipoteichoic acids
single-layered peptidoglycan and cord factor
a phospholipid bilayer, teichoic and lipoteichoic acids

Which structure of the bacterial cell wall enables bacteria to attach to the surface of cells?

- +microvilli (pili)
- spores
- flagella
- mesosomes
- O-antigen

Bacteria which have lost their cell wall completely under the influence of some factor but are able to restore their original shape are known as:

- +protoplasts
- spheroplasts
- mycoplasma
- mycobacteria
- stable L-forms

Bacteria which retain part of their cell wall and are able to restore their original shape are known as:

- + spheroplasts
- protoplasts
- mycoplasma
- mycobacteria
- stable L-forms

Bacteria which have lost their capacity to synthesize peptidoglycan but are able to reproduce are known as:

- +L-form bacteria
- mycoplasma
- protoplasts
- spheroplasts
- chlamydia

The absence of the cell wall is genetically predetermined in these microorganisms:

- + mycoplasma
- protoplasts
- spheroplasts
- chlamydia
- L-form bacteria

L-form bacteria have a disruption in the synthesis of:

- +the cell wall
- the capsule
- mesosomes
- the plasma membrane
- flagella

Which process leads to the L-form transformation of bacteria:

- +the disruption of peptidoglycan synthesis
- spore formation
- the conjugation of bacteria
- division
- a completed phagocytosis

L-form bacteria have all the properties mentioned below **except:**

- +they cause acute infections
- they cause chronic relapsing infections
- they are the form of the persistence of bacteria in the organism
- they are formed due to the inadequate treatment by chemotherapeutic drugs
- they are gram-negative as a rule

The shape of a bacterium is determined by the structure of its:

- +cell wall
- plasma membrane
- murein
- spore
- capsule

What makes the structure of the bacterial plasma membrane different from the plasma membranes of other living beings:

- +it forms mesosomes
- it is three-layered
- it contains cholesterol
- it forms the endoplasmic reticulum

The proteins of the plasma membrane are subdivided into:

- +transport and metabolic
- purines and pyrimidines
- basic and acidic
- complete and incomplete
- glycoproteins and chromoproteins

Which structure carries bacterial antigens?

- +flagella
- the plasma membrane
- mesosomes
- plasmids
- mitochondria

Which structure carries bacterial antigens?

- +the capsule
- a spore
- the cytoplasm
- volutin granules
- cord factor

Unlike the cytoplasm of other living beings the bacterial cytoplasm does not contain:

- +the endoplasmic reticulum
- inclusions
- ribosomes
- RNA
- DNA

Where is genetic information located in a bacterial cell?

- +in the nucleoid
- in the plasma membrane
- in mesosomes
- in ribosomes
- in mitochondria

The function of the plasma membrane is:

- +it participates in energy metabolism
- it determines the shape of bacteria
- it participates in the synthesis of biologically active substances
- drug resistance
- protection from phagocytosis

The function of ribosomes is:

- +protein synthesis
- storage and realization of genetic information
- protection
- shape determination
- toxicity

A capsule is a distinguishing characteristic of:

+klebsiella
streptococci
meningococci
salmonella
Vibrio cholerae

A capsule is a distinguishing characteristic of:

+pneumococci
gonococci
staphylococci
spirochetes
shigella

What is characteristic of the microcapsule?

+it is formed in the majority of bacteria
it is visible through the optical microscope
it makes bacteria acid-fast
it is the framework of a bacterial cell
it protects from the majority of antibiotics

What is the function of fimbriae (pili) in bacteria?

+the attachment to the substrate
motility
protection
enzymatic

What is the function of fimbriae (pili) in bacteria?

+the exchange of genetic information
sexual reproduction
motility
trophic

All these are the functions of bacterial fimbriae (pili) **except:**

+motility
the attachment to the substrate
the exchange of genetic information
the participation in the water-salt metabolism

The organelles of motility in bacteria are:

+flagella
pili
pseudopods
plasmids
druses

Bacterial flagella:

+are made of flagellin protein
participate in the transfer of genetic material
are typical mostly for gram-positive bacteria
are obligate structure of a cell
participate in spore formation

Which ones are motile microorganisms?

+Escherichia coli
staphylococci
mycoplasma
actinomyces
streptococci

Which structure enables a bacterial cell to persist in the environment for a long time?

+an endospore
the cell wall
the nucleoid

the capsule
a plasmid

The pathogenicity factor of bacteria is:

+the capsule
a mesosome
the nucleoid
a spore
inclusions

The pathogenicity factor of bacteria is:

+a flagellum
the plasma membrane
a plasmid
a ribosome
volutin granules

The microorganisms reproducing with spores are:

+fungi
chlamydia
spirochetes
protozoa
viruses

The function of bacterial endospores is:

+persistence (survival) in unfavorable conditions
reproduction in favorable conditions
protection from phagocytosis and antibodies
prevention of the osmotic lysis of a cell
adhesion to susceptible host cells

Bacterial endospores are:

+thermostable
thermolabile
sensitive to disinfectants
used to control disinfection
formed in the host organism

Bacterial endospores:

+are resistant to disinfectants
are thermolabile
are sensitive to antibiotics
perform a reproductive function

Bacterial endospores have all the properties mentioned below **except:**

+sensitivity to antibiotics
thermostability
resistance to disinfectants
they are used to control the sterilization of the autoclave
they are formed in unfavorable environmental conditions

Which microorganisms produce spores:

+clostridia
enterobacteria
staphylococci
viruses
vibrions

Which bacteria produce spores which are bigger than bacterial cells?

+clostridia
mycoplasma
bacilli
spirochetes

yersinia

Which bacteria produce spores which are not bigger than bacterial cells?

- +bacilli
- campylobacter
- clostridia
- spirochetes
- brucellae

Which phase of the cell cycle involves spore formation?

- +stationary phase
- lag phase
- log phase (exponential)
- death phase

Which bacteria form a capsule while being cultured in artificial growth media?

- +klebsiella
- pneumococci
- gonococci
- mycoplasma
- bacilli

The function of the bacterial capsule is:

- +antiphagocytic
- locomotive
- reproductive
- excretory
- protein synthesis

The bacterial capsule:

- +is a virulence factor
- is an organelle of locomotion
- is an obligatory structure
- is an extrachromosomal genetic component
- possesses the properties of an exotoxin

Cytoplasmic bacterial inclusions are:

- +stored nutrients
- extrachromosomal DNA
- endosymbionts
- intracellular parasites
- transposons

Which microorganisms have an axostyle?

- +spirochetes
- rickettsia
- actinomycetes
- mycoplasma
- viruses

Which morphological properties do spirochetes have?

- +a helically coiled shape
- they are diplobacteria
- they branching bacteria
- they are gram-positive

Which morphological properties do spirochetes have?

- +they are gram-negative
- they are diplobacteria
- they are gram-positive
- they branching bacteria

All these types of motion are characteristic of spirochetes **except:**

- +saltation (jump-like)
- rotation
- flexing
- stepwise
- cork-screw motion

Borrelia have:

- +3–8 large coils
- 8–12 small coils
- more than 20 equal-size coils
- 2–3 large coils
- ½ coil

The order Spirochaetales does not include the genus:

- +Rickettsia
- Treponema
- Borrelia
- Leptospira

The characteristic feature of all spirochetes is:

- +motility
- they are obligate intracellular parasites
- the absence of peptidoglycan
- they are cell membrane parasites

The characteristic feature of mycoplasma is:

- +the absence of the cell wall
- they are not fastidious
- they are the largest among prokaryotic microorganisms
- they are not capable of independent metabolism and reproduction
- a stable shape

The characteristic feature of chlamydia is:

- +they are obligate intracellular parasites
- they have volutin granules
- they are eukaryotes
- they have axial filaments

Outside the host cells chlamydia exists as:

- +elementary bodies
- initial bodies
- reticular bodies
- chromatin granules

Which prokaryotes are obligate intracellular parasites and cannot synthesize ATP thus getting energy only from a host cell:

- +chlamydia
- actinomycetes
- rickettsia
- mycoplasma
- spirochetes

Obligate intracellular parasites include:

- +chlamydia
- bacilli
- actinomycetes
- meningococci
- mycoplasma

Obligate intracellular parasites include:

- +rickettsia
- clostridia
- listeria

gonococci
L-form bacteria

The characteristic feature of rickettsia is:

- +they are gram-negative
- they are coccus-shaped
- they are eukaryotes
- they are able to form a capsule
- they are motile thanks to their flagella

What is not characteristic of rickettsia?

- +they grow on simple growth media
- they are obligate intracellular parasites
- they are prokaryotes
- they take up the red dye when stained by Zdrodovsky's method
- they are polymorphic

Mycoplasma differ from L-form bacteria as they do not have:

- +a genetic programme of the cell wall synthesis
- chromosomes
- histones
- a phenotypic character – the cell wall
- a capacity to reproduce in the organism

Which prokaryotes form druses in an affected organism?

- +actinomycetes
- mycoplasma
- chlamydia
- rickettsia
- listeria

Which microorganisms are acellular?

- +viruses
- prokaryotes
- protozoa
- fungi
- algae

All these factors influence the growth of pathogenic bacteria **except**:

- +light
- oxygen concentration
- the presence of growth factors
- carbon dioxide concentration
- temperature

Bacteria multiply by:

- +transverse fission
- longitudinal fission
- replication
- exospores
- filterable forms

Which structural component is characteristic of viruses?

- +capsid
- differential nucleus
- ribosome
- the plasma membrane
- inclusions

What is the distinguishing feature of complex viruses?

- +the presence of a viral envelope
- the presence of plus-strand RNA
- formation of a capsid

presence of a core

Which viruses are resistant to ether?
+the ones which do not have a viral envelope
RNA-containing
the ones which have a viral envelope
DNA-containing

The microorganisms which use organic substance as the source of energy and carbon are known as:
+chemoheterotrophs
chemolithoheterotrophs
phototrophs
photolithotrophs
autotrophs

The microorganisms which need growth factors in addition to the basic source of carbon are known as:
+auxotrophs
autotrophs
prototrophs
heterotrophs
lithotrophs

Which nutrition-based type of microorganisms is clinically significant?
+chemoheteroorganotrophs
photoheterotrophs
chemoautotrophs
photoautotrophs
facultative anaerobes

The demand of microorganisms in growth factors is:
+auxotrophy
aerotolerance
parasitism
prototrophy
infectivity

Clinically significant species of microorganisms are mostly:
+auxotrophs
anaerobes
metatrophs
phototrophs
autotrophs

The transfer of nutrients into a bacterial cell is carried out by all these ways of transport **except:**
+simple transport
simple diffusion
facilitated diffusion
active transport
group translocation

The transport of substances into a bacterial cell which does not require energy is:
+simple diffusion
active transport
group translocation
phagocytosis
endocytosis

Which type of transport requires the participation of permeases?
+facilitated diffusion
active transport
passive diffusion
pinocytosis

Which type of transport requires the participation of permeases?

- +translocation of radicals
- active transport
- passive diffusion
- phagocytosis

Bacteria multiply by:

- +binary fission
- mitosis
- meiosis
- reproduction
- longitudinal fission

Bacteria multiply by:

- +binary fission
- replication
- spore formation
- apoptosis
- L-form transformation

The majority of bacteria multiply by:

- +simple division of a cell
- sexual reproduction
- vegetative reproduction
- spore formation
- budding

Which process occurs during the lag phase of a bacterial population growth?

- +the balancing between the reproduction rate and death rate
- a fast reproduction of microorganisms
- the adaption of microorganisms to the growth medium
- a fast death of microorganisms
- a slow growth of microorganisms

Bacteria are biochemically active mostly during the:

- +log phase (exponential)
- lag phase
- stationary phase
- death phase
- spore formation phase

Bacteria are antibiotic sensitive mostly during the:

- +log phase (exponential)
- lag phase
- stationary phase
- death phase
- spore formation phase

According to the optimum growth temperature microorganisms can be all these **except**:

- +piezophiles
- mesophiles
- psychrophiles
- thermophiles

The majority of pathogenic mesophilic bacteria grow at temperature:

- +30–37 °C
- 15–20 °C
- 20–30 °C
- 50–55 °C
- 25–30 °C

The optimum temperature for the culturing of most clinically significant bacteria is:

- +37 °C

10 °C
22 °C
28 °C
45 °C

Which types of microorganisms are clinically significant?

+mesophiles
psychrophiles
thermophiles
saprophytes
archaea

The type of metabolism of obligate anaerobes is:

+fermentative
oxidative
inducible
constitutive

The type of metabolism of most clinically significant microorganism species is:

+oxidative, fermentative
only oxidative
only fermentative
inducible
constitutive

The microorganisms which can grow both with and without oxygen are:

+facultative anaerobes
obligate aerobes
obligate anaerobes
capnophiles
microaerophiles

According to the type of respiration clinically significant microorganisms are mostly:

+facultative anaerobes
microaerophiles
obligate anaerobes
obligate aerobes
lithotrophs

What are the requirements for the culturing of microaerophiles?

+low concentration of oxygen and increased level of carbon dioxide
growth media containing antibiotics
growth media containing human blood
anaerobic conditions
growth media with low pH

Which microorganisms need the concentration of O₂ lower than its concentration in the air?

+microaerophiles
strict aerobes
strict anaerobes
facultative anaerobes
auxotrophs

The capacity of anaerobic microorganisms to live in the presence of free O₂ is called:

+aerotolerance
lipophilicity
auxotrophy
prototrophy
saprotrophy

Which conditions are required to culture anaerobic bacteria?

+the absence of oxygen in the air

a complete absence of light
the presence of 10% of carbon dioxide in the air
the presence of nitrogen
the presence of 5% of oxygen in the air

Which physical method is used to create anaerobic conditions?

+anaerobic jar
gas-generating sachets
Fortner method
thermostat
Kitt-Tarozzi medium

What is the basic requirement for the isolation of anaerobes pure culture?

+using an anaerobic jar
using complex growth media
the proper culturing time
optimum temperature

Which microorganisms are obligate anaerobes?

+clostridia
staphylococci
pseudomonas
enterobacteria
bacilli

Which microorganisms do not have the catalase system to protect themselves from the toxic products of molecular oxygen?

+strict anaerobes
facultative anaerobes
aerobes
microaerophiles

Which groups of bacterial enzymes catalyze intramolecular conversions?

+isomerases
glucosidases
carboxylases
dehydrogenases

Which group of enzymes do anaerobic bacteria lack?

+superoxide dismutases
dehydrogenases
flavoproteins
lecithinases

Which enzymes are being constantly synthesized in a cell and are not dependent on the presence of a specific substrate?

+constitutive enzymes
inducible (adaptive) enzymes
endoenzymes
exoenzymes
invasive enzymes

The synthesis of these enzymes depends on the presence of a substrate:

+ inducible (adaptive)
constitutive
exoenzymes
endoenzymes
substrate

The capacity of a microbe to penetrate and spread in the tissues of the organism is provided by the presence of this enzyme:

+hyaluronidase
plasma coagulase

lecithinase
neuraminidase
integrase

The cultural properties of bacteria do not include:

- +the shape of the cells of microorganisms
- the size of a colony
- the margin of a colony
- the surface of a colony
- the colour of a colony

What is a cultural property of a bacterial pure culture?

- +the appearance of a colony
- the shape of the cells of microorganisms
- tinctorial properties
- the combination of the cells of microorganisms

What is a cultural property of a bacterial pure culture?

- + the margin of a colony
- the shape of the cells of microorganisms
- tinctorial properties
- growth rate

All of these **except** one are the requirements for collecting a test sample for bacteriological testing. Choose the one which is not correct:

- +if a test sample cannot be delivered to the laboratory promptly it should be frozen
- a test sample is taken from affected areas and adjacent tissues
- a test sample is placed into a sterile laboratory container
- a test sample should be taken before antimicrobial therapy
- a test sample should be sent to the laboratory immediately

The choice of a test sample for a bacteriological culture depends on:

- +the clinical manifestations and pathogenesis of a disease
- a patient's complaints
- the capacity of a laboratory
- the severity of a disease
- a doctor's skills

The bacteriological culture method is used in surgery:

- +to monitor the pathogens causing suppurative inflammatory complications as well as their antibiotic resistance
- to prevent infections among the medical staff
- for screening in a healthcare facility
- to study the microbial landscape of environmental objects
- for sanitary and bacteriological screening of visitors

The method which is used for the isolation and identification of pure bacterial culture is a:

- +bacteriological (microbial) culture method
- biological method
- serological method
- microscopy method
- molecular-biological method

The growth media in microbiology are used for everything **except** (choose the wrong answer):

- +to determine the immunogram
- to culture microorganisms
- to study the biochemical properties of microorganisms
- to preserve archival cultures of microorganisms
- to determine the antibiotic sensitivity of cultures

The choice of growth media for microbial cultures depends on the:

- +physiology of microorganisms
- antigenic structure of microorganisms
- phage sensitivity of microorganisms

morphology of microorganisms
virulence of microorganisms

All these techniques are used to isolate a pure culture **except** one (choose the wrong one):

- +a lawn culture
- streaking
- a microbial culture on selective growth media
- infecting susceptible laboratory animals
- heating a test sample to isolate bacilli

The aim of the bacterial culture method in the diagnosing procedure is:

- +isolation and identification of a pure culture and determining its antibiotic sensitivity
- detection and identification of a pathogen
- determination of the virulence of a pathogen
- determination of the immunity level
- separation of microbial cells

All these but one are test materials which can be used in the bacterial culture method. Which one **cannot** be used?

- +serum
- sputum
- blood
- pus
- urine

The aim of the 1-st stage of the bacterial culture (bacteriological) method is:

- +growing isolated colonies
- the inoculation of a test sample
- the microscopy of a test sample
- identification of a culture
- enrichment of a pure culture

Which technique is used to determine the amount of bacteria in a test sample?

- +serial dilution
- inoculation with a streaking rod
- a biological method
- Fortner method

Which method of a pure culture isolation does not include mechanical separation?

- +a biological models method
- innoculation with a streaking rod
- a streaking culture
- Koch method (serial dilution)

The aim of the 2-nd stage of the bacterial culture (bacteriological) method is:

- +enrichment (accumulation) of a pure culture
- identification of a pure culture
- examining the biochemical activity
- determining the antibiotic sensitivity of a test culture
- bacterial typing

The aim of passaging isolated colonies to an agar slant is:

- +accumulation of a pure culture
- identification of bacteria
- separation of bacteria
- growing isolated colonies
- accumulation of anaerobic bacteria

The aim of the 3-rd stage of the bacterial culture (bacteriological) method is:

- +identification of a pure culture
- growing isolated colonies
- detection of a pathogen in a test sample
- accumulation of a test culture

determining the purity of an isolated culture

The necessary condition for the identification of an isolated culture is:
+the purity of a culture
the presence of a culture
the availability of required growth media in a laboratory
a patient's condition
a doctor's recommendation

All these procedures are performed during the 3-rd stage of the bacterial culture (bacteriological) method
except:

+isolation of a pure culture
the examination of the purity of an isolated culture
the examination of a biochemical activity
the determination of motility
the determination of the antibiotic sensitivity

All these procedures are performed during the 3-rd stage of the bacterial culture (bacteriological) method

except:

+the determination of a genotype
the identification of a pure culture
the determination of a serotype
the determination of motility
the determination of phagovar

The aim of microscopy during the 3-rd stage of the bacterial culture (bacteriological) method is to determine:

+morphological and tinctorial homogeneity
virulence
antigenic properties
biochemical activity
a genotype

The smears taken from isolated colonies are examined under the microscope in order to:

+study morphological and tinctorial properties
study cultural properties
determine a genotype
determine the phagovar of an isolated culture
determine the bacteriocin sensitivity

What proves the purity of a culture during the 3-rd stage of the bacterial culture (bacteriological) method?

+the homogeneity of growth and the uniformity of microorganisms in a smear:
the growth rate
the generation time
the duration of the lag-phase
the duration of the log-phase

Which of the stages of the bacterial culture (bacteriological) method is devoted to the examination of antigenic and toxigenic properties?

+3-rd
1-st
2-nd
4-th

The determination of the antibiotic sensitivity and resistance of cultures is performed because:

+microorganisms have acquired drug resistance
microorganisms have a natural drug resistance
new antibiotics have been produced
there is a possibility of complications
a patient wants this

The microbiological aim of the antibiotic resistance examination is to:

+determine an acquired resistance
identify a culture

determine the spectrum of activity of a drug
determine the long-range efficacy of treatment
determine natural resistance

The clinical aim of the antibiotic resistance examination is to:

+determine the long-range efficacy of treatment
determine the purchase volume of medicinal drugs
choose the route of a medication administration
choose the dosage of a medicinal drug
determine natural resistance

The result of the bacterial culture (bacteriological) testing is given by the bacteriological laboratory:

+on the 4-5-th day
within 1-2 hours
on the 2-nd or 3-rd day
on the 3-rd or 4-th day
on the 7-10-th day

The time of the bacterial culture (bacteriological) testing result depends on:

+the generation time of a pathogen
the time of collecting samples
the duration of samples delivery
the financial capability of a laboratory
the professional competence of the staff

The determination of bacterial biochemical activity implies:

+determining intermediate and final metabolic products
separation of microbial cells
culturing in Hiss sugar media
culturing in meat-peptone broth
selecting a growth medium

What is **not** used to examine the biochemical properties of microorganisms?

+cell culture
Hiss sugar media
multitest media
differential diagnostic media

Which requirement should synthetic growth media comply with?

+optimal pH
the presence of agar-agar
the presence of blood serum
the presence of an indicator

Which requirement should synthetic growth media comply with?

+isotonicity
the absence of oxygen
the presence of antibiotics
stability

Which requirement should synthetic growth media comply with?

+sterility
the presence of native proteins
selectivity
saturation with oxygen

Which growth media are used to produce isolated colonies by inoculating test material?

+solid
liquid
dry
semi-solid (semi-liquid)

All these are the characteristics of microbial growth in liquid growth media **except**:

+the growth of isolated colonies
diffuse turbidity
biofilms on the surface of a growth medium
the bottom growth
the growth on the walls of a test-tube
the absence of any changes of a growth medium observed with an unaided eye

R-colonies of bacteria are:

+rough
smooth
slimy (mucous)
regular
pigmented

S-colonies of bacteria are:

+smooth
bumpy
rough
dry
pigmented

Which growth media are used to isolate the pure culture of a certain pathogen?

+selective
multi-purpose
differential diagnostic
simple
transport

Which growth media are used to stimulate the growth of a certain microorganism while inhibiting the growth of others?

+enrichment growth media
differential diagnostic
multi-purpose
simple
transport

Which growth media stimulate a fast and massive growth of one microbial species?

+enrichment growth media
differential diagnostic growth media
meat-peptone agar
basic growth media
blood agar

The basic components of a differential diagnostic growth medium are:

+indicator, a chemical substrate in relation to which microorganisms are distinguished, meat-peptone agar
indicator, a selective factor to determine a certain bacterial species, meat-peptone agar
indicator, serum, meat-peptone agar
indicator, antibiotics, a chemical substrate in relation to which microorganisms are distinguished

The preserving growth medium is used:

+to prevent the death of pathogenic bacteria and inhibit the growth of saprophytes
for the first culturing of the material
for the indication of separate groups of bacteria
to accumulate a particular group of bacteria

The enrichment growth medium is used:

+ to accumulate a particular group of bacteria
for the first culturing of the material
for the indication of separate groups of bacteria
to prevent the death of pathogenic bacteria and inhibit the growth of saprophytes

The selective growth medium is used:

+ for the first culturing of the material or for the subculturing of the material taken from preserving or enrichment growth media
for the indication of separate groups of bacteria
to prevent the death of pathogenic bacteria and inhibit the growth of saprophytes
to accumulate a particular group of bacteria

The differential growth medium is used:

+ for the indication of separate groups of bacteria
for the first culturing of the material
to prevent the death of pathogenic bacteria and inhibit the growth of saprophytes
to accumulate a particular group of bacteria

Endo agar is used:

+to examine the saccharolytic properties of bacteria
as an enrichment growth medium
as a growth medium to accumulate bacteria
for the identification of a diphtheria agent
to determine motility

A semi-liquid (semi-solid) agar is used:

+to determine motility
to examine the saccharolytic properties of bacteria
as an enrichment growth medium
as a growth medium to accumulate bacteria
for the identification of a diphtheria agent

Liquid growth media include:

+meat-peptone broth
meat-peptone agar
Endo agar
blood agar
salt egg-yolk agar

All these are types of growth media differentiated according to their purpose **except:**

+blood medium
differential diagnostic
transport
selective
enrichment medium

Blood agar is:

+used to determine the hemolytic activity of bacteria
blood serum
a differential diagnostic growth medium
a selective growth medium
hemolyzed blood

Which growth media is used to determine the hemolytic properties of bacteria?

+blood agar
bismuth sulfite agar
salt egg-yolk agar
Levin medium
Endo agar

What is used to detect plasma coagulase?

+citrate plasma
rabbit plasma
blood
egg yolk

Which growth medium is used to detect lecithinase of staphylococci?

+salt egg-yolk agar
blood agar

milk-salt agar
salt agar

What are differential diagnostic growth media used for?

- +to examine the properties of certain bacteria
- to inhibit the growth of saprophytes
- to stimulate the growth of a certain species of bacteria while inhibiting the growth of others
- to accumulate bacteria

What indicates the saccharolytic activity of bacteria?

- +the formation of acidic and gaseous metabolic products
- the presence of growth
- the type of growth
- the formation of alkaline and gaseous metabolic products
- the formation of neutral and gaseous metabolic products

Which growth medium is used to determine the saccharolytic activity of microorganisms?

- +Hiss media
- blood agar
- meat-peptone agar
- meat-peptone broth
- salt egg-yolk agar

Which phenomenon is observed in semi-solid Hiss media during the fermentation of carbohydrates with the production of acid?

- +the change in the colour of the indicator in the medium
- gas bubbles emission in the semi-solid medium
- the change in the colour of the indicator and gas bubbles emission
- the colour of the medium remains unchanged, gas bubbles are not emitted
- turbidity of the medium and precipitate formation

Chemically enzymes are:

- +metabolites
- substrates
- isotopes
- cofactors
- prions

The differentiative factor of salt egg-yolk agar is:

- +lecithin
- the salts of bile acids
- 10 % NaCl
- lactose
- sucrose

Which growth medium is often used to isolate no-fastidious bacteria?

- +meat-peptone agar
- Bordet-Gengou agar
- salt egg-yolk agar
- casein-charcoal acid
- serum agar

The differentiative factor of Endo agar is:

- +lactose
- glucose
- maltose
- fructose
- mannitol

The growth of colorless colonies on Endo agar proves that the microorganism cannot:

- +ferment lactose
- ferment glucose
- produce indole

produce hydrogen sulfide
produce ammonia

The growth of blue colonies on Levine growth medium proves that microorganism can:
+ferment lactose
ferment glucose
produce H₂S
produce indole
produce ammonia

Which phenomenon indicates the proteolytic properties of bacteria on meat-peptone broth?
+production of hydrogen sulfide and indole
production of amino acids
the presence and type of growth
formation of acidic metabolic products
production of proteases

Which growth medium is used to culture obligate anaerobes?
+Wilson-Blair agar
bile broth
Endo agar
selenite broth
Ploskirev medium

Which growth medium is used to accumulate a pure culture of anaerobes?
+thioglycollate medium
Zeissler blood agar
meat-peptone agar
meat-peptone broth

Which growth medium is used to culture anaerobes?
+Kitt-Tarozzi medium
salt egg-yolk agar
peptone water
Endo agar
Clauberg agar

All these are growth media used for culturing anaerobes **except:**
+bile broth
Kitt-Tarozzi medium
thioglycollate medium
Wilson-Blair agar

Which of those methods does not provide a complete sterilization of an object?
+pasteurization
gamma radiation
dry heat
autoclaving
calcination

Simple growth media are sterilized by:
+sterilization with steam under pressure in an autoclave
calcination
tyndallization
dry heat
pasteurization

Sera are sterilized by:
+ tyndallization
calcination
boiling
dry heat
autoclaving

The normal human microflora:

- +is numerous
- is formed during the prenatal development
- is present in all organs and tissues
- includes only prokaryotes
- does not change during lifetime

The normal human microflora:

- +produces biofilms
- is formed during the prenatal development
- is present in all organs and tissues
- includes only prokaryotes
- does not change during lifetime

The basic form of existence of normal microflora:

- +a biofilm
- a nonculturable form
- an L-form
- a spore
- a hybridoma

All these are the properties of the microbes in a biofilm **except:**

- +they disrupt the absorption of nutrients
- they form microcolonies
- they are encapsulated in a polymeric matrix (glycocalyx)
- they are more resistant to antimicrobial drugs
- they have a system of connections

All these are the causes of gastrointestinal dysbacteriosis (dysbiosis) **except:**

- +consumption of probiotics
- gastrointestinal diseases
- endocrine disorders
- hormonal therapy
- antimicrobial therapy

A person should be tested for intestinal dysbacteriosis:

- +if he suffers from a long-time intestinal dysfunction
- before entering an educational institution (a kindergarten, a school, a university)
- if he works in the foodservice industry
- if he works in kindergartens and schools
- before donating blood

All these are the factors which contribute to the development of dysbiosis (dysbacteriosis) **except:**

- +consumptions of vitamins
- infectious diseases
- chronic non-infectious diseases
- consumption of immunosuppressive drugs
- consumption of antibiotics

All these are the exogenous factors which influence normal human microflora (microbiota) **except:**

- +gender
- consumption of antibiotics
- dietary pattern
- pollution of the environment
- drug addiction

What is an endogenous factor which influences normal human microflora (microbiota)?

- +gender
- consumption of antibiotics
- dietary pattern
- season
- ecology

All these are the functions of normal microflora **except:**

- +formation of new species
- production of biologically active substances
- participation in the metabolism of proteins, carbohydrates and lipids, etc.
- detoxification
- the pool of plasmid and chromosomal genes

Which one is a positive function of normal microflora?

- +antagonistic
- carcinogenic
- toxigenic
- mutagenic
- stimulation of autoimmune processes

All these are the positive functions of normal human microflora **except:**

- +toxigenic
- secretory
- antagonistic
- immunizing
- vitamin-producing

The colonization resistance of epithelium is provided by:

- +normal microflora
- pathogenic microflora
- hemophilic E.coli
- putrefactive microorganisms

Which microbes participate in the formation of the colonization resistance of intestinal microflora?

- +E.coli
- yeasts of the Candida genus
- Proteus species
- Staphylococcus aureus

The negative role of normal microflora is:

- +it causes autoinfections
- immunizing
- stimulation of lymphoid tissue formation
- anticarcinogenic
- antimutagenic

The normal microflora in the large intestine of an adult includes all these microorganisms **except:**

- +rickettsia
- bacteroides
- bifidobacteria
- enterococci
- enterobacteria

Which microbes participate in the formation of the colonization resistance of intestinal microflora?

- +non-sporeforming anaerobes
- yeasts of the Candida genus
- Proteus species
- Staphylococcus aureus

Which intestinal microflora prevails during the breast-feeding period?

- +bifidobacteria
- staphylococci
- E.coli
- enterococci
- enterobacteria

The normal intestinal microflora of a baby during the breast-feeding period:

- +includes bifidobacteria

develops at the end of the first month
is not sensitive to antibiotics
includes thermophiles
colonizes all the parts

The formation of the normal microflora of a baby is determined by all these factors **except:**
+a type of anaesthetic administered to a mother during the childbirth
the maturity of a fetus
a method of delivery
the microflora in a mother's birth canals
the type of feeding

All these are the risk factors which can cause dysbacteriosis in newborn babies **except:**
+the first-time delivery
bacterial vaginosis of a mother
late breast-feeding
high-risk pregnancy
premature delivery

All these are the risk factors which can cause dysbacteriosis in toddlers **except:**
+probiotics administration
immunodeficiency disorders
early bottle-feeding
an infectious pathology
a somatic pathology

The normal vaginal microflora depends on all these factors **except:**
+the body type
the hormonal status
age
the type of contraception
the phase of the menstrual

The normal vaginal microflora includes mostly:
+lactobacilli
bacteroides
fusobacteria
veillonellas
mobiluncus

All these microorganisms belong to the normal vaginal microflora **except:**
+clostridia
lactobacteria
streptococci
bacteroides

All these are the factors which provide the protective role of the normal vaginal microflora **except:**
+phagocytosis of pathogenic microorganisms
blockage of receptors
production of antimicrobial substances
induction of the immune response
detoxification of xenobiotics

Bacterial vaginosis is:
+a non-inflammatory syndrome related to vaginal dysbacteriosis
a sexually-transmitted infection
a highly contagious disease
is inherited
is a hospital-acquired infection

All these conditions can be provoked by bacterial vaginosis **except:**
+cardio-vascular diseases
the diseases of the uterus and epoophora

pathological conditions during pregnancy
activation of a viral infection
sexually-transmitted infections

Which technique is used during the diagnosing procedure of bacterial vaginosis?
+microscopy
bacterial culture
serology
gas chromatography
polymerase chain reaction

Which organ is normally sterile in a healthy person?
+lungs
eye conjunctiva
vagina
nasopharynx
small intestine

Which organ is normally sterile in a healthy person?
+uterus
eye conjunctiva
vagina
nasopharynx
small intestine

All these microorganisms belong to the normal oral microflora **except:**
+gonococci
streptococci
actinomyces
veillonellas
fusobacteria

The normal microflora of the upper respiratory tract includes:
+streptococci
respiratory viruses
brucellas
Vibrio cholerae
E.coli

The disruption of the normal intestinal microflora leads to:
+dysbacteriosis
hypervitaminosis
autoimmune diseases
acute food poisoning
the increase of antibodies titer

All these are the properties of normal intestinal microflora **except:**
+it includes mostly aerobes
it determines the colonization resistance
it has antagonistic properties
it is the most numerous
it is the most diverse

The basic method of dysbacteriosis diagnosis is:
+bacterial culture (bacteriological)
clinical
biochemical
chromatography

Which method of testing is used to diagnose intestinal dysbacteriosis?
+microbiological culture (bacteriological) method
serological tests
allergy tests

laboratory animals testing
a patient's story

What is the basis of dysbacteriosis treatment?
+elimination of the cause of dysbacteriosis
immunoglobulins intake
a sensible antimicrobial therapy
boosting the immunity
a healthy diet

All these means are used to treat dysbacteriosis **except** one, which one is wrong?

- +antibiotics
- probiotics
- prebiotics
- bacteriophage
- food products enriched with probiotics

Probiotics are:

- +normal microflora species
- vaccines
- allergens
- vitamins
- bacteriophages

Which one is the characteristic of bacteriophages?

- +they are obligate intracellular parasites
- they have a nucleus
- they have a cellular structure
- they have a bacterial origin
- they have intracellular inclusions

Bacteriophages are:

- +resistant to antibiotics
- gram-positive
- gram-negative
- fastidious
- pathogens which cause hospital-acquired infections

Which one is the property of bacteriophages?

- +lytic or lysogenic activity
- the absence of specificity
- bacterial nature
- cellular structure
- capacity for binary fission

Which property of bacteriophages enables their use in treatment and diagnosing procedures?

- +specificity
- antigenicity
- immunogenicity
- virulence
- transmissibility

What is the result of interaction between a virulent bacteriophage and a bacterial cell?

- +lysis of a bacterial cell
- lysogenization
- the increase of cell division rate
- formation of a defective bacteriophage
- phage conversion

All these are the stages of the interaction between virulent bacteriophages and a bacterial cell **except**:

- +a log phase
- the adsorption of a bacteriophage on a cell

the penetration of a phage nucleic acid into a bacterial cell
the assembly of a bacteriophage (morphogenesis)
the exit of a bacteriophage from a host cell

The first stage of a virulent bacteriophage reproduction is:
+the adsorption of a bacteriophage on a susceptible cell
the penetration of a bacteriophage into a host cell
the injection of phage DNA into the nucleoid of a host cell
the synthesis of the structural components of a bacteriophage
the assembly of phage components

The interaction between a temperate bacteriophage and a bacterial cell involves:
+the integration of phage DNA with the genome of a cell
chemotaxis
adsorption of a phage on a bacterial cell
binary fission
the exit of mature phages from a bacterial cell

The type of interaction between a temperate bacteriophage and a bacterial cell is:
+integrative
abortive
productive
spontaneous
induced

The type of interaction between a virulent bacteriophage and a bacterial cell is:
+productive
integrative
abortive
spontaneous
induced

Bacteriophages are cultured:
+in bacterial cultures
in cell cultures
in laboratory animals
in chicken embryos
on growth media

Which factor indicates the reproduction of virulent bacteriophages?
+the formation of negative colonies
the positive result of the hemadsorption assay
the turbidity in a growth medium
the change of colour of a growth medium
the growth of isolated colonies

Diagnostic bacteriophages are used:
+for the identification of bacteria
to treat infectious diseases
for the prophylaxis of infectious diseases
as immune drugs

The transfer of genetic material from some bacteria to others with the help of phages is also known as:
+transduction
transformation
conjugation
replication
modification

All these are the ways to use bacteriophages **except one** (choose the wrong answer):
+to determine the phagocytic activity
for phage typing
to determine the source and transmission factors of an infection

in phage therapy
for phage differentiation

Which bacteriophages are components of therapeutic and preventive drugs?

- +virulent
- defective
- typical
- temperate
- conjugative

Which exotoxin inhibits protein synthesis?

- +diphtheria toxin
- pneumolysin
- hemolysin
- cholera toxin
- hyaluronidase

Which one is a neurotoxin?

- +botulinum toxin
- exfoliatin
- pneumolysin
- streptolysin O
- dermonecrotoxin

Exotoxins are produced by:

- +both gram-positive and gram-negative bacteria
- only gram-negative bacteria
- only gram-positive bacteria
- viruses
- prions

Bacterial exotoxins appear in the environment as a result of:

- +the living activities of bacteria
- capsule formation
- spore formation
- destruction of bacteria
- unfavorable environmental conditions

Which microorganisms produce endotoxins?

- + gram-negative bacteria
- gram-positive bacteria
- both gram-positive and gram-negative bacteria
- viruses
- prions

The species of this family of DNA-containing viruses cause acute respiratory viral infections (ARVI):

- +adenoviruses
- picornaviruses
- rhabdoviruses
- hepadnaviruses

Which one is a rapid test used for the laboratory diagnosis of acute respiratory viral infections (ARVI)?

- +immunofluorescence assay
- hemagglutination assay
- agglutination assay
- precipitation test

Which medicinal drugs are used to treat acute respiratory viral infections (ARVI)?

- +interferons
- antibiotics
- bacteriophages
- eubiotics

Which family do RNA-containing viruses causing acute respiratory viral infections (ARVI) belong to?

- +Paramyxoviridae
- Retroviridae
- Togaviridae
- Rhabdoviridae

Which family do RNA-containing viruses causing acute respiratory viral infections (ARVI) belong to?

- +Picornaviridae
- Bunyaviridae
- Retroviridae
- Rhabdoviridae

Which one is a rapid test used for the laboratory diagnosis of ARVI (acute respiratory viral infections)?

- +rhinocytoscopy
- dark-field microscopy
- phase-contrast microscopy
- microscopy of Gram-stained smears

The outer envelope of the influenza virus includes:

- +hemagglutinin, neuraminidase
- M-protein
- RNA-polymerase
- endonuclease

The genome of the influenza virus is:

- +fragmented RNA
- double-stranded DNA molecule
- non-fragmented RNA
- single-stranded DNA
- plus-strand RNA

What is the property of influenza viruses?

- +RNA-containing
- no surface antigens
- the absence of the viral envelope (supercapsid)
- cuboidal symmetry

The property of Influenzavirus A is:

- +it has no reverse transcriptase
- it has no hemagglutinin
- it has no viral envelope
- it has no neuraminidase

The property of Influenzavirus C is:

- +it has no neuraminidase

non-segmented RNA
it has no hemagglutinin
it has no viral envelope

Which antigens determine the subtype of the influenza virus?

- +surface antigens
- a fusion protein
- hemolysin
- a core antigen

The core antigen of the influenza virus is:

- +type-specific
- subtype-specific
- contains liposaccharides
- is detected in the precipitation test

Which test samples are used for the virological testing (viral culture) of influenza?

- +nasopharyngeal swabs
- sputum
- rectal swabs
- ear swabs

Which assay is used for the indication of the influenza virus?

- +hemagglutination assay
- complement fixation test
- passive hemagglutination assay
- hemagglutination inhibition assay

What is a specific feature of the influenza virus serodiagnosis?

- +two blood serum samples taken on the 5-th and 15-th days of the disease are examined
- serodiagnosis is a rapid test
- both blood serum samples are stored at room temperature
- paired blood serum samples taken on the 5-th and 30-th days of the diseases are examined

The medications to treat influenza are:

- +immunoglobulins
- antibiotics
- vaccines
- bacteriophages

The preparation used for specific pre-exposure (scheduled) prophylaxis of influenza is:

- +a subvirion vaccine
- a divergent vaccine
- interferon
- a toxoid

The antigens of the influenza virus are all the ones mentioned below except:

- +hyaluronidase
- hemagglutinin
- a core antigen
- neuraminidase

Which assay is used for the identification of the influenza virus?

- +hemagglutination inhibition assay
- radioimmunoassay
- precipitation test
- agglutination assay

Which one is the characteristic of rhinoviruses?

- +spherical shape
- bullet-like shape
- a viral envelope
- hemagglutinin

The taxonomic status of the mumps virus is:
+family Paramyxoviridae, genus Rubulavirus
family Paramyxoviridae, genus Coronavirus
family Orthomyxoviridae, genus Pneumovirus
family Reoviridae, genus Rhinovirus

The mumps virus:
+has helical symmetry
does not have a viral envelope
contains hemagglutinin
is DNA-containing

Rapid diagnostic testing for mumps includes:

- +detection of the virus in sputum by the immunofluorescence assay
- detection of the virus in nasopharyngeal swabs samples cultured in cell cultures
- detection of the virus in sputum by the hemagglutination inhibition assay
- detection of the virus in a blood sample cultured in white mice

What is used for the specific prevention (prophylaxis) of mumps?

- +live culture vaccine
- molecular vaccine
- toxoid
- prophylaxis is not administered

The taxonomic status of the parainfluenza virus is:

- +family Paramyxoviridae, genus Rubulavirus
- family Paramyxoviridae, genus Coronavirus
- family Orthomyxoviridae, genus Pneumovirus
- family Reoviridae, genus Rhinovirus

What is used for the specific prophylaxis (prevention) of parainfluenza?

- +prophylaxis is not administered
- toxoid
- immunoglobulin
- a split vaccine

The viruses of the genus Mastadenovirus:

- +are spherical
- are bullet-shaped
- have a viral envelope
- have hemagglutinin

The biological characteristic of adenoviruses is:

- +they are simple
- they contain RNA
- they are complex
- they have a viral matrix protein

Which air-droplet transmitted infection is followed by a durable life-long immunity?

- +rubella
- influenza
- parainfluenza
- rhinovirus infection

The taxonomic status of the measles virus is:
+family Paramyxoviridae, genus Morbillivirus
family Paramyxoviridae, genus Coronavirus
family Orthomyxoviridae, genus Pneumovirus
family Reoviridae, genus Rhinovirus

The biological properties of the measles virus are:
+complex, helical symmetry

simple, helical symmetry
simple, icosahedral symmetry
complex, icosahedral symmetry

Measles virus is cultured:
+in cultured cells with the formation of syncytia
in cultured cells without any cytopathic effect
in laboratory mice with characteristic clinical manifestations
in special growth media

Which rapid diagnostic test is used to detect measles virus?
+agglutination inhibition assay
precipitation test
agglutination assay
hemagglutination assay

Which medical preparation is used for the pre-exposure scheduled prophylaxis (prevention) of measles?
+live vaccine
killed vaccine
toxoid
immunoglobulin
heterologous serum

The taxonomic status of the rubella virus is:
+family Togaviridae, genus Rubivirus
family Paramyxoviridae, genus Rubivirus
family Rhabdoviridae, genus Morbillivirus
family Picornaviridae, genus Paramyxovirus

The virological diagnostic method (virus culture/isolation) of rubella involves:
+isolating the virus from a nasopharyngeal swab in cultured cells
isolating the virus from bile in a chicken embryo
indication in the immunofluorescence assay
indication in the agglutination assay

What is used for the scheduled pre-exposure prophylaxis of rubella?
+attenuated vaccine
whole-cell vaccine
specific immunoglobulin
genetically engineered vaccine

The structure of herpesviruses is:
+linear double-stranded DNA, a spherical virion with a viral envelope
double-stranded RNA, a spherical virion with a viral envelope
single-stranded DNA, a spherical virion without a viral envelope
single-stranded RNA, a spherical virion without a viral envelope

What is a characteristic feature of Herpesviridae family viruses?
+they replicate in the nucleus
they replicate in the cytoplasm
they exit a cell by budding
they have a simple structure

The viruses of Herpesviridae family are cultured:
+in cultured cells with the formation of distinctive giant cells
in cultured cells without any cytopathic effect
they do not reproduce in chicken embryos
in special growth media

Which rapid test is used to diagnose herpesvirus infections?
+polymerase chain reaction
hemagglutination inhibition assay
indirect hemagglutination assay

radioimmunoassay

Which method is used to diagnose a cytomegalovirus infection?

- +saliva cytostomy
- the isolation of viruses in cell cultures
- the detection of antibodies by the precipitation test
- the detection of antigens by the polymerase chain reaction

Beta herpesviruses include:

- +cytomegalovirus
- Herpes simplex virus 1
- Herpes simplex virus 2
- Epstein-Barr virus
- Varicella zoster virus

Which rapid test is used to diagnose measles?

- +ELISA
- hemagglutination inhibition assay
- complement fixation test
- precipitation test

Which assay is used to diagnose a herpesvirus infection?

- +immunofluorescence assay
- precipitation test
- agglutination assay
- radial hemolysis assay

Gamma herpesviruses include:

- +Epstein-Barr virus
- Herpes simplex virus 2
- cytomegalovirus
- Varicella zoster virus
- Herpes simplex virus 1

Which preparation is used for the scheduled pre-exposure prophylaxis of measles?

- +live attenuated vaccine
- inactivated vaccine
- toxoid
- heterologous serum

The mumps virus is:

- +complex, RNA-containing
- simple, RNA-containing
- simple, DNA-containing
- complex, DNA-containing

All these biological materials are used to diagnose influenza except:

- +urine
- blood serum
- sputum
- nasopharyngeal swabs

All these are antigens of the measles virus except:

- +neuraminidase
- hemagglutinin
- nucleocapsid protein
- matrix protein

The viruses of Paramyxoviridae family affect:

- +the respiratory system
- the gastrointestinal tract
- the cardiovascular system
- the urogenital system

the nervous system

All these are the diseases caused by the viruses of Paramyxoviridae family except:

- +West Nile fever
- parainfluenza
- human respiratory syncytial virus infection
- measles
- mumps

All these virus families can cause gastroenteritis except:

- +Paramyxoviridae
- Noroviruses
- Rotaviruses
- Astroviridae
- Coronaviridae

What are the properties of Coronaviridae family viruses?

- +complex with icosahedral symmetry
- simple with helical symmetry
- they have hemagglutinating properties
- resistant to ether

What are the properties of Astroviridae family viruses?

- +simple with icosahedral symmetry
- complex with helical symmetry
- they have hemagglutinating properties
- resistant to ether

The antigenic variation of influenza A virus is provided by:

- +fragmented viral RNA
- helical symmetry
- high reproduction rate
- the presence of a viral envelope

The genetic mechanisms of influenza A virus antigenic variation are:

- +antigenic shift and antigenic drift
- alternative splicing
- conjugation
- transformation
- transduction

All these methods are used for the laboratory diagnosis of influenza except:

- +allergy tests
- viral culture tests
- serologic tests
- rapid tests

All these preparation are used for the prophylaxis of influenza except:

- +antibiotics
- vaccines
- rimantadine
- immunoglobulin
- interferon

All these are the properties of adenoviruses except:

- +RNA-containing
- DNA-containing
- icosahedral symmetry
- they have no viral envelope

All these are the indication methods of the measles virus in infected cell cultures except:

- +destruction type cytopathic effect
- cytopathic effect with the formation of syncytia

formation of intracellular inclusion bodies
hemadsorption test
hemagglutination test

The characteristic feature of the rubella virus is:
+teratogenicity
antigenic heterogeneity
high variability
inability to reproduce independently

A multivalent influenza serum is used for:
+rapid testing
scheduled (pre-exposure) prophylaxis
serodiagnosis
treatment

The influenza virus reproduces:
+in the epithelial cells of the respiratory tract
in the cells of the lymph nodes in the respiratory tract
in the macrophages of the lymph nodes
in RBCs (erythrocytes)

The cytopathic effect produced by alpha herpesviruses is:
+intranuclear inclusions
cytoplasmic inclusions
cell destruction
formation of a syncytium

What is a property of influenza viruses?
+helical symmetry
they have one serotype
they have no viral envelope
DNA-containing

Measles viruses are cultured:
+in cultured cells with the formation of syncytia
in cultured cells without any cytopathic effect
in hepatocytes
in chicken embryos

The family Picornaviridae includes:
+ECHO viruses
hepatitis C viruses
reoviruses
hepatitis E viruses

The family Picornaviridae includes:
+Coxsackieviruses
rubella viruses
Epstein-Barr viruses
rotaviruses

The structure of enteroviruses is:
+RNA, a spherical virion without a viral envelope
RNA, a spherical virion with a viral envelope
linear DNA, a spherical virion with a viral envelope
single-stranded DNA, a spherical virion without a viral envelope

The reproduction of enteroviruses can occur:
+in cell cultures with non-specific cell degeneration
in cell cultures with the formation of syncytia
in the body of guinea-pigs with distinctive clinical manifestations
in chicken embryos

The viral culture (virological) testing for enterovirus infections includes:
+infecting cell cultures
infecting chicken embryos
indication of the virus by the hemagglutination assay
identification of the virus by its cytopathic effect

Serodiagnostic testing of enterovirus infections involves:
+testing the blood serum samples taken from a patient twice
isolation and indication of viruses
detection of antigens in a patient's urine
identification of isolated viruses

The basic sample material used for the laboratory diagnosis of fecal-orally transmitted viral hepatitis is:
+feces
liver biopsy samples
urine
sputum

The basic sample material used for the laboratory diagnosis of fecal-orally transmitted viral hepatitis is:
+blood serum
liver biopsy samples
sputum
urine

Which assay is used to detect the antigens of viral hepatitis pathogens in feces?
+ELISA
agglutination assay
indirect hemagglutination assay
flocculation test

Which assay is used to detect viral hepatitis infectious agents in feces?
+polymerase chain reaction
agglutination assay
precipitation test
flocculation test

Which assay is used to detect the antigens of viral hepatitis pathogens in feces?
+immune electron microscopy
hemagglutination assay
indirect hemagglutination assay
flocculation test

Hepatitis A viruses belong to the family:
+Picornaviridae
Hepadnaviridae
Flaviviridae
Deltaviridae
Caliciviridae

What is a property of hepatitis A virus?
+plus-strand single-stranded RNA
double-stranded RNA
bullet-like shape
a viral envelope

What is a property of hepatitis A virus?
+it exits a cell by bursting
it has three serotypes
it is cultured in chicken embryos
it produces a distinctive cytopathic effect with the formation of syncytia

Hepatitis A virus can be detected:

+in feces
in sperm
in vaginal discharge
in urine

The preparation used for the prevention of viral hepatitis A is:

+a killed (inactivated) vaccine
bacteriophages
a live vaccine
eubiotics

The preparation used for the prevention of viral hepatitis A is:

+immunoglobulin
a bacteriophage
a live vaccine
a divergent vaccine

The taxonomic status of hepatitis E virus is:

+Caliciviridae family, Hepevirus genus
Paramyxoviridae family, Coronavirus genus
Orthomyxoviridae family, Pneumovirus genus
Paramyxoviridae family, Paramyxovirus genus

What is a property of hepatitis E virus?

+RNA-containing
a viral envelope
bullet-like shape
it is cultured in chicken embryos

The diagnosing procedure of viral hepatitis E includes:

+detection of the virus in blood serum by PCR
detection of the virus in blood serum by the hemagglutination inhibition assay
detection of antibodies by the neutralization test
detection of antibodies by the precipitation test

Rotaviruses belong to the family:

+Reoviridae
Picornaviridae
Rhabdoviridae
Caliciviridae

The morphology of rotaviruses is:

+simple, RNA-containing
complex, DNA-containing
simple, DNA-containing
complex, RNA-containing

Which one is a property of Rotaviruses?

+a viral envelope
contain transcriptase
are cultured in mice
are not resistant in the environment

The diagnosing procedure of a rotavirus infection includes:

+detection of a virus in feces by immune electron microscopy
detection of a virus in blood serum by the hemagglutination inhibition assay
detection of antibodies by the precipitation test
detection of antibodies by the agglutination assay

What is a property of Hepatitis E virus?

+no viral envelope
DNA-containing
bullet-like shape

it is cultured in chicken embryos

Which rapid test is used to diagnose acute viral intestinal infections?

- +immune electron microscopy
- electron microscopy
- agglutination assay
- flocculation test

The family Picornaviridae includes all these viruses except:

- +Hepatitis E viruses
- rhinoviruses
- Coxsackie viruses
- poliomyelitis viruses

The viruses of this family can cause intestinal infections:

- +Coronaviridae
- Hepadnoviridae
- Herpesviridae
- Paramyxoviridae

The viruses of this family can cause intestinal infections:

- +Adenoviridae
- Hepadnoviridae
- Herpesviridae
- Paramyxoviridae

The viruses of this family can cause intestinal infections:

- +Picornaviridae
- Hepadnoviridae
- Herpesviridae
- Paramyxoviridae

The taxonomic status of Coxsackie virus is:

- +Picornaviridae family, Enterovirus genus
- Picornaviridae family, Rhinovirus genus
- Picornaviridae family, Hepatovirus genus
- Flaviviridae family, Flavivirus genus
- Picornaviridae family, Aphtovirus genus

All these samples can be used for the laboratory diagnosis of poliomyelitis **except**:

- +eye conjunctiva discharge
- cerebrospinal fluid
- feces
- nasopharyngeal discharge
- blood serum

Which methods are used during the laboratory diagnosing procedure of poliomyelitis?

- +viral culture (virological), serologic
- viroscopy, viral culture (virological)
- viral culture (virological), allergy testing
- serologic, allergy testing

Viral hepatitis with the fecal-oral transmission route are:

- +hepatitis A, hepatitis E
- hepatitis B, hepatitis C
- hepatitis C, hepatitis G
- hepatitis B, hepatitis D
- hepatitis E, hepatitis B

The viruses of these families can cause viral gastroenteritis:

- +Coronaviridae
- Paramyxoviridae
- Arboviridae

Rhinoviridae

Enterovirus genus includes:

- +rhinoviruses
- rotaviruses
- hepatitis B virus
- measles virus

All these are picornaviruses passed with feces except:

- +rhinoviruses
- Coxsackie viruses
- polioviruses
- ECHO viruses
- Hepatitis A virus

At present there is specific prophylaxis only against enterovirus infections caused by:

- +hepatitis viruses
- Coxsackie viruses
- rhinoviruses
- ECHO viruses

Hepatitis viruses with the parenteral transmission route are cultured in:

- +apes
- newborn mice
- chicken embryos
- Hanks medium (HBSS)

All these are the factors of transmission of parenteral viral hepatitis except:

- +air
- medical equipment contaminated with patients' blood
- tattoo supplies
- dental instruments

Which sample material is used for the diagnosing procedure of blood-borne viral hepatitis?

- +blood serum
- saliva
- feces
- urine

The taxonomic status of Hepatitis B is:

- +Hepadnaviridae family, Orthohaepadnavirus genus
- Hepadnaviridae family, Coronavirus genus
- Orthomyxoviridae family, Pneumovirus genus
- Paramyxoviridae family, Paramyxovirus genus
- Reoviridae family, Rhinovirus genus

The structure of Hepatitis B virus is:

- +circular DNA
- fragmented RNA
- no viral envelope
- helical symmetry

The property of Hepatitis B virus is:

- +spherical shape
- bullet-like shape
- resistance to ether
- it is cultured in white mice

The characteristic feature of HBeAg is:

- +it is located in the core of a virion
- it is located on the surface of a virion
- it is a polypeptide similar to HBsAg
- it is a lipopolysaccharide

The antigen of Hepatitis B virus located in the viral envelope is:

- +HBs antigen
- HBc antigen
- HBe antigen
- HBx antigen

The characteristic feature of HBc antigen is:

- +it is not detected in a free state in the body fluids
- it is a lipopolysaccharide
- it is located in a viral envelope of a virion
- it indicates the reproduction of a virus

The characteristic feature of HBs antigen is:

- +it causes antigenemia (it is the antigen which is present in blood)
- it is located in the core of a virion
- it cannot be found in a free state
- it indicates that a patient is not contagious

The reproduction of Hepatitis B virus occurs in:

- +hepatocytes
- the epithelium of the intestine
- RBCs (erythrocytes)
- lymphocytes

The sample material used for the diagnosis of hepatitis B is:

- +blood
- feces
- urine
- cerebrospinal fluid

Which method is used to diagnose hepatitis B?

- +detection of the antibodies against the antigens of the virus in blood serum
- isolation of the pathogen in cultured cells
- infecting susceptible laboratory animals
- skin allergy tests

Which method is used to diagnose hepatitis B?

- +detection of the viral antigens in the sample material
- isolation of the pathogen in cultured cells
- infecting susceptible laboratory animals
- skin allergy tests

Which assay is used to detect HBs antigen?

- +ELISA
- hemagglutination inhibition assay
- agglutination assay
- neutralization test

The vaccine against hepatitis B is:

- +a genetically engineered yeast-based vaccine
- a live cell-culture based vaccine
- an inactivated cell-culture based vaccine
- a split virus vaccine
- a subunit vaccine

The property of Hepatitis C virus is:

- +it belongs to the family Flaviviridae
- it has a simple structure
- it is RNA-containing
- it is not sensitive to ether

The property of Hepatitis C virus is:

+it is RNA-containing
it belongs to the family Adenoviridae
it has a simple structure
it is not sensitive to ether

Which method is used during the diagnosing procedure of hepatitis C?
+detection of the circulating antibodies against the viral antigens in blood serum
isolation of the pathogen in cultured cells
infecting susceptible laboratory animals
skin allergy tests

Which method is used during the diagnosing procedure of hepatitis C?
+detection of the viral antigens in the sample material
isolation of the pathogen in cultured cells
infecting susceptible laboratory animals
skin allergy tests

What is the basic assay used to diagnose viral hepatitis C?
+ELISA
hemagglutination inhibition assay
hemagglutination assay
neutralization test

The property of Hepatitis D virus is:
+RNA-containing
DNA-containing
it is cultured in cultured cells
it is transmitted from animals to humans

The property of Hepatitis D virus is:
+it is defective
it is DNA-containing
it is cultured in cultured cells
it is transmitted from animals to humans

The distinctive feature of HBeAg is:
+it indicates the reproduction of the virus
it is located on the surface of the virion
it is a polypeptide similar to HBsAg
it indicates the convalescence stage

Which virus is DNA-containing?:
+Hepatitis B virus
Hepatitis A virus
Hepatitis C virus
Hepatitis D virus
Hepatitis E virus

The characteristic feature of Hepatitis B virus is:
+thermoreistance
the need for the helper virus
deficient DNA
extrahepatic replication

The serological marker of Hepatitis B virus active replication is:
+HBe-Ag
HBs-Ag
HBc-Ag

The human body responds to hepatitis B vaccine by producing:
+anti-HBs antibodies
anti-HAV IgG
anti-HBcore (total antibodies)

Vaccines against hepatitis B also give protection against:
+hepatitis D
hepatitis E
hepatitis C
hepatitis A

Specific prophylaxis against hepatitis C involves:
+it does not exist
administering a live vaccine
administering a recombinant vaccine
administering eubiotics

All these are the properties of Hepatitis D virus **except**:
+reproduction in the presence of HCV
it is a defective virus
it cannot cause a monoinfection
reproduction in the presence of HBV
HBs-Ag is present in the viral envelope of HDV

The serological markers of Hepatitis D virus are all the ones mentioned below **except**:
+HBs-Ag
anti-HDV IgM
anti-HDV IgG
viral RNA
anti-HDV total antibodies

Hepatitis D develops:
+if a person who has acute hepatitis B is infected with HDV (as a superinfection)
as a monoinfection caused by HDV
simultaneously with a HGV-caused infection (as a coinfection)
simultaneously with a HCV-caused infection (as a coinfection)

Specific prophylaxis against hepatitis D is:
+vaccination against hepatitis B
observing personal and social hygiene
vaccination against hepatitis A
interferon

Hepatitis G virus:
+is RNA-containing
contains reverse transcriptase
has a simple structure
is bullet-shaped

Hepatitis C is transmitted through all these routes except:
+eating contaminated food products
intravenous infusions
extracorporeal dialysis
blood transfusion

The source of a Hepatitis B virus-caused infection is:
+an asymptomatic virus carrier
sick animals
food products
the water in swimming pools

Hepatitis B virus is cultured in:
+apes
newborn mice
chicken embryos
cultured cells

The properties of Hepatitis B virus are:

+DNA-containing, complex
DNA-containing, simple
RNA-containing, complex
RNA-containing, simple

Hepatitis B virus is transmitted by all these routes except:

+airborne-droplet
sexual
transplacental
during medical and cosmetic procedures
through blood transfusion

Hemorrhagic fever with renal syndrome is caused by:

+viruses
fungi
bacteria
prions

The taxonomic status of the infectious agent causing hemorrhagic fever with renal syndrome is:

+Bunyaviridae family; Hantavirus genus
Togaviridae family; Hepacivirus genus
Flaviviridae family; Flavivirus genus
Flaviviridae family; Hepadnavirus genus
Paramyxoviridae family; Flavivirus genus

The morphology of hantaviruses is:

+complex, RNA-containing
complex, DNA-containing
simple, DNA-containing
simple, RNA-containing

The rapid testing of hemorrhagic fever with renal syndrome involves:

+detection of the virus in urine by the immunofluorescence assay
detection of the virus from nasopharyngeal swabs in cultured cells
detection of the virus in sputum by the hemagglutination inhibition assay
detection of the virus in blood in infected white mice

Which assay is used for the rapid testing of hemorrhagic fever with renal syndrome?

+ELISA
hemagglutination inhibition assay
hemagglutination assay
precipitation test

Which assay is used during the serological testing for hemorrhagic fever with renal syndrome?

+indirect hemagglutination assay
hemagglutination inhibition assay
hemagglutination assay
agglutination assay

The taxonomic status of Poliovirus is:

+Picornaviridae family, Enterovirus genus
Picornaviridae family, Rhinovirus genus
Rhabdoviridae family, Enterovirus genus

The structure of the poliovirus genome is:

+plus-strand single-stranded RNA
fragmented DNA
double-stranded DNA
double-stranded RNA
minus-strand fragmented RNA

The characteristic feature of poliovirus is:

+icosahedral symmetry

helical symmetry
its replication occurs in the nucleus
it exits the cell by budding

The characteristic feature of poliovirus is:
+its replication occurs in the cytoplasm
helical symmetry
its replication occurs in the nucleus
it exits the cell by budding

The characteristic feature of poliovirus is:
+it exits the cell by bursting it (cell lysis)
helical symmetry
its replication occurs in the nucleus
it exits the cell by budding

The property of poliovirus is:
+it attacks motor neurons
it enters the bloodstream
it enters urine
it affects the liver

The sample material for the serological testing of poliomyelitis is:
+blood
feces
urine
cerebrospinal fluid

Polioviruses are cultured in:
+cell cultures
chicken embryos
laboratory rabbits
the intestine of the body lice

The indication technique of polioviruses in a cell culture is:
+formation of viral plaques
hemadsorption assay
neutralization test
hemagglutination assay

The indication technique of polioviruses in a cell culture is:
+cytopathic effect
neutralization test
PCR
complement fixation test
hemagglutination assay

Which assay is used to differentiate between the serotypes of poliovirus?
+neutralization test
hemagglutination inhibition assay
precipitation test
complement fixation test

The vaccine used for the specific prophylaxis of poliomyelitis is:
+inactivated cell-culture based
chemical
live embryo cell
live genetically engineered

The vaccine used for the specific prophylaxis of poliomyelitis is:
+live cell-culture based
chemical
inactivated embryo cell

live embryo cell

All these are characteristic features of polioviruses except:

- +high antigenic variability
- icosahedral symmetry
- replication in the cytoplasm
- cytolysis of target cells

According to their antigenic properties polioviruses are subdivided into:

- +3 serotypes
- 4 serotypes
- 7 serotypes
- 6 serotypes

Sabin's oral polio vaccine contains:

- +attenuated strains of polioviruses
- polioviruses inactivated by heating
- polioviruses inactivated with formalin
- antigens against polioviruses

Sabin's oral polio vaccine is used for:

- +scheduled (pre-exposure) specific prophylaxis
- urgent (post-exposure) specific prophylaxis
- early pre-exposure non-specific prophylaxis
- treatment

All these are characteristic features of HIV **except**:

- +the need for a helper virus
- affinity to CD+ T helper cells
- the presence of reverse transcriptase
- a conical or cylindrical core / nucleocapsid
- high antigenic variability

All these are the transmission routes of HIV infection **except**:

- +sharing tableware (dishes)
- sexual
- during the tattooing process
- intravenous drug administration

The basic assay within the laboratory diagnosing procedure of HIV infection is:

- +detection of antibodies
- virus isolation in vitro
- detection of viral DNA
- determining the hypersensitivity of a delayed type

Which assay is used during the serological screening testing for HIV infection?

- +ELISA
- immune electron microscopy
- hemagglutination assay
- neutralization test
- hemagglutination inhibition assay

The screening testing for HIV infection includes:

- +detection of antibodies
- detection of antigens
- detection of viral RNA
- diagnosis of opportunistic infections
- immune status evaluation

During the diagnosing procedure of HIV infection the western blot (protein immunoblot) assay involves:

- +detection of antibodies against surface and core antigens
- detection of surface and core antigens
- detection of viral RNA

detection of reverse transcriptase
detection of provirus

The specific prophylaxis of HIV infection is:
+not invented
a live vaccine
a recombinant vaccine
donor immunoglobulins
an anti-idiotypic vaccine

The prophylaxis of HIV infection includes all these measures **except**:
+vaccination of people from risk groups
diagnosing virus carriers and infected people
fighting against drug addiction
quality and safety control of blood products
preventive educational and medical measures

The taxonomic status of HIV is:
+Retroviridae family, Lentivirinae subfamily
Hepadnaviridae family, Oncovirinae subfamily
Orthomyxoviridae family, Pneumovirus genus
Paramyxoviridae family, Paramyxovirus genus
Reoviridae family, Rhinovirus genus

The characteristic feature of HIV is:
+it has a viral envelope
low level of antigenic variability
it does not contain reverse transcriptase
bullet-like shape

The characteristic feature of HIV is:
+high level of antigenic variability
DNA-containing
it contains neuraminidase
it has no viral envelope

The specific receptor on the surface of HIV viral envelope is:
+gp 120
gp 41
p 18
p 24

HIV is cultured:
+in T-lymphocytes cell cultures
in chicken embryos
in newborn mice
in HeLa cell cultures

The method used to diagnose HIV infection is:
+detection of antibodies against viral antigens in blood serum
isolation of the pathogen in cell cultures
infecting susceptible laboratory animals
skin allergy tests

The method used to diagnose HIV infection is:
+detection of viral antigens in test samples
isolation of the pathogen in cell cultures
infecting susceptible laboratory animals
skin allergy tests

Which assay is used to detect antibodies against HIV?
+western blot (protein immunoblot)
opsonocytophagocytic test

immunofluorescence
neutralization test

The characteristic property of HIV is:

- +it contains reverse transcriptase
- it is DNA-containing
- it has no viral envelope
- it contains hemagglutinin

HIV attacks:

- +the immune system organs
- the nervous system
- the organs of the digestive and respiratory systems
- the cardiovascular system

The tick-borne encephalitis virus belongs to:

- +Flaviviridae family, Flavivirus genus
- Togaviridae family, Hepacivirus genus
- Flaviviridae family, Hepadnavirus genus
- Orthomyxoviridae family, Pneumovirus genus

The biological properties of the tick-borne encephalitis virus are:

- +complex, a spherical shape
- simple, a bullet-like shape
- it has no surface antigens
- complex, DNA-containing

The genome of the tick-borne encephalitis virus is:

- +single-stranded RNA
- single-stranded DNA
- double-stranded DNA
- minus-strand RNA

The tick-borne encephalitis virus is cultured in:

- +cell cultures with a distinctive cytopathic effect
- cell cultures with the formation of syncytia
- in laboratory ticks with distinctive clinical manifestations
- chicken embryos

The viral culturing (virological method) used during the diagnosing procedure of tick-borne encephalitis involves:

- +isolation of the virus from blood while culturing it in inoculated white mice
- isolation of the virus from bile while culturing it in chicken embryos
- isolation of the virus in guinea pigs
- isolation of the virus from nasopharyngeal lavage samples while culturing it in inoculated white mice

The characteristic feature of the tick-borne encephalitis virus is:

- +it is neurotropic
- it is hepatotropic
- airborne-droplet transmission route
- the source of the infection is a sick human

The sample material used for the diagnosing procedure of tick-borne encephalitis is:

- +blood
- urine
- cerebrospinal fluid
- feces

Which assay is used for the identification of the tick-borne encephalitis virus?

- +immunofluorescence
- precipitation test
- indirect hemagglutination
- agglutination

Which assay is not used during the serological testing for tick-borne encephalitis?

- +agglutination
- immunofluorescence
- complement fixation test
- ELISA
- hemagglutination inhibition

Which assays are used for the rapid testing of tick-borne encephalitis?

- +PCR and ELISA
- hemagglutination and indirect hemagglutination
- hemadsorption and radioimmunoassay
- western blot (protein immunoblot) and agglutination

Which assays are used for the serological diagnosis of tick-borne encephalitis?

- +ELISA and complement fixation test
- agglutination and indirect hemagglutination
- western blot (protein immunoblot) and neutralization test
- hemagglutination and precipitation test
- hemadsorption and radioimmunoassay

Which assay is used to detect the antigen of the tick-borne encephalitis virus in ticks taken from the body of patients?

- +ELISA
- indirect hemagglutination
- radioimmunoassay
- agglutination

The vector of the tick-borne encephalitis virus is:

- +ixodid ticks
- fleas
- mosquitoes
- sand-flies

Which preparation is used for the post-exposure prophylaxis of tick-borne encephalitis in people attacked by ticks?

- +immunoglobulin against tick-borne encephalitis
- a live vaccine against tick-borne encephalitis
- an inactivated vaccine against tick-borne encephalitis
- interferon

The basic transmission route of the tick-borne encephalitis virus is:

- +blood-borne
- airborne-droplet
- sexual
- indirect contact

All these are the characteristic features of the Far-Eastern tick-borne encephalitis virus **except:**

- +it is transmitted from human to human
- transovarial transmission in ticks
- it is an arbovirus
- it is resistant in acidic environment

The laboratory diagnosis of Far-Eastern tick-borne encephalitis includes all these procedures **except:**

- +evaluation of the immune status
- determination of the fourfold titer increase of Ig specific antibodies
- detection of the viral RNA in blood serum and cerebrospinal fluid
- detection of the viral antigen in ticks

The laboratory diagnosis of Far-Eastern tick-borne encephalitis includes all these procedures **except:**

- +estimation of allergic reactions to ticks
- detection of IgM, IgG in the course of the disease
- isolation of the virus
- determination of the specific antibody titer increase
- detection of the viral RNA

The sources of the Far-Eastern tick-borne encephalitis infection are:

- +rodents, ticks
- milk of goats and cows
- sick people
- convalescent people
- virus carriers

All these are the properties of the tick-borne encephalitis virus **except:**

- +it is hepatotropic
- it is viscerotropic
- it is neurotropic
- capacity to cause viremia

The active specific prevention of Far-Eastern tick-borne encephalitis implies:

- +administration of inactivated cell-culture based vaccines
- administration of immunoglobulin
- wearing protective clothes and checking the body for ticks while being outdoors
- using insect repellents
- administration of interferon inducers (idoantipyrine, Amixin, etc)

All these medical preparations are used for the treatment of Far-Eastern tick-borne encephalitis **except:**

- +antibiotics
- immunoglobulin
- interferon
- idoantipyrine

Which measures should be taken to prevent the tick-borne encephalitis infection?

- +the extraction of an ixodid tick and administration of the serum
- the extraction of an ixodid tick and administration of antibiotics
- the extraction of an ixodid tick
- the treatment of a bite wound with iodine

The diagnosing procedure of tick-borne encephalitis includes:

- +detection of the viral antigens in blood serum by ELISA
- detection of the antiviral antibodies by the neutralization test
- detection of the viral antigens in cerebrospinal fluid by PCR
- detection of the antiviral antibodies by the precipitation test

Which methods are used during the laboratory diagnosing procedure of tick-borne encephalitis?

- +virological (viral culture), serological
- viroscopy (virus microscopy), virological (viral culture)
- virological (viral culture), skin allergy testing
- serological, skin allergy testing

Arboviruses can belong to all these families **except:**

- +Hepadnaviridae
- Flaviviridae
- Togaviridae
- Bunyaviridae

The common features of arboviruses are:

- +complex, RNA-containing
- complex, DNA-containing
- simple, DNA-containing
- simple, RNA-containing

Which one is a characteristic feature of arboviruses?

- +they form an ecological group of viruses
- they form a unified taxonomic group
- the natural reservoir of the virus is a virus carrier
- the disease incidence rate does not depend on the season

The characteristic feature of arboviruses is:
+the natural reservoir of these viruses is arthropods
the natural reservoir of these viruses is a virus carrier
the biological model used for the diagnosis is a guinea pig
they form a unified taxonomic group

Which viruses do not cause arboviral infections?

- +retroviruses
- reoviruses
- rhabdoviruses
- arenoviruses

The characteristic feature of arboviruses is:

- +they are sensitive to ether
- they cause a specific cytopathic effect in all cell cultures
- they are sensitive to freezing
- they are resistant to UV-rays

All these are the symptoms of the diseases caused by arboviruses **except**:

- +gastroenteritis
- hemorrhagic fever
- encephalitis
- periodic fever syndrome

The sample material used in the laboratory diagnosing procedure of arboviral infections is:

- +blood
- feces
- urine
- sputum

The basic method for the diagnosis of arboviral infections is:

- +serological testing
- viroscopy (virus microscopy)
- virological (viral culture)
- allergy skin testing

All these are the properties of arboviruses **except**:

- +they form a unified taxonomic group
- the route of transmission is vector-borne
- they form a unified ecological group
- they cause the infection in newborn mice

The characteristic feature of arboviruses is:

- +they are transmitted by different vectors
- they are DNA-containing
- they are simple
- they all are cultured in chicken embryos

All these are characteristic features of arboviruses except:

- +they are only human parasites
- they form an ecological group
- they are transmitted through the bites of arthropods
- they do not die during freezing

What is the common feature of the viruses which cause arboviral infections?

- +they cause natural focal diseases
- DNA genome
- they are transmitted through water
- their natural reservoir is only birds

All these medicinal drugs are used to treat arboviral infections **except**:

- +antibiotics
- immunoglobulin

interferon
iodoantipyrine

Arboviral infections include:
+hemorrhagic fevers
Poliomyelitis
sclerosing panencephalitis
rabies

What can cause an arboviral infection in humans?
+the bite of an arthropod
the bite of an animal
an animal's saliva which contaminates the skin
taking care of sick animals

Who can be the source of arboviral infections?
+rodents, ticks
sick people
convalescent people
virus carriers

Which assay is performed if an arboviral infection is suspected?
+detection of IgM by ELISA
detection of the viral antigens by the precipitation test
detection of IgG by the Wassermann test
detection of the total antibodies by the radial hemolysis assay

What is typically used for the prevention of arboviral infections?
+non-specific prophylaxis
vaccines
sera
bacteriophages

The yellow fever virus belongs to:
+Flaviviridae family, Flavivirus genus
Togaviridae family, Hepacivirus genus
Flaviviridae family, Hepadnavirus genus
Orthomyxoviridae family, Pneumovirus genus

The biological properties of the yellow fever virus are:
+complex, a spherical shape
simple, a bullet-like shape
no surface antigens
complex, DNA-containing

The genome of the yellow fever virus contains:
+single-stranded RNA
single-stranded DNA
double-stranded DNA
minus-strand RNA

The biological properties of the yellow fever virus are:
+icosahedral symmetry
helical symmetry
no reverse transcriptase
no viral envelope

The yellow fever virus is cultured:
+in cell cultures
in bats
in ticks
in chicken embryos

The virological diagnostic method (viral culture) of yellow fever includes:

- +isolation of the virus from blood while culturing it in inoculated white mice
- isolation of the virus from bile while culturing it in chicken embryos
- isolation of the virus in guinea pigs
- isolation of the virus from nasopharyngeal lavage samples while culturing it in inoculated white mice

All these are the characteristic features of the yellow fever virus except:

- +airborne-droplet transmission route
- it is hepatotropic
- the vectors are mosquitoes
- the source of the infection is a sick person

The sample material used for the diagnosing of yellow fever is:

- +blood
- urine
- cerebrospinal fluid
- feces

Which assay is used for the identification of the yellow fever virus?

- +neutralization test
- precipitation test
- indirect hemagglutination assay
- hemagglutination assay

Which assay is not used in the serological testing for yellow fever?

- +agglutination assay
- neutralization test
- complement fixation test
- ELISA
- hemagglutination inhibition assay

Which assay is used for the rapid testing of yellow fever?

- +ELISA
- hemagglutination assay
- radioimmunoassay
- western blot (protein immunoblot)

Which assays are used during the serological testing for yellow fever?

- +ELISA and complement fixation test
- agglutination and indirect hemagglutination
- western blot (protein immunoblot) and neutralization test
- hemagglutination assay and precipitation test
- hemadsorption and radioimmunoassay

The vector of the yellow fever virus is:

- +mosquitoes
- ixodid ticks
- fleas
- sandflies

What is used for the prophylaxis of yellow fever?

- +a live vaccine
- immunoglobulin
- an inactivated vaccine
- interferon

The basic transmission route of the yellow fever virus is:

- +vector-borne
- airborne-droplet
- sexual
- indirect contact

All these are the properties of the yellow fever virus **except:**

- +the source of the infection is only a rodent
- it is transmitted from human to human
- it reproduces in mosquitoes
- it is an arbovirus

The laboratory diagnosis of yellow fever includes all these procedures **except:**

- +determination of allergic reactions to mosquito bites
- detection of IgM, IgG during the course of the disease
- isolation of the virus
- determination of the increase in the specific antibody titer

The sources of the yellow fever infection are:

- +monkeys, sick people
- rodents
- cow milk
- bats

The basic transmission route of the yellow fever virus is:

- +mosquito bites
- tick bites
- drinking infected milk
- drinking unboiled water

Which preparation is used for the active specific prophylaxis of yellow fever?

- +a live vaccine
- an inactivated vaccine
- immunoglobulin
- insect repellents

The rapid testing for yellow fever includes:

- +detection of the viral antigens in blood serum by ELISA
- detection of the antiviral antibodies by the neutralization test
- detection of the viral antigens in cerebrospinal fluid by PCR
- detection of the antiviral antibodies by the precipitation test

Which methods are used during the laboratory diagnosing procedure of yellow fever?

- +virological (viral culture), serological
- viroscopy (virus microscopy), virological (viral culture)
- virological (viral culture), skin allergy testing
- serological, skin allergy testing

The taxonomic status of the rabies virus is:

- +Rhabdoviridae family; Lyssavirus genus
- Togaviridae family; Rubivirus genus
- Parvoviridae family; Lentivirus genus
- Flaviviridae family; Hepadnavirus genus

The morphological properties of the rabies virus are:

- +bullet-like shape; a viral envelope; helical symmetry
- spherical shape; no viral envelope; icosahedral symmetry
- bullet-like shape; no viral envelope; a mixed type of symmetry
- spherical shape; a viral envelope; helical symmetry

What are the characteristic feature of the rabies virus?

- +RNA-containing; replication occurs in the cytoplasm
- DNA-containing; replication occurs in the cytoplasm
- RNA-containing; replication occurs in the nucleus
- DNA-containing; replication occurs in the nucleus

The property of the rabies virus is:

- +it produces the cytopathic effect causing the formation of intracytoplasmic inclusion bodies
- it has 4 serotypes

it has 1 serotype

it produces the cytopathic effect causing the formation of intranuclear inclusion bodies

The characteristic feature of the rabies virus is:

- +the transmission route is direct contact
- only domestic animals can be the source of infection
- fecal-oral transmission route
- the vectors are mosquitoes

The biological property of the rabies virus is:

- +it is neurotropic
- it is cultured in chicken embryos
- it causes viremia
- it is transmitted through the bites of arthropods

The sample material used for the diagnosis of rabies is:

- +submandibular salivary glands
- blood
- cerebrospinal fluid
- sputum

Which methods are used for the postmortem laboratory diagnosis of rabies?

- +immunofluorescence assay and light microscopy
- serological testing (detection of antibodies) and genetic
- virological (viral culture) and serological testing (detecting of antibodies)
- immune electron microscopy

Which methods are used for the antemortem (while a patient is alive) laboratory diagnosis of rabies?

- +immunofluorescence assay and virological (viral culture)
- serological testing (detection of antibodies) and hemagglutination assay
- virological (viral culture) and hemagglutination inhibition assay
- immune electron microscopy

Which preparation is used for the prevention of rabies in humans?

- +an inactivated vaccine
- a live attenuated vaccine
- a subunit vaccine
- specific bacteriophages

Babes-Negri bodies can be detected in the cells affected by:

- +rabies virus
- measles virus
- Hepatitis B virus
- tick-borne encephalitis virus

The rabies virus can be transmitted through:

- +an animal bite
- a mosquito bite
- a tick bite
- drinking of infected milk

Which specific tissues are targeted by the rabies virus?

- +nervous tissue and submandibular salivary glands tissue
- skin epithelium
- intestinal epithelium
- RBCs (erythrocytes)

The rabies cell-culture based vaccine contains:

- +inactivated rabies virus
- inactivated poliovirus
- attenuated strains of the rabies virus
- antibodies against the rabies virus

The characteristic feature of the rabies virus is:

- +bullet-like shape
- DNA-containing
- it causes viremia
- it is related to mosquitoes
- it affects the gastrointestinal tract

The rhabdovirus affects:

- +the cells of the brain
- the lymphatic system of the small intestine
- the immune system
- the lower part of the respiratory tract

The natural reservoir of rhabdoviruses is:

- +dogs, wolves, foxes
- cattle
- humans
- birds

The rhabdovirus enters the human body:

- +with the saliva of infected animals
- with the feces of infected animals
- with the blood of infected animals
- through mosquito bites

The characteristic feature of the rabies virus is:

- +it contains RNA
- it attacks the immune system
- it contains DNA
- it belongs to picornaviruses

The fixed rabies virus is used:

- +to prepare vaccines
- for serological testing (detection of antigens)
- to treat rabies
- for skin allergy testing

The vaccination against rabies is performed:

- +0 day – 3-rd day – 7-th day – 14-th day – 28-th day – 90-th day post-exposure once, pre-exposure
- once, in case of an unfavorable epidemiological situation
- 0 day – 3-rd day – 7-th day – 14-th day – 28-th day – 90-th day pre-exposure

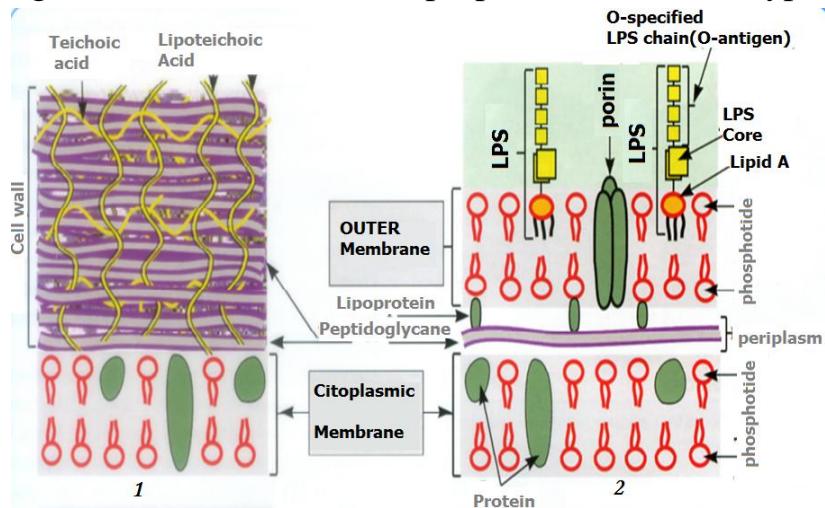
Which preparation is administered to a person who has been bitten on the head or upper torso by a rabid animal?

- +specific gamma globulin and an inactivated cell-culture based vaccine
- specific gamma globulin
- specific gamma globulin and a live attenuated vaccine
- only a specific rabies serum
- only an inactivated cell-culture based vaccine

The formation of these intracellular inclusion bodies is induced by the rabies virus:

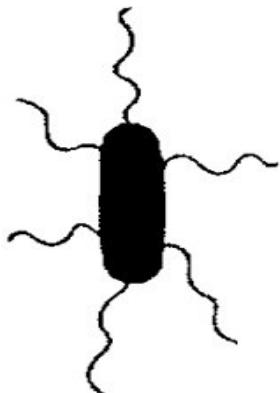
- +Babes-Negri bodies
- Guarnieri bodies
- Paschen bodies
- Babes-Ernst bodies

You see the chemical composition of 2 types of bacterial cell walls marked by the figures 1 and 2. Choose the proper characteristics typical of them:



- +thick – 1, thin – 2
- thin – 1, thick – 2
- thin – 1, L-form – 2
- thick – 1, L-form – 2
- with a capsule – 1, without a capsule – 2

You see a bacterial cell. Which group of bacteria does it belong to?



- +peritrichous
- lophotrichous
- amphitrichous
- monotrichous
- atrichous

You see a bacterial cell. Which group of bacteria does it belong to?



- + lophotrichous
- peritrichous
- amphitrichous
- monotrichous
- atrichous

You see a bacterial cell. Which group of bacteria does it belong to?



- + monotrichous
- lophotrichous
- amphitrichous
- peritrichous
- atrichous

You see a bacterial cell. Which group of bacteria does it belong to?



- + amphitrichous
- lophotrichous
- peritrichous
- monotrichous
- atrichous

The picture shows the location of spores in bacterial cells. Which family can these bacteria belong to?



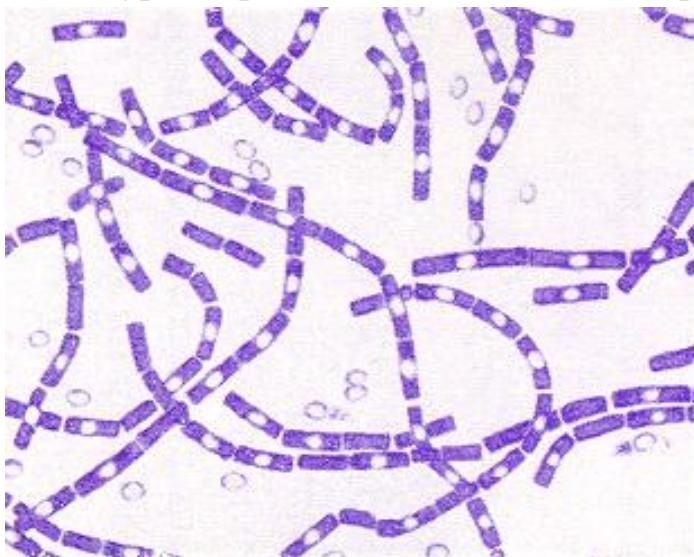
- +Bacillaceae
- Micrococcaceae
- Vibrionaceae
- Enterobacteriaceae
- Clostridiaceae

The picture shows the location of spores in bacterial cells. Which family can these bacteria belong to?



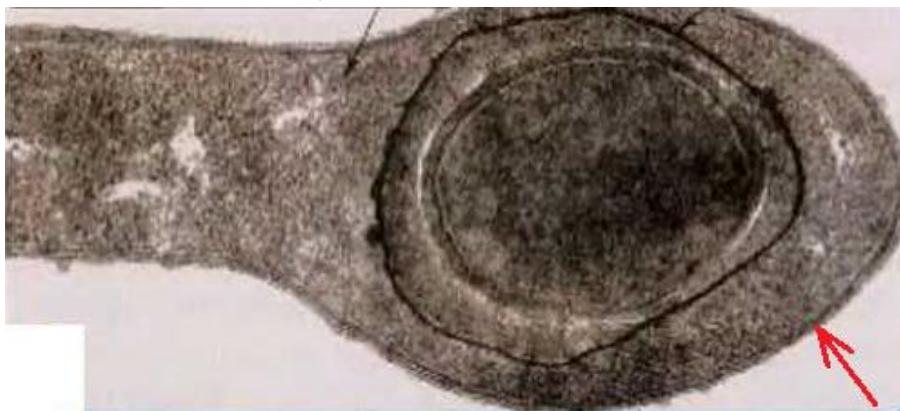
- +Clostridiaceae
- Micrococcaceae
- Vibrionaceae
- Bacillaceae
- Enterobacteriaceae

Which type of spore location is shown in the picture?



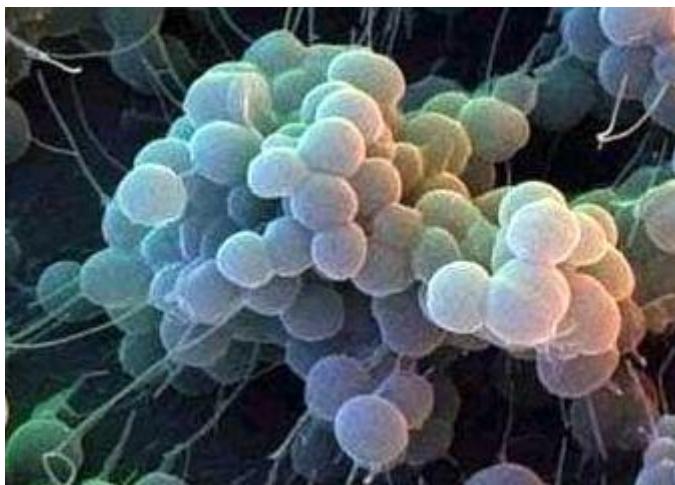
- +central
- subterminal
- terminal
- chaotic
- chain-like

There is an electron micrograph of an ultrathin slice of *Clostridium tetani*. Which structure is marked by the red arrow?



- +spore
- capsule
- cyst
- mesosome
- head

The picture shows a bacterioscopic smear of *S. aureus* pure culture. Which type of microscopy may have been used?



- +electron
- phase-contrast
- oil immersion
- fluorescence
- dark field

The picture shows a bacterioscopic smear of pertussis pathogen pure culture.
Which type of microscopy may have been used?



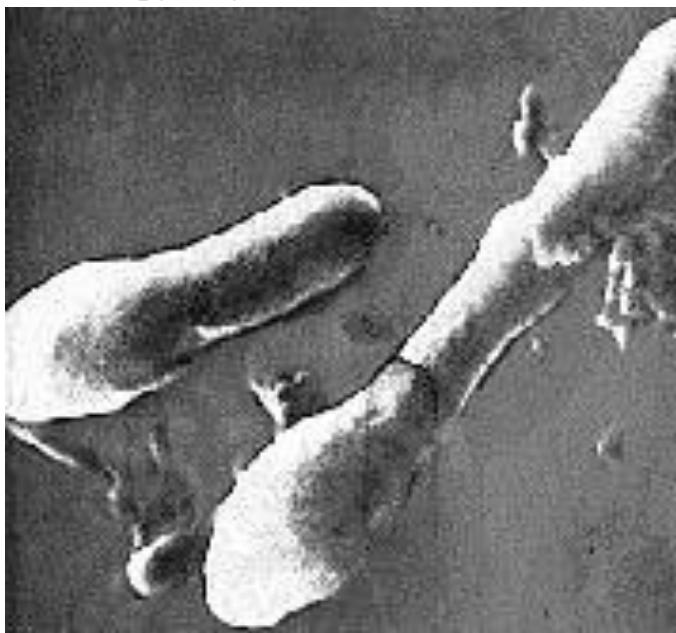
- +electron
- phase-contrast
- oil immersion
- fluorescence
- dark field

The picture shows a bacterioscopic smear of mycoplasmosis pathogen pure culture.
Which type of microscopy may have been used?



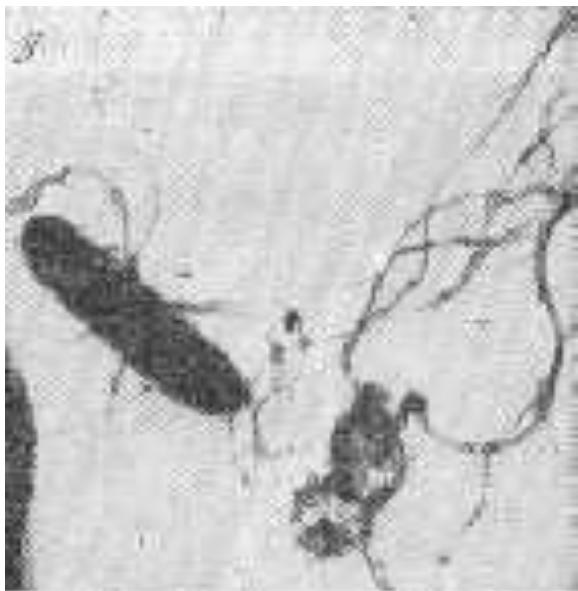
- +electron
- phase-contrast
- oil immersion
- fluorescence
- dark field

The picture shows a bacterioscopic smear of *C. tetani* pure culture. Which type of microscopy may have been used?



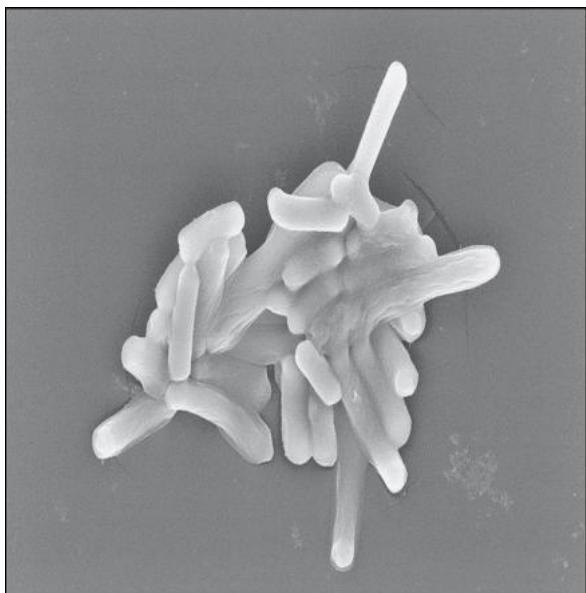
- +electron
- phase-contrast
- oil immersion
- fluorescence
- dark field

The picture shows a bacterioscopic sample of botulism pathogen. Which type of microscopy may have been used?



- +electron
- phase-contrast
- oil immersion
- fluorescence
- dark field

The picture shows a bacterioscopic smear of *C. perfringens* pure culture. Which type of microscopy may have been used?



- +electron
- phase-contrast
- oil immersion

fluorescence

dark field

The picture shows a bacterioscopic smear of *Pseudomonas aeruginosa* pure culture.
Which type of microscopy may have been used?



+electron

phase-contrast

oil immersion

fluorescence

dark field

This is a microscopic picture of a bacterium. Which type of microscopy may have been used?



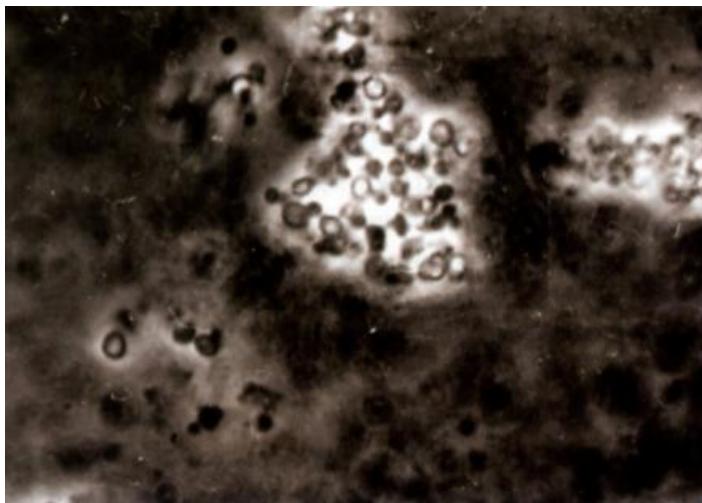
+ phase-contrast

electron

oil immersion

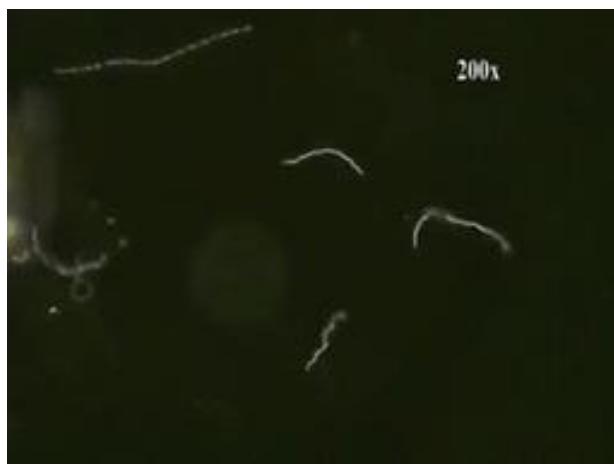
fluorescence

The bacterioscopic picture shows bacterial L-forms. Which type of microscopy may have been used?



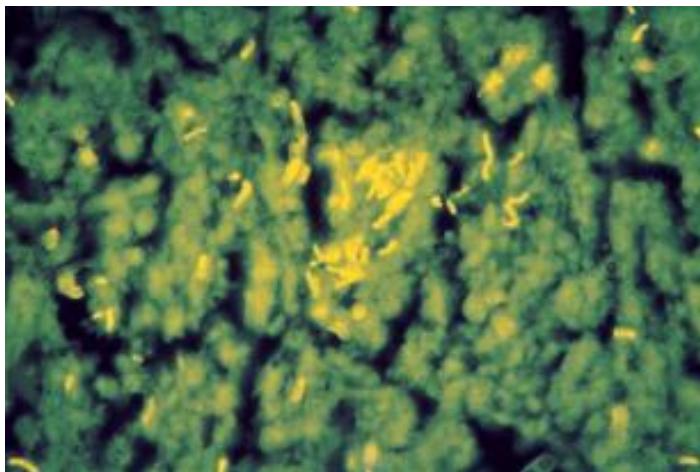
- + phase-contrast
- electron
- oil immersion
- fluorescence

This is a bacterioscopic picture of treponemas. Which type of microscopy may have been used?



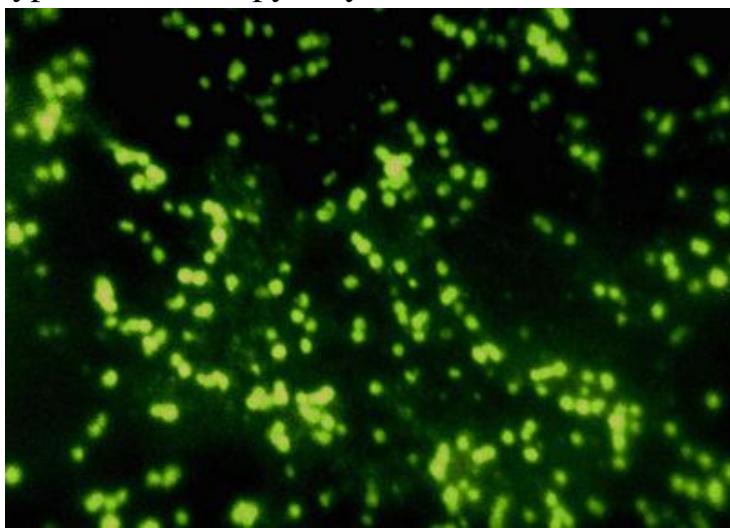
- + dark field
- electron
- oil immersion
- fluorescence

This is a bacterioscopic picture showing a sample taken from a patient. Which type of microscopy may have been used?



- + fluorescence
- electron
- oil immersion
- phase-contrast
- dark field

This is a bacterioscopic picture showing a sample taken from a patient. Which type of microscopy may have been used?



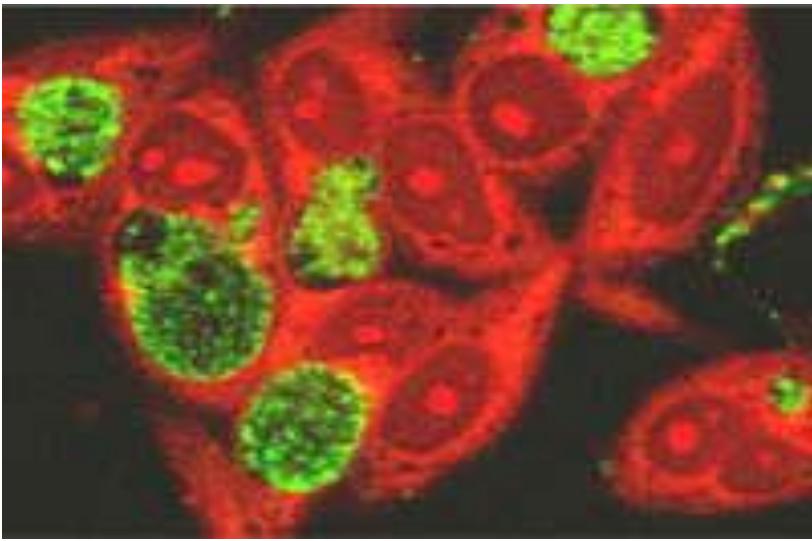
- + fluorescence
- electron
- oil immersion
- phase-contrast
- dark field

This is a bacterioscopic picture showing a sputum smear. Which type of microscopy may have been used?



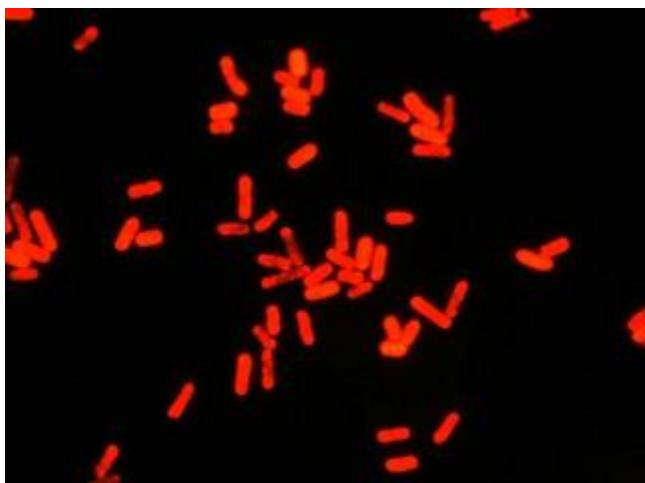
+ fluorescence
electron
oil immersion
phase-contrast
dark field

This is a bacterioscopic picture showing C.trachomatis (green inclusions) in affected cells. Which type of microscopy may have been used?



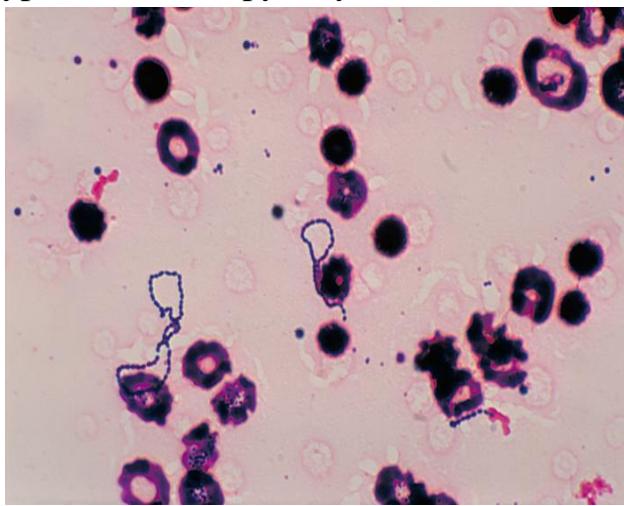
+ fluorescence
electron
oil immersion
phase-contrast
dark field

The picture shows a bacterioscopic smear of clostridia pure culture. Which type of microscopy may have been used?



- + fluorescence
- electron
- oil immersion
- phase-contrast
- dark field

This is a bacterioscopic picture observed during the streptococcal infection. Which type of microscopy may have been used?



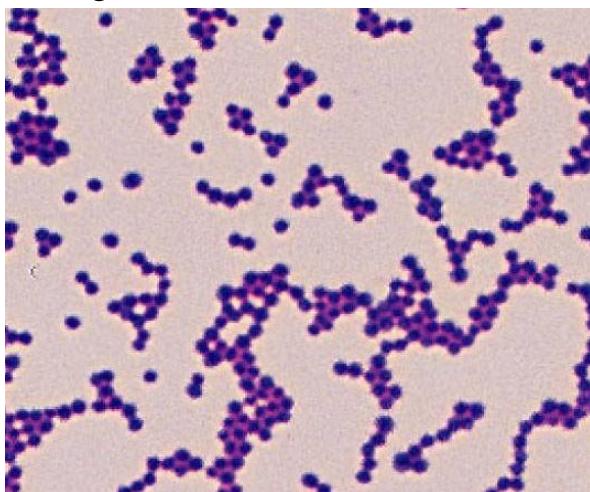
- + oil immersion
- electron
- fluorescence
- phase-contrast
- dark field

The picture shows a bacterioscopic smear of Escherichia pure culture. Name the staining method



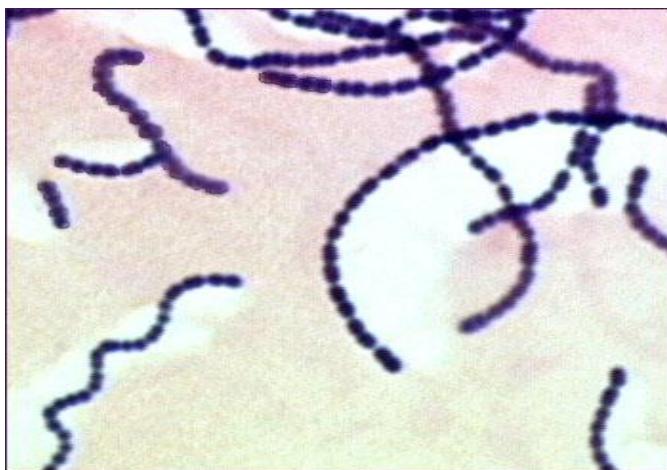
- +Gram stain
- Burri-Gins stain
- Giemsa stain
- Ziehl-Neelsen
- Neisser stain

The picture shows a bacterioscopic smear of *S. aureus* pure culture. Name the staining method



- +Gram stain
- Burri-Gins stain
- Giemsa stain
- Ziehl-Neelsen
- Zdrodovsky stain

The picture shows a bacterioscopic smear of streptococcal pure culture. Name the staining method



+Gram stain

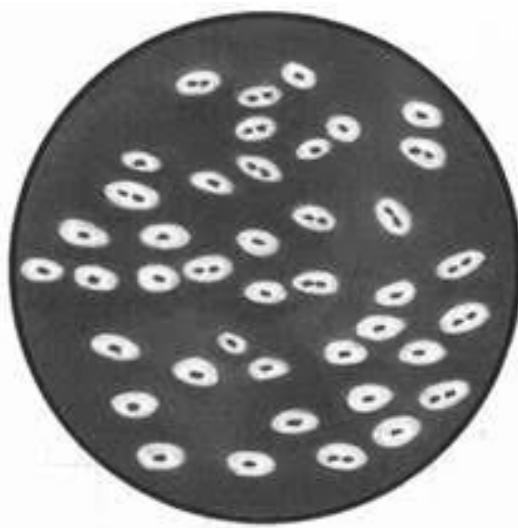
Burri-Gins stain

Giemsa stain

Ziehl-Neelsen

Aujeszky stain

The picture shows the staining method which helps to detect capsules. Which staining method is this?



+ Burri-Gins stain

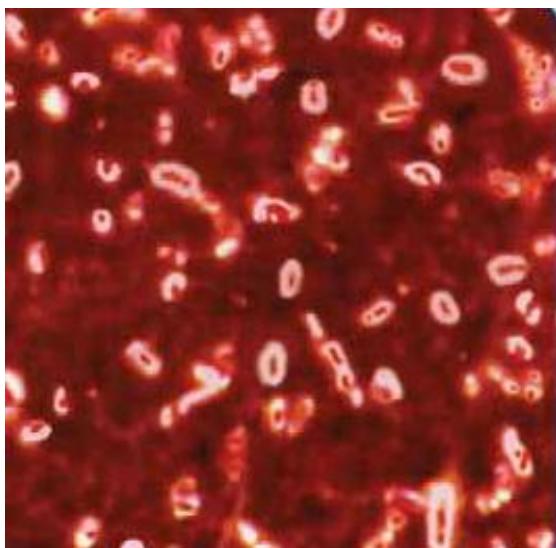
Gram stain

Giemsa stain

Ziehl-Neelsen

Morozov stain

The picture shows a bacterioscopic smear of klebsiella pure culture. Name the staining method



+ Burri-Gins stain

Gram stain

Giemsa stain

Neisser stain

Morozov stain

This is Burri-Gins bacterial staining method shown. Which structure does it help to detect?



+capsule

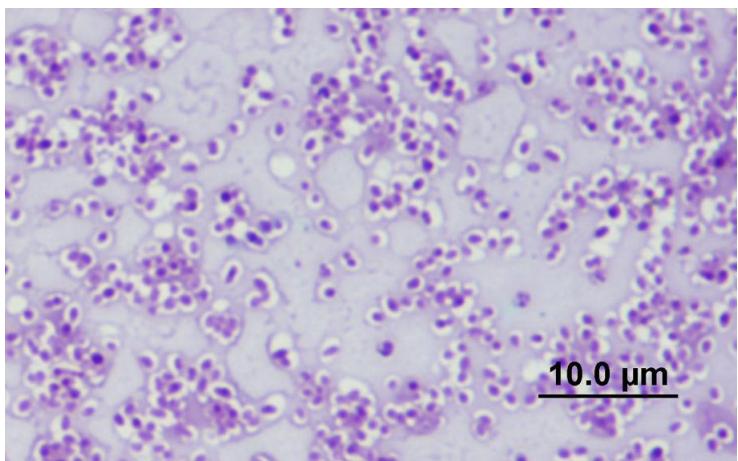
spore

cyst

cell wall

vacuole

The picture shows a bacterioscopic smear of *Pseudomonas aeruginosa* pure culture. Which additional structure is detected in these bacteria?



+capsule-like mucus

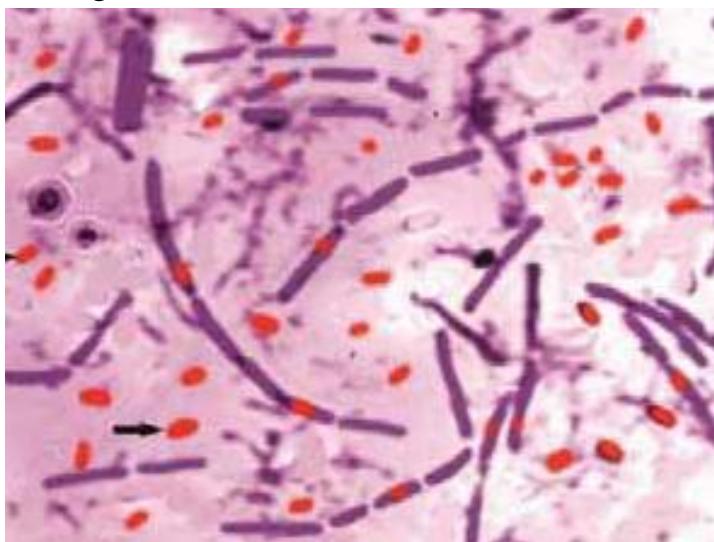
spore

cyst

cell wall

vacuole

The picture shows a bacterioscopic smear of a spore-forming culture. Name the staining method.



+Aujeszky stain

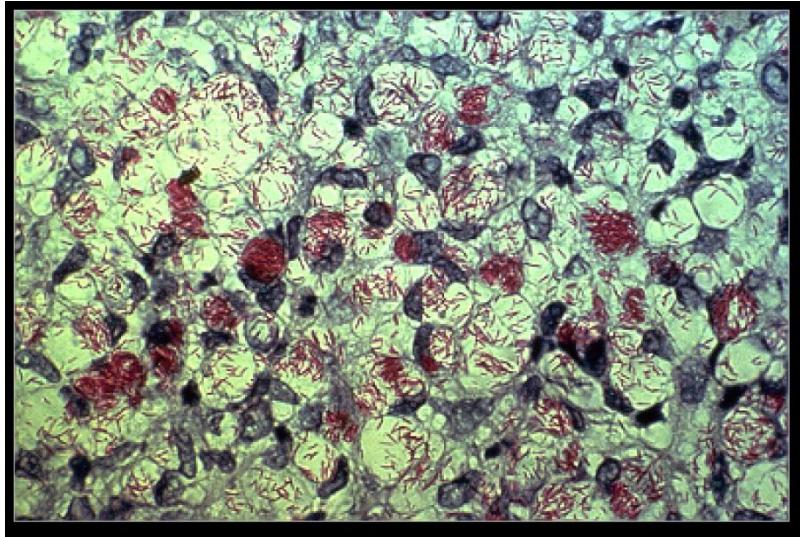
Burri-Gins stain

Giemsa stain

Ziehl-Neelsen stain

Gram stain

The picture shows a bacterioscopic smear of acid-fast bacteria pure culture. Name the staining method.



+ Ziehl-Neelsen stain

Burri-Gins stain

Zdrodovsky stain

Gram stain

Aujeszky stain

The picture shows a microscopic smear of bacteria with volutin granules. Name the staining method.



+

+ Neisser stain

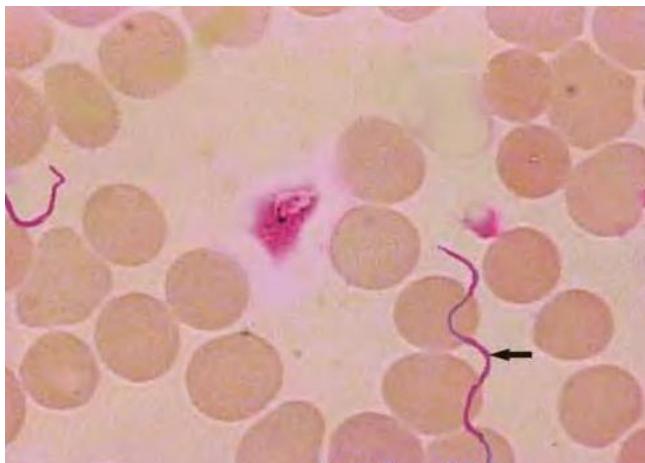
Gram stain

Giemsa stain

Aujeszky stain

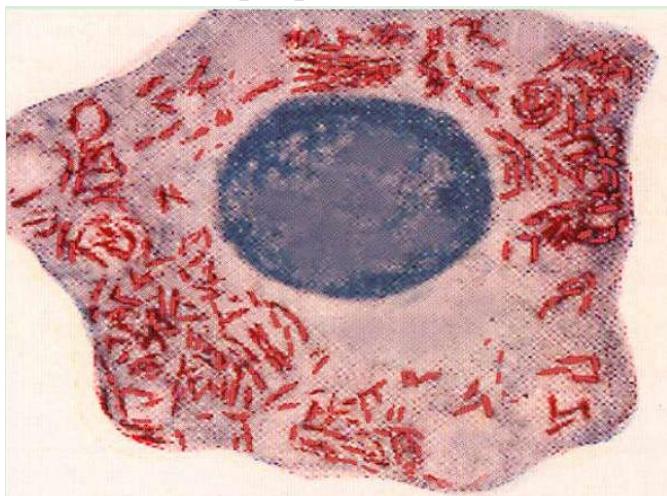
Morozov stain

The bacterioscopic picture shows a blood smear with borellia. Name the staining method.



- + Giemsa stain
- Gram stain
- Ziehl-Neelsen stain
- Neisser stain
- Morozov stain

The bacterioscopic picture shows rickettsia. Name the staining method.



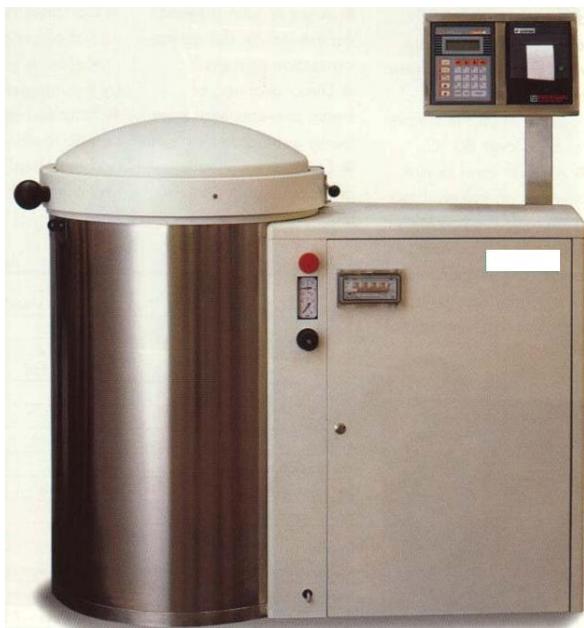
- + Zdrodovsky stain
- Burri-Gins stain
- Ziehl-Neelsen stain
- Gram stain
- Aujeszky stain

This is a dry heat oven. Which items must not be sterilized in it?



+ bandages
scalpels
needles
scissors
laboratory glassware

This is an apparatus for the sterilization of bandages, linens, glassware. What is its name?



+autoclave
Pasteur oven
dry heat oven
thermostat

anaerobic chamber

This is an apparatus for culturing obligate anaerobes . What is its name?



+anaerobic chamber

Pasteur oven

dry heat oven

thermostat

autoclave

This is an anaerobic chamber. Guess what it is used for.



+ culturing obligate anaerobes

culturing obligate aerobes

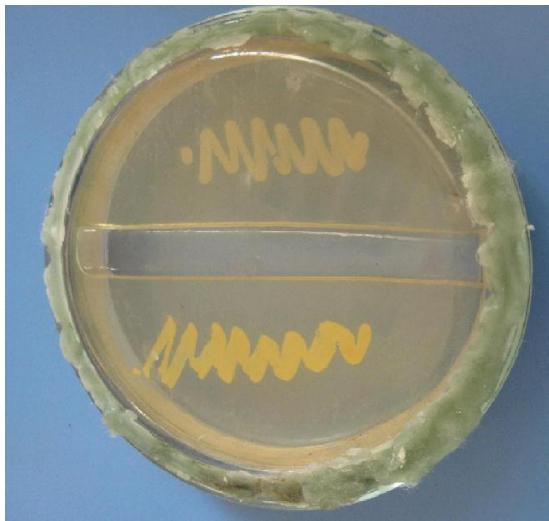
sterilization

disinfection

air sampling

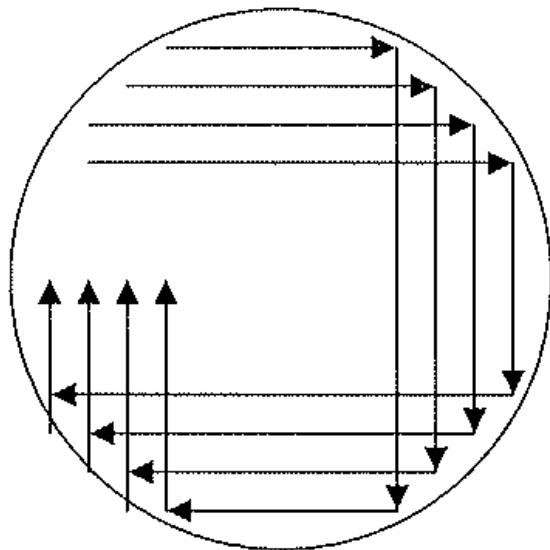
The picture shows the Fortner method of bacteria culturing. Guess what it is used

for.



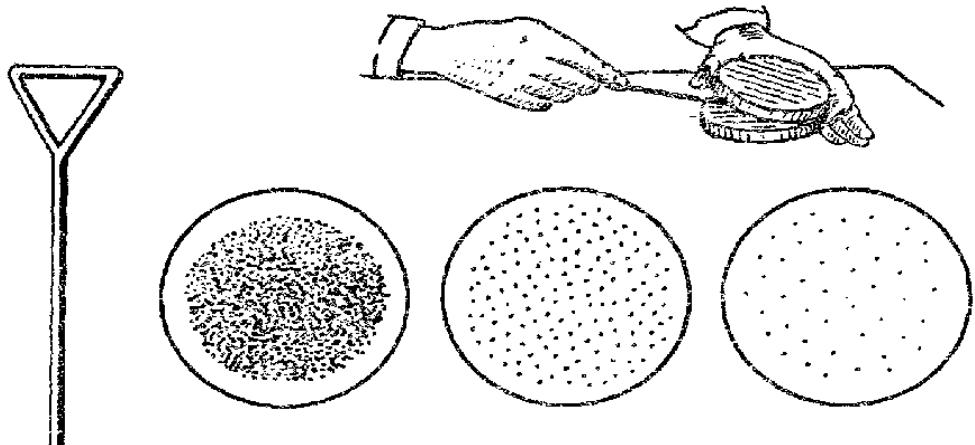
- + anaerobes isolation
- aerobes isolation
- detecting sensitivity to bacteriophages
- detecting the presence of lecithinase
- detecting toxigenicity of bacteria

The picture shows the technique of bacteria streaking on solid growth media. What is its name?



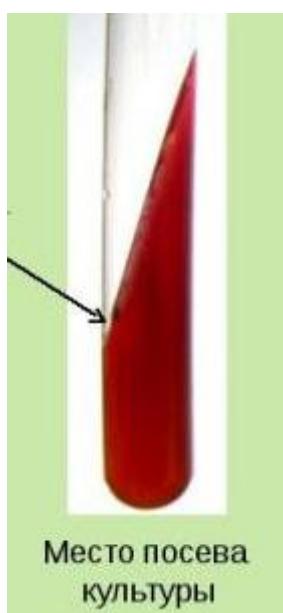
- +sector (quadrant) streak
- Drigalski technique (spread plate technique)
- Shukevich technique
- Koch's technique (pour plate technique)
- lawn streak

The picture shows the technique of bacteria streaking on solid growth media. What is its name?



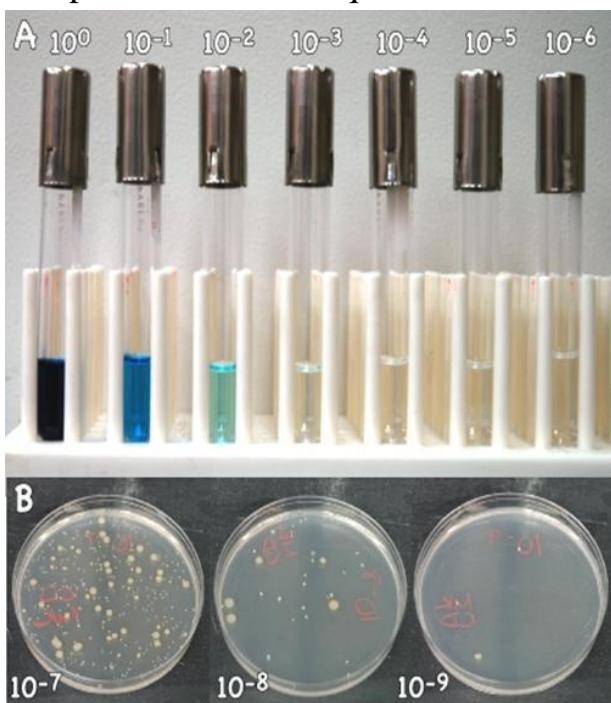
- + Drigalski technique (spread plate technique)
- sector (quadrant) streak
- Shukevich technique
- Koch's technique (pour plate technique)
- lawn streak

The picture shows the technique of motile bacteria inoculation on slope/ slant agar.
What is its name?



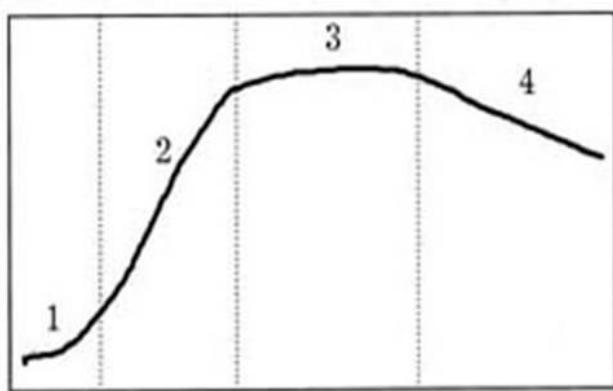
- + Shukevich technique
- Drigalski technique (spread plate technique)
- sector (quadrant) streak
- Koch's technique (pour plate technique)
- lawn streak

The picture shows the quantitative method of bacteria detection. What is its name?



- + Koch's technique (pour plate technique)
- Drigalski technique (spread plate technique)
- Shukevich technique
- Gold (quadrant) streaking technique
- Peshkov technique

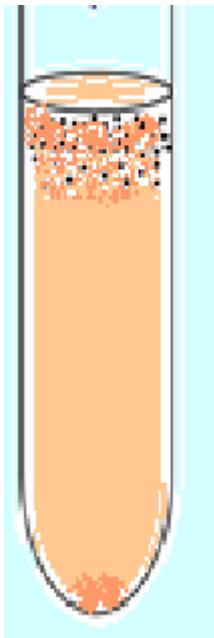
You see the phases of microbial population growth in liquid growth media. What is the correct order of these phases succession?



- +1-lag-phase, 2-log-phase, 3-stationary phase, 4-death phase
- 1-log-phase, 2-lag-phase, 3-stationary phase, 4-death phase
- 1-incubation, 2-prodromal 3-illness, 4-convalescence
- 1-illness, 2-incubation, 3-prodromal, 4-convalescence

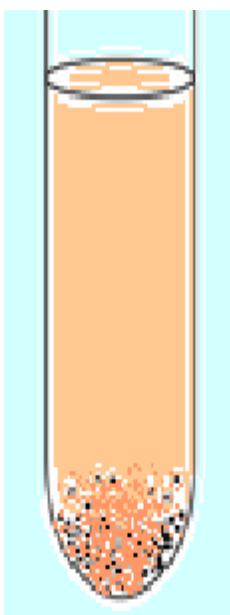
1-illness, 2-prodromal, 3-incubation, 4-decline

The picture shows the growth of bacteria in a liquid growth medium. Guess the group of bacteria judging by their growth character.



- +aerobes
- obligate anaerobes
- facultative anaerobes
- microaerophiles
- aerotolerant

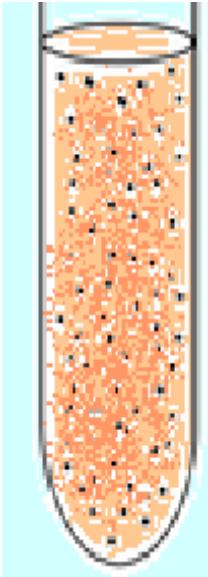
The picture shows a bacterial growth in a liquid growth medium. Which group of bacteria is shown judging by their growth character?



- +obligate anaerobes

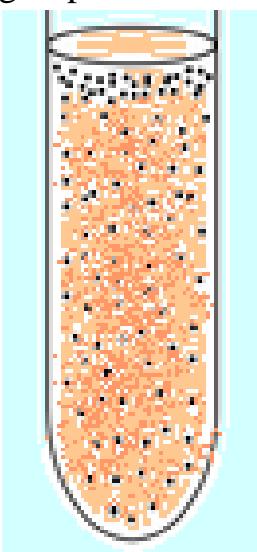
- aerobes
- facultative anaerobes
- microaerophiles
- aerotolerant

The picture shows the growth of bacteria in a liquid growth medium. Guess the group of bacteria judging by their growth character.



- + aerotolerant
- aerobes
- obligate anaerobes
- microaerophiles

The picture shows the growth of bacteria in a liquid growth medium. Guess the group of bacteria judging by their growth character.



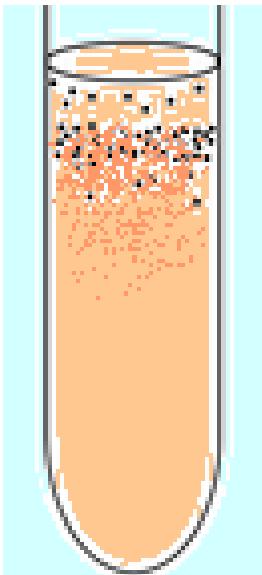
- + facultative anaerobes

aerobes

obligate anaerobes

microaerophiles

The picture shows the growth of bacteria in a liquid growth medium. Guess the group of bacteria judging by their growth character.



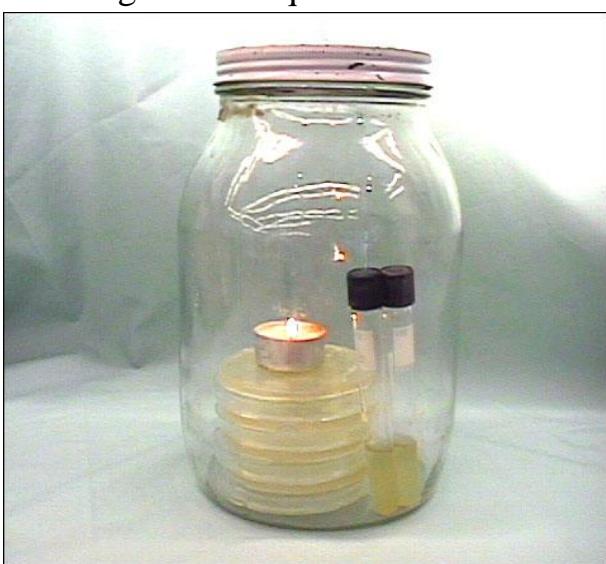
+ microaerophiles

aerotolerant

obligate anaerobes

facultative anaerobes

The picture shows the method of bacteria culturing. Which group of microorganisms requires such a method of culturing?



+capnophiles

aerotolerant

aerobes

obligate anaerobes
facultative anaerobes

The picture shows the result of a certain stage of mycoplasmosis diagnosis. Guess the research method.



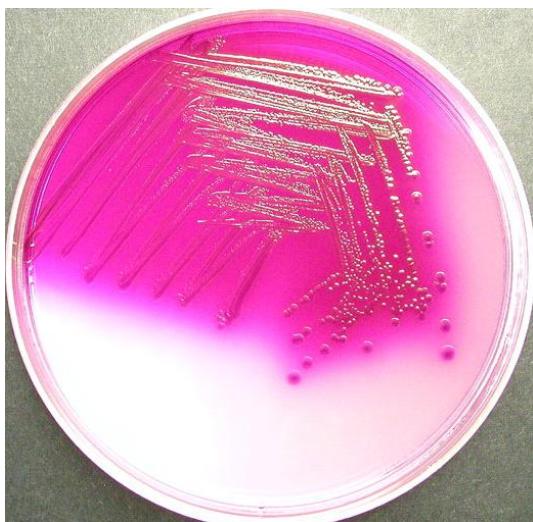
- +culturing
- bacterioscopy
- biological
- phase-contrast microscopy
- electron microscopy

The picture shows the growth of lactose-negative and lactose-positive colonies. Which growth medium is used?



- +Ploskirev medium
- Endo agar
- meat-peptone agar
- egg-yolk salt agar

The picture shows the growth of lactose positive colonies. Which growth medium is used?



- + Endo agar
- Ploskirev medium
- meat-peptone agar
- Pagano-Levin medium
- blood agar

The picture shows the growth of lactose negative colonies. Which growth medium is used?



- + Endo agar
- Lowenstein-Jensen medium
- meat-peptone agar
- egg-yolk salt agar
- blood agar

The picture shows the growth of lactose negative colonies. Which growth medium is used?



- +Levin medium
- Ploskirev medium
- MacConkey agar
- TCBS agar
- Meat-peptone agar

This is a liquid enrichment growth medium for salmonella. Guess its name



- +selenite broth
- TCBS-agar
- MacConkey agar

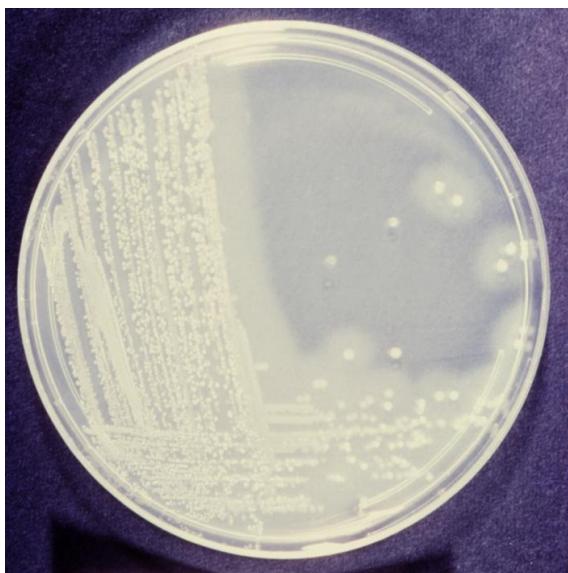
peptone water
thioglycolate broth

This is an enrichment growth medium for vibrio cholerae isolation. Guess its name



- + peptone water
- selenite broth
- Endo agar
- meat-peptone agar
- thioglycolate broth

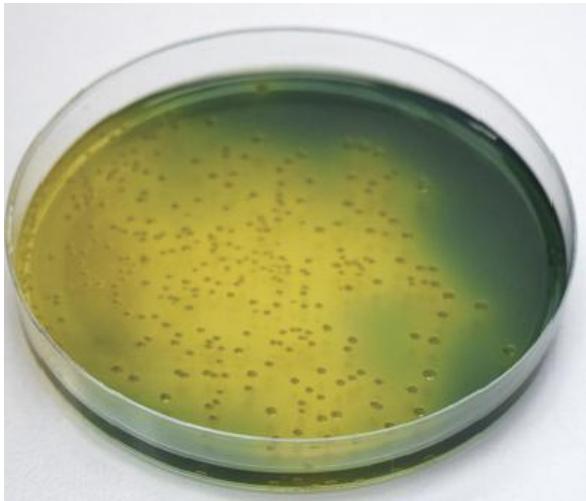
This is vibrio cholerae growing on an enrichment growth medium. Which growth medium is this?



- +alkaline growth medium
- meat-peptone agar

chocolate agar
Ploskirev medium
egg-yolk salt agar

This is *vibrio cholerae* growth. Which growth medium is this?



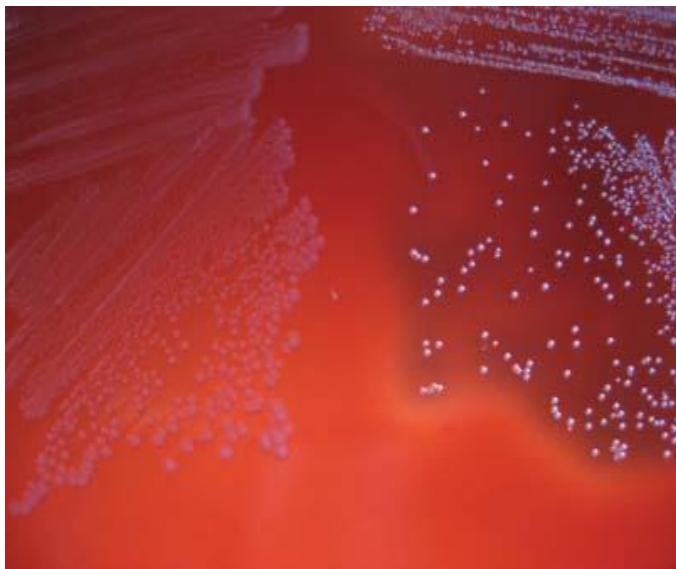
+TCBS-agar
casein-charcoal agar
meat-peptone agar
Wilson Blair agar
Lowenstein-Jensen medium

This is diphtheria pathogen growth. Which growth medium is this?



+tellurite blood agar
chocolate agar
casein-charcoal agar
Endo agar

These are *Bordetella* growing on a solid growth medium. Which growth medium is this?



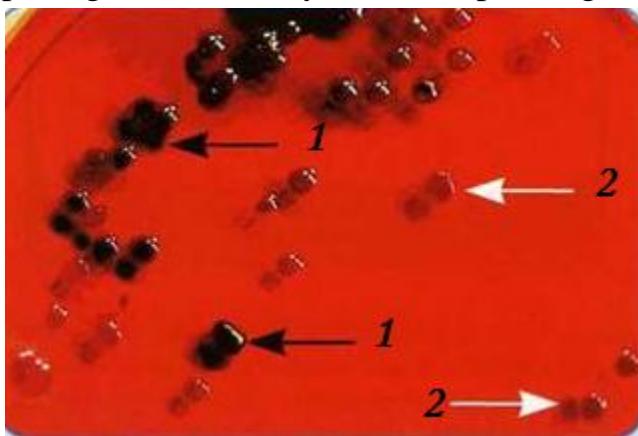
- +Bordet-Gengou agar
- tellurite-blood agar
- TCBS-agar
- casein-charcoal agar

These are *Bordetella* growing on a solid growth medium. Which growth medium is this?



- + casein-charcoal agar
- alkaline agar
- chocolate agar
- bismuth sulfite agar

This is Endo agar with some pathogens growing. What are the properties of the pathogens marked by the corresponding numbers?



- +1-lactose positive, 2-lactose negative
- 1-lactose negative, 2-lactose positive
- 1- causing hemolysis, 2- not causing hemolysis
- 1-not causing hemolysis, 2- causing hemolysis
- 1-glucose positive, 2- glucose negative

This is a slant/slope agar which is used to determine if Gram-negative bacteria can ferment glucose and lactose and produce hydrogen sulfide. Which growth medium is this?



- +Kligler iron agar
- MacConkey agar
- Kitt-Tarozzi medium
- Lowenstein-Jensen medium
- thioglycolate broth

This is Escherichia coli growing on a slant/slope agar. Which growth medium is

this?



- +Olkenitsky medium
- thioglycolate broth
- TCBS-agar
- Endo agar
- Wilson Blair agar

This is Kligler iron agar with Shigella growth. Which carbohydrate has been



- fermented?
- +glucose
 - lactose
 - sucrose
 - arabinose
 - fructose

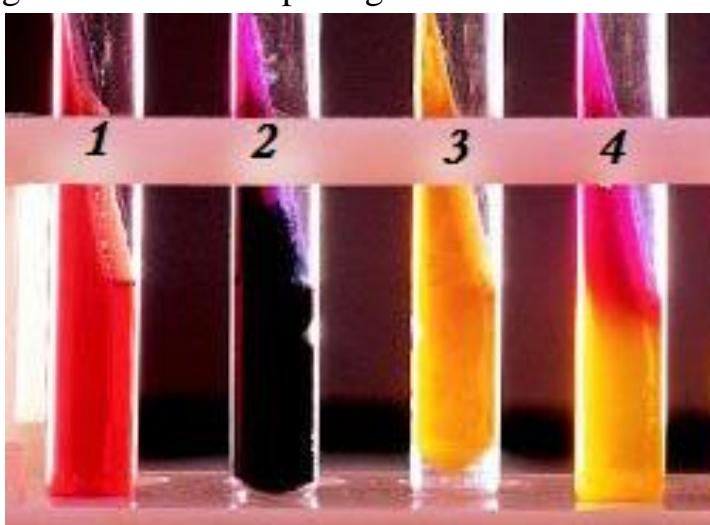
This is Kligler iron agar with the growth of the typhoid fever pathogen. Guess what



has caused the black colour of the growth medium?

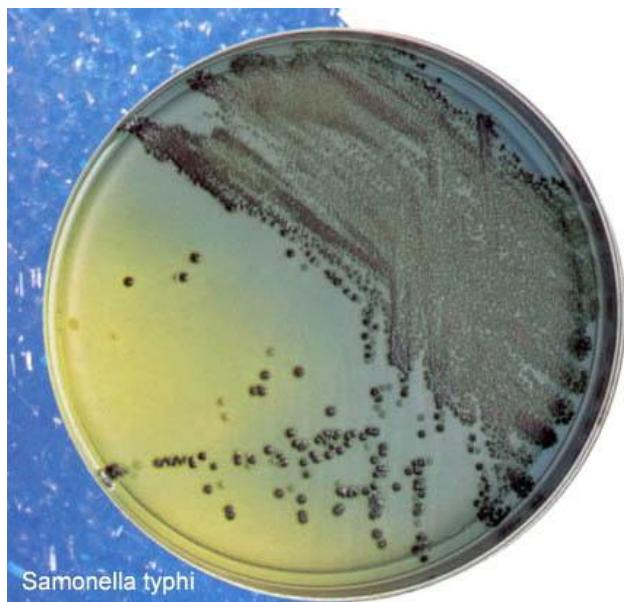
- +hydrogen sulfide production
- lactose fermentation
- glucose fermentation
- ferric sulfide production
- hemolysis

These are several test-tubes containing Kligler iron agar both with and without growth. Guess the pathogens.



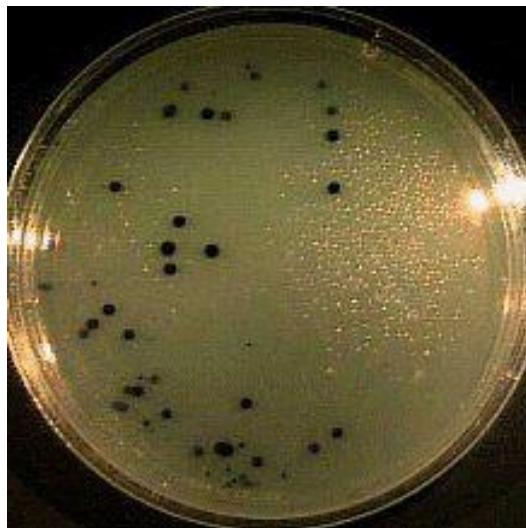
- +1- no growth, 2-Salmonella, 3- Escherichia coli, 4-Shigella
- 1-Escherichia coli, 2-Salmonella, 3-no growth, 4-Shigella
- 1-no growth, 2- Escherichia coli, 3- Salmonella, 4-Shigella
- 1-no growth, 2-Salmonella, 3- Shigella, 4- Escherichia coli

This is Salmonella pure culture growth. Which growth medium is this?



- +bismuth-sulfite agar
- egg-yolk salt agar
- meat-peptone agar
- Endo agar
- Kligler iron agar

This is Wilson Blair growth medium. Which chemical compound gives the colonies of anaerobes the black colour?



- +ferric sulfide
- hemolysin
- hydrogen sulfide production
- mercury production
- melanin

These are anaerobic bacteria growing on a liquid growth medium. Which growth medium is this?



- +thioglycolate broth
- selenite broth
- peptone water
- Olkenitsky medium
- TCBS-agar

This is a growth medium for anaerobic bacteria culturing. Which growth medium is this?

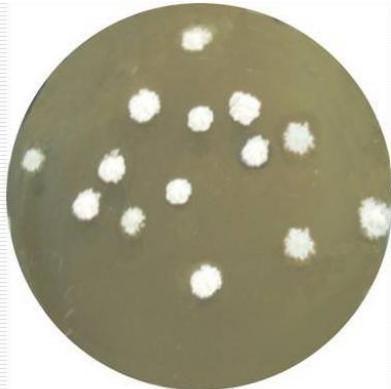


- +Kitt-Tarozzi medium
- MacConkey agar
- Bordet-Gengou agar
- Lowenstein-Jensen medium
- Kligler iron agar

This is a growth medium for fungi culturing. Which growth medium is this?



Рост дрожжей



Рост плесневых грибов

+Sabouraud agar

alkaline agar

Levin medium

Endo agar

Wilson Blair agar

This is a growth medium for mycobacteria culturing. Which growth medium is this?



+Lowenstein-Jensen medium

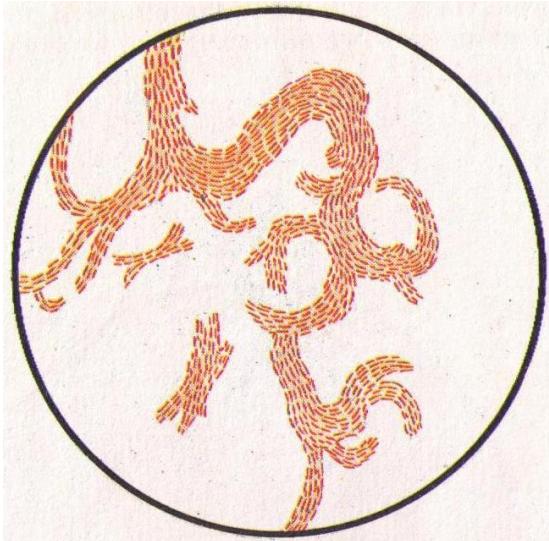
Bordet-Gengou agar

TCBS-agar

MacConkey agar

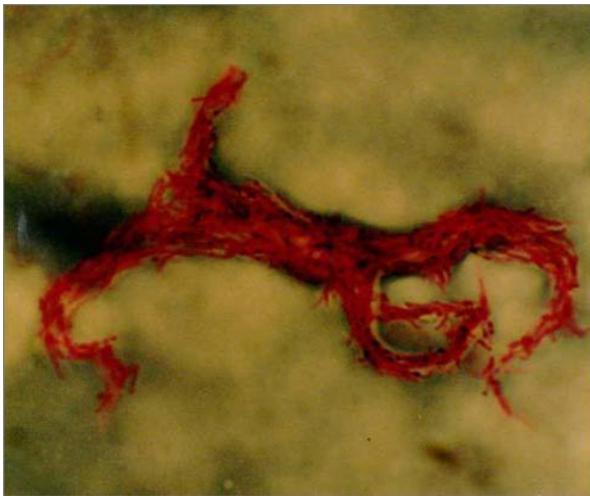
Kitt-Tarozzi medium

The picture shows the Price microcultures technique. Which glycolipid belonging to the pathogenicity factors of mycobacteria does it help to detect?



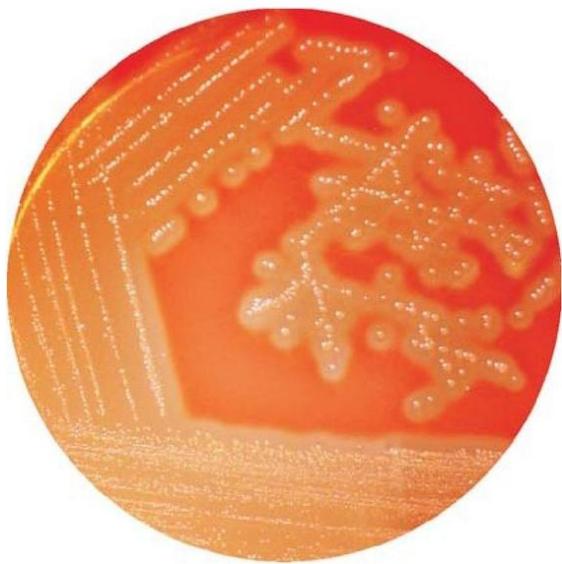
- +cord factor
- exotoxin
- hyaluronidase
- volutin
- peptidoglycan

This is a bacterioscopic picture of *M. tuberculosis* microcolonies. Guess the culturing technique.



- +Price technique
- Koch technique
- flocculation technique
- Peshkov technique
- Shukevich technique

This is a culture growing on a blood agar. Which pathogenicity factor is being determined?



+hemolysin

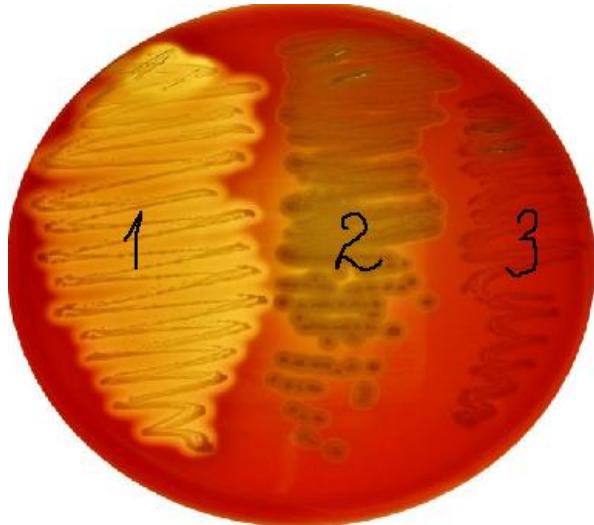
lecithinase

exotoxin

hyaluronidase

fibrinogen

The hemolytic activity of bacteria on a blood agar is shown. Determine the types of hemolysis



+1- β -hemolysis, 2- α -hemolysis, 3- γ -hemolysis

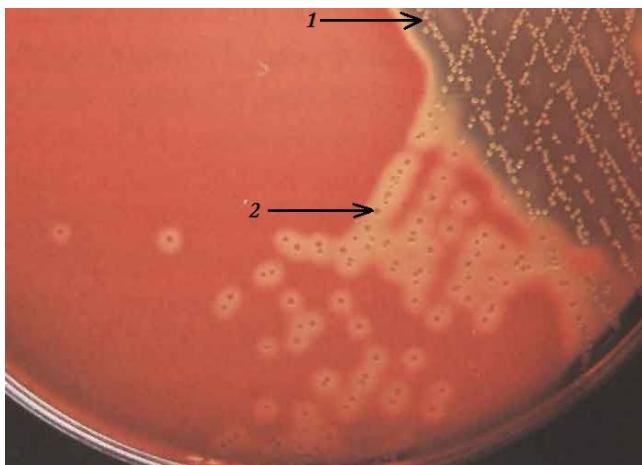
1- α -hemolysis, 2- β -hemolysis, 3- γ -hemolysis

1- γ -hemolysis, 2- β -hemolysis, 3- α -hemolysis

1-completed, 2-intermediary, 3-incomplete

1-strong, 2-intermediary, 3-weak

This is pneumococcus growth (1) and Streptococcus pyogenes growth (2). Which growth medium is this?



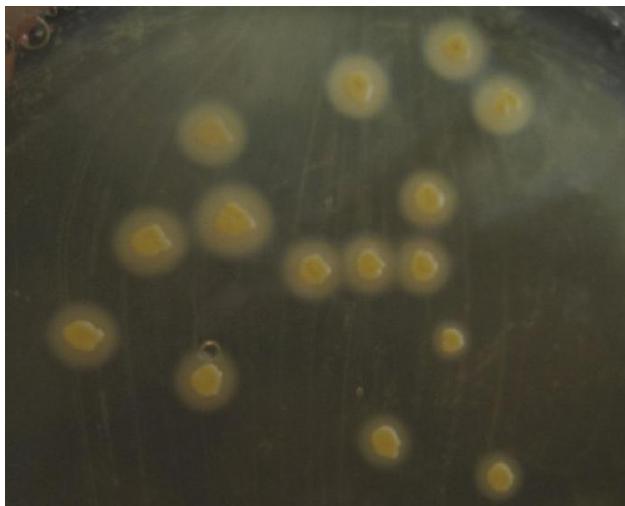
- +blood agar
- MacConkey agar
- Endo agar
- tellurite blood agar
- Bordet-Gengou agar

This is staphylococcus growth. Which growth medium is this?



- +meat-peptone agar
- TCBS-agar
- bismuth-sulfite agar
- Ploskirev medium
- Saubouraudt agar

These are *Staphylococcus aureus* growing on an egg-yolk salt agar. Which enzyme is being determined here?



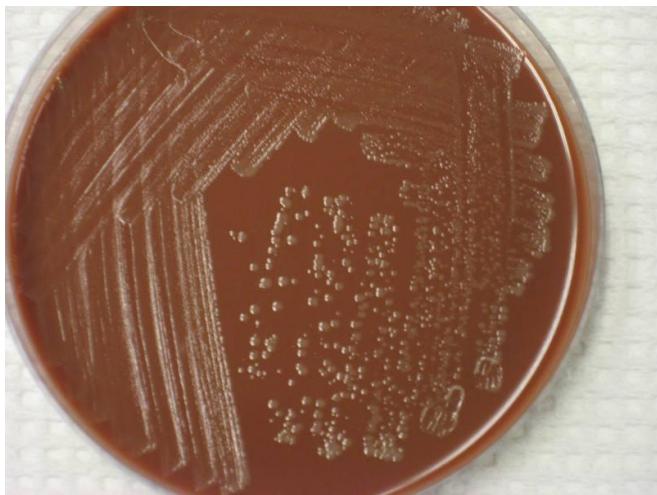
- +lecithinase
- hyaluronidase
- neuraminidase
- hemolysin
- thrombokinase

This is the growth of colonies which have a lecithinase halo. Which growth medium is this?



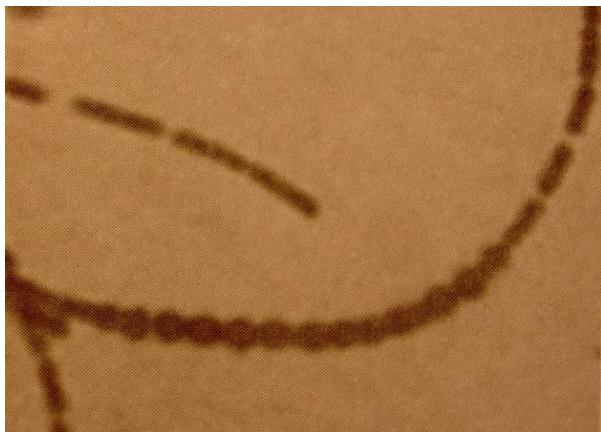
- +egg-yolk salt agar
- Olkenitsky medium
- chocolate agar
- Endo agar
- meat-peptone agar

These are *Neisseria* growing on a growth medium. Which growth medium is this?



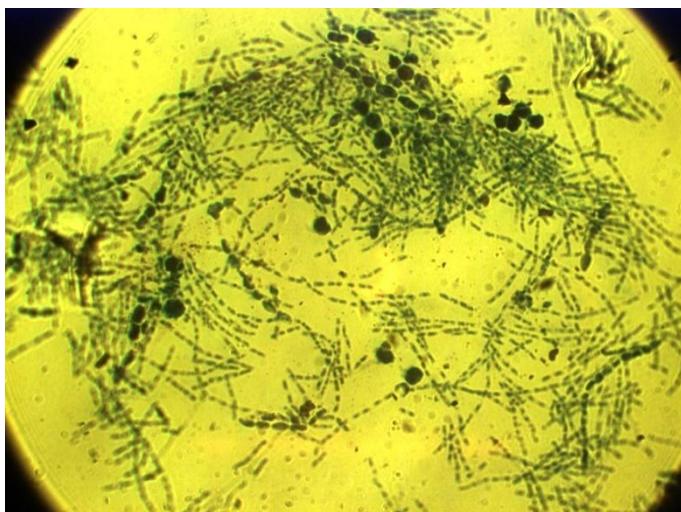
- +chocolate agar
- tellurite blood agar
- Kitt-Tarozzi medium
- casein-charcoal agar
- Czapek-Dox medium

This is a bacteriscopic picture of a pure culture smear of *B. Anthracis* which has been grown on a meat-peptone agar containing penicillin. What is the name of a diagnostic test used?



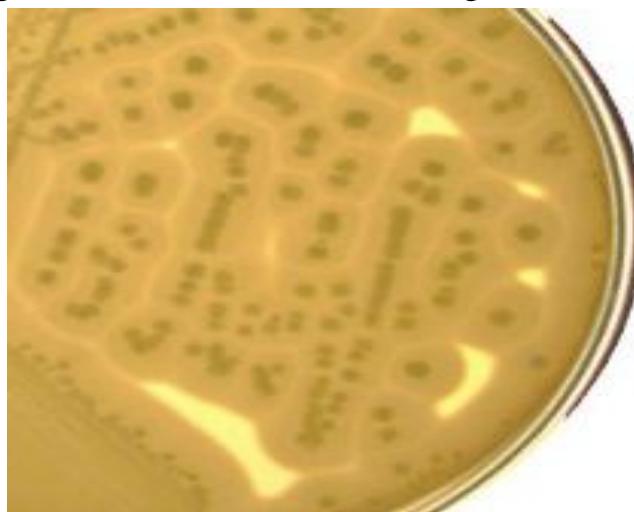
- +a string of pearls
- resistance test
- Venus's necklace
- pearl beads
- antibiotic sensitivity test

This is a bacteriscopic picture of a pure culture smear of *B. Anthracis* which has been grown on a meat-peptone agar containing penicillin. What is the name of a diagnostic test used?



- +a string of pearl resistance test
- Venus's necklace
- pearl beads
- antibiotic sensitivity test

This is a pure culture of a gas gangrene pathogen growing in a Petri dish. Which growth medium is this? Which growth medium is this?



- +egg-yolk salt agar
- TCBS-agar
- casein-charcoal agar
- Kligler agar
- Kitt-Tarozzi medium

This is *Pseudomonas aeruginosa* growth on an enrichment growth medium.



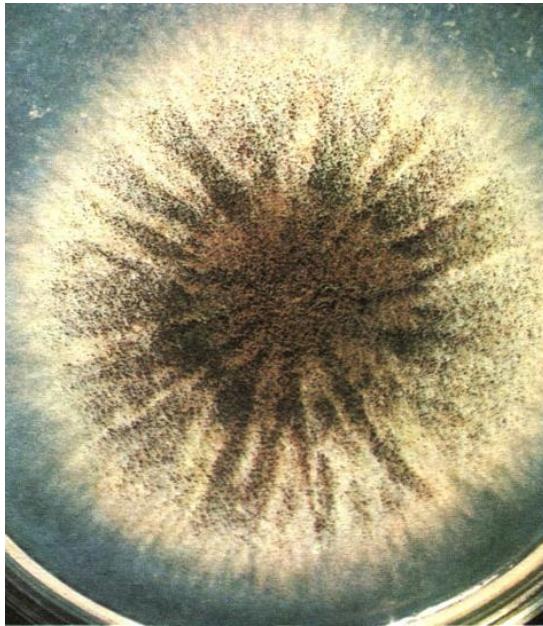
- +meat-peptone agar
- Czapek-Dox medium
- Endo agar
- thioglycolate broth
- Olkenitsky medium

These are the varieties of *Aspergillus* genus fungi. Which growth medium is this?



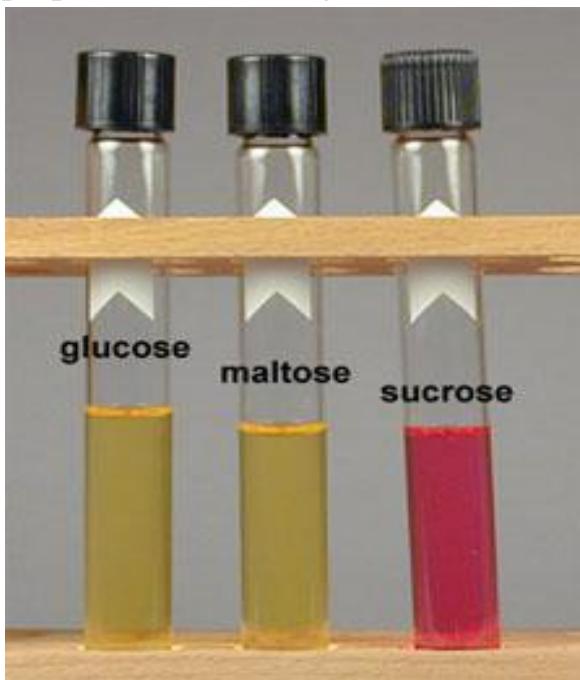
- +Saubouraudt medium
- egg-yolk salt agar
- Ploskirev medium
- Wilson Blair medium
- Kligler agar

This is a microscopic picture of a fungal colony growing on a solid growth medium. Which type of microbial growth is this?



- +hyphal
- yeast-like
- star-shaped
- creeping

These are some of Hiss media test-tubes containing bacterial growth. Which properties of microorganisms are determined by this method?



- +saccharolytic
- proteolytic
- autolytic

cultural
redox

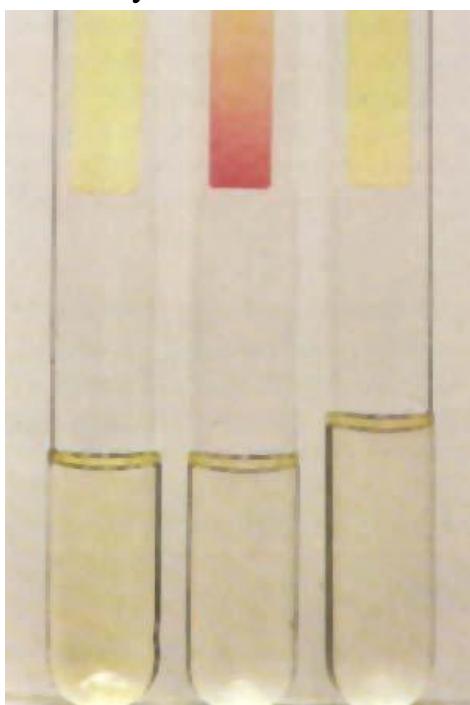
This is a bacterial growth in milk. Which properties of microorganisms are



determined by this method?

- +proteolytic
- saccharolytic
- autolytic
- cultural
- redox

The picture shows a test which is used to detect the product of tryptophan breakage caused by bacterial metabolism. Which test is this?



- +indole test
- cystinase test
- colour reaction test
- litmus test
- oxidase test

The picture shows Pisu medium test which is used to detect *Corynebacterium diphtheriae*. Which enzyme is detected by this test?



- +cystinase
- lecithinase
- plasma coagulase
- neuraminidase

thrombokinase

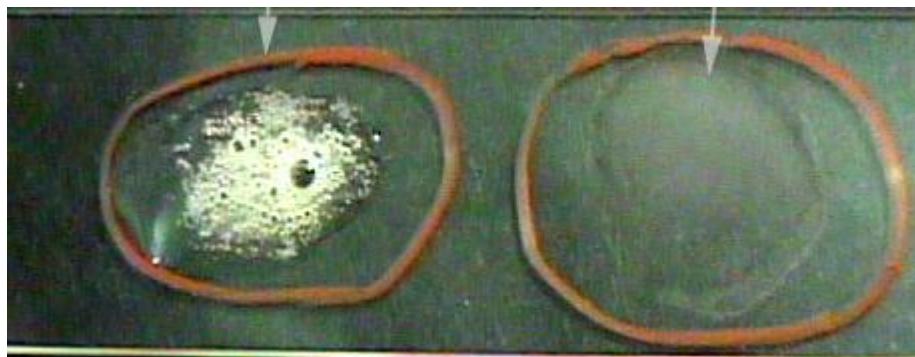
The picture shows the result of a biochemical test. Which enzyme is detected by



this test?

- +plasma coagulase
- cystinase
- catalase
- neuraminidase
- thrombokinase

The picture shows the result of a biochemical test. Which enzyme is detected by this test?



- +catalase
- oxidase
- hyaluronidase
- cystinase

The picture shows the result of a biochemical test. Which enzyme is detected by this test?



- +catalase
- oxidase
- neuraminidase
- lecithinase

The picture shows the result of a biochemical test. Which enzyme is detected by this test?



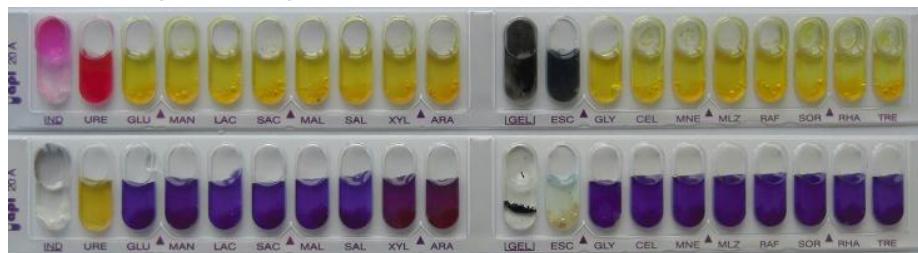
- + oxidase
- catalase
- indole
- cystinase
- neuraminidase

The picture shows the result of a biochemical test. Which enzyme gives the blue-purple colour to the test strip?



+cytochrome oxidase
transferase
isomerase
hydrolase
thrombokinase

This is an API system which is used to identify bacteria. Guess which stage of the bacteriological diagnosis this method is used at.



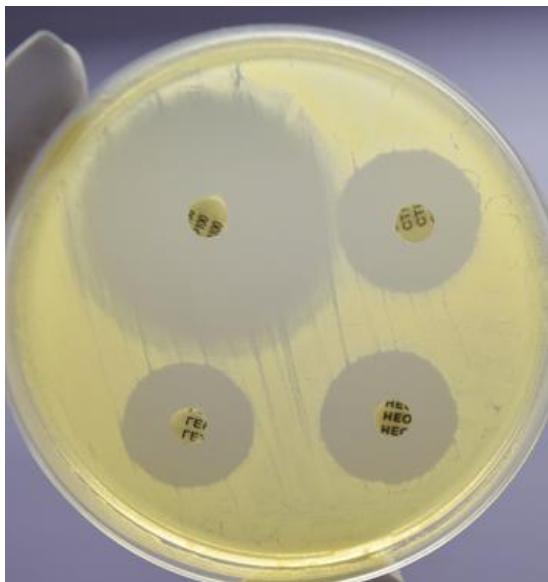
- +3
- 1
- 2
- 4
- 5

This is an API system which is used to identify bacteria. Which properties of microorganisms are detected by this method?



- +biochemical
- cultural
- antigenic
- virulence
- pathogenic

This is a test which is used to determine the antibiotic sensitivity of bacteria. Guess which stage of the bacteriological diagnosis this test is used at.



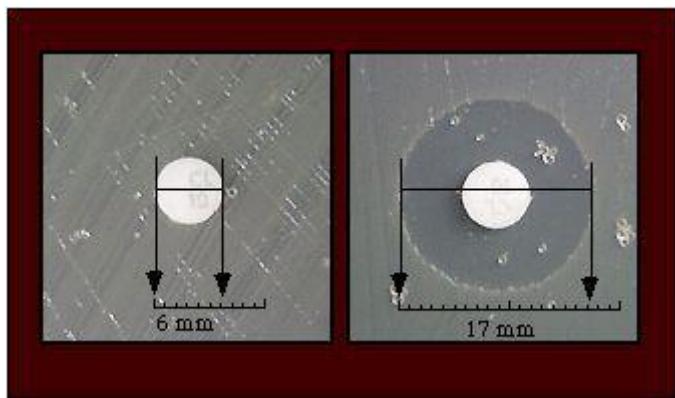
- +3
- 1
- 2
- 4
- 5

This is a lawn of pure bacterial culture on a Petri dish with added antibiotics.
Which research method is being used?



- +disk diffusion test
- plaque assay
- negative colonies technique
- Fortner method
- Koch's technique

This is the result of a test which is used to determine the antibiotic sensitivity of bacteria. What do we call the light area which diameter is 17 mm?



+growth inhibition zone

negative colony

plaque

transparent colony

pure zone

This is a lawn of pure bacterial culture on a Petri dish. Which test is being used?



+Etest

disk diffusion test

droplet test

test strip technique

bacterial growth inhibition technique

This is the result of the Etest. What is it used for?



- +to determine the minimum inhibitory concentration of antibiotics
- to determine bacterial toxigenicity
- to detect the cells infected by the virus
- to determine bacteriophage susceptibility
- to determine bacterial virulence

The picture shows the intradermal injection of tuberculin. What do we call this procedure?



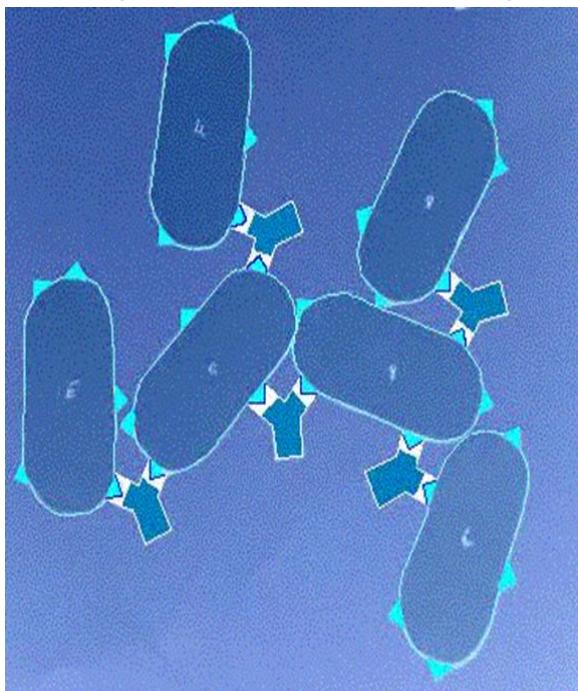
- +Mantoux test
- skin test for tularemia
- vaccination against tuberculosis
- biological sampling for tuberculosis
- Mantoux biological sampling

The picture shows the result of the Mantoux test in a child. Interpret the result.



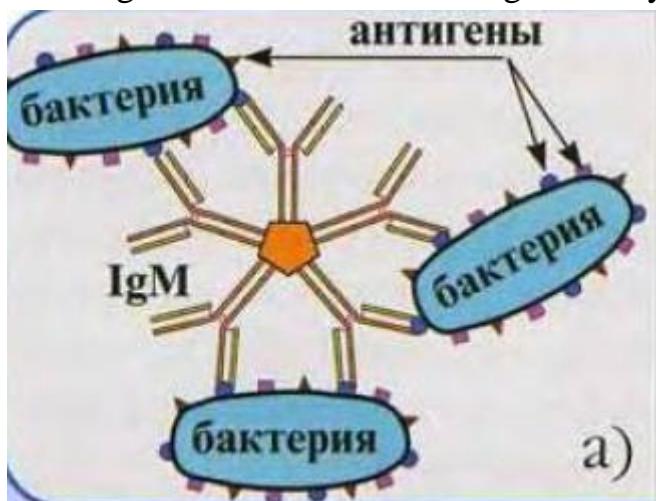
- +hyperergic reaction
- negative reaction
- dubtful reaction
- positive reaction
- diagnostic reaction

The diagram shows an immunological assay. Which assay is this?



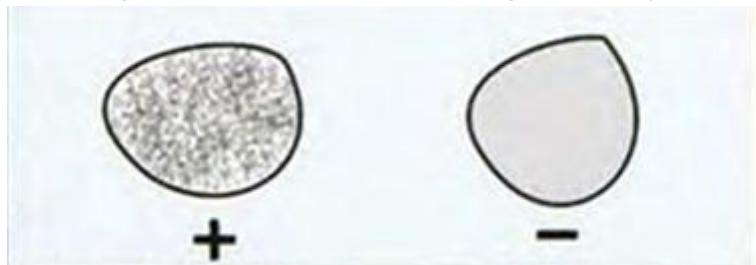
- +agglutination test
- neutralization test
- complement fixation test
- ELISA
- immunofluorescence assay

The diagram shows an immunological assay. Which assay is this?



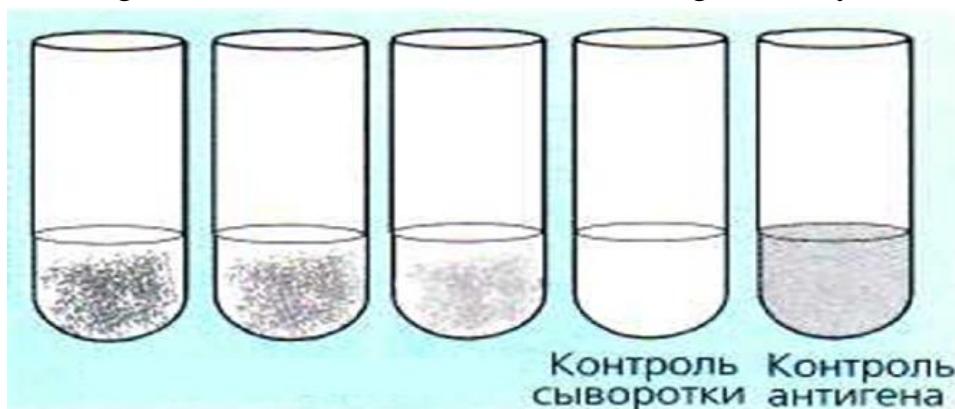
- +agglutination test
- hemadsorption assay
- complement fixation test
- radioimmunoassay
- precipitation test

The diagram shows an immunological assay. Which assay is this?



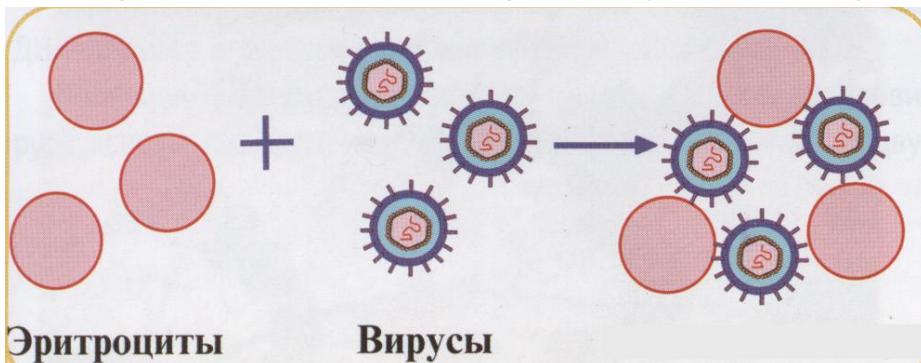
- +preliminary agglutination assay
- neutralization test
- immunofluorescence assay
- full agglutination assay
- ring precipitation test

The diagram shows the result of an immunological assay. Which assay is this?



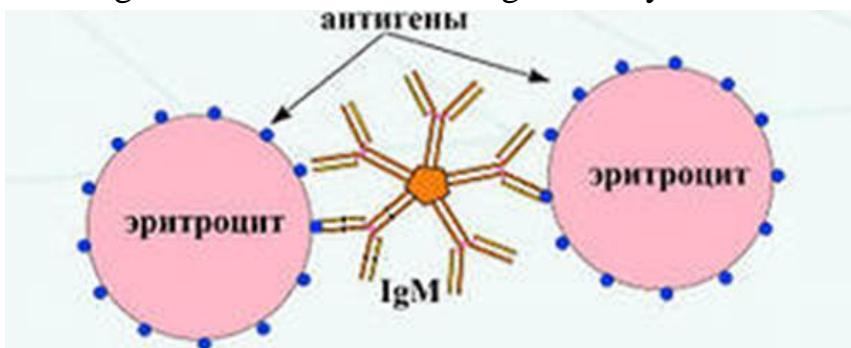
- + full agglutination assay
- preliminary agglutination assay
- immunofluorescence assay
- hemagglutination inhibition assay
- precipitation test

The diagram shows an immunological assay. Which assay is this?



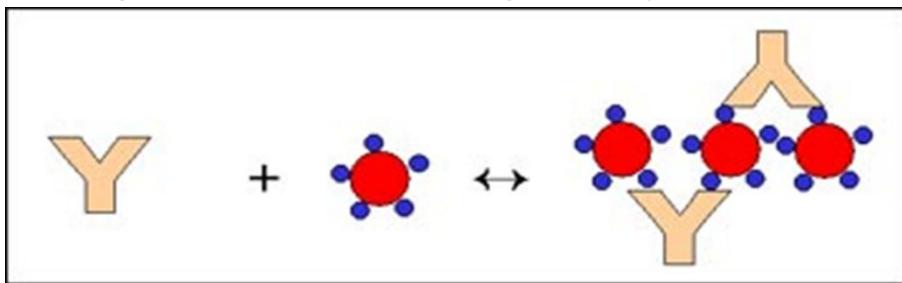
- + hemagglutination assay
- indirect hemagglutination assay
- complement fixation test
- immunofluorescence assay
- agglutination assay

The diagram shows an immunological assay. Which assay is this?



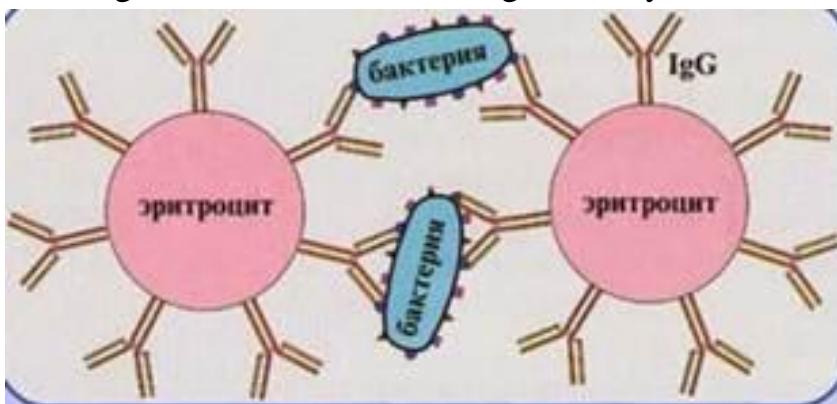
- + indirect hemagglutination assay
- neutralization test
- immunofluorescence assay
- immunoblotting

The diagram shows an immunological assay.



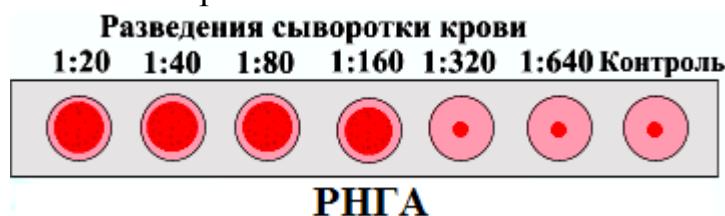
- + indirect hemagglutination assay
- radioimmunoassay
- hemadsorption assay
- immunofluorescence assay
- precipitation test

The diagram shows an immunological assay. Which assay is this?.



- + reverse indirect hemagglutination assay
- hemagglutination assay
- agglutination assay
- complement fixation test
- precipitation test

The diagram shows the result of an immunological assay. What is the antibody titer in a sick person's blood?



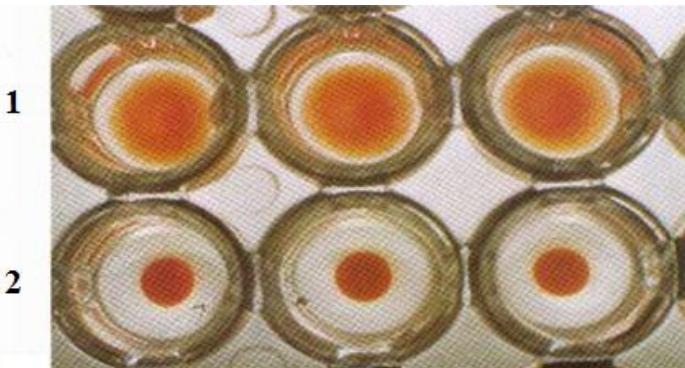
- +1:160
- 1:320

1:20

1:640

control titer

The diagram shows an immunological assay. Which assay is this and what are the results in the upper (1) and lower (2) rows?



+indirect hemagglutination assay, 1-positive, 2-negative

indirect hemagglutination assay, 1-negative, 2-positive

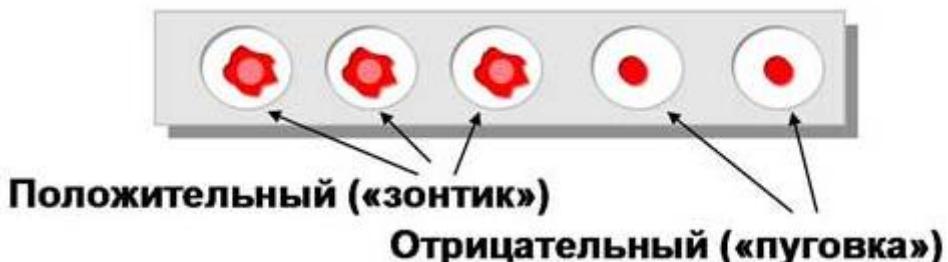
ELISA, 1-negative, 2-positive

ELISA, 1-positive, 2-negative

ring precipitation test, 1-positive, 2-negative

ring precipitation test, 1-negative, 2-positive

The diagram shows an immunological assay. Which assay is this?



+indirect hemagglutination assay

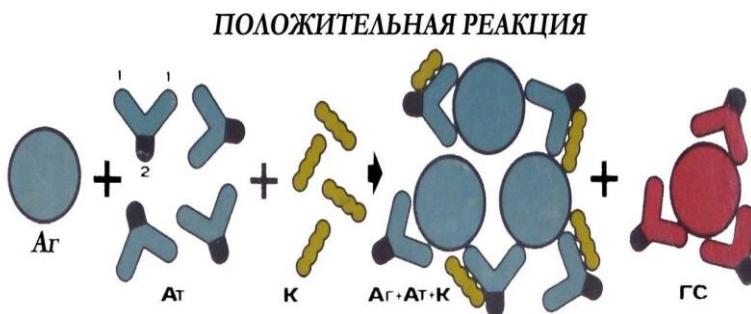
neutralization test

agglutination assay

ELISA

ring precipitation test

The diagram shows an immunological assay. Which assay is this?



+complement fixation test

immunoblotting

hemadsorption assay

agglutination assay

radioimmunoassay

The diagram shows a complement fixation test. Guess its result.



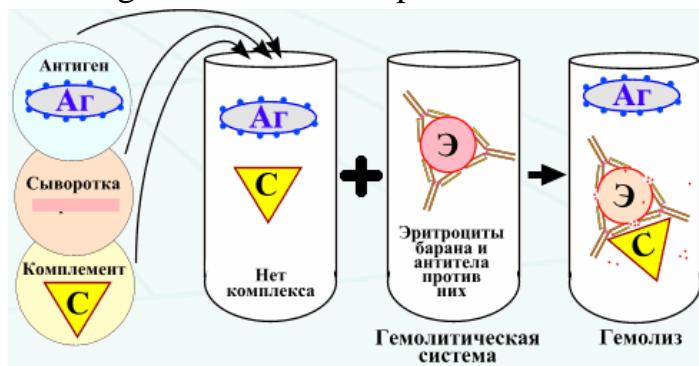
+positive

negative

doubtful

false negative

The diagram shows a complement fixation test. Guess its result.



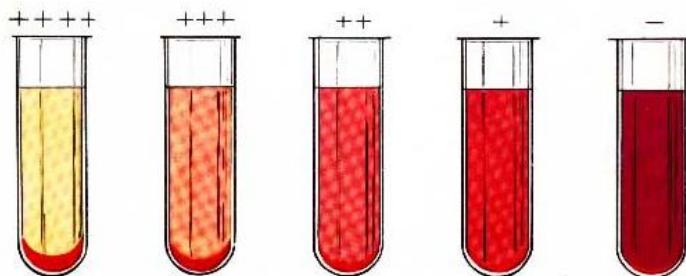
+negative

positive

doubtful

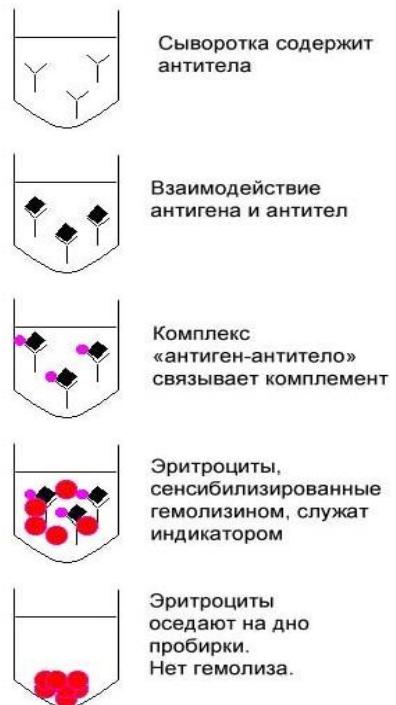
false positive

The diagram shows an immunological assay. Which assay is this?



- + complement fixation test
- ELISA
- neutralization test
- immunofluorescence assay
- agglutination assay

The diagram shows a complement fixation test which results in erythrocytes (RBCs) sedimentation on the bottom of the test-tube, there is no hemolysis. What kind of result is this?



- +positive
- negative
- doubtful
- false negative

The diagram shows a complement fixation test which results in erythrocytes (RBCs) hemolysis. Guess its result.



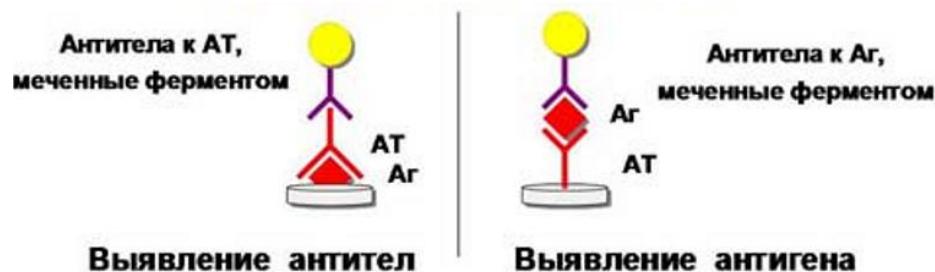
+negative

positive

doubtful

false positive

The diagram shows an immunological assay which uses the antibodies labeled by the enzyme. Which assay is this?



+ELISA

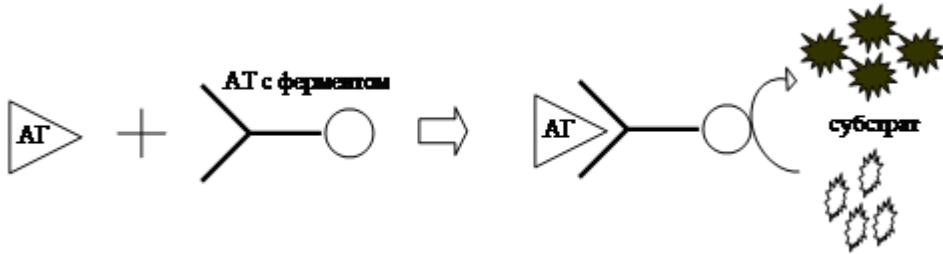
immunofluorescence assay

complement fixation test

reverse indirect hemagglutination

agglutination assay

The diagram shows an immunological assay which uses specific antibodies labeled by the enzyme. Which assay is this and what is its aim?



+ELISA, direct method of an antigen detection

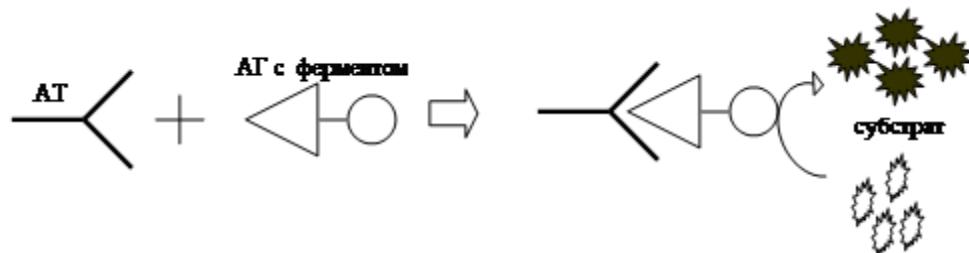
ELISA, direct method of antibodies detection

immunofluorescence assay, positive

immunofluorescence assay, negative

complement fixation test, negative

The diagram shows an immunological assay which uses the antigens labeled by the enzyme. Which assay is this and what is its aim?



+ELISA, direct method of antibodies detection

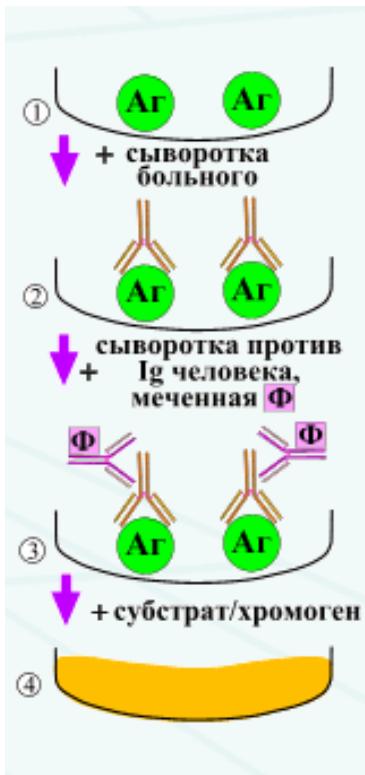
ELISA, direct method of an antigen detection

agglutination assay, positive

agglutination assay, negative

neutralization test, positive

The diagram shows ELISA, in this type of ELISA the diagnostic antigens are adsorbed on the surface of the tray and the antigen serum labeled by the enzyme is used. What is the aim of this assay?



+indirect method of antibodies detection in a patient's blood serum

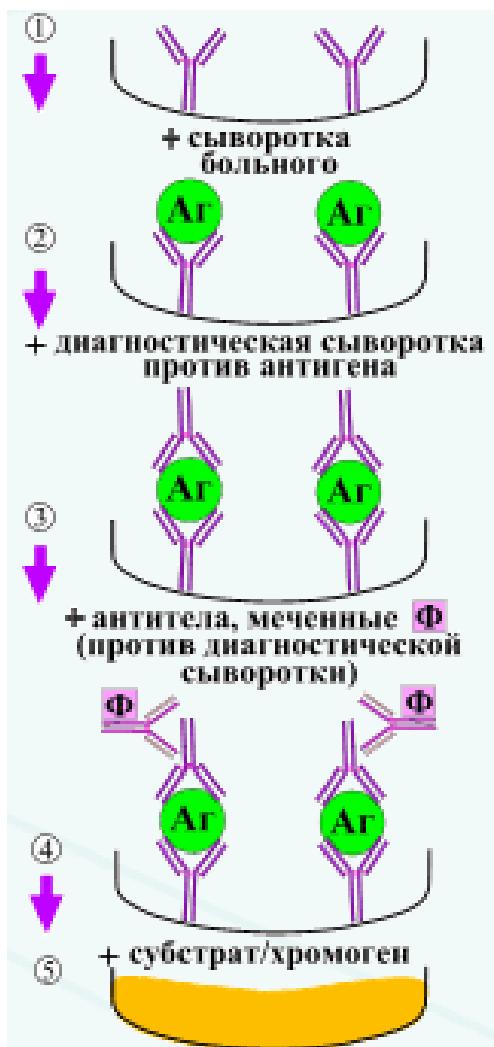
direct method of antibodies detection in a patient's blood serum

indirect method of antigens detection in a patient's blood serum

direct method of antigens detection in a patient's blood serum

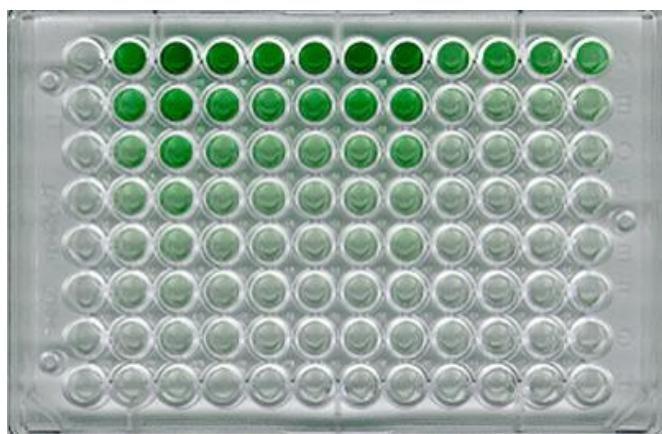
detection of the genetic material of a pathogen in a patient's blood serum

The diagram shows ELISA, in this type of ELISA the diagnostic antibodies are adsorbed on the surface of the tray and the antiglobulin serum labeled by the enzyme is used. What is the aim of this assay?



- + indirect method of antigens detection in a patient's blood serum
- indirect method of antibodies detection in a patient's blood serum
- direct method of antibodies detection in a patient's blood serum
- direct method of antigens detection in a patient's blood serum
- detection of the genetic material of a pathogen in a patient's blood serum

The diagram shows the result of an immunological assay. Which assay is this?



+ELISA

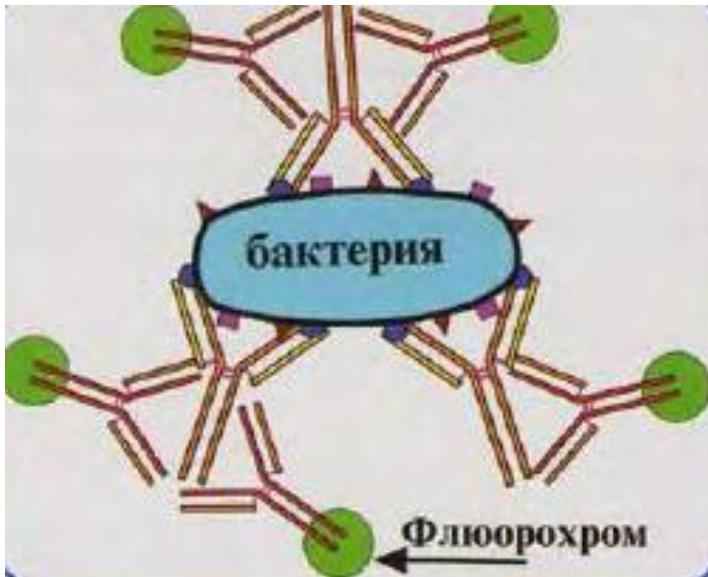
immunofluorescence assay

complement fixation test

immunoblotting

hemagglutination assay

The diagram shows an immunological assay. Which assay is this?



+ indirect immunofluorescence assay

direct immunofluorescence assay

hemagglutination assay

indirect hemagglutination assay

ELISA

The diagram shows an immunological assay. Which assay is this?



+direct immunofluorescence assay

idirect immunofluorescence assay

hemagglutination assay

indirect hemagglutination assay

ELISA

The diagram shows an immunological assay. What is its result?



+positive, there is a green glow observed through the microscope

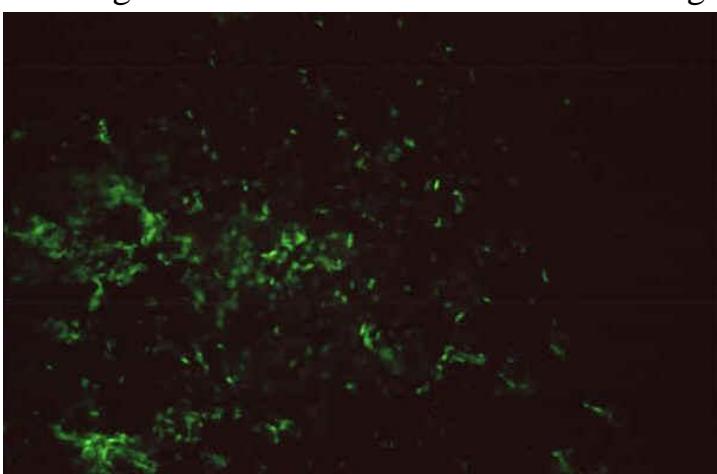
-negative, there is no green glow observed through the microscope

+positive, there is the green colour observed in the cups of the board

-negative, there is no green colour in the cups of the board

doubtful

The diagram shows the result of an immunological assay. Which assay is this?



+immunofluorescence assay

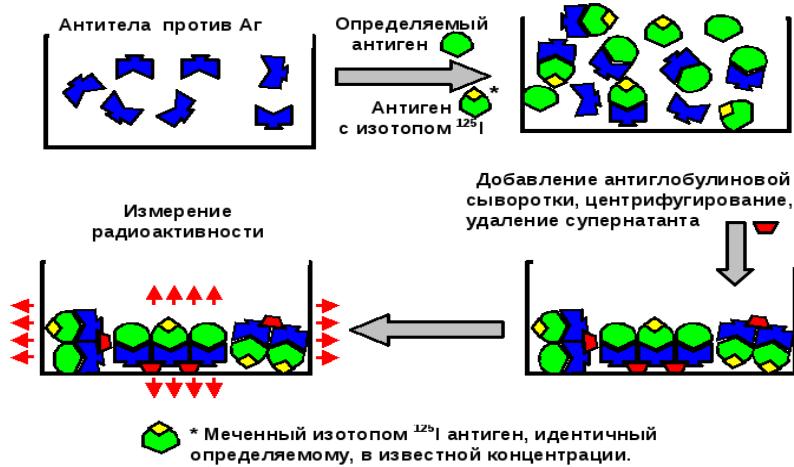
ELISA

neutralization test

immunoblotting

dark-field microscopy

The diagram shows an immunological assay where the antigens labeled by the radioactive isotope are used. Which assay is this?



+radioimmunoassay

ELISA

complement fixation test

indirect hemagglutination assay

hemadsorption assay

The diagram shows an immunological assay. Which assay is this?



+hemadsorption assay

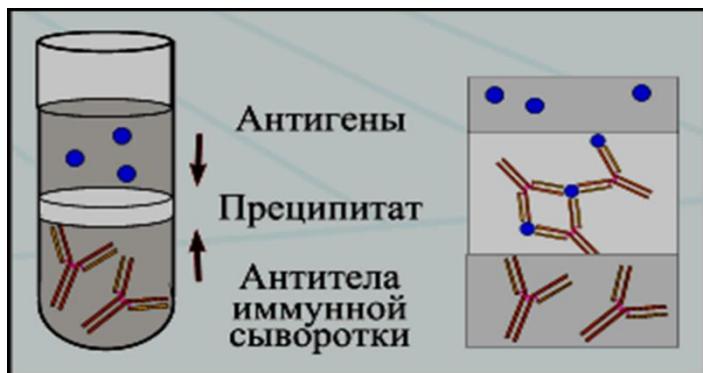
neutralization test

complement fixation test

immunoblotting

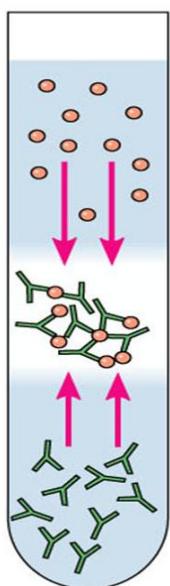
hemagglutination assay

The diagram shows an immunological assay which results in the formation of precipitate in the liquid medium. Which assay is this?



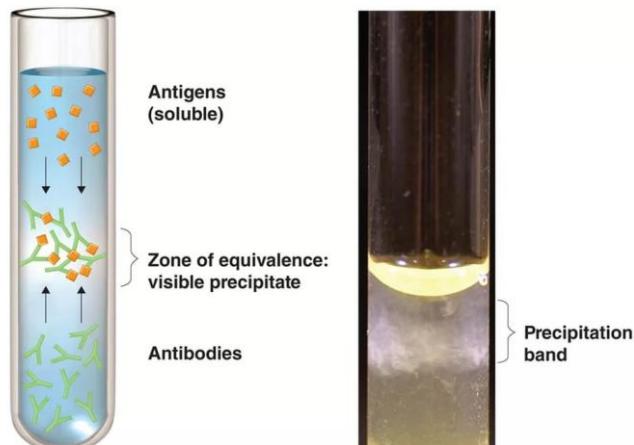
- +Ascoli test
- agglutination assay
- Wright test
- Wassermann test
- Ouchterlony test

The diagram shows an immunological assay. Which assay is this?



- +ring precipitation test
- neutralization test
- agglutination assay
- ELISA

The diagram shows the ring precipitation test. What is it used for?



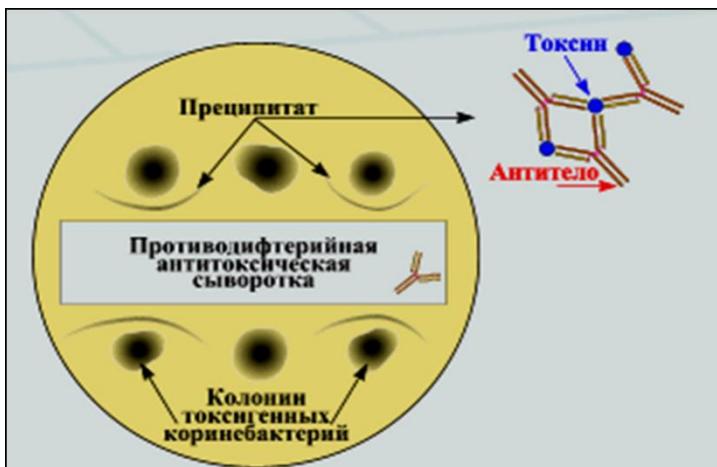
- +detection of the anthrax hapten
- determination of diphtheria toxigenicity
- determination of the antibody titer in a patient's blood serum
- determination of susceptibility to a bacteriophage
- determination of bacterial virulence

The picture shows the positive result of an immunological assay which is used to detect the antigens of anthrax in different substrates. Which assay is this?



- +ring precipitation test
- immunoblotting
- complement fixation test
- reverse indirect hemagglutination assay
- full agglutination assay

The diagram shows an immunological assay which results in the formation of precipitates. Which assay is this?



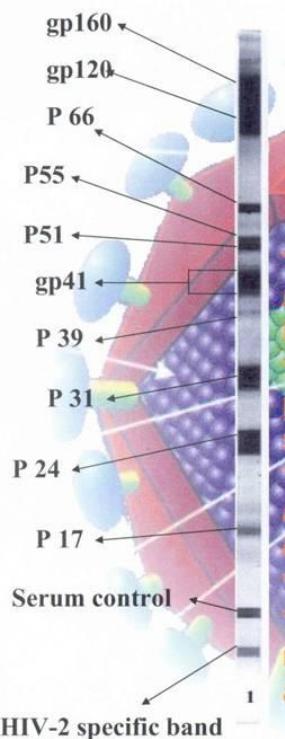
- +Ouchterlony test
- hemadsorption assay
- neutralization test
- immunoblotting
- radioimmunoassay

The picture shows precipitation in agar. What is the aim of this test?.



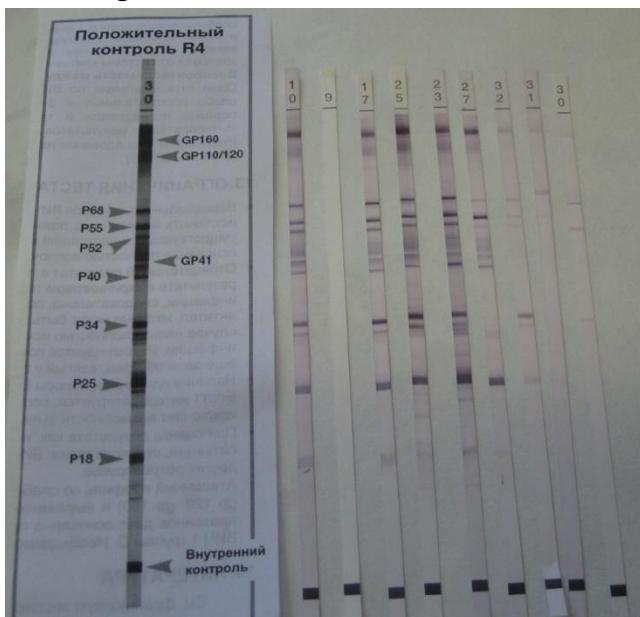
- +determination of the toxigenicity of *Corynebacterium diphtheriae*
- determination of antibiotic sensitivity
- determination of bacterial virulence
- determination of bacteriophage sensitivity
- detecting the motility of bacteria

The diagram shows an immunological assay. Which assay is this?



+immunoblotting
complement fixation test
radioimmunoassay
ring precipitation test
hemagglutination assay

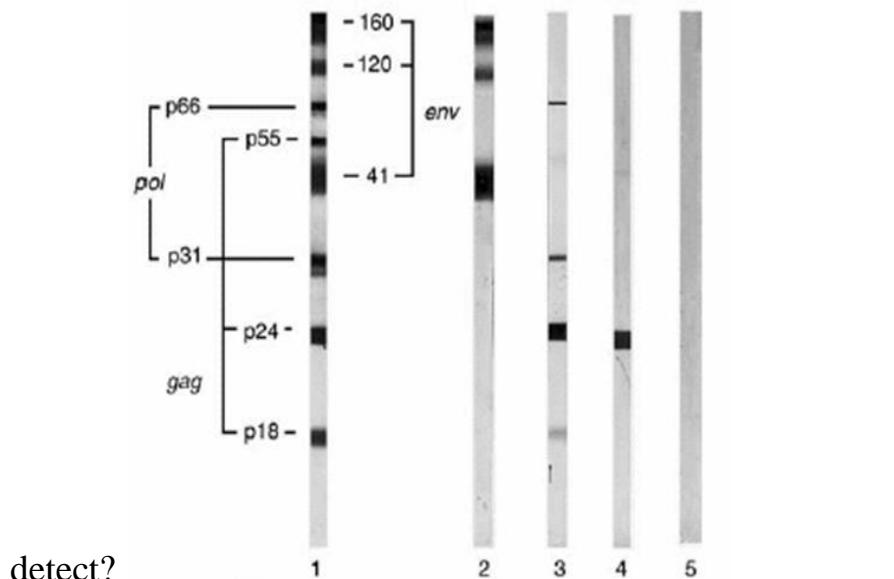
The diagram shows the result of an immunological assay. What is its aim?



+detection of antibodies against HIV in a patient's blood serum
detection of the virus genetic material in a patient's blood
determination of the virus serotype during the 3-rd stage of the virological method
population screening for viral hepatitis

rapid testing for syphilis

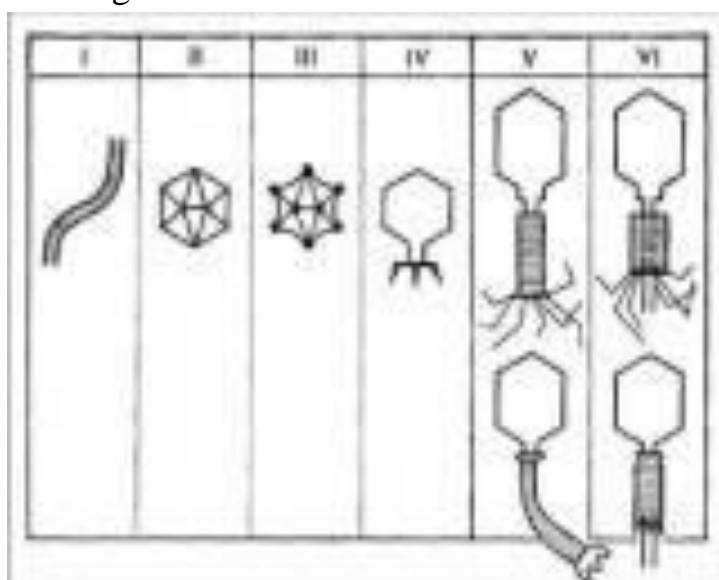
The picture shows the result of immunoblotting. Which component does this assay



detect?

- +antibodies against HIV in a sick person's blood serum
- antigens of viral hepatitis in pathogen samples from liver biopsy
- genetic material of the pathogen in a sick person's blood
- antibodies against syphilis in a sick person's blood serum
- antigens of the cytomegalovirus in a sick person's saliva

These are different morphological types of certain microorganisms. Which microorganisms are these?



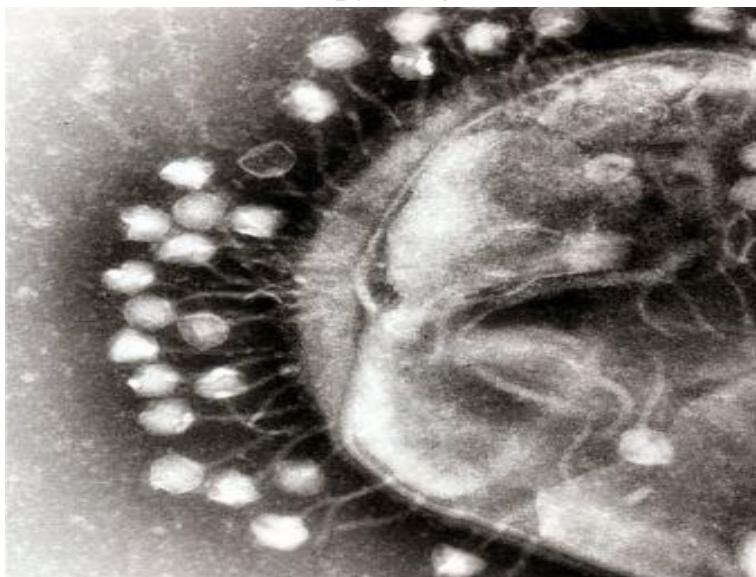
+bacteriophages

protozoa

bacteria

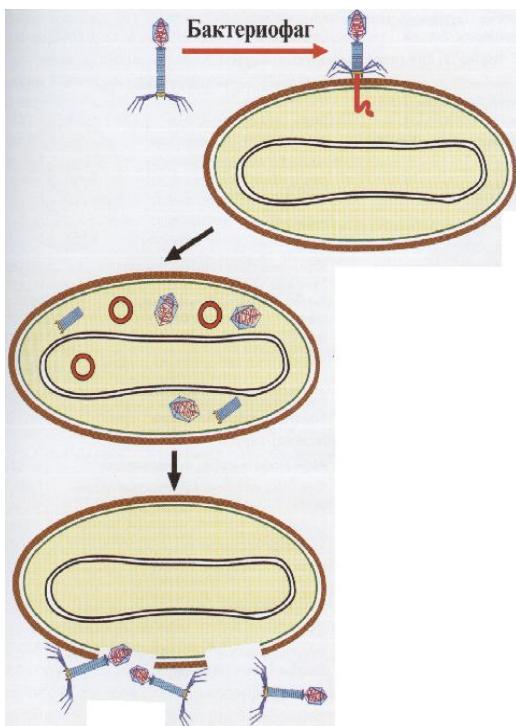
actinomyces
fungi

The electron microscopy image shows the interaction of bacteriophages with a:



- +bacterial cell
- virus
- lymphocyte
- macrophage
- erythrocyte (RBC)

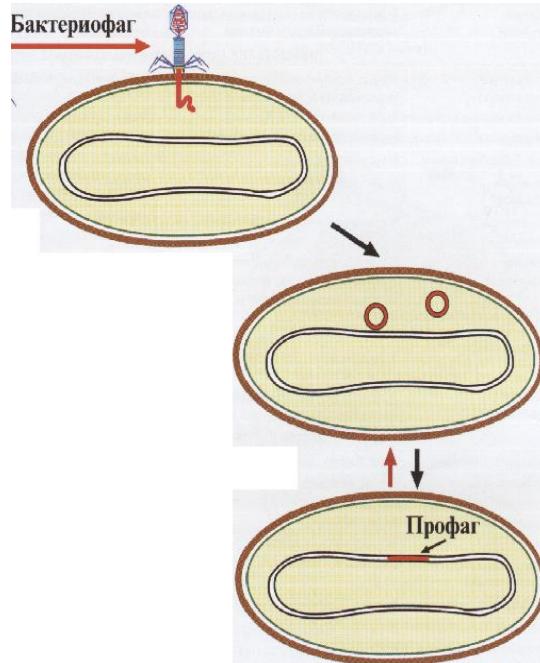
The diagram shows the interaction of a bacteriophage with a bacterial cell. What is the result of such interaction?



+lysis

lysogeny
mutation
apoptosis
deletion

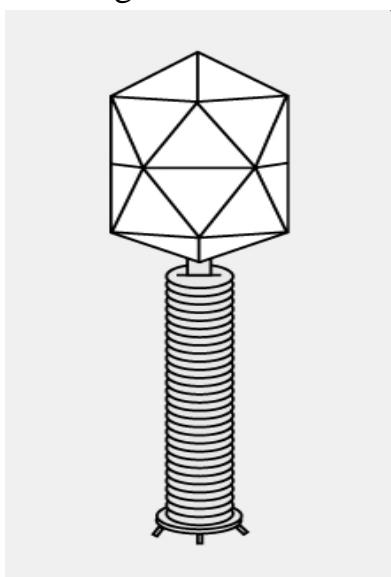
The diagram shows the interaction of a bacteriophage with a bacterial cell. What is



the result of such interaction?

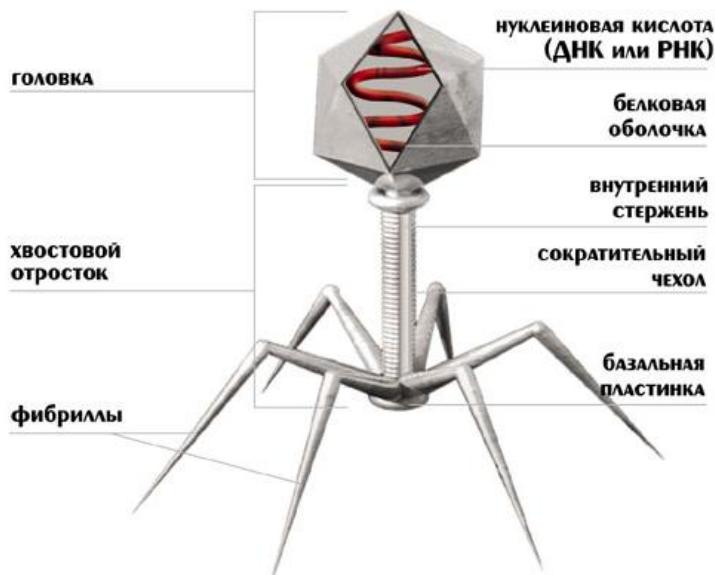
- +lysogeny
- lysis
- mutation
- apoptosis
- duplication

The diagram shows the structure of a certain virus. Which virus is this?



+bacteriophage
HIV
hepatitis C virus
hepatitis B virus
human papillomavirus

The diagram shows the structure of the bacteriophage. Which kingdom does it belong to?



+viruses
bacteria
protozoa
fungi
animals

These are the negative colonies of bacteriophages in a Petri dish. Which growth medium is used?



- +meat-peptone agar with bacteria and bacteriophages
- a continuos cell culture infected with bacteriophages
- primary cells culture infected with bacteriophages
- meat-peptone agar with the colonies of bacteiophages on it
- secondary cell culture infected with bacteriophages

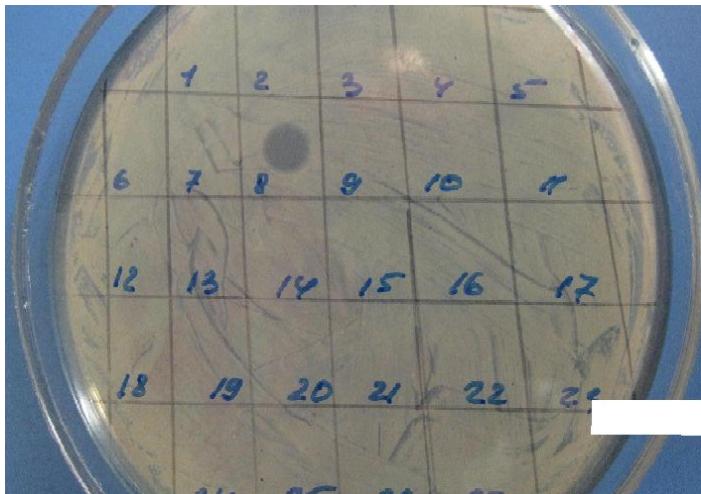
This is meat-peptone agar with the lawn culture containing a mixture of bacteria and bacteriophages. What is the result of their interaction?



- +bacterial cells lysis
- lysogeny
- apoptosis

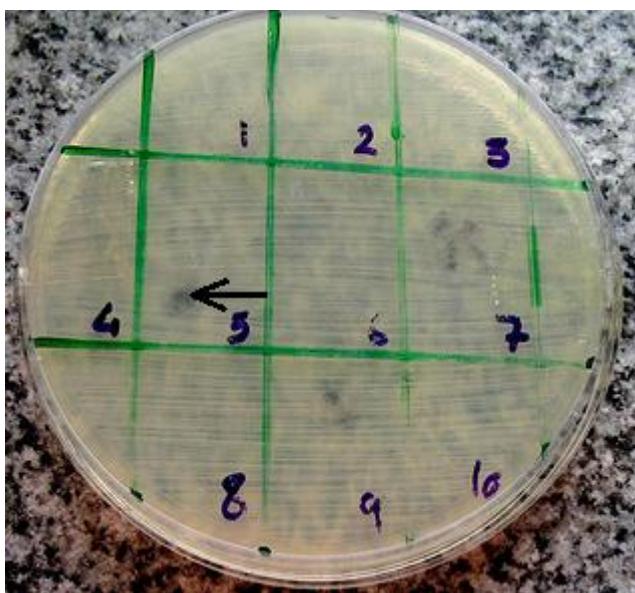
bacteriophages lysis
mutation

This is meat-peptone agar with the lawn culture of bacteria. Which method is shown?



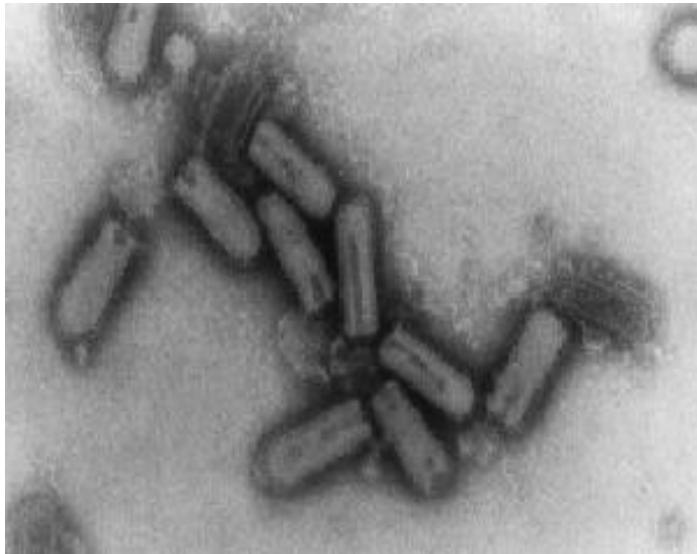
- +phage typing of bacteria
- determination of the antibiotic sensitivity
- determination of bacterial toxigenicity
- determination of the bacterial titer
- determination of bacterial virulence

The picture shows the phage typing of *Staphylococcus aureus*. What has formed in Sector 5?



- +a negative colony
- a growth inhibition zone
- a zone of clearing
- a shaded zone

The photo shows the rabies virus. Which microscopy technique was used?



- +electron
- phase-contrast
- fluorescence
- dark-field
- oil immersion

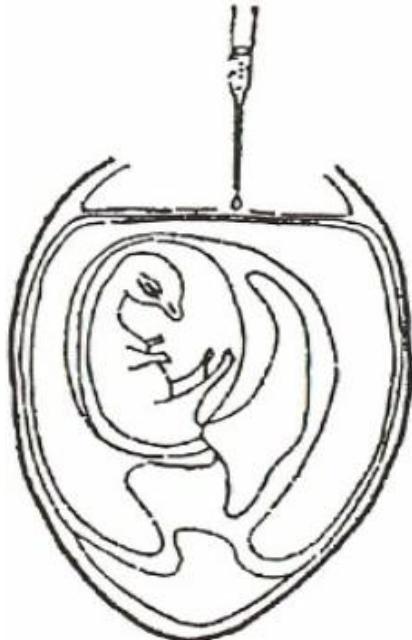
This is the primary human cell culture infected with the cytomegalovirus. You can see massive intranuclear inclusions separated from the nuclear membrane by a light zone. Which microscopy technique was used?



- +optical
- electron
- phase-contrast
- fluorescence

dark-field

The picture shows a chicken embryo being infected. Where is the infectious agent introduced to?



- +onto the chorioallantoic membrane
- into the amniotic cavity
- into the allantois
- into the yolk sac
- onto the shell

The picture shows a chicken embryo being infected. Where is the infectious agent introduced to?



- + into the allantois
- onto the chorioallantoic membrane
- into the amniotic cavity
- into the yolk sac
- into the pleural cavity

The picture shows a chicken embryo being infected. Where is the infectious agent introduced to?



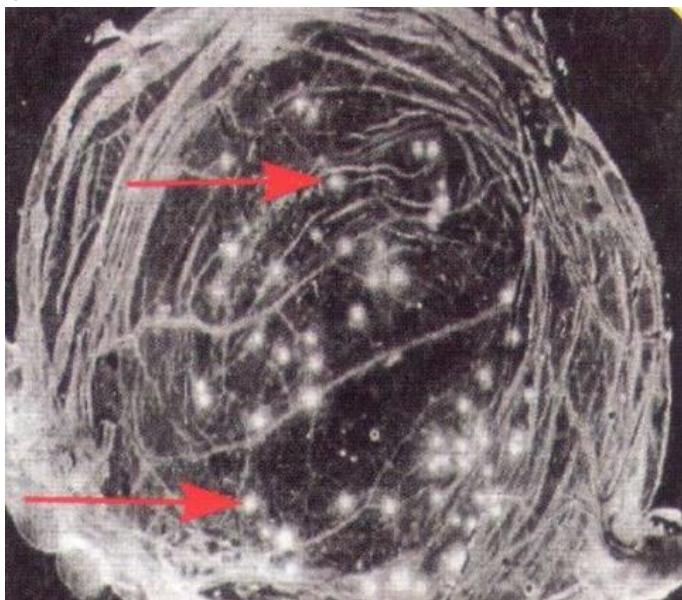
- + into the amniotic cavity
- onto the chorioallantoic membrane
- into the allantois
- into the yolk sac
- into the gestational sac

The picture shows a chicken embryo being infected. Where is the infectious agent introduced to?



- + into the yolk sac
- onto the chorioallantoic membrane
- into the amniotic cavity
- into the allantois
- into the caudal end

The photo shows a chicken embryo infected by a virus. Where is the infectious agent introduced to?



- + onto the chorioallantoic membrane
- into the amniotic cavity
- into the allantois
- into the yolk sac
- onto the shell

The photo shows the virological method of diagnosing infections. Which stage of



the diagnosing procedure is shown?

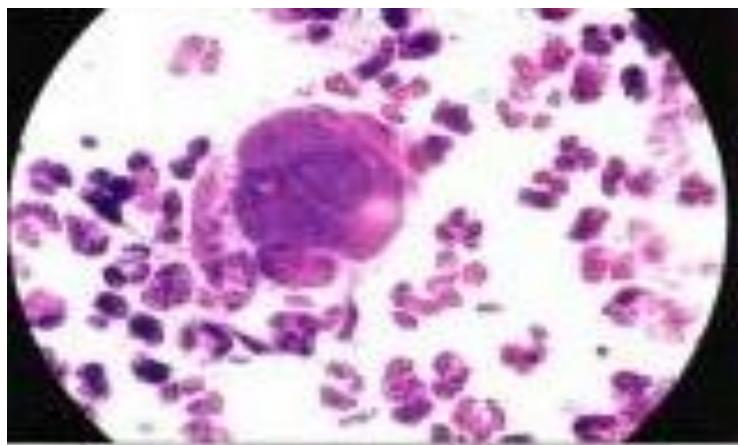
- +1
- 2
- 3
- 4
- 5

The photo shows the virological method of diagnosing infections. Which stage of the diagnosing procedure is shown?



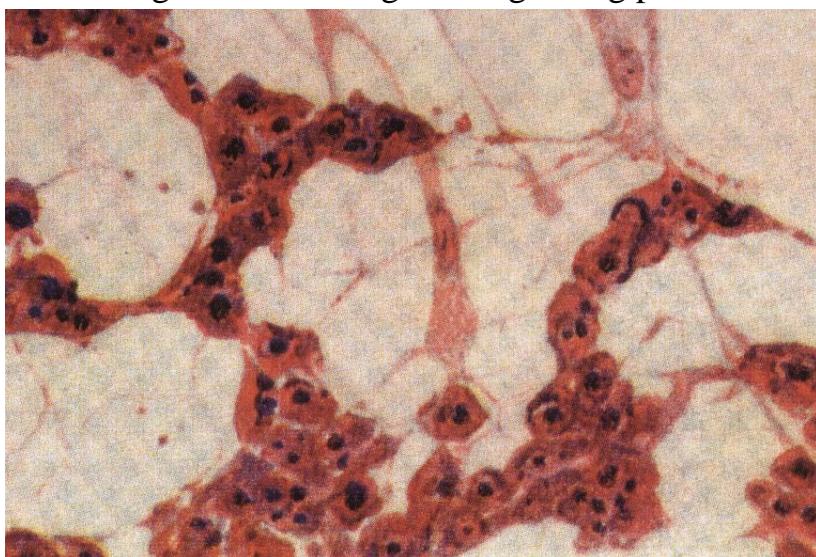
- +infecting a biological model
- indication of the virus
- biological sampling
- identification of the virus
- an allergy skin test

This is a microscopic image of a cell culture where you can see a giant multinuclear cell with a pale cytoplasm and pink inclusions. There are also pink inclusions in the nucleus. Which stage of the virological diagnosing procedure is shown?



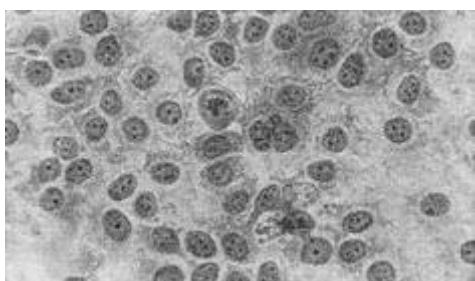
- +2
- 1
- 3
- 4
- 5

The picture shows the cytopathic effect of a virus produced on a cell culture.
Which stage of the virological diagnosing procedure is shown?



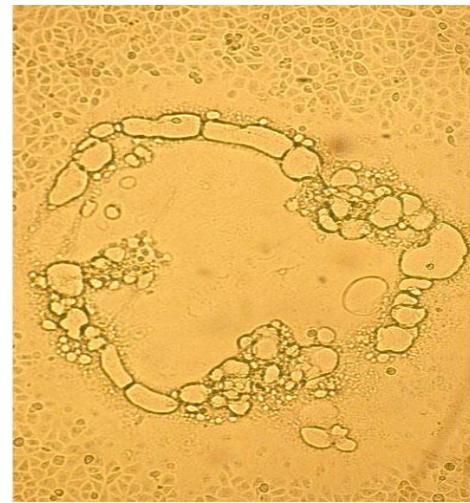
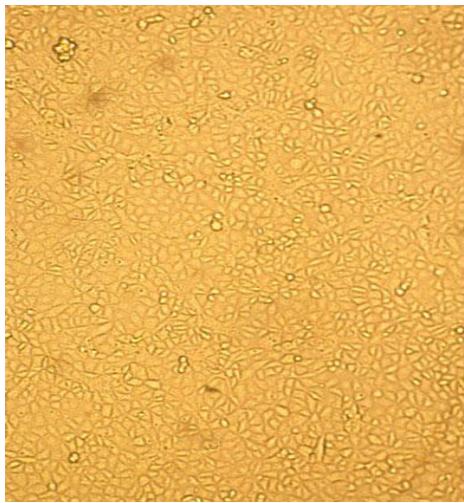
- +indication
- identification
- examination of the morphological properties of the virus
- examination of the antigenic properties of the virus
- serology

You see two pictures showing the monolayer primary cell cultures before and after they were infected with a virus. Which method of indication is shown?



- +cytopathic effect
- plaque formation
- cell inclusions formation
- x-ray diffraction
- hemadsorption assay

You see the formation of giant multinuclear cells – symplasts – with their further destruction and formation of large cavities in the cell culture Vero-SLAM. Which type of the intercation between a virus and a cell is shown?



- +productive
- abortive
- integrative
- moderate
- destructive

The photo shows the laboratory diagnosing of influenza. Which stage of the virological method is shown?



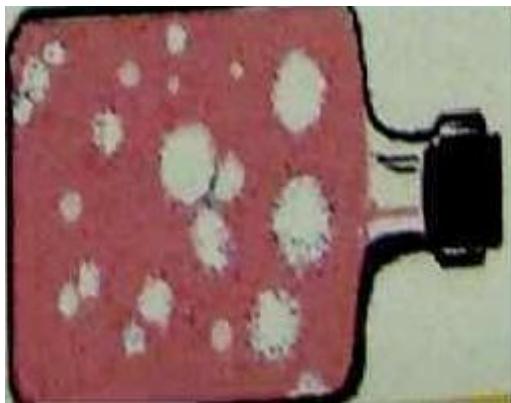
- +indication
- identification
- genetic assay
- examination of the antigenic properties of a virus
- serology

The photo shows the laboratory diagnosing of viral infections. Which stage of the virological method is shown?



- +2
- 1
- 3
- 4
- 5

This is a specimen of cell culture infected with viruses. Which indication method is shown?



- +plaque formation
- cytopathic effect
- phage typing
- cell inclusions formation
- hemagglutination assay

This is a sample of cell culture infected with viruses. Which stage of the virological diagnosing method is shown?



- +indication
- identification
- genetic assay
- examination of the antigenic properties of a virus
- microscopy

This is a sample of cell culture infected with viruses. The test which is shown helps to determine:



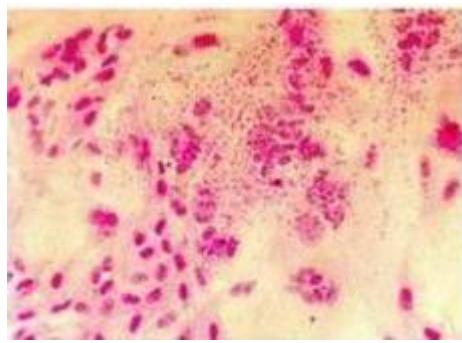
- +the presence of a virus in a cell culture
- the genus of a virus
- the serotype of a virus
- antibiotic sensitivity of a virus
- bacteriophage sensitivity of a virus

The microscopy image shows the culture of cells infected with a virus. Which method of indication is shown?



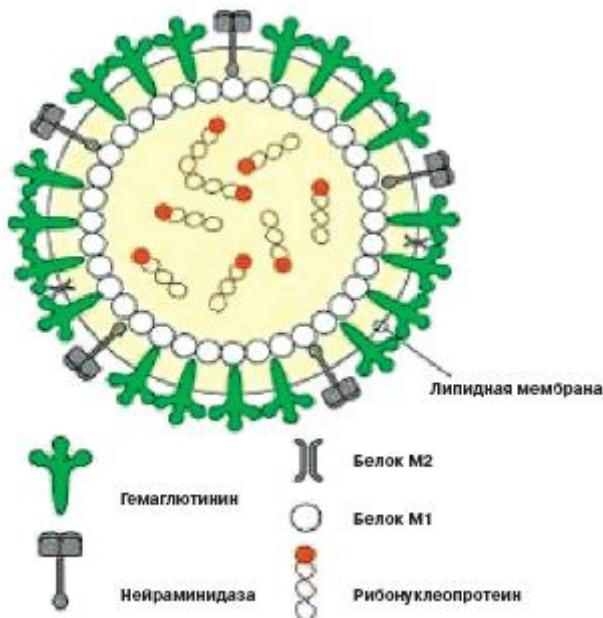
- +hemadsorption assay
- hemagglutination assay
- electron microscopy
- cytopathic effect

The picture shows hemadsorption in a culture of cells. What does this assay help to detect in a virus?



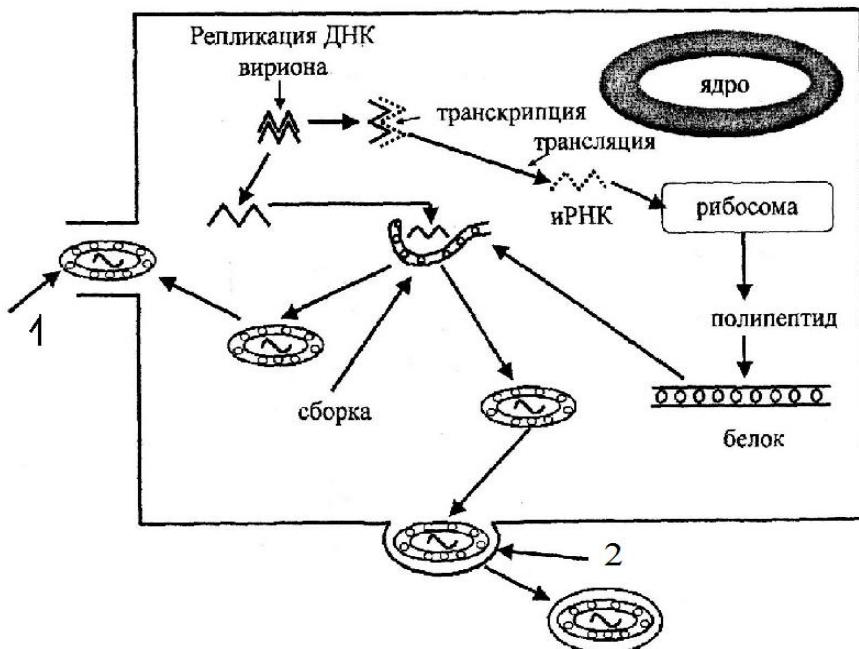
- +hemagglutinin
- hemolysin
- cord factor
- viral envelope (supercapsid)
- capsid

The diagram shows the structure of a virus. Which structure does it have?



- +complex with segmented RNA
- simple with segmented RNA
- complex with non-segmented RNA
- simple with non-segmented RNA
- primitive with 8 DNA strands

The diagram shows the replication of viruses. What is the structure of the viruses exiting the cell (1) and the cell (2).



+1-simple virus, 2-complex virus

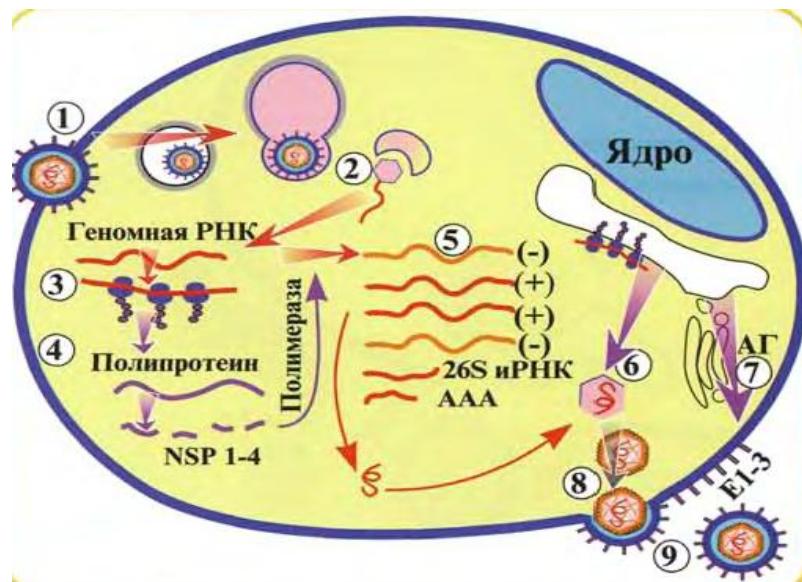
1-complex virus 2-simple virus

1-RNA-containing virus, 2-DNA-containing virus

1-DNA-containing virus, 2-RNA-containing virus

1-defective virus, 2-sufficient virus

These are the stages of viral replication. How is the virus released from the host cell?



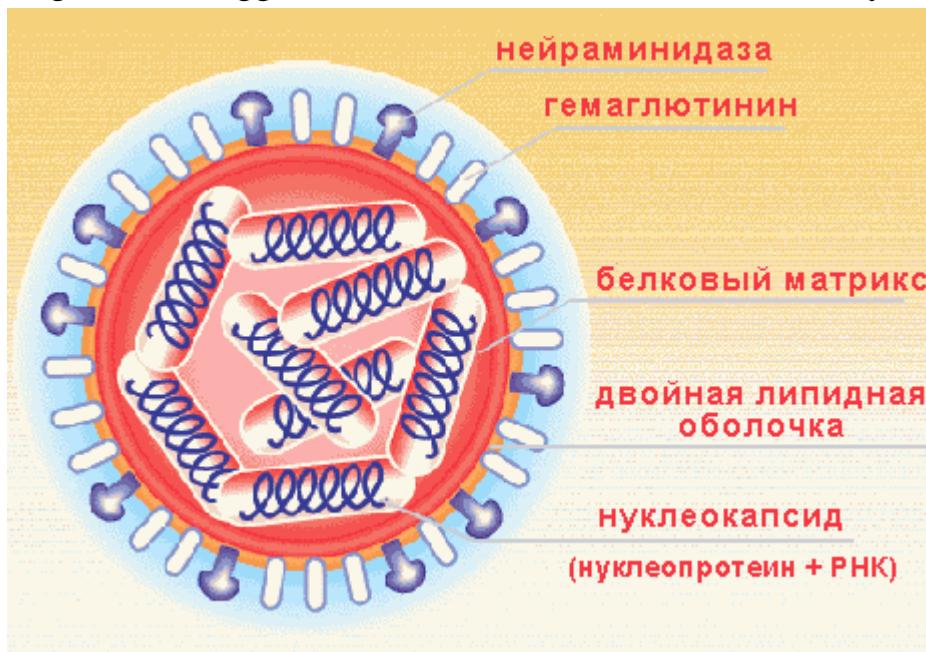
+by budding

by rupture

by destruction

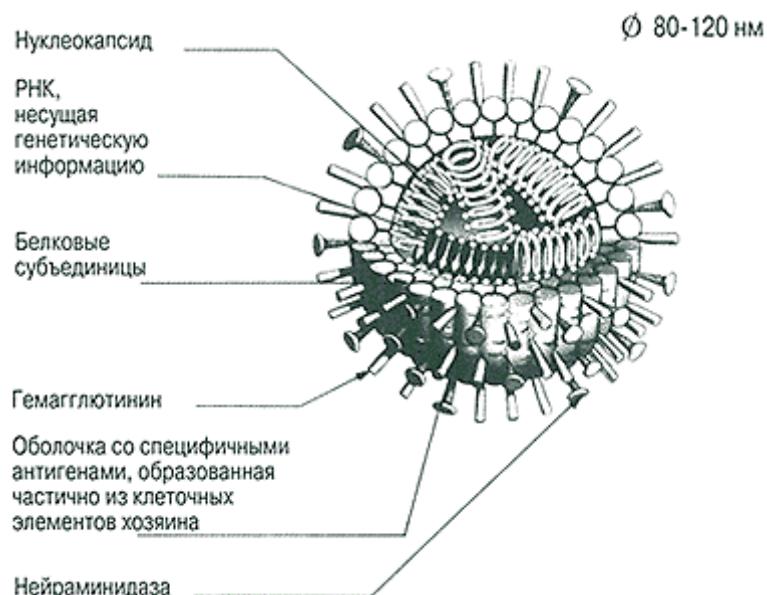
by viropexis
by lysis

The diagram shows the structure of a virus containing a viral envelope and 2 surface antigens – hemagglutinin and neuraminidase. Which family does it belong to?



- +Orthomyxoviridae
- Coronaviridae
- Paramyxoviridae
- Rhabdoviridae
- Picornaviridae

The diagram shows the structure of a virus isolated from a nasopharyngeal washing material. This virus contains a viral envelope (supercapsid) and 2 surface antigens – hemagglutinin and neuraminidase. Which genus does it belong to?



+Influenzavirus

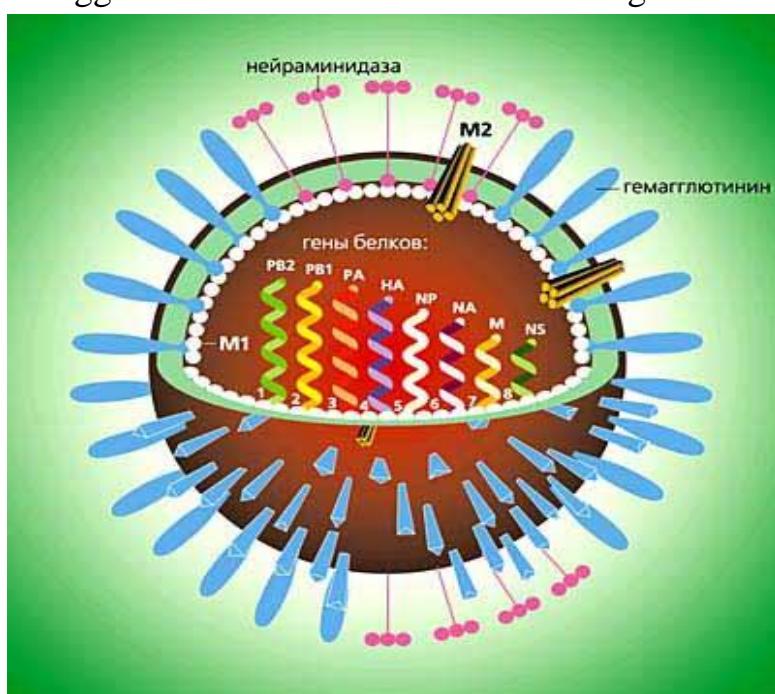
Herpes simplex virus type 1

Mastadenovirus

Rotavirus

Hepatovirus

The picture shows the structure of a virus isolated from a tracheal aspirate. This virus contains a viral envelope (supercapsid) and 2 surface antigens – hemagglutinin and neuraminidase. Which genus does it belong to?



+Influenzavirus

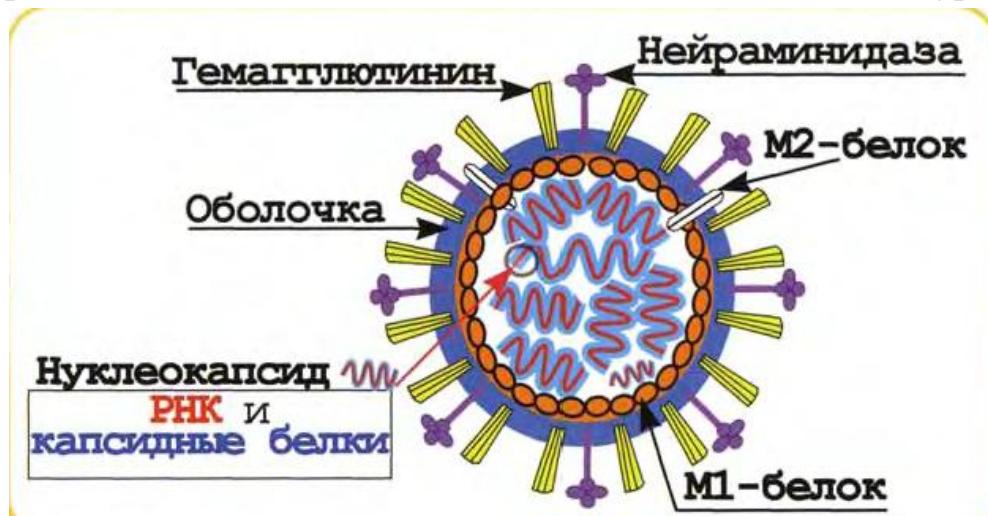
Lyssavirus

Flavivirus

Varicella-zoster virus

Hepacivirus

The diagram shows the structure of the influenza virus. Which type-specific proteins are used for the differentiation of the influenza virus types A, B and C?



+M1, M2, NP.

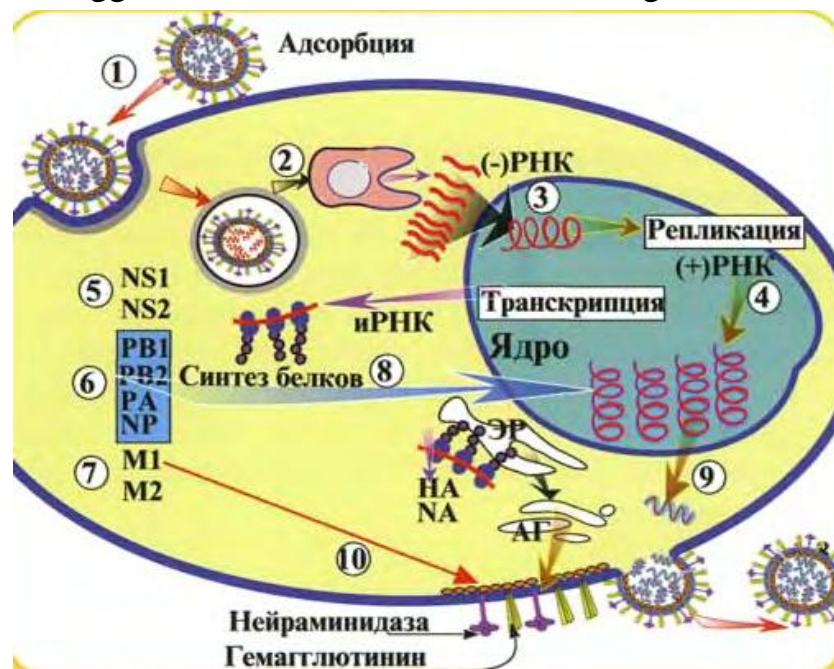
H, N

NP, H,N

R, DNA

K, RNA

The diagram shows a virus replication. This virus contains surface antigens – hemagglutinin and neuraminidase. Which genus does this virus belong to?



+Influenzavirus

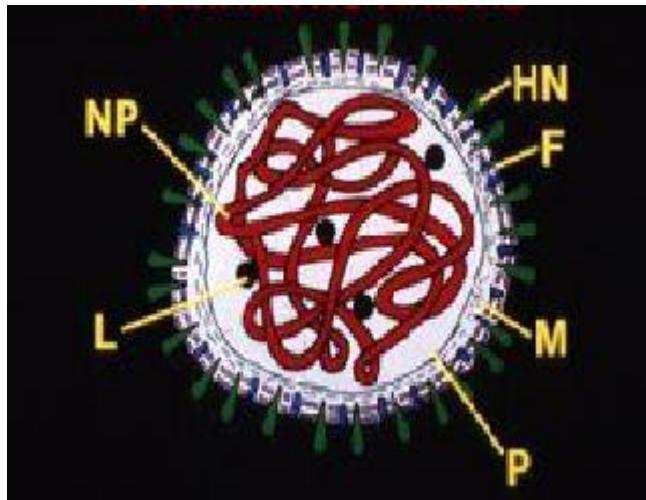
Lentivirus

Morbillivirus

Respirovirus

Mastadenovirus

The picture shows the structure of a virus isolated from urine. Which family does this virus belong to?



+Paramyxoviridae

Retroviridae

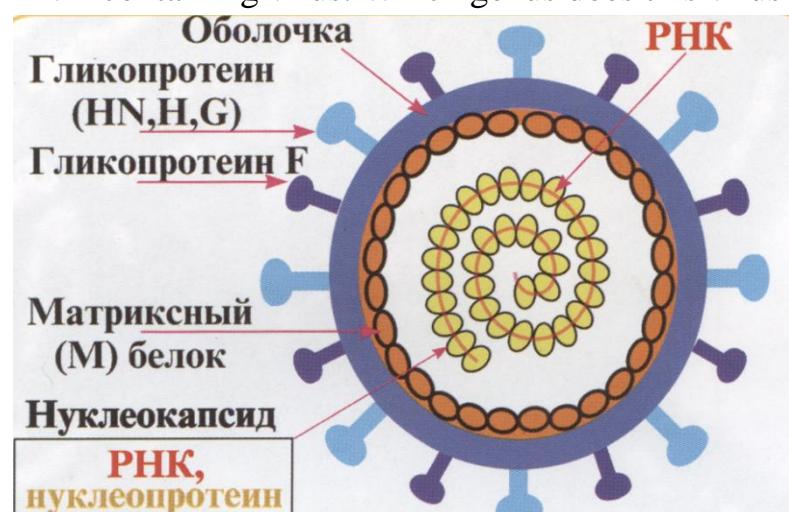
Hepadnaviridae

Caliciviridae

Rhabdoviridae

Herpesviridae

The picture shows the structure of a virus isolated from saliva. This is a complex RNA-containing virus. Which genus does this virus belong to?



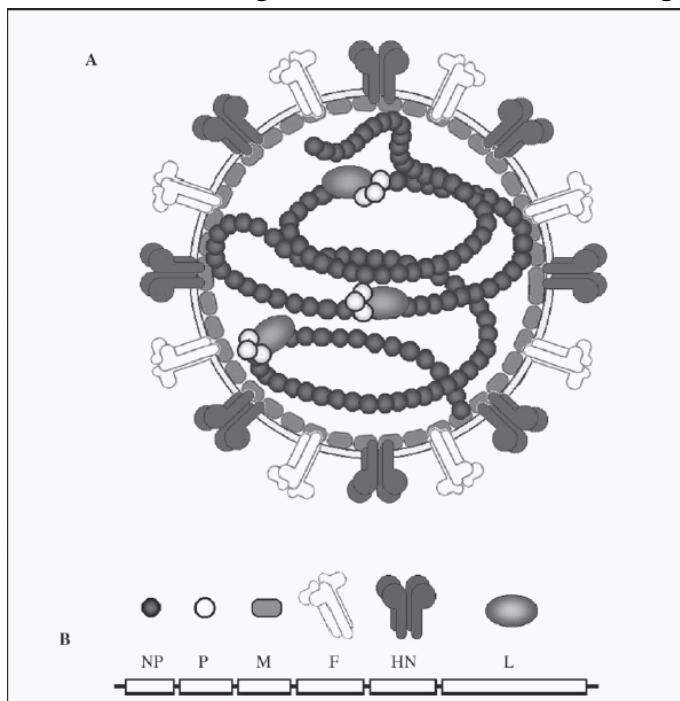
+Rubulavirus

Herpes simplex virus тип 1

Lyssavirus

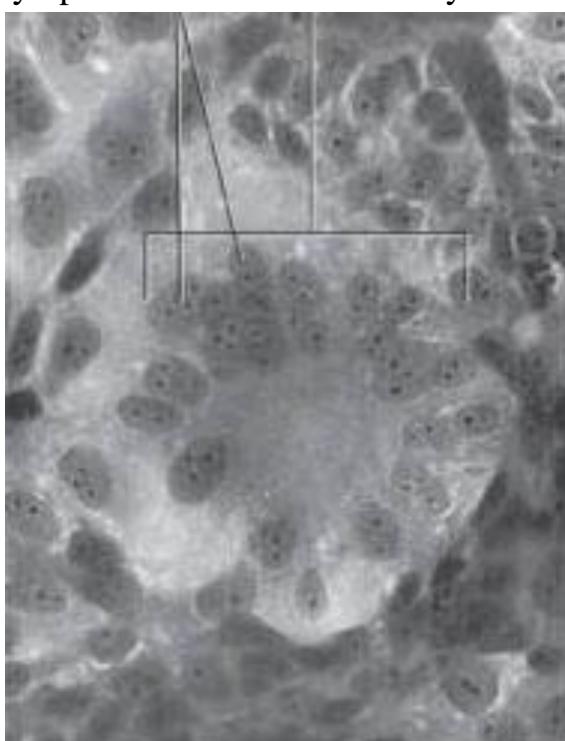
Mastadenovirus

The picture shows the structure of a virus isolated from nasopharyngeal washing material. Which genus does this virus belong to?



- +Pneumovirus
- Rotavirus
- Enterovirus
- Bunyavirus

This is an electron microscopy image which shows giant multinuclear cells of lymphoid tissue. Which family does this virus belong to?



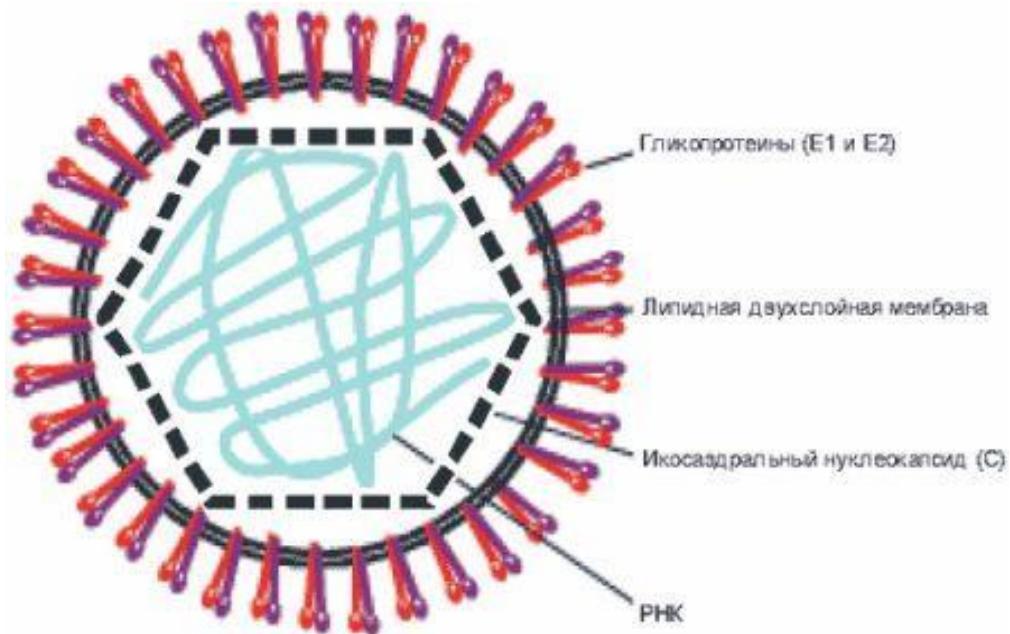
- +Paramyxoviridae
- Retroviridae
- Rhabdoviridae
- Hepadnaviridae

The picture shows the structure of a virus. Which family does this virus belong to?



- +Togaviridae
- Herpesviridae
- Adenoviridae
- Picornaviridae

The picture shows the structure of a virus isolated from nasopharynx. This virus contains glycoproteins E1 and E2. Which genus does this virus belong to?

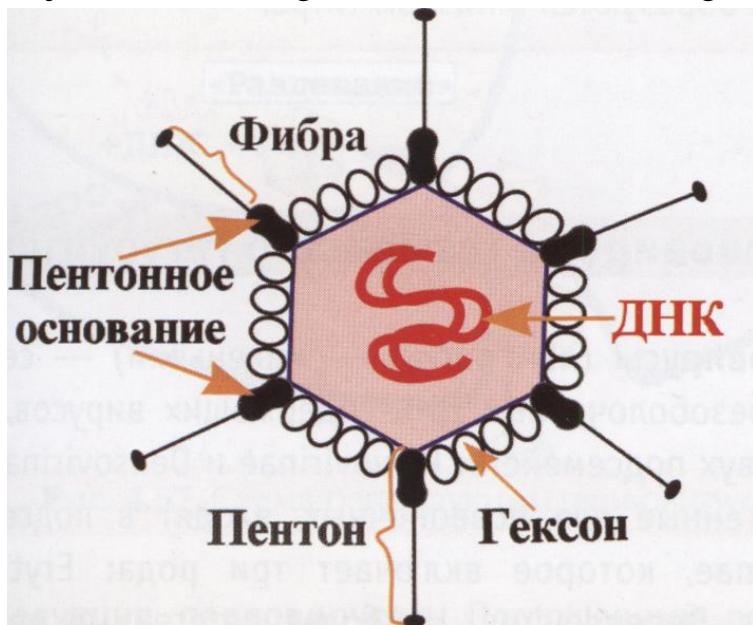


- +Rubivirus
- Lyssavirus
- Lentivirus

Rhinovirus

Enterovirus

The picture shows the structure of a DNA-containing virus isolated from the conjunctiva. Which genus does this virus belong to?



+Mastadenovirus

Flavivirus

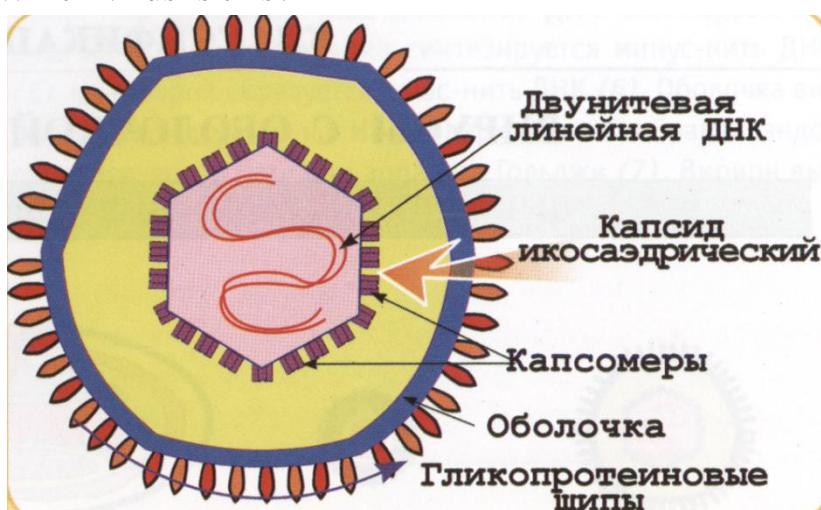
Enterovirus

Cytomegalovirus

Rhinovirus

The picture shows the structure of a DNA-containing virus isolated from saliva.

Which virus is this?



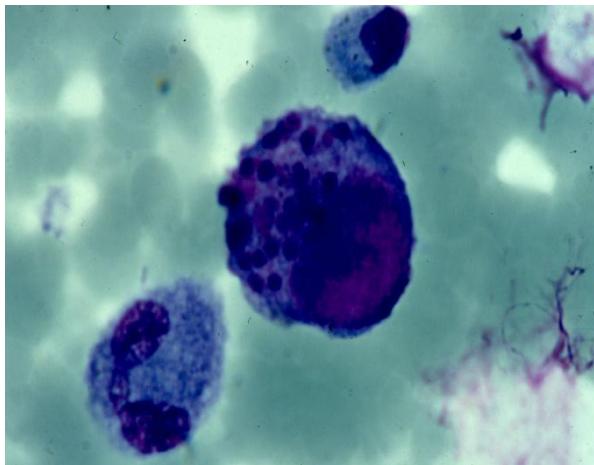
+Herpes simplex virus

Rubulavirus

Lyssavirus

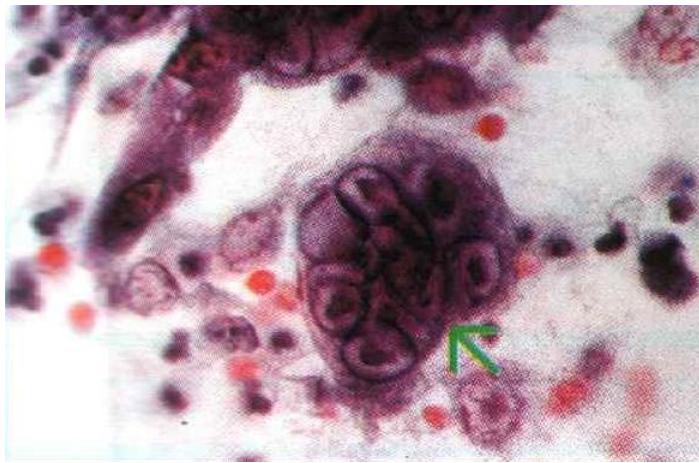
Mastadenovirus

The microscopy image shows the cells infected with a virus. These cells were isolated from saliva. Which virus is shown?



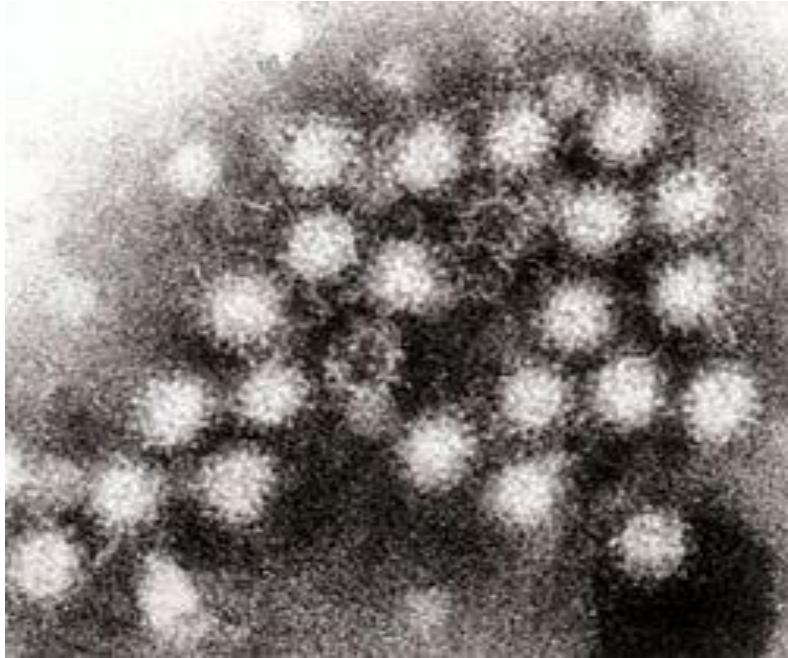
- +Cytomegalovirus
- Rotavirus
- Coronavirus
- Enterovirus

This is a giant multinuclear cell with intranuclear inclusions which is infected by a virus. Which virus is this judging by its cytopathic effect?



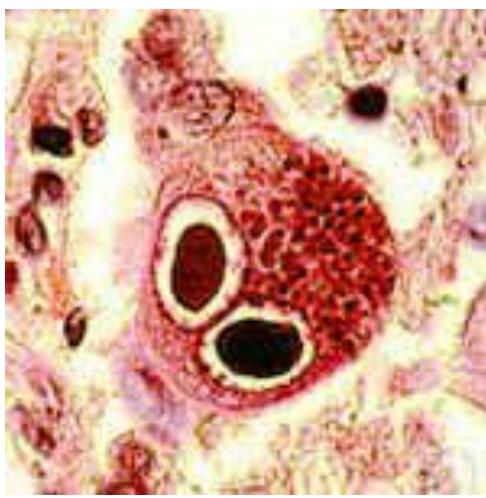
- +Herpes simplex virus
- Enterovirus
- Hepatovirus
- Bunyavirus
- Hantavirus

This is a photo of a virus. Which microscopy technique is used?



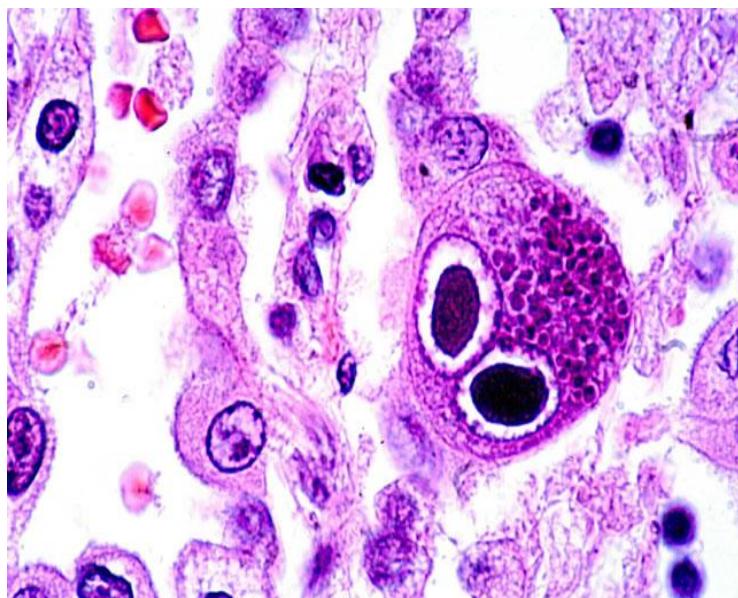
- +electron
- phase-contrast
- fluorescence
- dark-field
- optical

The image shows a culture of cells infected with a virus. We can see massive intranuclear inclusions which are separated from the nuclear membrane by a light-coloured area. Which virus is this judging by its cytopathic effect?



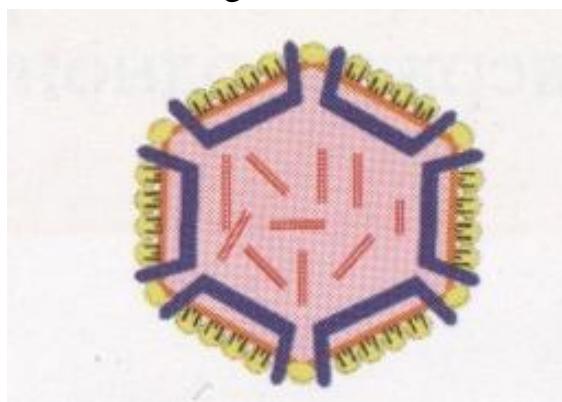
- +Cytomegalovirus
- Hepatitis B virus
- Influenza virus
- Rotavirus

The picture shows a culture of cells infected with cytomegalovirus. Which method of indication is shown?



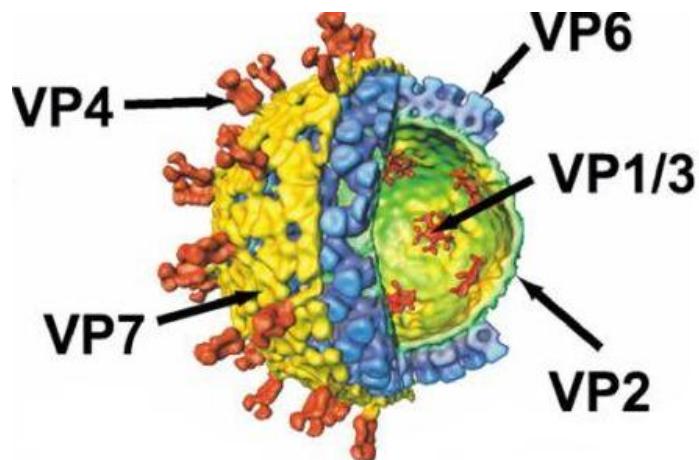
- +detection of inclusions
- plaque formation
- colour (staining) test
- hemadsorption assay

The picture shows the structure of a virus isolated from feces. Which family does this virus belong to?



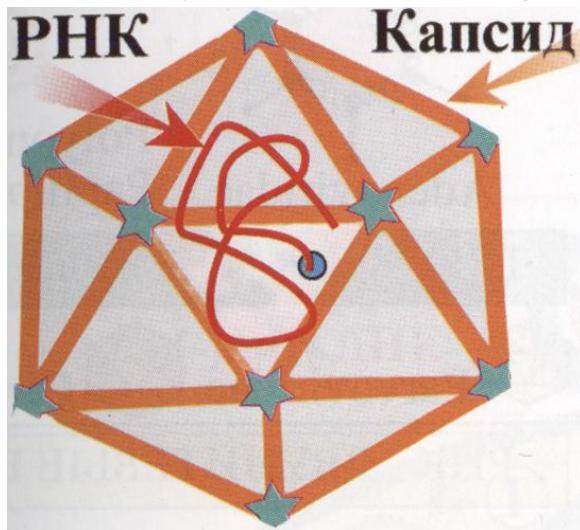
- +Reoviridae
- Papillomaviridae
- Rhabdoviridae
- Retroviridae
- Orthomyxoviridae

The picture shows the structure of a virus isolated from feces. Which genus does this virus belong to?



- +Rotavirus
- Hantavirus
- Morbillivirus
- Bunyavirus

The picture shows the structure of an RNA-containing virus isolated from feces.
Which family does this virus belong to?



- +Picornaviridae
- Hepadnaviridae
- Flaviviridae
- Togaviridae
- Filoviridae

The picture shows the structure of an RNA-containing virus isolated from blood.
Which genus does this virus belong to?



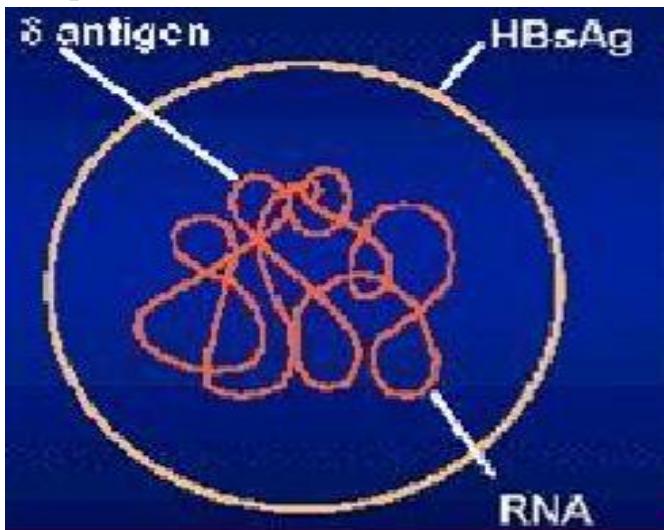
- +Flavivirus
- Rotavirus
- Enterovirus
- Lyssavirus

The picture shows the structure of an RNA-containing virus isolated from blood.
Which genus does this virus belong to?



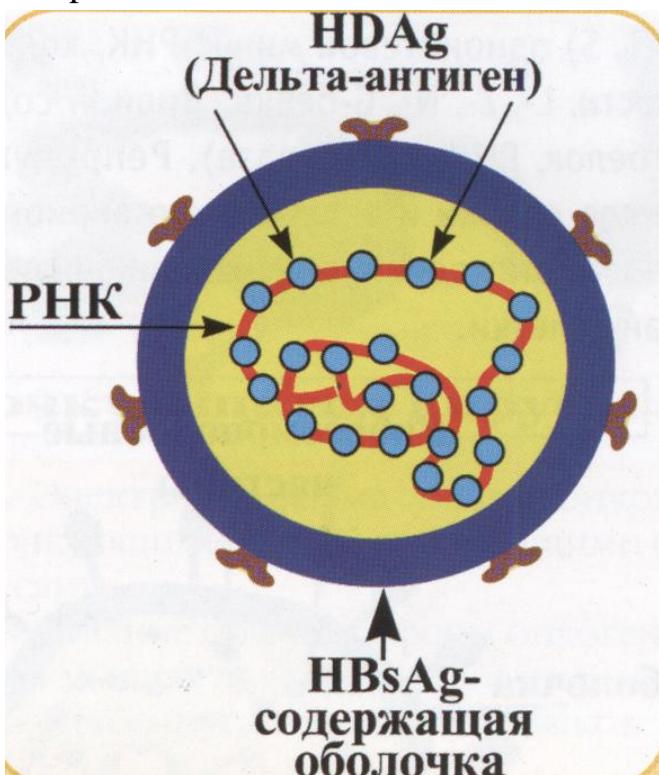
- +Hepacivirus
- Influenzavirus
- Herpesvirus
- Rotavirus

The picture shows the structure of a virus isolated from blood. Which virus is this?



- +hepatitis D virus
- hepatitis B virus
- cytomegalovirus
- influenza virus
- rotavirus

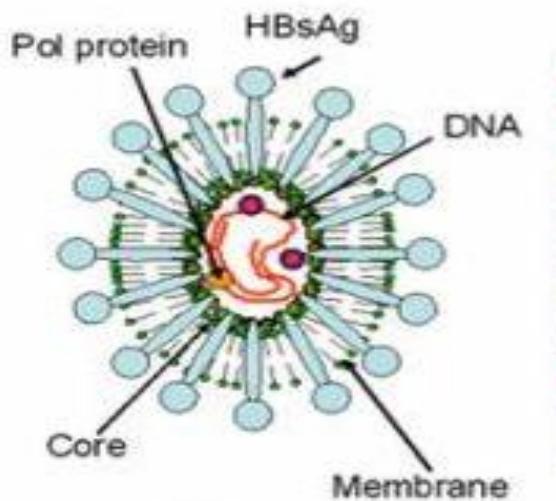
The picture shows the structure of a virus isolated from blood. Which virus is this?



- +hepatitis D virus
- hepatitis B virus
- cytomegalovirus
- influenza virus

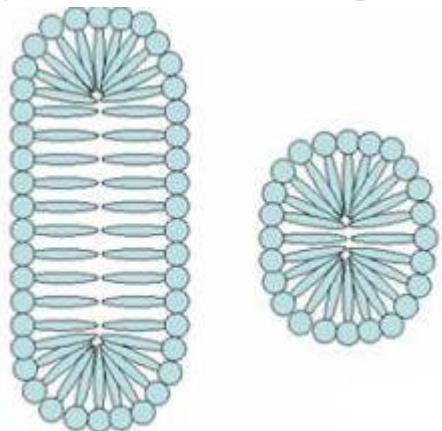
rotavirus

The picture shows the structure of a virus isolated from hepatocytes. Which virus is this?



- +hepatitis B virus
- hepatitis C virus
- measles virus
- Epstein-Barr virus

The picture shows “empty” particles which are synthesized by hepatocytes infected by a virus. What kind of particles are these?



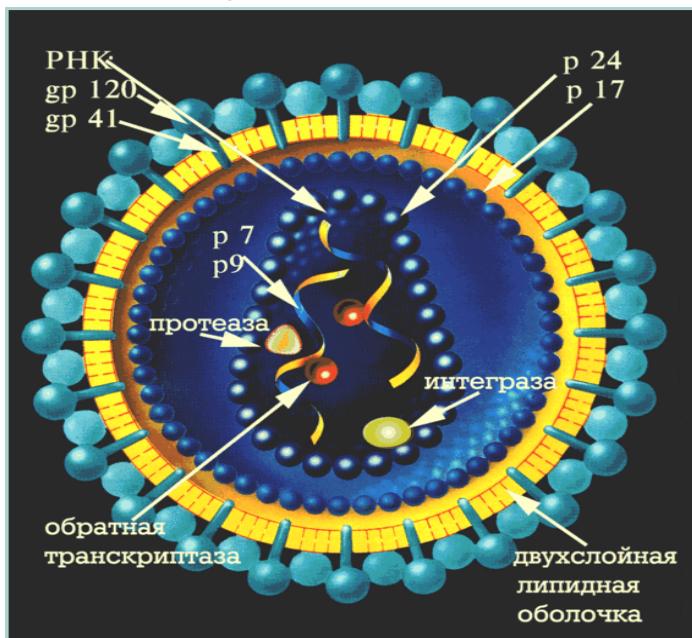
- +lipid envelope
- nucleocapsid
- cell wall
- capsule
- spore

The electron microscopy image shows “empty” particles in the blood of a patient who has hepatitis B. Which antigens are detected in this blood sample?



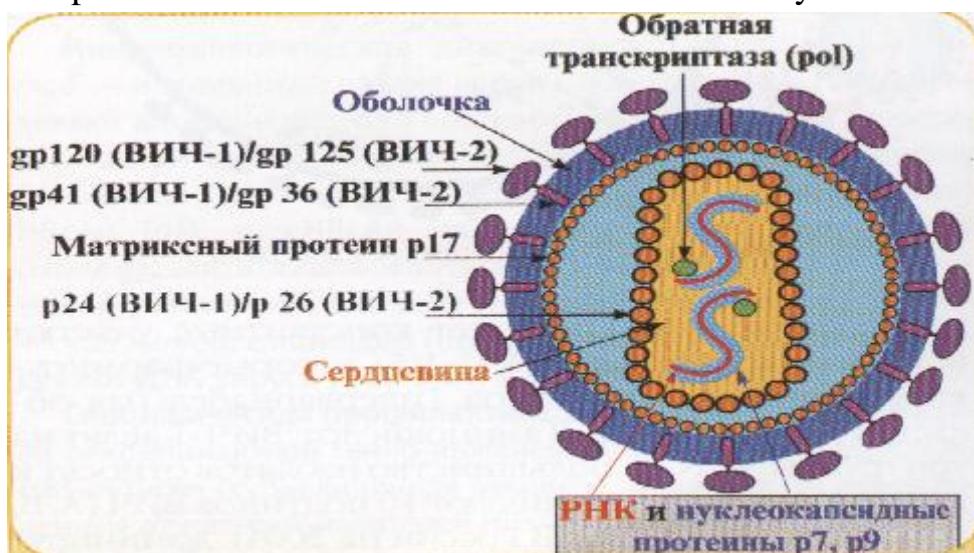
- +HBsAg
- HBcAg
- HBeAg
- HBxAg
- HDAg

The picture shows the structure of a virus isolated from blood. Which genus does this virus belong to?



- +Lentivirus
- Hantavirus
- Rubulavirus
- Pneumovirus
- Enterovirus

The picture shows the structure of HIV. Which family does this virus belong to?



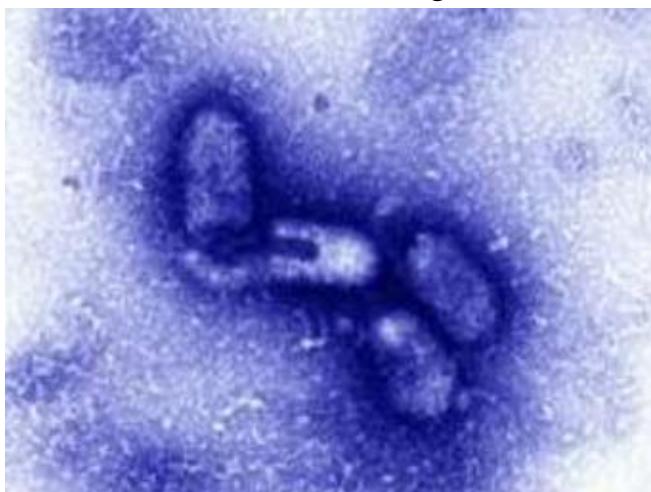
- +Retroviridae
- Hepadnaviridae
- Arenaviridae
- Orthomyxoviridae
- Reoviridae

The electron microscopy image shows bullet-shaped virions. Which genus do they belong to?



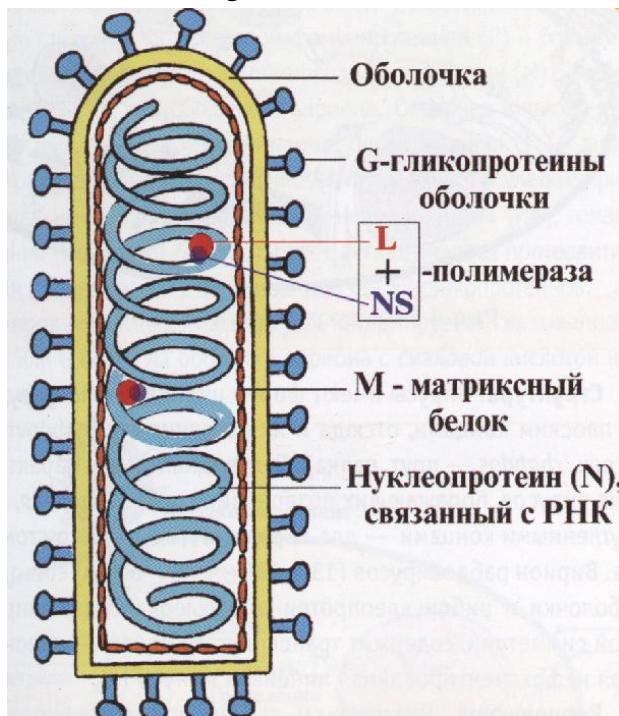
- +Lyssavirus
- Lentivirus
- Nairovirus
- Flavivirus
- Rubivirus

The electron microscopu image shows the picture of a virus isolated from the neurons of the brain. Which genus does this virus belong to?



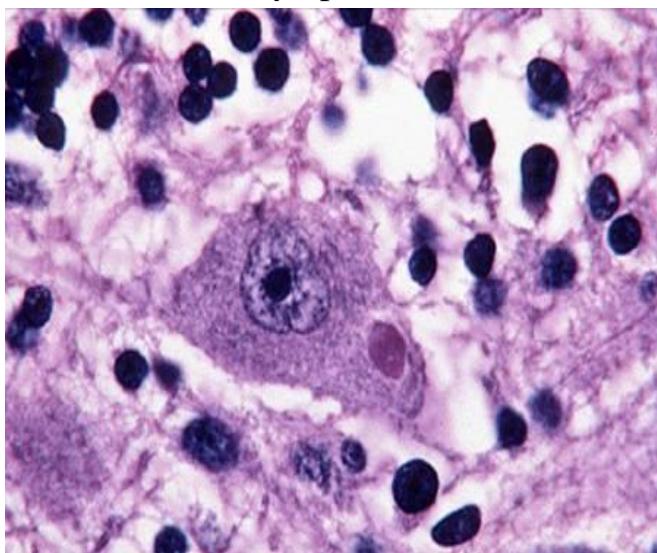
- +Lyssavirus
- Hantavirus
- Rubivirus
- Mastadenovirus

The picture shows the structure of a virus isolated from saliva. Which family does this virus belong to?



- +Rhabdoviridae
- Bunyaviridae
- Arenaviridae
- Caliciviridae
- Picornaviridae

The microscopy image shows the neurons of the brain. There are eosinophilic inclusions in the cytoplasm of these neurons. What are they called?



- +Negri bodies
- volutin granules
- melanocytes
- granules with glycogen
- Bollinger bodies

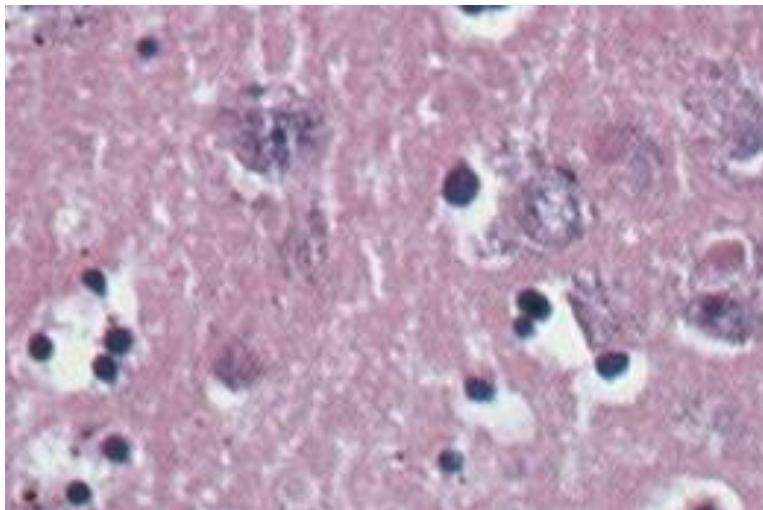
The microscopy image shows the neurons of the brain infected with a virus. There are eosinophilic inclusions in the cytoplasm of these neurons. Which genus does this virus belong to?



- +Lyssavirus
- Nairovirus
- Enterovirus

Coronavirus
Pneumovirus

The microscopy image shows the impression smears of the cells which are infected with a virus. These cells have cytoplasmic inclusions – Negri bodies. Which cell culture is this?



- +the culture of neurons
- the culture of muscle cells
- continuous cell culture
- the culture of hepatocytes
- secondary cell culture

The bacterioscopic image shows a smear of pure culture taken from Endo agar and stained by Gram's method. Which family does this pathogen belong to judging by its morphological properties?



- +Enterobacteriaceae
- Micrococcaceae
- Vibrionaceae
- Bacillaceae

Spirochaetaceae

You see a pure culture growth on Endo agar. Which pathogenic species is this judging by its cultural properties?



- +Escherichia coli
- Staphylococcus aureus
- Salmonella enteritidis
- Bacillus anthracis

You see a pure culture growth on Endo agar. What is the biochemical property of this pathogen?



- +lactose-positive
- lactose-negative
- oxidase-positive
- oxidase-negative
- catalase-negative

You see a pure culture growth on Levine medium. Which species of bacterium is this judging by its cultural properties?



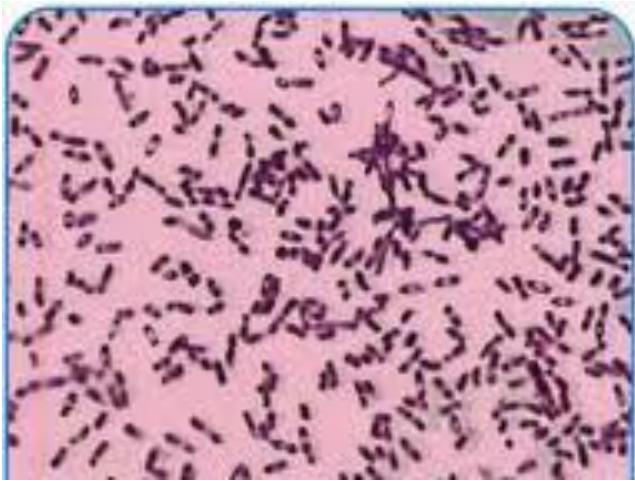
- +*Escherichia coli*
- Helicobacter pylori*
- Streptococcus pyogenes*
- Clostridium tetani*

You see a pure culture growth on Kligler agar. Which species of bacterium is this judging by its biochemical properties?



- +*Escherichia coli*
- Vibrio cholerae*
- Salmonella typhi*
- Streptococcus pyogenes*

This is a bacterioscopic image of a pure culture stained by methylene blue. Which pathogen is this judging by its morphological properties?



- +*Yersinia pseudotuberculosis*
- Staphylococcus epidermidis*
- Leptospira interrogans*
- Mycobacterium tuberculosis*

You see a pure culture growth on Endo agar. Which pathogen is this judging by its cultural properties?



- +*Yersinia enterocolitica*
- Streptococcus pyogenes*
- Borrelia recurrentis*
- Chlamydia pneumoniae*

You see a pure culture growth on Levine agar. Which pathogen is this judging by its cultural properties?



- +*Salmonella enteritidis*
- Rickettsia typhi*
- Corynebacterium diphtheriae*
- Neisseria gonorrhoeae*

You see a pure culture growth on Kligler agar. Which pathogen is this judging by its biochemical properties?



- +*Salmonella typhi*
- Shigella flexneri*
- Escherichia coli*
- Haemophilus influenzae*

You see a pure culture growth on bismuth-sulfite agar. Which pathogen is this judging by its cultural properties?



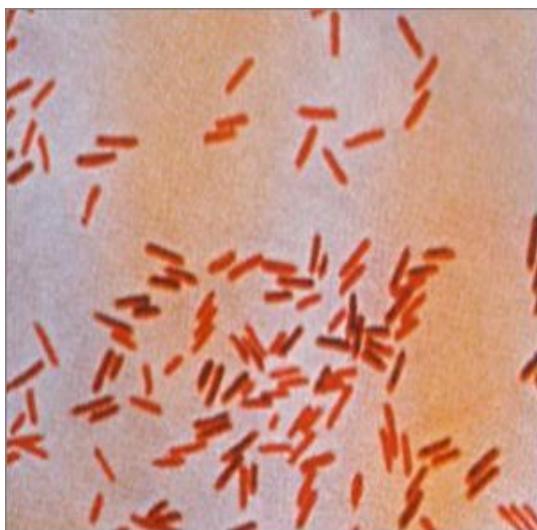
- +*Salmonella typhi*
- Escherichia coli*
- Francisella tularensis*
- Mycoplasma hominis*

You see a pure culture growth on Muller-Kauffmann broth. This growth medium serves as an enrichment medium for a certain infectious agent, which infectious agent is it used for?



- +*Salmonella enteritidis*
- Vibrio cholerae*
- Neisseria meningitidis*
- Staphylococcus epidermidis*
- Pseudomonas aeruginosa*

This is a bacterioscopic image of a pure culture stained by Gram's method. Which pathogen is this judging by its morphological properties?



- +*Shigella sonnei*
- Streptococcus pyogenes*
- Clostridium perfringens*
- Mycobacterium leprae*

This is selenite broth, it is used as an enrichment growth medium for a certain pathogen, which pathogen is that?



- +*Shigella flexneri*
- Vibrio cholerae*
- Bacillus anthracis*
- Ureaplasma urealyticum*

You see a pure culture growth on Ploskirev medium. Which pathogen is this judging by its cultural properties?



- +*Shigella boydii*
- Micrococcus luteus*
- Chlamydia pneumoniae*
- Mycobacterium tuberculosis*

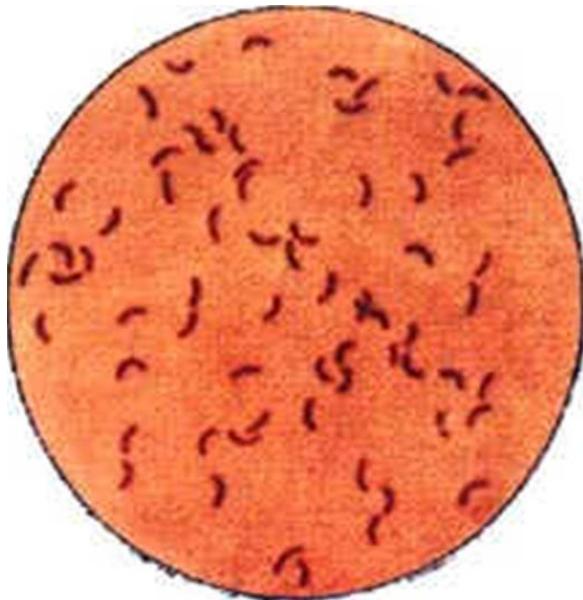
You see a pure culture growth on Kligler agar. Which pathogen is this judging by its biochemical properties?



- +*Shigella dysenteriae*
- Salmonella typhi*
- Chlamydia trachomatis*

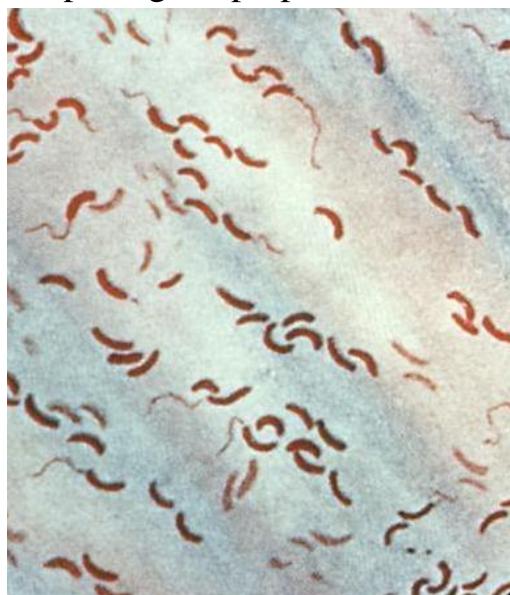
Clostridium botulinum

This is a bacterioscopic image of a pure culture smear taken from TCBS agar. Which pathogen is this judging by its morphological properties?



- +*Vibrio cholerae*
- Proteus mirabilis*
- Clostridium tetani*
- Treponema pallidum*
- Streptococcus pneumoniae*

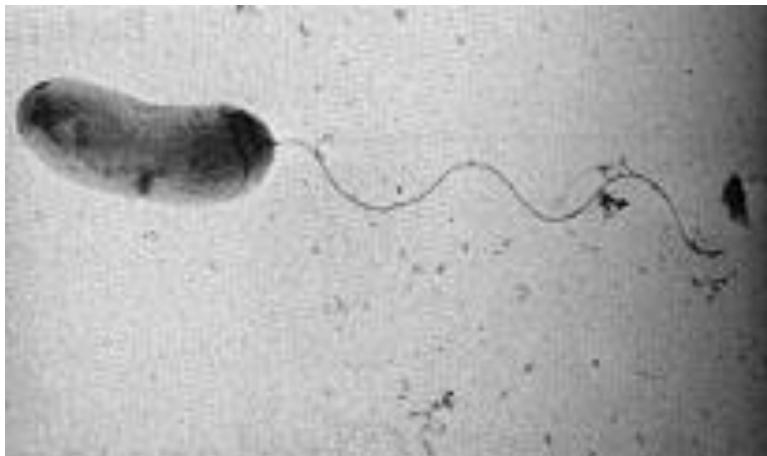
The image shows a bacterioscopic smear of a pure culture isolated on alkaline agar and stained by Gram's method. Which pathogen is this judging by its morphological properties?



- +*Vibrio cholerae*
- Staphylococcus aureus*

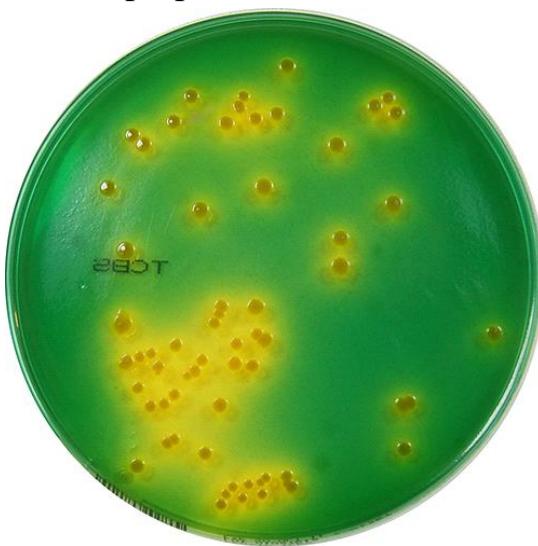
Neisseria gonorrhoeae
Salmonella paratyphi A
Pseudomonas aeruginosa

The bacterioscopic image shows a smear of *V. cholerae* pure culture. Which microscopy technique was used?



- +electron
- phase contrast
- fluorescence
- dark field
- oil immersion

You see a culture growth on TCBS agar. Which pathogen is this judging by its cultural properties?



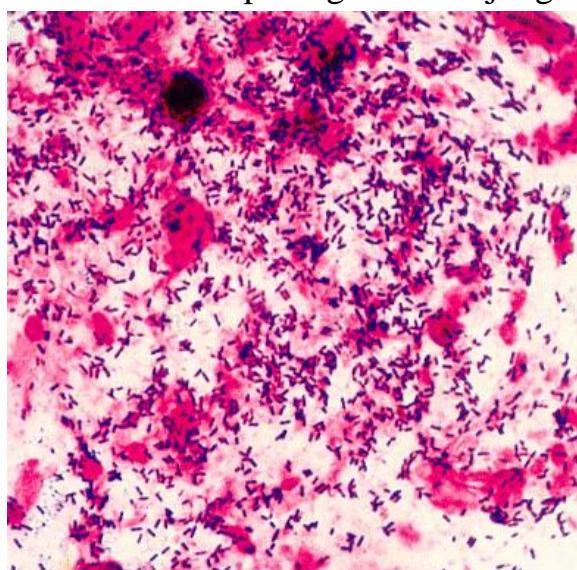
- +*Vibrio cholerae*
- Pseudomonas aeruginosa*
- Mycobacterium tuberculosis*
- Ureaplasma urealyticum*

The bacterioscopic image shows a pure culture smear stained by Gram's method. Which pathogen is this judging by its morphological properties?



- +*Listeria monocytogenes*
- Legionella pneumophila*
- Borrelia burgdorferi*
- Klebsiella oxytoca*

This is a bacterioscopic image of a lymph node biopsy sample stained by Gram's method. Which pathogen is this judging by its morphological properties?



- +*Listeria monocytogenes*
- Streptococcus pneumoniae*
- Neisseria meningitidis*
- Escherichia coli*

You see the amniotic fluid culture growth on meat-peptone agar 14 days after the inoculation. Which pathogen is this judging by its cultural properties?



+*Listeria monocytogenes*

Staphylococcus aureus

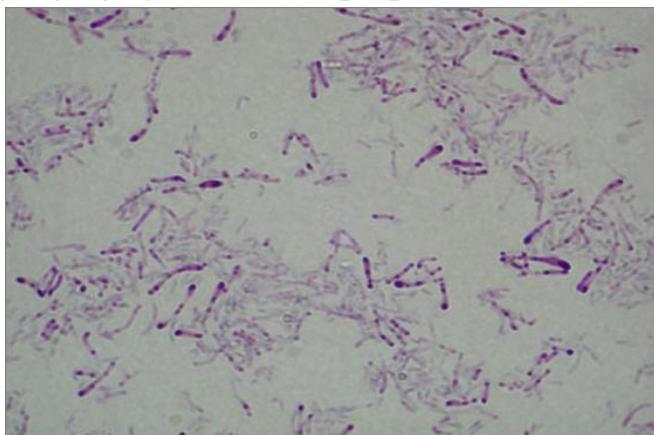
Mycobacterium leprae

Chlamydia trachomatis

Treponema pallidum

This is a bacterioscopic image of an oropharyngeal swab sample stained by Loeffler's method. Which pathogen is this judging by its morphological properties?

You see a pure culture growth on bismuth-sulfite agar. Which pathogen is this judging by its cultural properties?



+*Corynebacterium diphtheriae*

Mycobacterium tuberculosis

Staphylococcus saprophyticus

Klebsiella pneumoniae

Brucella melitensis

This is a bacterioscopic image of a pure culture stained by Neisser's method. Which pathogen is this judging by its morphological properties?



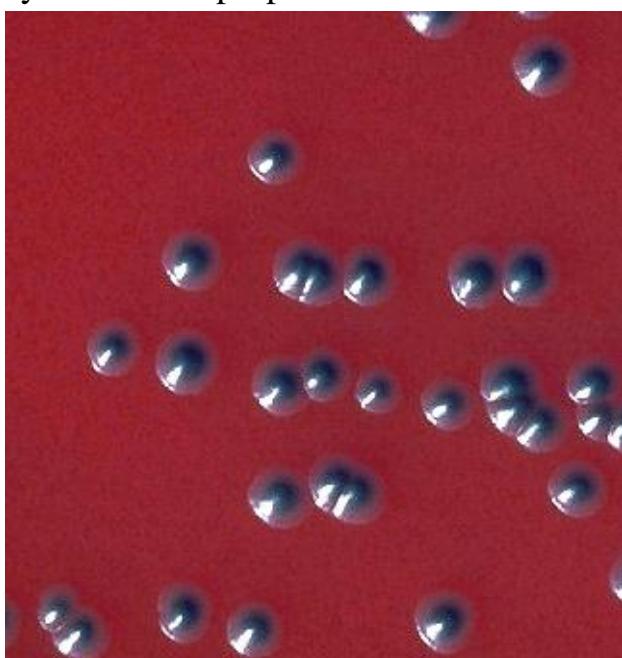
+*Corynebacterium diphtheriae*

Pseudomonas aeruginosa

Vibrio cholerae

Helicobacter pylori

You see a culture growth on a blood tellurite agar. Which pathogen is this judging by its cultural properties?



+*Corynebacterium diphtheriae*

Streptococcus pyogenes

Clostridium perfringens

Borrelia recurrentis

Staphylococcus aureus

This is *Corynebacterium diphtheriae* on blood tellurite agar. Which biovar of the



pathogen is this?

- +gravis
- mitis
- intermedius
- belfanti
- flavus

This is *Corynebacterium diphtheriae* on blood tellurite agar. Which biovar of the pathogen is this?



- +mitis
- gravis
- intermedius
- belfanti
- flavus

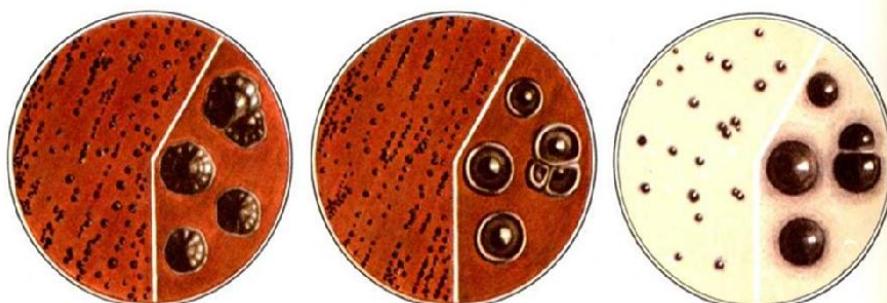
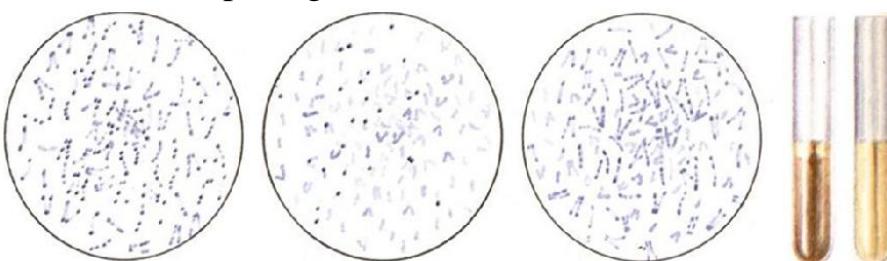
This is *Corynebacterium diphtheriae* on blood tellurite agar. Which biovar of the



pathogen is this?

- +intermedius
- gravis
- mitis
- belfanti
- flavus

The diagram shows the morphological and cultural properties of bacterial pure culture. Which pathogen is this?



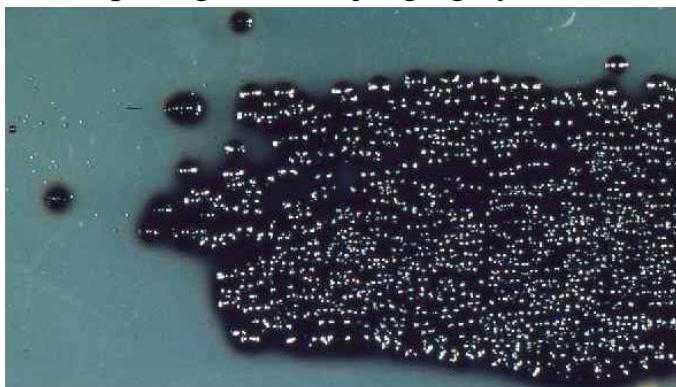
- +Corynebacterium diphtheriae
- Mycoplasma hominis
- Borrelia recurrentis
- Francisella tularensis

You see the culture growth of an eye discharge sample on Loeffler medium. Which pathogen is this judging by its cultural properties?



- +*Corynebacterium diphtheriae*
- Enterococcus faecalis*
- Bordetella pertussis*
- Chlamydia trachomatis*
- Vibrio cholerae*

You see the culture growth of an oropharyngeal swab sample on Buchin's medium.
Which pathogen is this judging by its cultural properties?



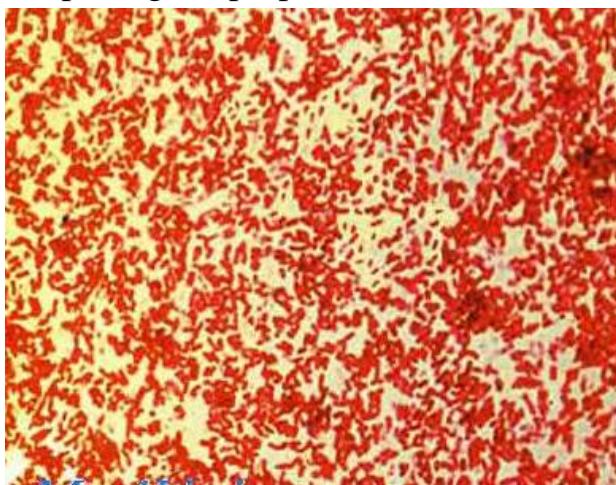
- +*Corynebacterium diphtheriae*
- Streptococcus pneumoniae*
- Staphylococcus epidermidis*
- Shigella sonnei*
- Legionella pneumophila*

This is a positive result of Pisu test. Which pathogen is this judging by its biochemical properties?



- +*Corynebacterium diphtheriae*
- Mycobacterium tuberculosis*
- Treponema pallidum*
- Francisella tularensis*
- Brucella melitensis*

This a bacterioscopic image of a pure culture smear taken from Bordet-Gengou agar and stained by Gram method. Which pathogen is this judging by its morphological properties?



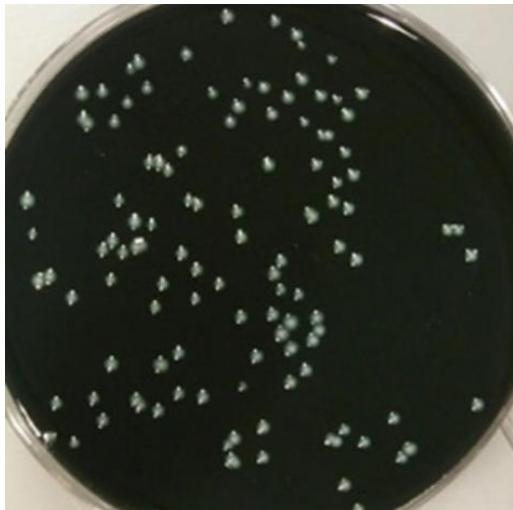
- +*Bordetella pertussis*
- Staphylococcus aureus*
- Vibrio cholerae*
- Brucella melitensis*

You see the culture growth of a sputum sample on Bordet-Gengou agar. Which pathogen is this judging by its cultural properties?



- +*Bordetella pertussis*
- Brucella melitensis*
- Mycobacterium tuberculosis*
- Vibrio cholerae*

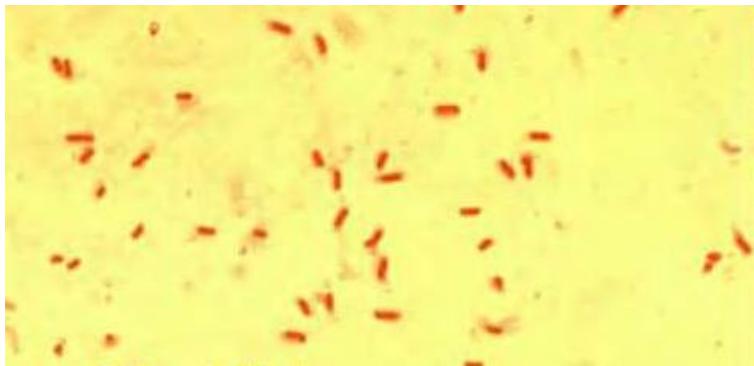
You see the culture growth of a sputum sample taken by Bordet's method (the cough plates method) on casein-charcoal agar. Which pathogen is this judging by its cultural properties?



- +*Bordetella pertussis*
- Borrelia burgdorferi*
- Chlamydia pneumoniae*
- Mycoplasma pneumoniae*
- Legionella pneumophila*

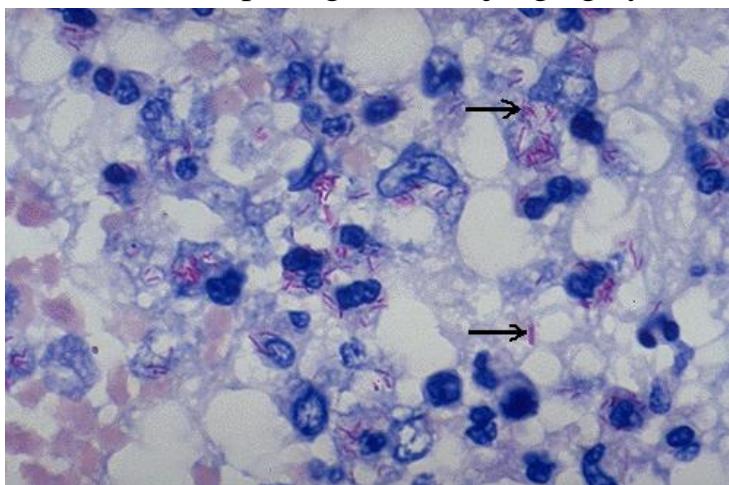
This is a bacterioscopic image of a pure culture isolated from a patient with atypical pneumonia. The sample was stained by Gram's method. Which pathogen

is this judging by its morphological properties?



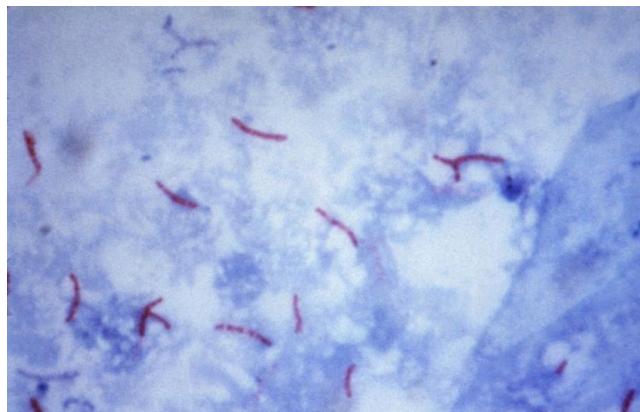
- +*Legionella pneumophila*
- Listeria monocytogenes*
- Actinomyces pyogenes*
- Helicobacter pylori*
- Bacillus anthracis*

This is a bacterioscopic image of a sputum smear stained by Ziehl-Neelsen's method. Which pathogen is this judging by its morphological properties?



- +*Mycobacterium tuberculosis*
- Yersinia pseudotuberculosis*
- Neisseria meningitidis*
- Mycoplasma pneumoniae*
- Rickettsia prowazekii*

This is a bacterioscopic image of *M. tuberculosis* pure culture. Which staining



method was used?

+Ziehl-Neelsen stain

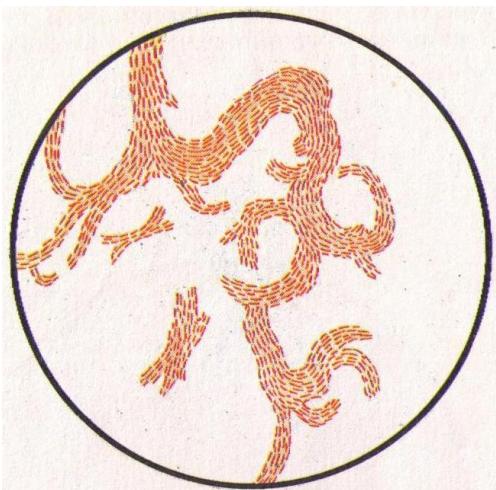
Burri-Gins stain

Aujeszky stain

Giemsa stain

Zdrodovsky stain

This is a bacterioscopic picture which shows the result of the Price microculture technique. The microculture is stained by Ziehl-Neelsen's method. Which pathogen is this judging by its morphological properties?



+Mycobacterium tuberculosis

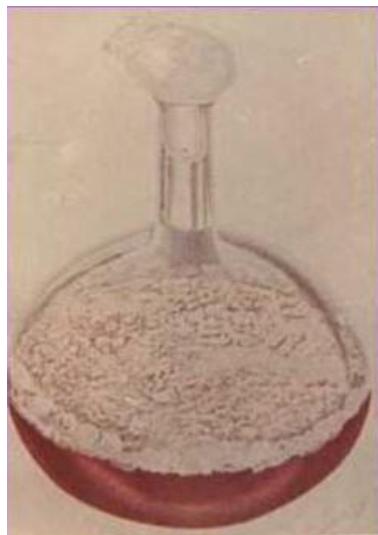
Bacillus anthracis

Brucella suis

Haemophilus influenzae

Klebsiella oxytoca

The picture shows the culture of a pathogen isolated from a patient's sputum which is growing on a liquid growth medium. The culture growth looks like a thick dry wrinkled cream-coloured film (layer). Which pathogen is this judging by its



cultural properties?

- +Mycobacterium tuberculosis
- Clostridium tetani
- Legionella pneumophila
- Bordetella pertussis
- Staphylococcus aureus

The picture shows a sputum culture growth on Lowenstein-Jensen medium. Which pathogen is this judging by its cultural properties?



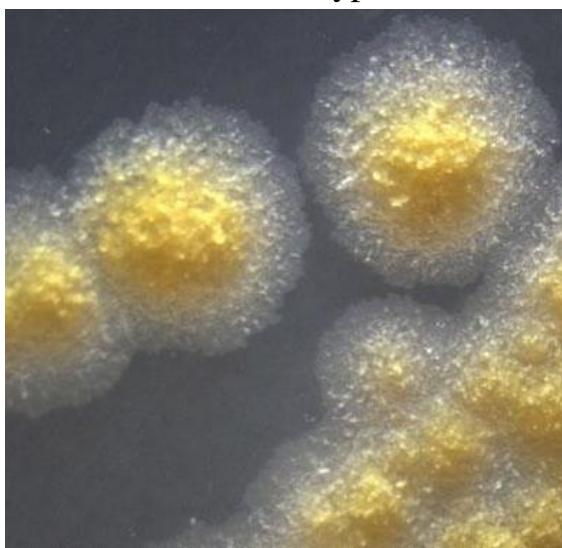
- +Mycobacterium tuberculosis
- Listeria monocytogenes
- Proteus mirabilis
- Enterococcus faecalis

The picture shows some colonies growing on Lowenstein-Jensen medium. Which pathogen is this judging by its cultural properties?



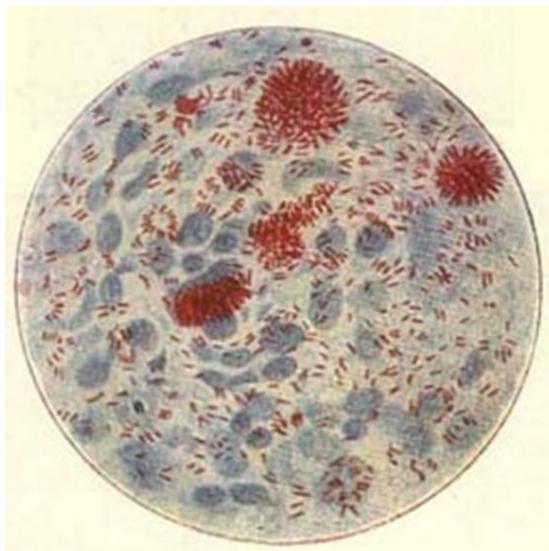
- +Mycobacterium tuberculosis
- Micrococcus luteus
- Clostridium perfringens
- Brucella abortus
- Shigella flexneri

The picture shows the culture growth of M. tuberculosis on a solid enriched medium. What is the type of the colonies?



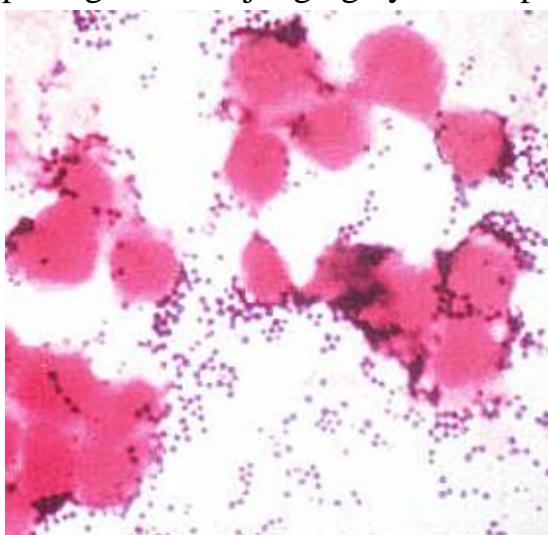
- +R colonies (rough)
- S colonies (smooth)
- M colonies
- O colonies
- K colonies

The bacterioscopic picture shows a sample of cerebrospinal fluid stained by Ziehl-Neelsen's method. Which pathogen is shown judging by its morphological properties?



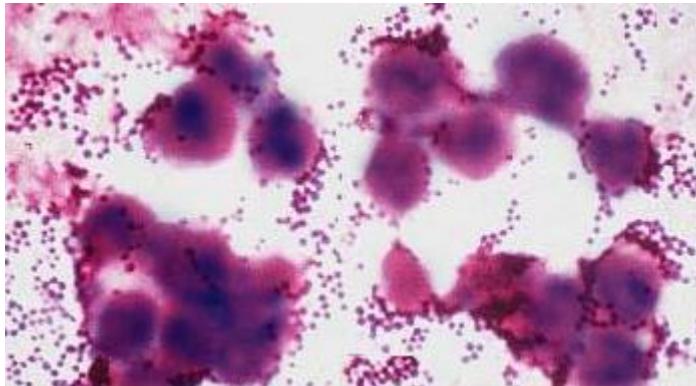
- +*Mycobacterium leprae*
- Borrelia recurrentis*
- Neisseria meningitidis*
- Staphylococcus epidermidis*
- Haemophilus influenzae*

This a bacterioscopic image of wound discharge stained by Gram's method. Which pathogen is this judging by its morphological properties?



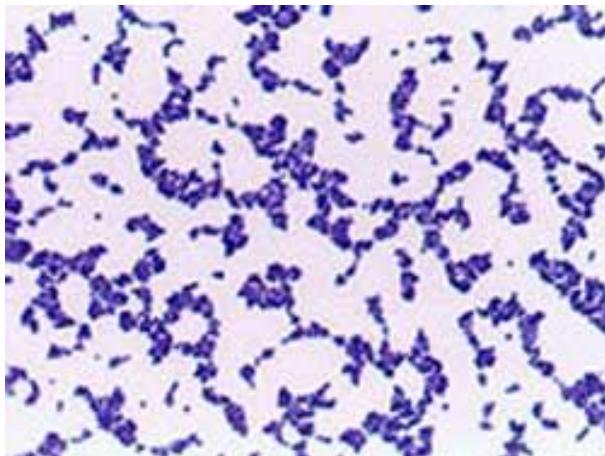
- +*Staphylococcus epidermidis*
- Proteus vulgaris*
- Pseudomonas aeruginosa*
- Helicobacter pylori*

This a bacterioscopic image of pus stained by Gram's method. Which pathogen is this judging by its morphological properties?



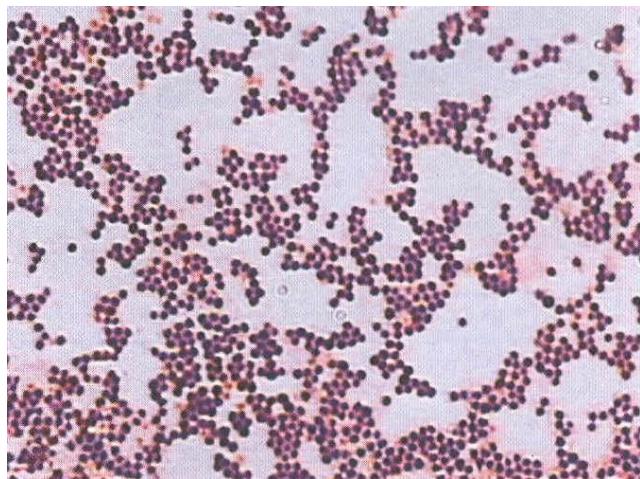
- +*Staphylococcus aureus*
- Clostridium tetani*
- Chlamydia psittaci*
- Neisseria meningitidis*

This a bacterioscopic image of a pure culture smear which was taken from egg-yolk salt agar and stained by Gram's method. Which family does this pathogen belong to judging by its morphological properties?



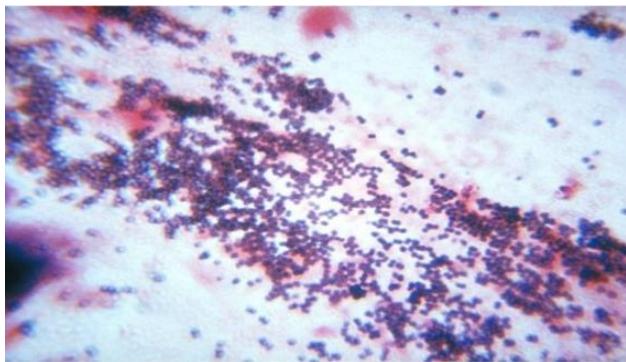
- +*Micrococcaceae*
- Vibrionaceae*
- Bacillaceae*
- Clostridiaceae*
- Spirochaetaceae*

This a bacterioscopic image of a pure culture sample which was taken from milk-salt agar and stained by Gram's method. Which pathogen is this judging by its morphological properties?



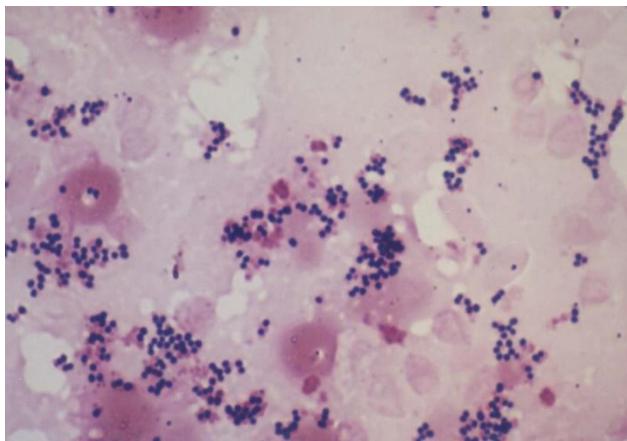
- +*Staphylococcus saprophyticus*
- Francisella tularensis*
- Neisseria gonorrhoeae*
- Brucella abortus*
- Legionella pneumophila*

This a bacterioscopic image of a sputum sample stained by Gram's method. Which pathogen is this judging by its morphological properties?



- +*Staphylococcus aureus*
- Yersinia pseudotuberculosis*
- Legionella pneumophila*
- Haemophilus influenzae*

This a bacterioscopic image of wound discharge stained by Gram's method. Which pathogen is this judging by its morphological properties?



+*Staphylococcus aureus*

Escherichia coli

Proteus mirabilis

Haemophilus influenzae

Clostridium tetani

A patient's blood was inoculated on sugar (glucose) broth. The picture shows the culture growth after it was passaged to blood agar. Which pathogen is this judging by its cultural properties?



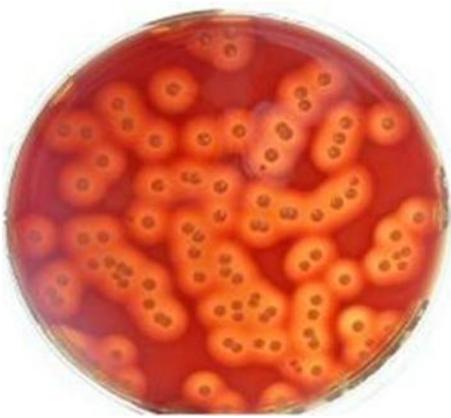
+*Staphylococcus aureus*

Vibrio cholerae

Legionella pneumophila

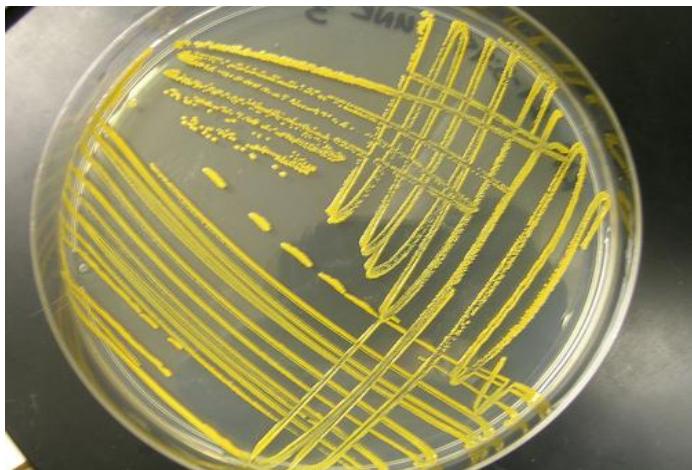
Chlamydia psittaci

This is the growth of a pure culture which was isolated from the oropharynx. It is growing on blood agar. Which pathogen is this judging by its cultural properties?



- +*Staphylococcus aureus*
- Rickettsia prowazekii*
- Listeria monocytogenes*
- Brucella abortus*

This is a culture growth on milk egg-yolk salt agar. Which pathogen is this judging by its cultural properties?



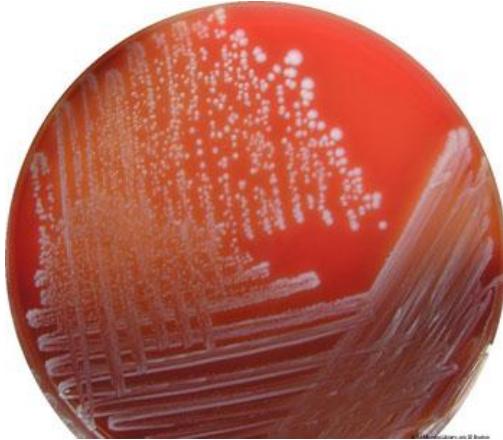
- +*Staphylococcus aureus*
- Haemophilus influenzae*
- Escherichia coli*
- Shigella flexneri*

This is a culture growing on blood agar. Which pathogen is this judging by its cultural properties?



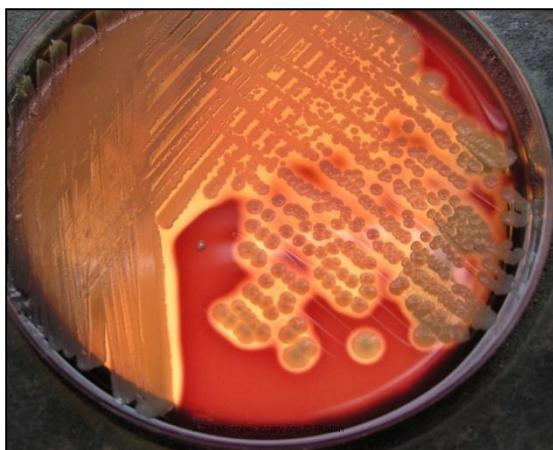
- +*Staphylococcus epidermidis*
- Bordetella pertussis*
- Corynebacterium diphtheriae*
- Neisseria meningitidis*

The blood of a patient with bacterial endocarditis was inoculated on sugar (glucose) broth. The picture shows the culture growth after it was passaged to blood agar. Which pathogen is this judging by its cultural properties?



- +*Staphylococcus epidermidis*
- Brucella melitensis*
- Legionella pneumophila*
- Rickettsia prowazekii*

This is the growth of a culture on blood agar. Which family does this pathogen belong to judging by its cultural properties?



+Micrococcaceae

Vibrionaceae

Rickettsiaceae

Spirochaetaceae

This is the growth of an oropharyngeal sample on egg-yolk salt agar. Which pathogen is this judging by its cultural properties?



+*Staphylococcus aureus*

Streptococcus pyogenes

Salmonella enteritidis

Mycobacterium leprae

Treponema pallidum

Hydrogen peroxide was added to a pure culture growing on blood agar, you can see the formation of bubbles. Which pathogens does this method help to detect?



- +staphylococci and streptococci
- staphylococci and meningococci
- streptococci and corynebacteria
- chlamydiae and mycoplasma
- clostridia and bacilli

This is the result of DNase detection. Which pathogen is this judging by its biochemical properties?



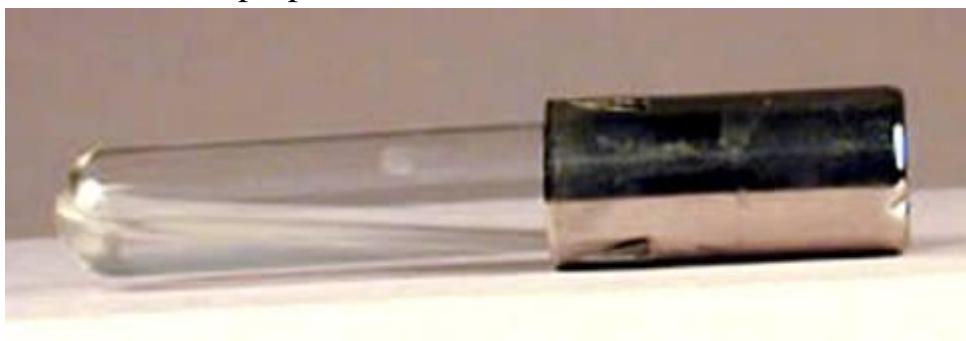
- +*Staphylococcus epidermidis*
- Neisseria meningitidis*
- Shigella flexneri*
- Mycobacterium leprae*
- Yersinia enterocolitica*

This is the result of DNase detection. Which pathogen is this judging by its biochemical properties?



- +*Staphylococcus aureus*
- Salmonella enteritidis*
- Brucella abortus*
- Leptospira interrogans*
- Ureaplasma urealyticum*

This is the result of plasmacoagulase detection. Which pathogen is this judging by its biochemical properties?



- +*Staphylococcus epidermidis*
- Francisella tularensis*
- Listeria monocytogenes*
- Neisseria gonorrhoeae*
- Chlamydia pneumoniae*

This is the result of plasmocoagulase detection. Which pathogen is this judging by its biochemical properties?



- +*Staphylococcus aureus*
- Bordetella pertussis*
- Treponema pallidum*
- Rickettsia prowazekii*
- Listeria monocytogenes*

This is a bacterioscopic image of an oropharyngeal sample stained by Gram's method. Which pathogen is this judging by its morphological properties?



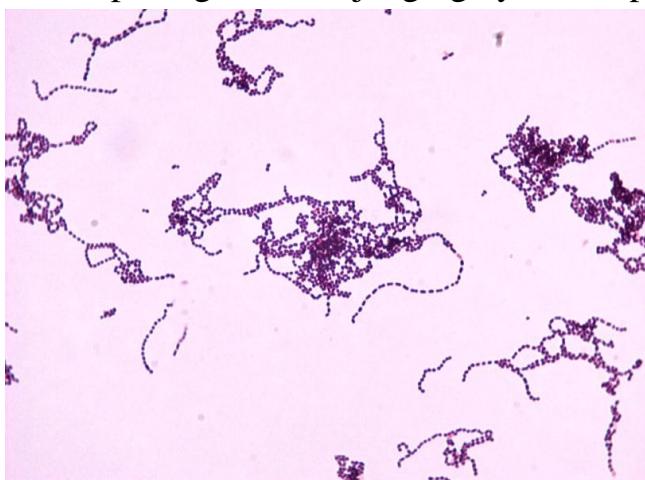
- +*Streptococcus pyogenes*
- Klebsiella oxytoca*
- Legionella pneumophila*
- Pseudomonas aeruginosa*

This is a bacterioscopic image of a pure culture sample stained by Gram's method. Which pathogen is this judging by its morphological properties?



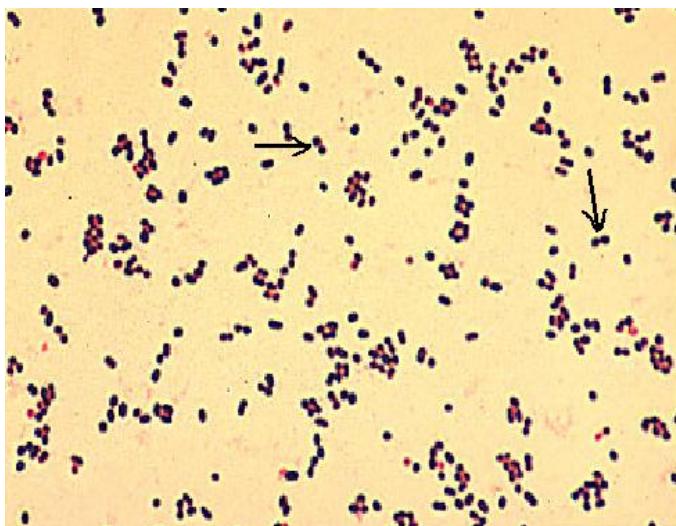
- +*Streptococcus pyogenes*
- Salmonella enteritidis*
- Corynebacterium diphtheriae*
- Borrelia recurrentis*

This is a bacterioscopic image of a pure culture sample stained by Gram's method. Which pathogen is this judging by its morphological properties?



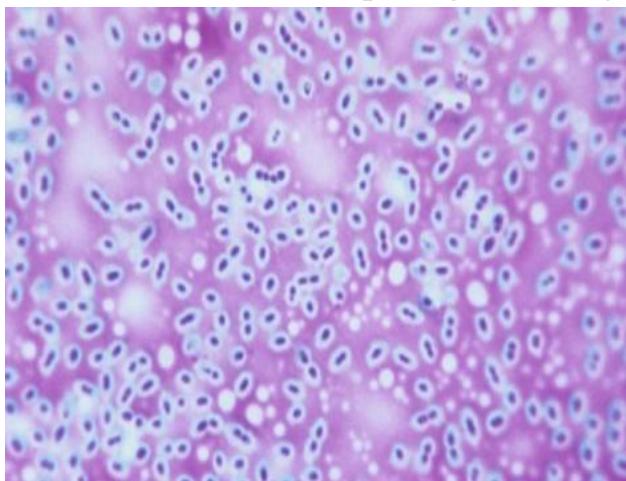
- +*Streptococcus pyogenes*
- Shigella dysenteriae*
- Bacillus anthracis*
- Treponema pallidum*

This is a bacterioscopic image of a pure culture sample which was isolated from sputum and stained by Gram's method. Which pathogen is this judging by its morphological properties?



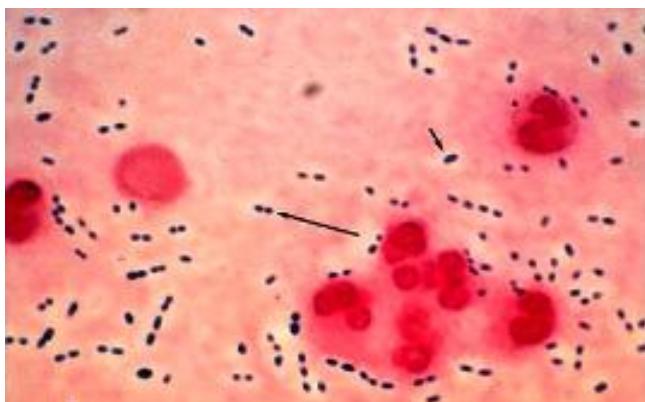
- +*Streptococcus pneumoniae*
- Klebsiella pneumoniae*
- Mycobacterium tuberculosis*
- Chlamydia pneumoniae*
- Pseudomonas aeruginosa*

This is a bacterioscopic image of a child's middle ear discharge sample stained by Gram's method. Which pathogen is this judging by its morphological properties?



- +*Streptococcus pneumoniae*
- Mycobacterium leprae*
- Rickettsia prowazekii*
- Bordetella pertussis*

This is a bacterioscopic image of a sputum sample stained by Gram's method. Which pathogen is this judging by its morphological properties?



+*Streptococcus pneumoniae*

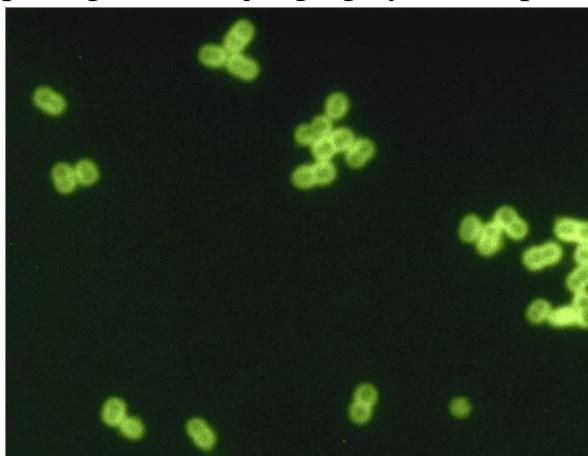
Enterobacter cloacae

Shigella boydii

Borrelia burgdorferi

Mycoplasma pneumoniae

This is an immunofluorescence microscopy image of a sputum sample. Which pathogen is this judging by its morphological properties?



+*Streptococcus pneumoniae*

Salmonella typhi

Francisella tularensis

Mycobacterium tuberculosis

This is a culture growth on blood agar. Which pathogen is this judging by its cultural properties?



- +*Streptococcus pyogenes*
- Borrelia burgdorferi*
- Mycoplasma pneumoniae*
- Treponema pallidum*

This is a culture growth on blood agar. Which pathogen is this judging by its cultural properties?



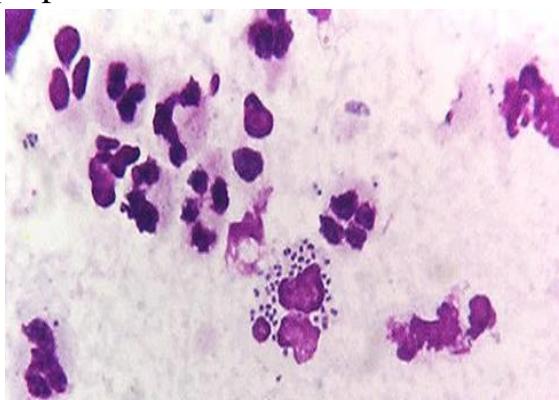
- +*Streptococcus pneumoniae*
- Vibrio cholerae*
- Leptospira interrogans*
- Borrelia burgdorferi*

This is a culture growth on blood agar. Which pathogen is this judging by its cultural properties?



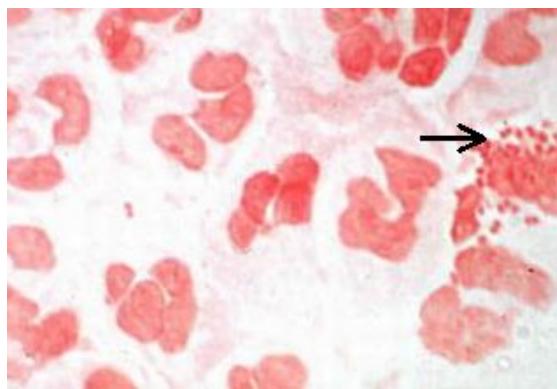
- +*Streptococcus pneumoniae*
- Corynebacterium diphtheriae*
- Borrelia burgdorferi*
- Mycoplasma pneumoniae*

This is a bacterioscopic image of a sample taken from the urethra stained by Loeffler's method. Which pathogen is this judging by its morphological properties?



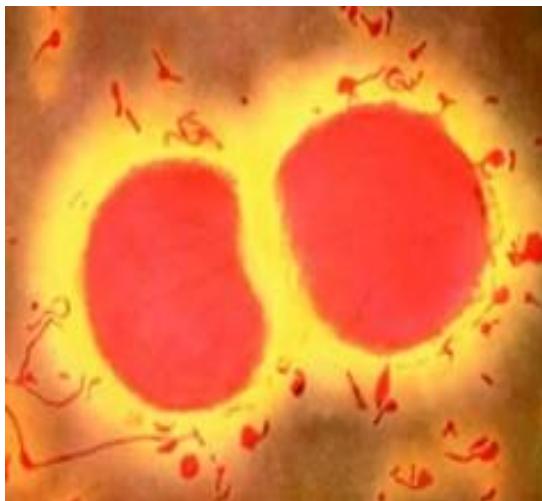
- +*Neisseria gonorrhoeae*
- Treponema pallidum*
- Helicobacter pylori*
- Francisella tularensis*

This is a bacterioscopic image of a pus sample taken from the conjunctiva and stained by Gram's method. Which pathogen is this judging by its morphological properties?



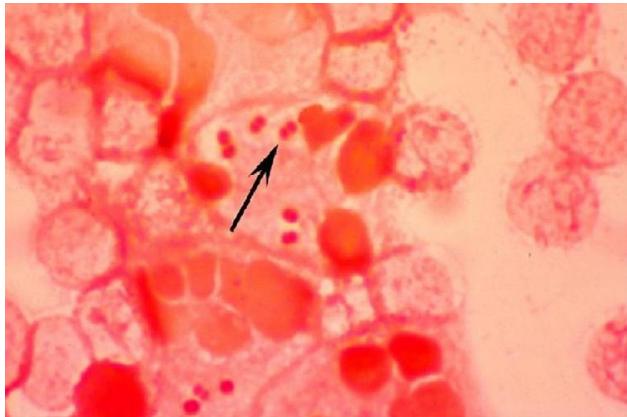
- +*Neisseria gonorrhoeae*
- Streptococcus pyogenes*
- Staphylococcus saprophyticus*
- Mastadenovirus*
- Legionella pneumophila*

This is an electron microscopy image of a pure culture sample. Which pathogen is this judging by its morphological properties?



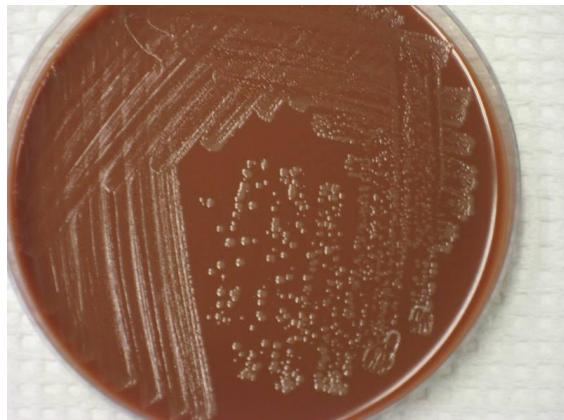
- + *Neisseria*
- Vibrio*
- Bacillus*
- Legionella*

This is a bacterioscopic image of a nasopharyngeal swab stained by Gram's method. Which pathogen is this judging by its morphological properties?



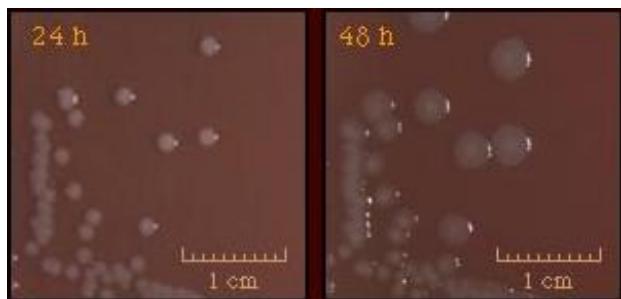
- +*Neisseria meningitidis*
- Streptococcus pneumoniae*
- Bordetella pertussis*
- Corynebacterium diphtheriae*
- Pneumovirus*

This is the growth of a cerebrospinal fluid sample on chocolate agar. Which pathogen is this judging by its cultural properties?



- +*Neisseria meningitidis*
- Cytomegalovirus*
- Yersinia enterocolitica*
- Helicobacter pylori*

This is the growth of a nasopharyngeal sample on chocolate agar. Which pathogen is this judging by its cultural properties?



+*Neisseria meningitidis*

Proteus vulgaris

Brucella suis

Rhinovirus

This is the result of the oxidase test. Which pathogen is this judging by its biochemical properties?



+*Neisseria meningitidis*

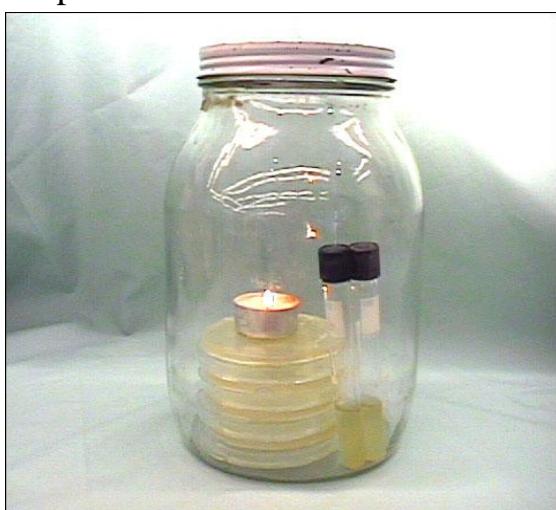
Salmonella enteritidis

Escherichia coli

Mycoplasma hominis

Ureaplasma urealyticum

What is the genus of microorganisms which need the culturing conditions shown in the photo?

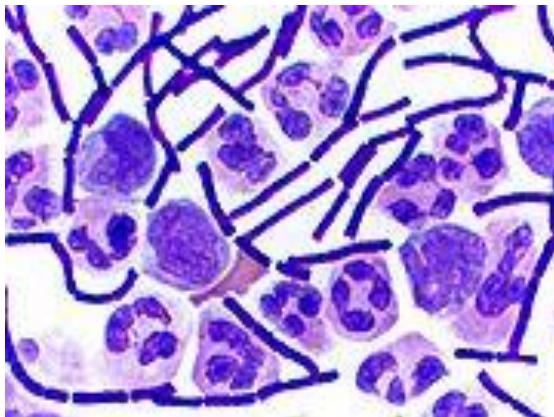


+*Streptococcus*

Salmonella

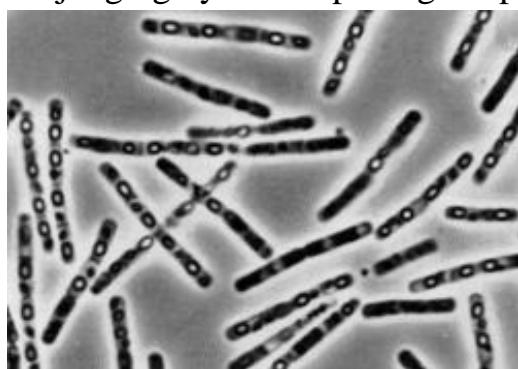
Ureaplasma
Bacillus

This is a bacterioscopic image of an ulcer discharge sample stained by methylene blue. Which pathogen is this judging by its morphological properties?



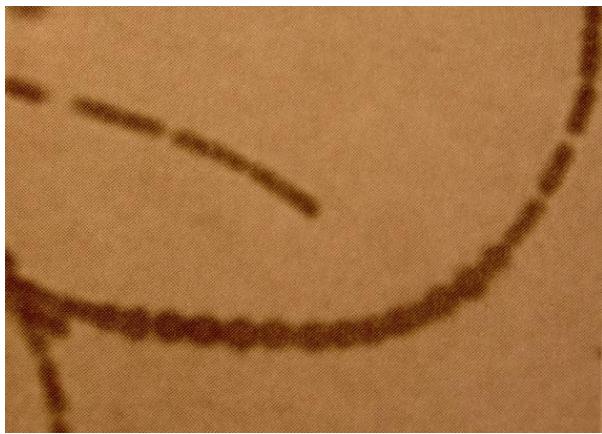
- +*Bacillus anthracis*
- Staphylococcus aureus*
- Proteus mirabilis*
- Neisseria gonorrhoeae*
- Treponema pallidum*

This is a phase-contrast microscopy image of a carbuncle swab. Which pathogen is this judging by its morphological properties?



- +*Bacillaceae*
- Enterobacteriaceae*
- Micrococcaceae*
- Vibrionaceae*
- Clostridiaceae*

This is a bacterioscopic image (“a string of pearls”) of a pure culture sample which has grown on meat-peptone agar containing penicillin. Which pathogen is this?



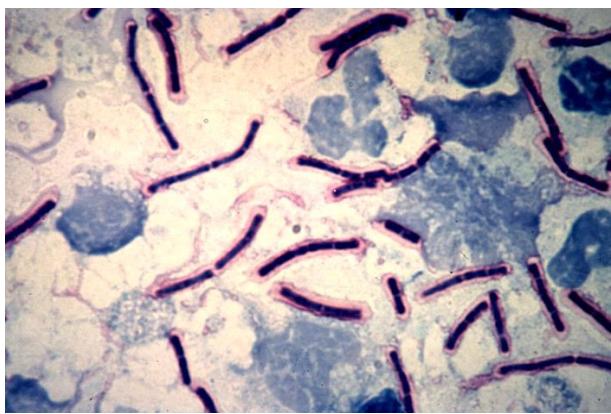
- +Bacillus anthracis
- Mycobacterium tuberculosis
- Leptospira interrogans
- Streptococcus pyogenes
- Varicella-zoster virus

This is a bacterioscopic image of B. anthracis pure culture sample. Which staining method is used?



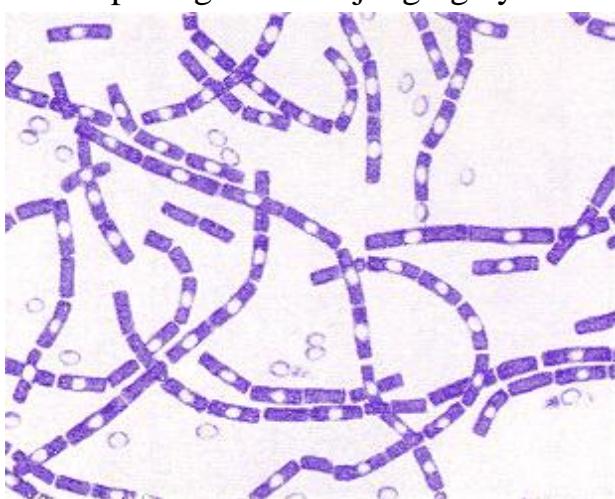
- +Gram staining
- Morozov staining
- Ascoli staining
- Neisser staining
- Vidal staining

This is a bacterioscopic image of a carbuncle swab sample stained by Gram's method. Which pathogen is this judging by its morphological properties?



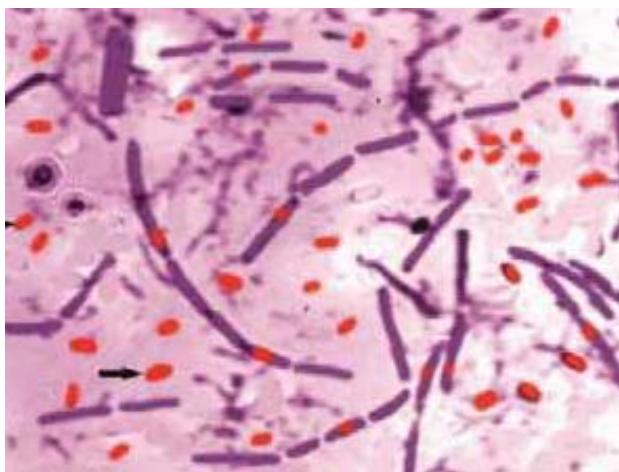
- +Bacillus anthracis
- Mycobacterium tuberculosis
- Borrelia burgdorferi
- Lyssavirus

The biological material of a carbuncle was inoculated on meat peptone agar. As a result of this rough colonies appeared on the agar. This is a bacterioscopic image of a pure culture sample taken from these colonies and stained by Gram's method. Which pathogen is this judging by its morphological properties?



- +Bacillus anthracis
- Clostridium tetani
- Streptococcus pyogenes
- Influenzavirus

This is a bacterioscopic image of a pure culture sample stained by Aujeszky's method. Which pathogen is this judging by its morphological properties?



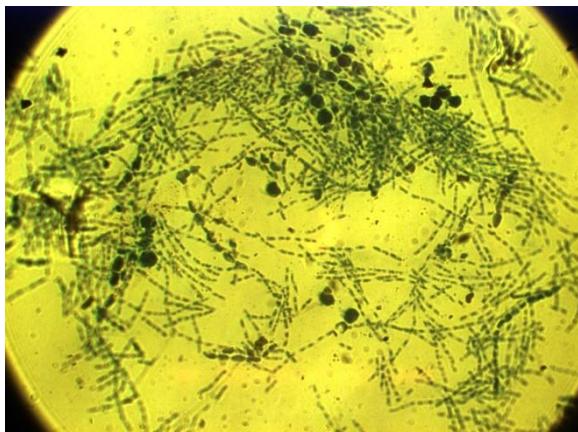
- +*Bacillus anthracis*
- Enterococcus faecalis*
- Escherichia coli*
- Yersinia enterocolitica*
- Hepatovirus*

This is an immunofluorescence microscopy image of a pure culture sample. Which pathogen is this judging by its morphological properties?



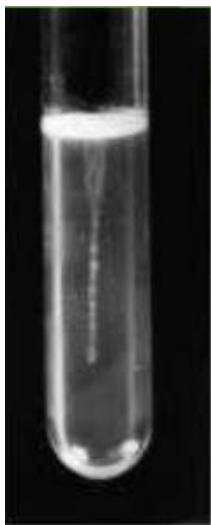
- +*Bacillus anthracis*
- Streptococcus pyogenes*
- Treponema pallidum*
- Nairovirus*

This is a bacterioscopic image (“a string of pearls”) of a pure culture sample which has grown on meat-peptone agar containing penicillin. Which pathogen is this?



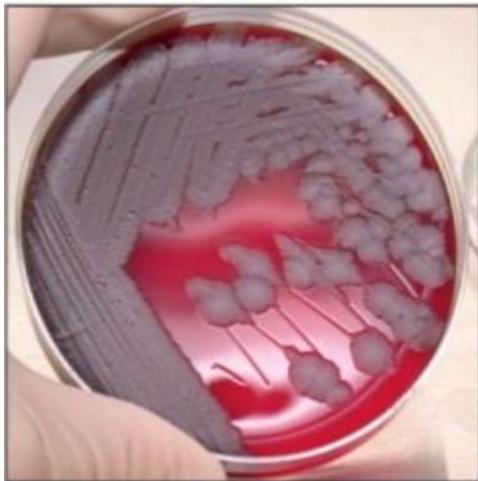
- +Bacillus anthracis
- Brucella melitensis
- Staphylococcus aureus
- Flavivirus

This is the growth of a pure culture sample which has been isolated from meat-peptone agar and placed on gelatin column agar. Which pathogen is this judging by its cultural properties?



- +Bacillus anthracis
- Mycobacterium tuberculosis
- Corynebacterium diphtheriae
- Salmonella typhi
- Enterovirus

This is the growth of a carbuncle discharge on blood agar. Which pathogen is this judging by its cultural properties?



- +*Bacillus anthracis*
- Francisella tularensis*
- Haemophilus influenzae*
- Yersinia enterocolitica*

This is a culture growth on blood agar. Which pathogen is this judging by its cultural properties?



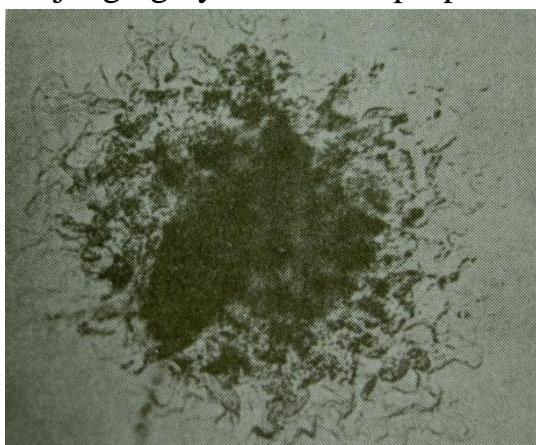
- +*Bacillus*
- Vibrio*
- Paramyxoviridae*
- Mycobacterium*

This is the culture growth of discharge taken from the bottom of an ulcer and inoculated on blood agar. Which pathogen is this judging by its cultural properties?



- +*Bacillus anthracis*
- Rickettsia prowazekii*
- Borrelia recurrentis*
- Brucella melitensis*

This is a macroscopic image of a colony which has grown as a result of a carbuncle discharge having been inoculated on a solid growth medium. Which pathogen is this judging by its cultural properties?



- +*Bacillus anthracis*
- Corynebacterium diphtheriae*
- Mycobacterium tuberculosis*
- Candida albicans*

This is a culture growth on blood agar. Which pathogen is this judging by its cultural properties?



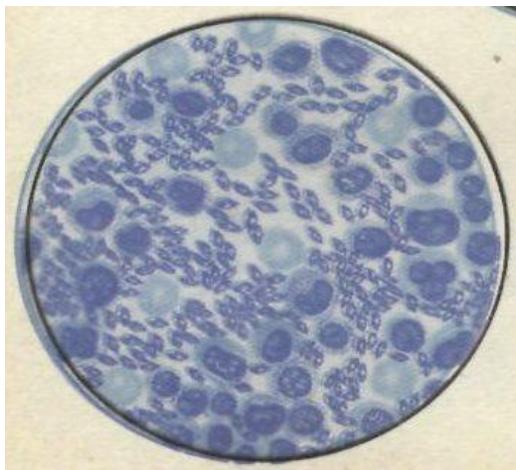
- +Bacillus anthracis
- Pseudomonas aeruginosa
- Haemophilus influenzae
- Clostridium perfringens
- Morbillivirus

This is the positive result of Ascoli's thermo precipitation test, sheep wool is the substrate for this test. Which pathogen is being detected?



- +Bacillus anthracis
- Chlamydia psittaci
- Brucella melitensis
- Microsporum canis
- Yersinia pestis

This is a bacterioscopic image of an inguinal lymph node puncture sample stained by Loeffler's method. Which pathogen is this judging by its morphological properties?



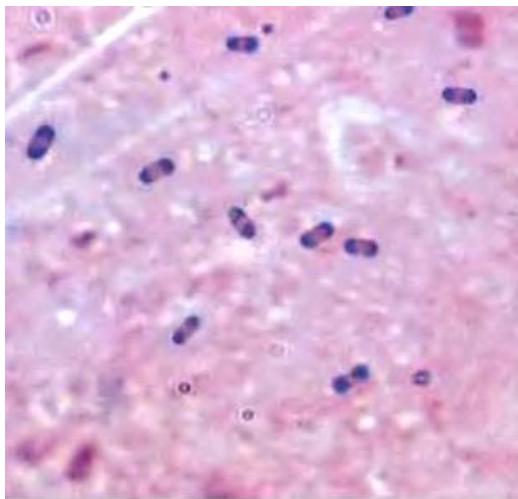
- +*Yersinia pestis*
- Bordetella pertussis*
- Corynebacterium diphtheriae*
- Chlamydia trachomatis*
- Treponema pallidum*

This is a bacterioscopic image of a blood sample stained by Giemsa's method.
Which pathogen is this judging by its morphological properties?



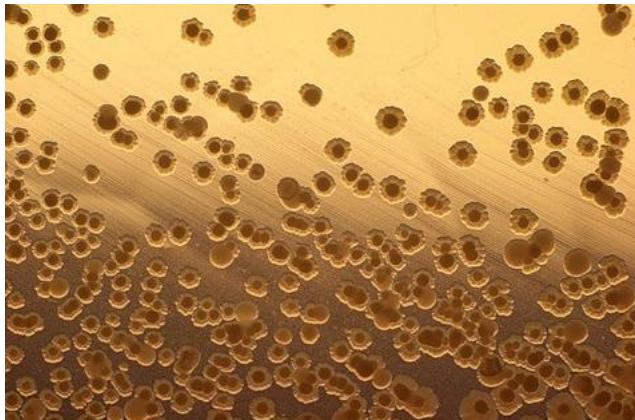
- +*Yersinia pestis*
- Bacillus anthracis*
- Borrelia recurrentis*
- Trichophyton rubrum*

This is a bacterioscopic image of a lymph node puncture sample stained by methylene blue . Which pathogen is this judging by its morphological properties?



- +*Yersinia pestis*
- Treponema pallidum*
- Rickettsia typhi*
- Epstein-Barr virus*
- Francisella tularensis*

This is a 24-hour growth of a bubo puncture sample on meat-peptone agar. Which pathogen is this judging by its cultural properties?



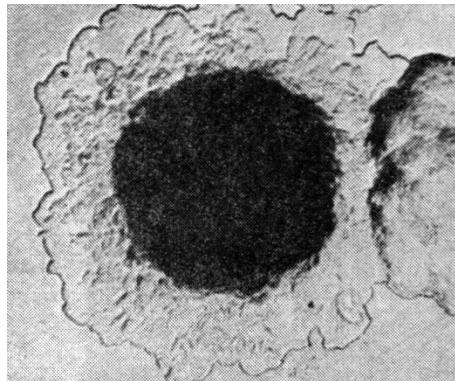
- +*Yersinia pestis*
- Corynebacterium diphtheriae*
- Rickettsia prowazekii*
- Borrelia recurrentis*
- Brucella melitensis*

This is a 48-hour growth of a bubo puncture sample on blood agar. Which pathogen is this judging by its cultural properties?



- + *Yersinia pestis*
- Ureaplasma urealyticum*
- Treponema pallidum*
- Rickettsia typhi*

This is a macroscopic image of a 2-day colony as it is seen by transmitted light. The colony has grown as a result of a bubo puncture sample having been inoculated on a solid growth medium. Which pathogen is this judging by its



- cultural properties?.
- + *Yersinia pestis*
- Francisella tularensis*
- Mycobacterium leprae*
- Mycoplasma hominis*
- Coronavirus*

This is the growth of an armpit lymph node puncture sample on McCoy's medium. Which pathogen is this judging by its cultural properties?



- +*Francisella tularensis*
- Treponema pallidum*
- Flavivirus*
- Borrelia recurrentis*

This is a bacterioscopic image of a blood sample. Which pathogen is this judging by its morphological properties?



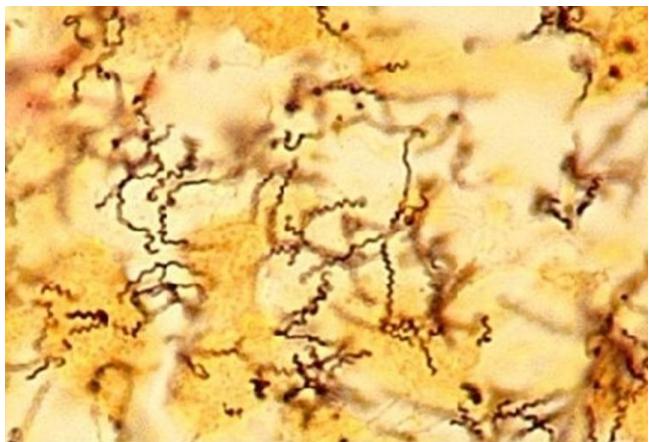
- +*Borrelia recurrentis*
- Rickettsia typhi*
- Bacillus anthracis*
- Streptococcus pyogenes*
- Lentivirus*

This is a phase-contrast microscopy image of a blood sample. Which pathogen is this judging by its morphological properties?



- +*Borrelia caucasica*
- Clostridium perfringens*
- Vibrio cholerae*
- Bunyavirus*

This is a bacterioscopic image of an inguinal lymph node puncture sample stained by Morozov's method. Which pathogen is this judging by its morphological properties?



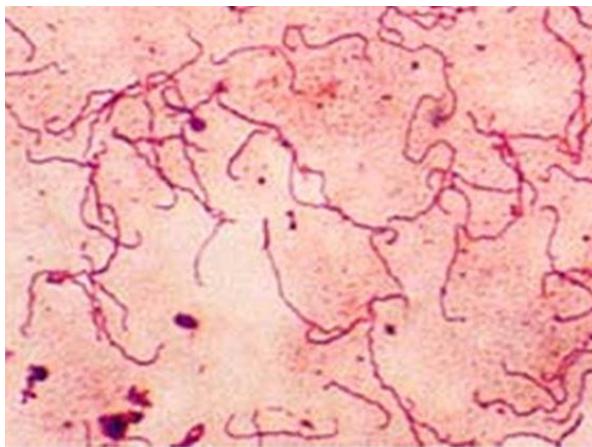
- +*Treponema pallidum*
- Francisella tularensis*
- Yersinia pestis*
- Neisseria gonorrhoeae*
- Proteus vulgaris*

This is an electron microscopy image of an inguinal lymph node puncture sample. Which pathogen is this judging by its morphological properties?



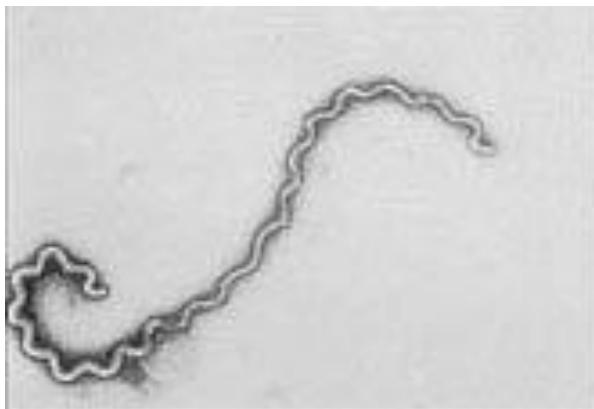
- +*Treponema pallidum*
- Listeria monocytogenes*
- Clostridium botulinum*
- Escherichia coli*
- Chlamydia trachomatis*

This is a bacterioscopic image of a an inguinal lymph node puncture sample stained by Giemsa's method. Which pathogen is this judging by its morphological properties?



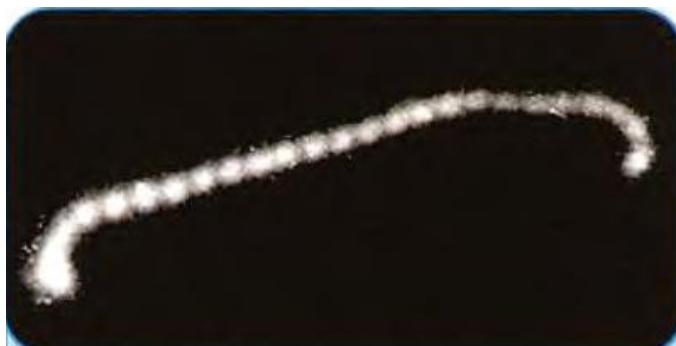
- +*Treponema pallidum*
- Hantavirus*
- Ureaplasma urealyticum*
- Francisella tularensis*

This is a bacterioscopic image of a urine sample taken on the 2-nd week of the disease. Which pathogen is this judging by its morphological properties?



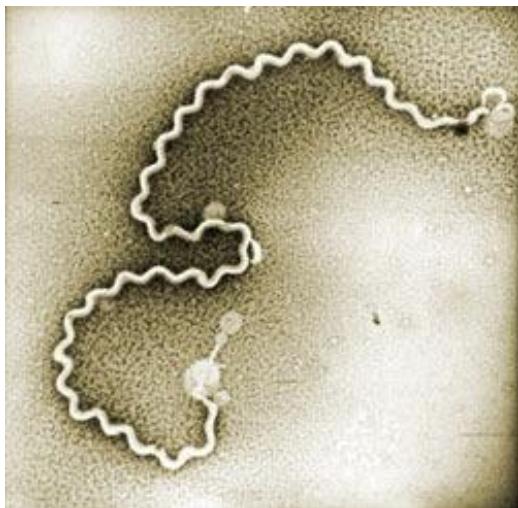
- +Leptospira interrogans
- Rickettsia typhi
- Ureaplasma urealyticum
- Proteus vulgaris
- Pseudomonas aeruginosa

This is an electron microscopy image of a urine sample taken on the 2-nd week of the disease. Which pathogen is this judging by its morphological properties?



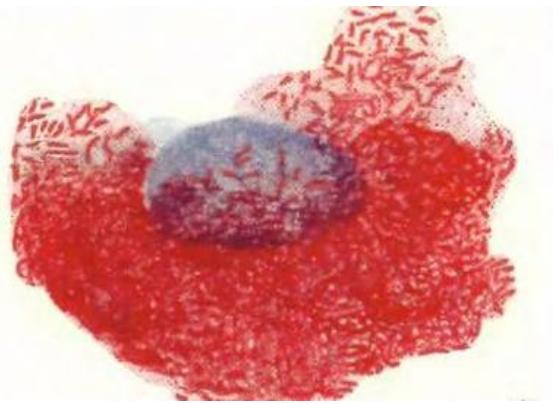
- +Leptospira interrogans
- Listeria monocytogenes
- Brucella abortus
- Klebsiella oxytoca
- Neisseria gonorrhoeae

This is a phase-contrast microscopy image of a urine sample taken on the 2-nd week of the disease. Which pathogen is this judging by its morphological properties?



- +*Leptospira interrogans*
- Bacillus anthracis*
- Ureaplasma urealyticum*
- Haemophilus influenzae*
- Morbillivirus*

This is a bacterioscopic image of a blood sample stained by carbol fuchsin and bluing. Which pathogen is this judging by its morphological properties?



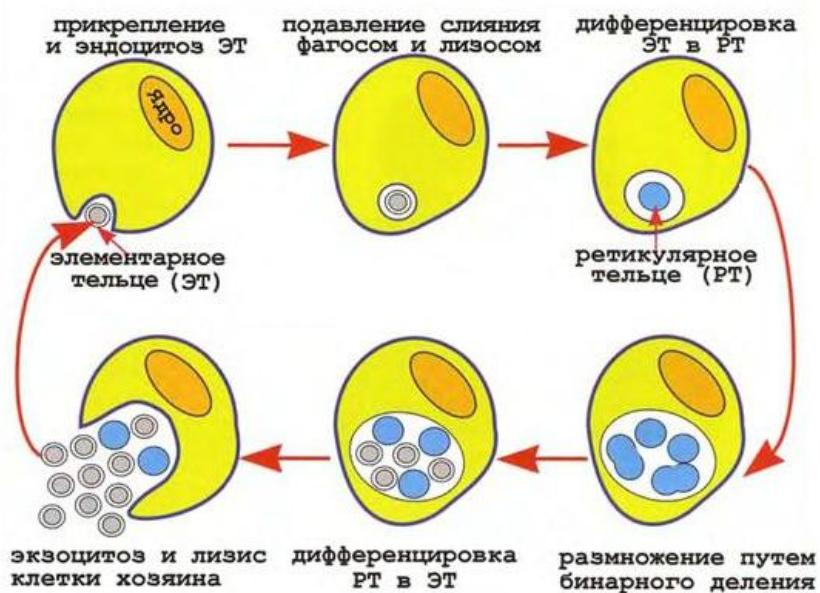
- +*Rickettsia prowazekii*
- Escherichia coli*
- Mycoplasma hominis*
- Listeria monocytogenes*
- Francisella tularensis*

This is a bacterioscopic image of a blood sample stained by Zdrodovsky's method. Which pathogen is this judging by its morphological properties?



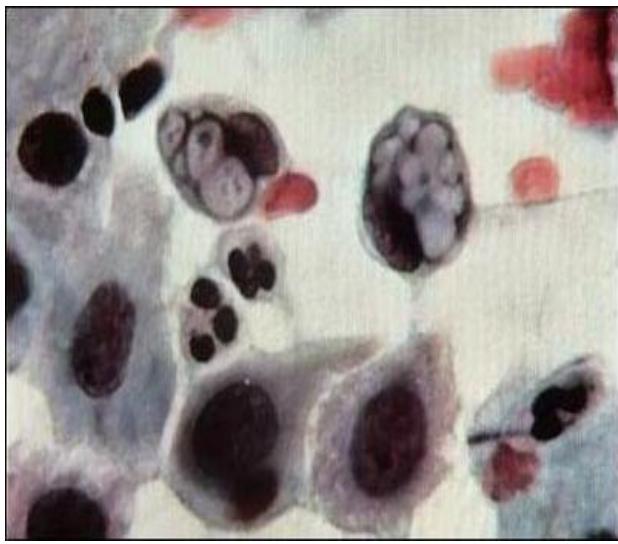
- +Rickettsiaceae
- Vibrionaceae
- Clostridiaceae
- Spirochaetaceae

The diagram shows the life cycle of an intracellular parasite. Which pathogen is this?



- +Chlamydia trachomatis
- Rickettsia typhi
- Mycoplasma pneumoniae
- Pneumovirus
- Herpes simplex virus

This is a microscopy image of a cervical swab, you can see the colonies located inside the cells. Which pathogen is this judging by its morphological properties?



+Chlamydia trachomatis

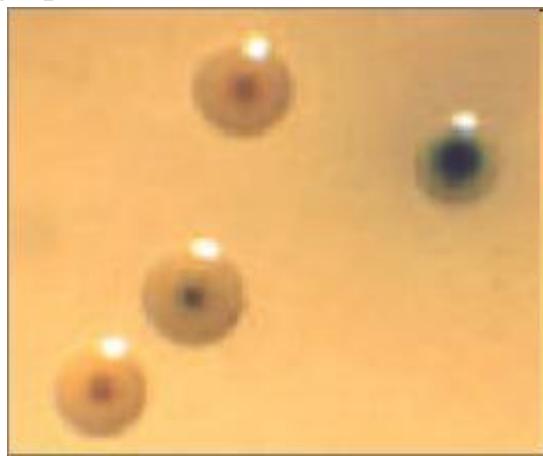
Lyssavirus

Cytomegalovirus

Treponema pallidum

Vibrio cholerae

This is the growth of a patient's urethral swab on the growth medium containing yeast extract, urea and horse serum. Which pathogen is this judging by its cultural properties?



+Ureaplasma urealyticum

Chlamydia trachomatis

Neisseria gonorrhoeae

Treponema pallidum

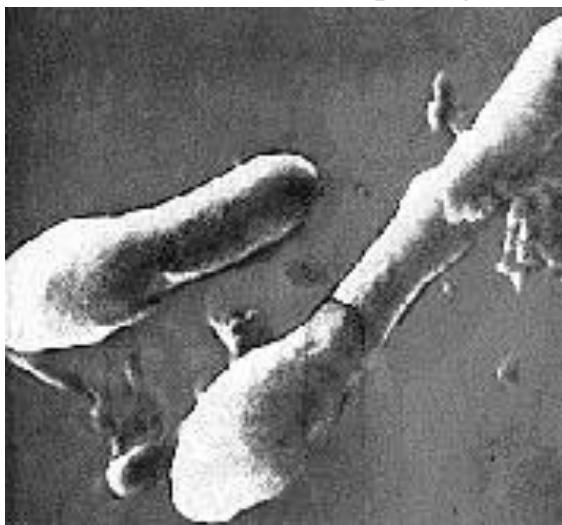
Brucella abortus

This is the growth of a patient's sputum sample on the growth medium containing yeast extract and horse serum. Which pathogen is this judging by its cultural properties?



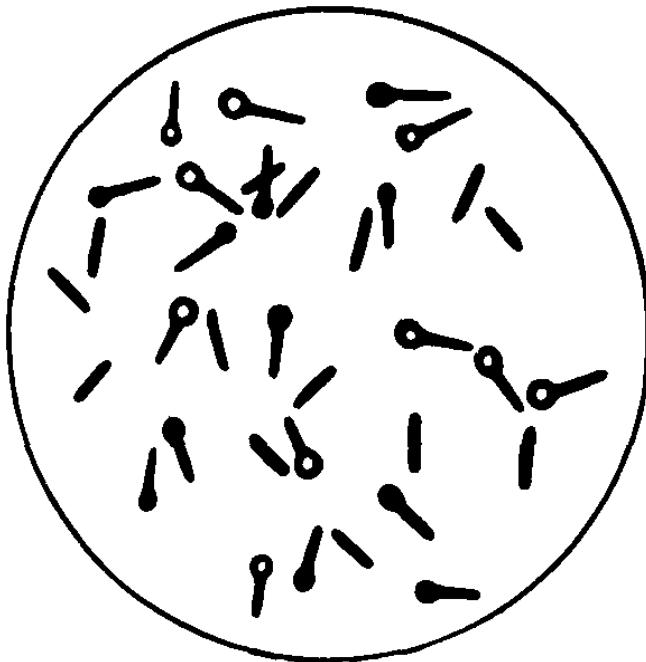
- +*Mycoplasma pneumoniae*
- Chlamydia pneumoniae*
- Klebsiella pneumoniae*
- Mycobacterium tuberculosis*
- Legionella pneumophila*

This is an electron microscopy of a pure bacterial culture sample taken from Kitt-Tarozzi medium. Which pathogen is this judging by its morphological properties?



- +*Clostridium tetani*
- Bacillus anthracis*
- Salmonella enteritidis*
- Yersinia enterocolitica*

The picture shows spore-forming bacteria. Which family can they belong to?



+Clostridiaceae

Vibrionaceae

Rickettsiaceae

Spirochaetaceae

Bacillaceae

This is a bacterioscopic image of a pure culture sample taken from the thioglycolate broth. Which pathogen is this judging by its morphological properties?



+*Clostridium tetani*

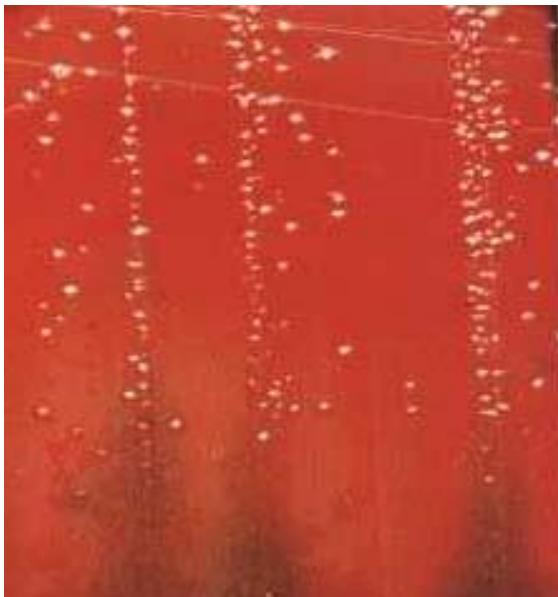
Helicobacter pylori

Acinetobacter haemolyticus

Aspergillus fumigatus

Enterobacter cloacae

This is the growth of a sample from suture material on blood agar after it was cultured in strict anaerobic conditions. Which pathogen is this judging by its cultural properties?



- +*Clostridium tetani*
- Streptococcus pyogenes*
- Pseudomonas aeruginosa*
- Haemophilus influenzae*
- Candida albicans*

This is the growth of a pathogen isolated from a puncture wound on a foot. The pathogen has been cultured on sugar-blood agar in strict anaerobic conditions. Which pathogen is this judging by its cultural properties?



- +*Clostridium tetani*
- Bacillus anthracis*
- Staphylococcus aureus*
- Actinomyces pyogenes*
- Hepacivirus*

This is the growth of a blood sample on Kitt-Tarozzi medium. Which pathogen is



this judging by its cultural properties?

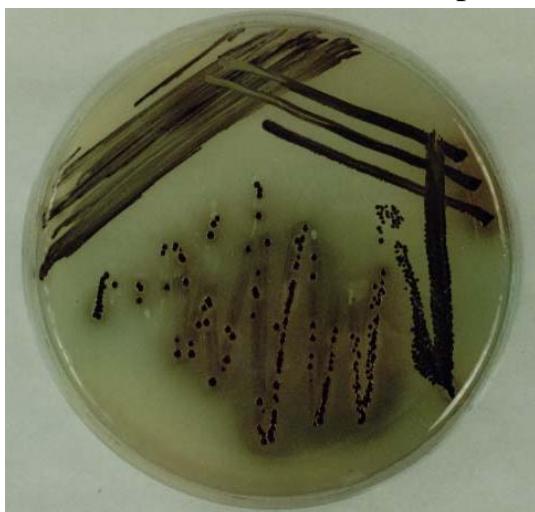
- +*Clostridium tetani*
- Escherichia coli*
- Haemophilus influenzae*
- Helicobacter pylori*
- Cytomegalovirus*

This is a bacterioscopic image of a pure culture of bacteria with subterminal spores. Which pathogen is this judging by its morphological properties?



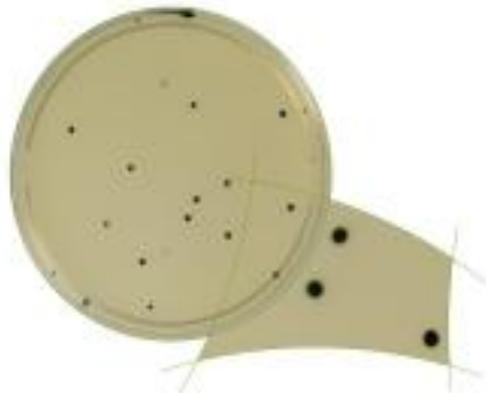
- +*Clostridium botulinum*
- Clostridium tetani*
- Bacillus anthracis*
- Yersinia pestis*
- Microsporum canis*

The photo shows the culture growth of homemade canned mushrooms sample on Wilson-Blair medium. Which pathogen is this judging by its cultural properties?.



- +*Clostridium botulinum*
- Staphylococcus saprophyticus*
- Escherichia coli*
- Vibrio cholerae*
- Pseudomonas aeruginosa*

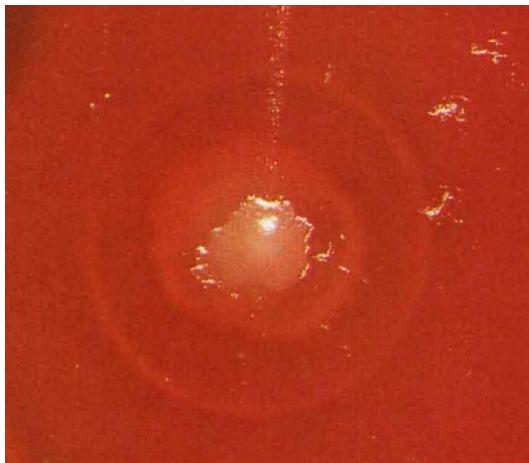
The picture shows the culture growth of a dried fish sample on iron sulphite agar. Which pathogen is this judging by its cultural properties?



- +*Clostridium botulinum*
- Leptospira interrogans*
- Micrococcus luteus*
- Staphylococcus aureus*

This is a macroscopic image of a colony which has grown on sugar-blood agar after the inoculation of canned vegetables and their incubation in strict anaerobic

conditions. Which pathogen is this judging by its cultural properties?



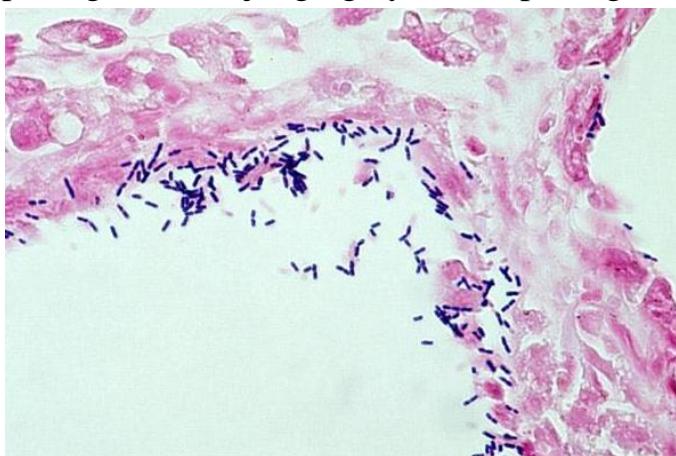
- +*Clostridium botulinum*
- Acinetobacter haemolyticus*
- Francisella tularensis*
- Brucella melitensis*
- Trichophyton rubrum*

This is a bacterioscopic image of a pure bacterial culture sample taken from Kitt-Tarozzi medium and stained by Burri-Gins' method. Which pathogen is this judging by its morphological properties?



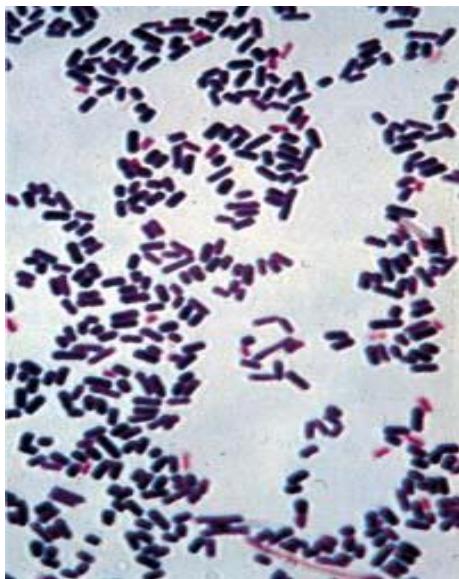
- +*Clostridium perfringens*
- Streptococcus pyogenes*
- Escherichia coli*
- Salmonella enteritidis*

This is a bacterioscopic image of a wound swab stained by Gram's method. Which pathogen is this judging by its morphological properties?



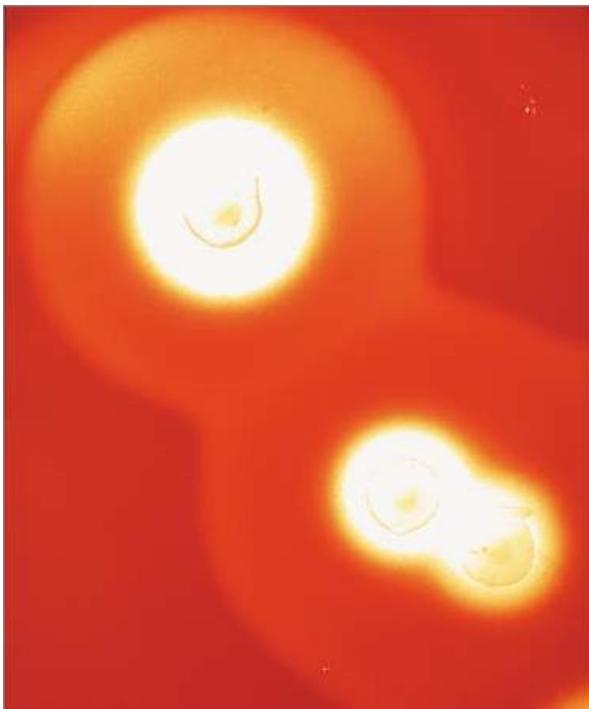
- +*Clostridium perfringens*
- Staphylococcus aureus*
- Escherichia coli*
- Proteus mirabilis*
- Pseudomonas aeruginosa*

This is a bacterioscopic image of a pure bacterial culture sample taken from Wilson-Blair medium and stained by Gram's method. Which pathogen is this judging by its morphological properties?



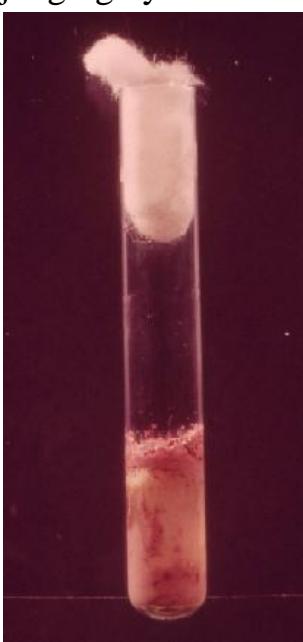
- +*Clostridium perfringens*
- Legionella pneumophila*
- Enterobacter cloacae*
- Neisseria gonorrhoeae*
- Corynebacterium diphtheriae*

This is a macroscopic image of colonies which have grown on blood agar after the inoculation of wound dressing materials and their incubation in strict anaerobic conditions. Which pathogen is this judging by its cultural properties?



- +*Clostridium perfringens*
- Escherichia coli*
- Haemophilus influenzae*
- Mycoplasma hominis*
- Hepatovirus*

This is the culture growth of wound discharge in milk. Which pathogen is this judging by its cultural properties?



- +*Clostridium perfringens*

Haemophilus influenzae

Escherichia coli

Chlamydia pneumoniae

Rickettsia typhi

This is the culture growth of wound discharge in an agar column after the incubation in strict anaerobic conditions. Which pathogen is this judging by its cultural properties?



+*Clostridium perfringens*

Staphylococcus aureus

Aspergillus fumigatus

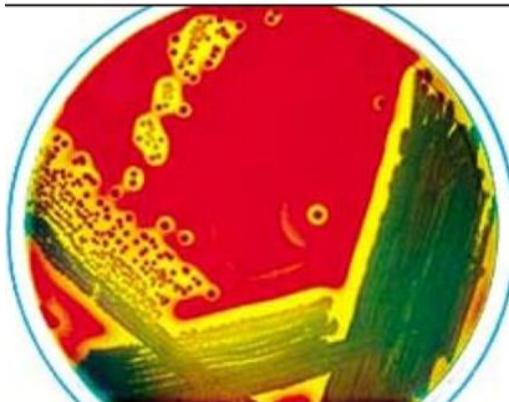
Bunyavirus

This is the culture growth of a suture material sample on egg-yolk salt agar after the culturing in strict anaerobic conditions. Which pathogen is this judging by its cultural properties?



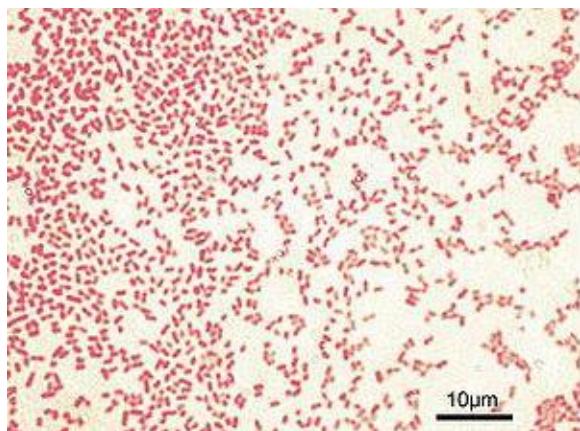
- +*Clostridium perfringens*
- Helicobacter pylori*
- Neisseria gonorrhoeae*
- Treponema pallidum*
- Proteus mirabilis*

This is the growth of a pure culture taken from wound discharge and inoculated on blood agar after it was left for some time in the open air. Which pathogen is this judging by its cultural properties?



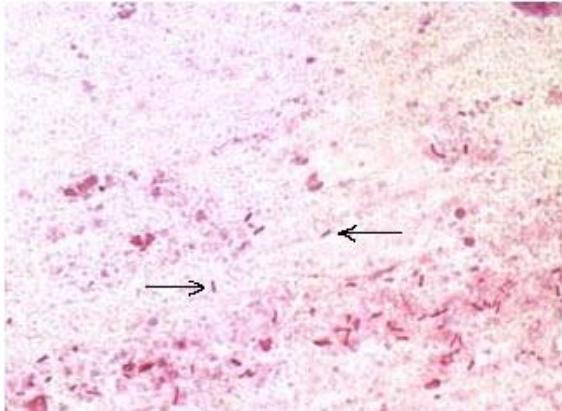
- +*Clostridium perfringens*
- Borrelia recurrentis*
- Klebsiella oxytoca*
- Streptococcus pneumoniae*
- Lyssavirus*

This is a bacterioscopic image of a pure culture sample isolated from blood and stained by Gram's method. Which pathogen is this judging by its morphological properties?



- +*Pseudomonas aeruginosa*
- Vibrio cholerae*
- Staphylococcus saprophyticus*
- Chlamydia pneumoniae*

This is a bacterioscopic image of a pus swab stained by Gram's method. Which pathogen is this judging by its morphological properties?



- +*Pseudomonas aeruginosa*
- Streptococcus pyogenes*
- Mycobacterium tuberculosis*
- Leptospira interrogans*

This is the culture growth of a wound discharge sample on meat-peptone agar after it was cultured in aerobic conditions. Which pathogen is this judging by its cultural properties?



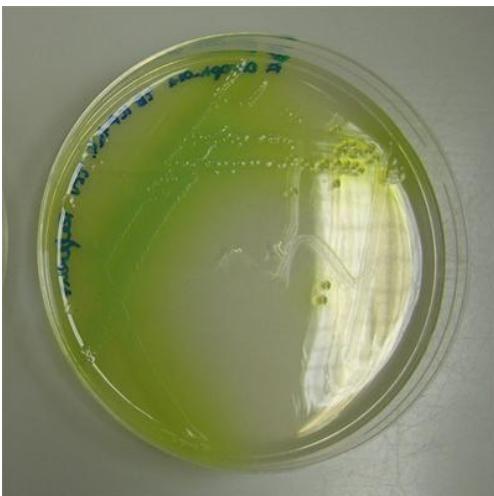
+*Pseudomonas aeruginosa*

Clostridium perfringens

Leptospira interrogans

Candida albicans

This is the culture growth of a sputum sample on meat-peptone agar. Which pathogen is this judging by its cultural properties?



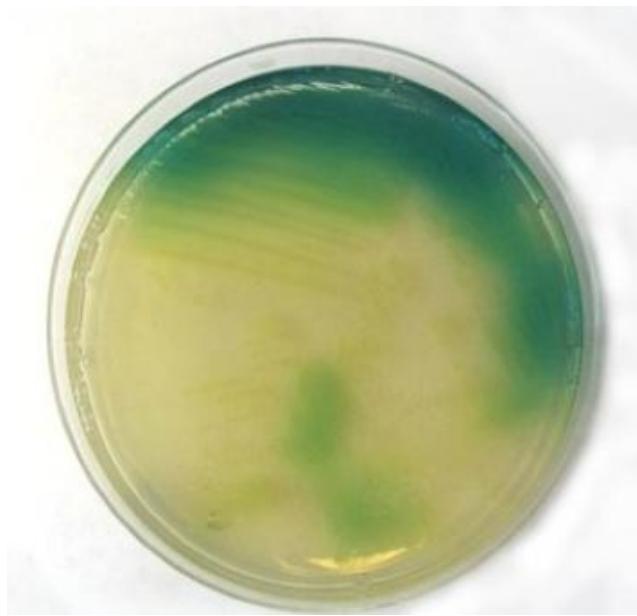
+*Pseudomonas aeruginosa*

Mycoplasma pneumoniae

Chlamydia pneumoniae

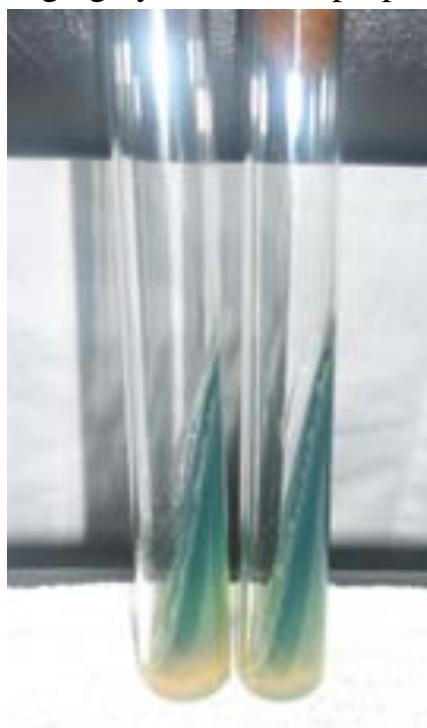
Haemophilus influenzae

This is the culture growth of *Pseudomonas aeruginosa* on meat-peptone agar. Which pigment is being detected?



+pyocyanin
melanin
blumarine
prodigiosan
fluorochrome

This is the culture growth of a wound dressing material sample on meat-peptone agar slant after it was cultured in aerobic conditions. Which pathogen is this judging by its cultural properties?



+Pseudomonas aeruginosa
Mycobacterium tuberculosis
Helicobacter pylori

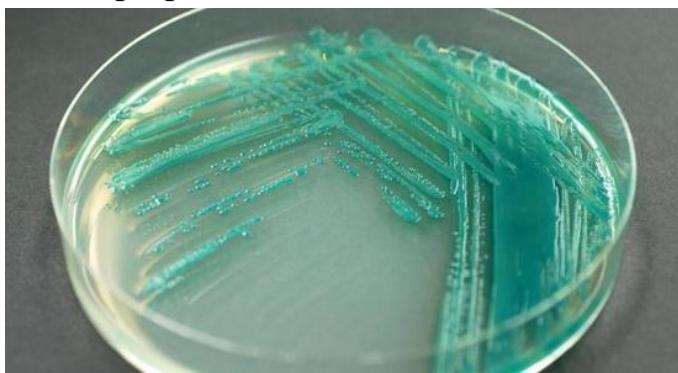
Shigella sonnei
Escherichia coli

This is the culture growth of a urine sample on liquid enriched growth medium after it was cultured in aerobic conditions. Which pathogen is this judging by its cultural properties?



- +*Pseudomonas aeruginosa*
- Leptospira interrogans*
- Ureaplasma urealyticum*
- Hantavirus*

This is the culture growth of a cerebrospinal fluid sample on meat-peptone agar after it was cultured in aerobic conditions. Which pathogen is this judging by its cultural properties?



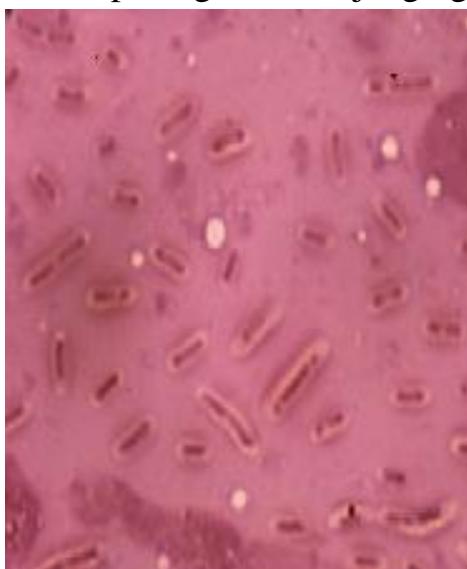
- +*Pseudomonas aeruginosa*
- Neisseria meningitidis*
- Haemophilus influenzae*
- Staphylococcus aureus*
- Actinomyces pyogenes*

A patient's blood sample was inoculated in sugar broth. After it was subcultured on blood agar there appeared the growth of colonies with melanin pigment. Which pathogen is this judging by its cultural properties?



- +*Pseudomonas aeruginosa*
- Haemophilus influenzae*
- Salmonella typhi*
- Clostridium tetani*
- Trichophyton rubrum*

This is a bacterioscopic image of a blood sample stained by Burri-Gins' method. Which pathogen is this judging by its morphological properties?



- +*Klebsiella oxytoca*
- Borrelia recurrentis*
- Ureaplasma urealyticum*
- Helicobacter pylori*

This is the culture growth of a sputum sample on Endo agar. Which pathogen is this judging by its cultural properties?



- +*Klebsiella pneumoniae*
- Streptococcus pneumoniae*
- Chlamydia pneumoniae*
- Mycoplasma pneumoniae*

This is the culture growth of a sputum sample on blood agar. Which pathogen is this judging by its cultural properties?



- +*Klebsiella pneumoniae*
- Mycobacterium tuberculosis*
- Corynebacterium diphtheriae*
- Chlamydia pneumoniae*

This is the culture growth of a urine sample on MacConkey agar. Which pathogen is this judging by its cultural properties?



- +*Klebsiella pneumoniae*
- Francisella tularensis*
- Ureaplasma urealyticum*
- Leptospira interrogans*
- Nairovirus*

This is a bacterioscopic image of a pure culture sample taken from wound discharge and stained by Gram's method. Which pathogen is this judging by its morphological properties?



- +*Proteus vulgaris*
- Corynebacterium diphtheriae*
- Streptococcus pneumoniae*
- Listeria monocytogenes*

A patient's blood sample was inoculated in sugar broth. After it was sub-cultured on blood agar there appeared colonies with a swarming growth. Which pathogen is this judging by its cultural properties?



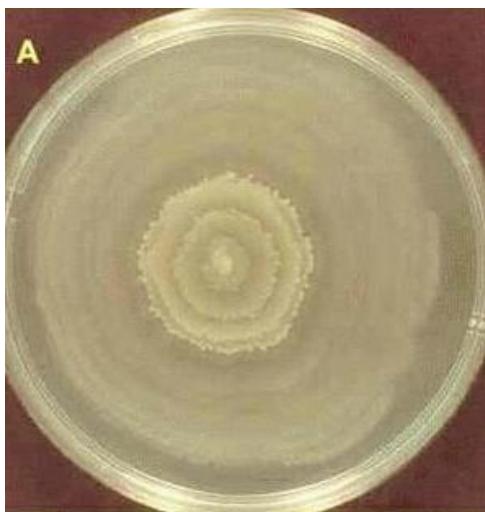
- +*Proteus vulgaris*
- Staphylococcus aureus*
- Klebsiella oxytoca*
- Yersinia pseudotuberculosis*
- Helicobacter pylori*

This is a macroscopic image of the colony of a pathogen isolated from pus. The colony has a characteristic swarming growth. Which pathogen is this judging by its cultural properties?



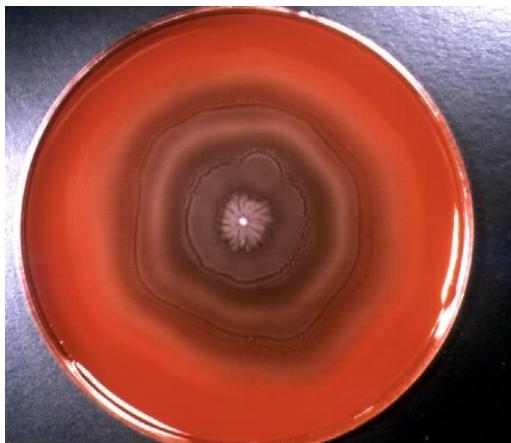
- +*Proteus mirabilis*
- Bacillus anthracis*
- Neisseria gonorrhoeae*
- Klebsiella oxytoca*
- Mycobacterium tuberculosis*

A cerebrospinal fluid sample was inoculated on meat-peptone agar which resulted in the growth of swarming colonies. Which pathogen is this judging by its cultural properties?



- +*Proteus mirabilis*
- Neisseria meningitidis*
- Mycobacterium tuberculosis*
- Rickettsia prowazekii*
- Brucella melitensis*

A urine sample was inoculated on blood agar which resulted in the growth of swarming colonies. Which pathogen is this judging by its cultural properties?



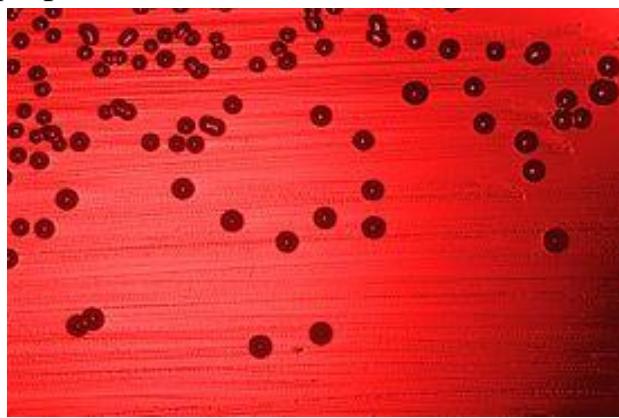
- +*Proteus vulgaris*
- Micrococcus luteus*
- Actinobacillus lignieresii*
- Ureaplasma urealyticum*
- Chlamydia trachomatis*

A sputum sample was inoculated on blood agar which resulted in the growth of swarming colonies. Which pathogen is this judging by its cultural properties?



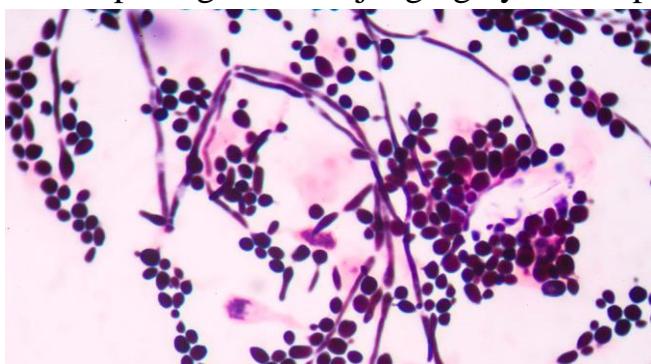
- +*Proteus mirabilis*
- Yersinia pseudotuberculosis*
- Streptococcus pneumoniae*
- Bordetella pertussis*
- Pneumovirus*

This is the culture growth of a cerebrospinal fluid sample on blood agar after it was cultured in aerobic conditions. Which pathogen is this judging by its cultural properties?



- +*Haemophilus influenzae*
- Rickettsia prowazekii*
- Borrelia recurrentis*
- Chlamydia trachomatis*

This is a microscopy image of a pure culture sample taken from Sabouraud agar. Which pathogen is this judging by its morphological properties?



- +*Candida albicans*
- Neisseria gonorrhoeae*
- Chlamydia trachomatis*
- Mycoplasma hominis*

This is the culture growth of a vaginal material sample on Sabouraud agar. Which pathogen is this judging by its cultural properties?



- +*Candida albicans*
- Treponema pallidum*
- Chlamydia trachomatis*
- Mycoplasma pneumoniae*
- Brucella abortus*

This is the culture growth of a fecal matter sample on Czapek-Dox medium. Which pathogen is this judging by its cultural properties?



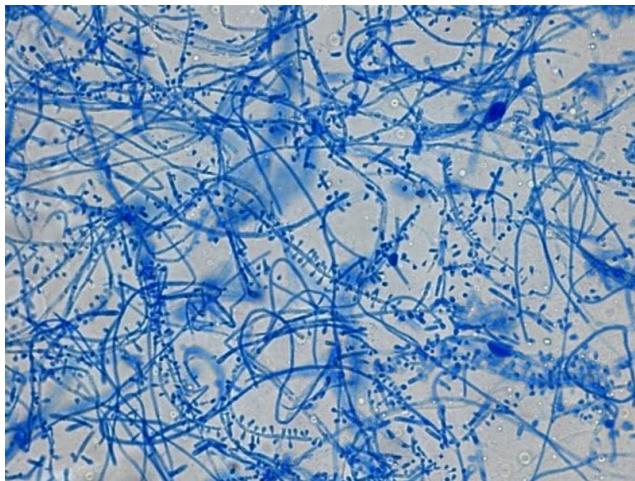
- +*Candida albicans*
- Enterococcus faecalis*
- Escherichia coli*
- Enterobacter cloacae*
- Rotavirus*

This is the culture growth of an oropharyngeal swab on wort agar. Which pathogen is this judging by its cultural properties?



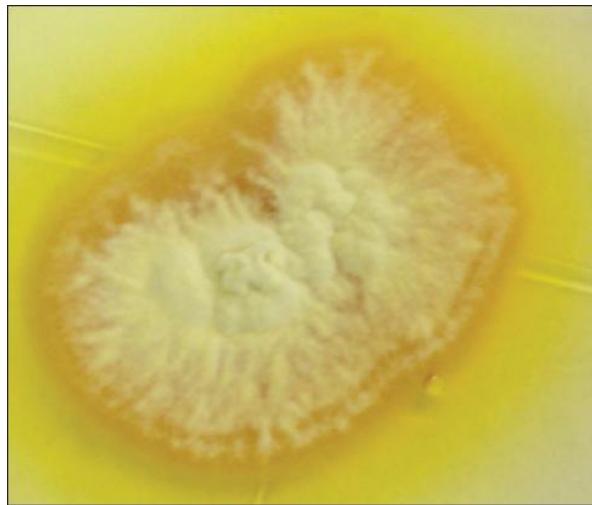
- +*Candida albicans*
- Corynebacterium diphtheriae*
- Treponema pallidum*
- Rickettsia prowazekii*

This is a microscopy image of a pure culture sample isolated from skin scales. Which pathogen is this judging by its morphological properties?



- +*Trichophyton rubrum*
- Candida albicans*
- Rickettsia typhi*
- Actinomyces pyogenes*

This is a macroscopic image of a colony which has grown on wort agar after the inoculation of a damaged skin scrape. Which pathogen is this judging by its cultural properties?



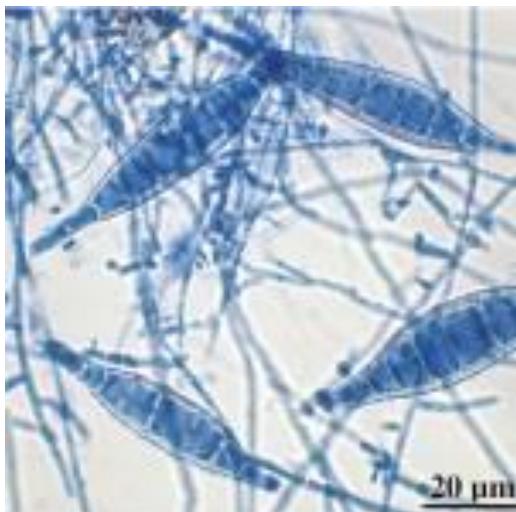
- +*Trichophyton interdigitale*
- Candida albicans*
- Bacillus anthracis*
- Yersinia pestis*

This is the culture growth of a nail plate scrape sample on Sabouraud agar. Which pathogen is this judging by its cultural properties?



- +*Trichophyton rubrum*
- Mycoplasma hominis*
- Listeria monocytogenes*
- Proteus mirabilis*
- Rubulavirus*

This is a microscopy image of a pure culture sample isolated from damaged hair. Which pathogen is this judging by its morphological properties?



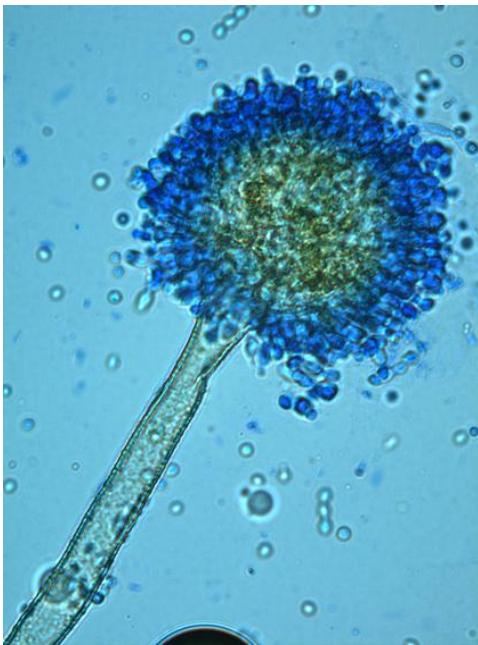
- +*Microsporum canis*
- Bacillus anthracis*
- Brucella suis*
- Francisella tularensis*

This is the culture growth of damaged hair samples on Sabouraud agar. Which pathogen is this judging by its cultural properties?



- +*Microsporum canis*
- Candida albicans*
- Chlamydia psittaci*
- Rickettsia prowazekii*
- Borrelia recurrentis*

This is a microscopy image of a pure culture sample isolated from sputum. Which pathogen is this judging by its morphological properties?



- +*Aspergillus flavus*
- Klebsiella pneumoniae*
- Bordetella pertussis*
- Legionella pneumophila*
- Mycoplasma pneumoniae*

This is the culture growth of a sputum sample on Sabouraud agar. Which pathogen is this judging by its cultural properties?



- +*Aspergillus flavus*
- Streptococcus pneumoniae*
- Chlamydia pneumoniae*
- Klebsiella pneumoniae*

This is a macroscopic image of a colony which has grown on Czapek-Dox medium from the sample isolated from sputum. Which pathogen is this judging by its cultural properties?



- +*Aspergillus fumigatus*
- Mycobacterium tuberculosis*
- Yersinia pseudotuberculosis*
- Streptococcus pneumoniae*
- Mycoplasma pneumoniae*