

# Fastidious bacteria

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# Problematic culture

- Special atmosphere (increased CO<sub>2</sub> or anaerobiosis)
- Special culture media – diagnostic media (rich in nutrients)
- Microscopy
- Antigen detection
- Serology
- Molecular methods (DNA based method)

# *Campylobacter jejuni*

- GIT pathogen
- Rectal swab in transport medium
- Specific culture medium – microaerophilic environment, longer culture (48h)

# *Helicobacter pylori*

- Agent of peptic ulcer
- Stool – antigen detection
- Stomach biopsy – microscopy, urease detection, culture
- Serology – ELISA, WB



# *Mycoplasma pneumoniae*

- Cell wall free organism – can not be cultured and stained
- Pneumonia – imaging methods
- Culture is not performed
- Detection of increased specific titre of antibodies in paired sera

# *Mycoplasma hominis, Ureaplasma sp.*

- STD infections
- Serology is not performed
- Culture – special diagnostic kits based on detection of urease production and metabolizing particular substrates
  - Determination of antibiotic susceptibility testing

# Chlamydie

- Intracellular parasites – to grow and multiply need a living host cell → tissue culture
- *C. pneumoniae* – serology
- *C. trachomatis* – STD infections – swab in men from uretra, from endocervix in women, urine, cornela swab –PCR

# Spirochets

- *Treponema pallidum*, borrelie
- Microskopy – dark field – it is not used regularly
- Serology – nontreponemal and specific treponemal tests – always in pregnant and newborns
- Borellia – cross reactivity, important anamnesis and symptomatology, dynamics of antibodies igM and IgG, ELISA, confirmation WB



# *Mycobacterium sp.*

- Tuberculosis and skin infections
- Suspected tuberculosis – sample - sputum, long generation time – long lasting culture (weeks)
  - Culture in liquid and solid media (egg based culture mediaa vaječné půdy 3-12 weeks, testing susceptibility to antituberculoitics)
  - Microscopy – staining Ziehl-Neelsen
  - PCR

# *Legionella pneumophila*

- Frequently occur – water, air conditioning
- Special culture media (with cystein and iron), 1 week, increased CO<sub>2</sub>
- Antigen detection in urine

# *Nocardia sp.*

- Grampositive rods in filamentous
- Culture up to 5 days
- Susceptible patients – immunosuppressed patients
- Abscesses – lung (sputum), brain, liver

# *Clostridium difficile*

- Antibiotic associated diarrhea, pseudomembranous colitis, Anaerobní bakterie – kultivace 2-5 dnů
- Colonization in children frequent
- Culture – time consuming, significant to proof toxin production
- Material – liquid stool – antigen (GDH) detection, toxin A and B detection – immunochromatography, culture – susceptibility to antibiotics
- Molecular methods

