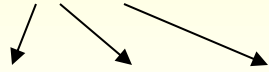


# Spirochetes

## Borrelia

### Causative agents of Lyme borreliosis

*B. burgdorferi sensu lato*



*B. burgdorferi sensu stricto, afzelii, garinii*



**Microscopy:** eclipsed, soft spirales, el. microscopy

**Cultivation:** Barbour-Stoenner-Kelly medium

**Antigens stimulating production of antibodies:** **flagelin, Osp C** (stimulates early response)  
**p18, 39, 100** (stimulates later response), others (Osp A, B)

**Pathogenicity:** 3 stages:

**I. early localised** - 3-30 days after suckling of a tick occur erythema (5 cm high), erythema migrans – occurs other lesions on the body, headache, joints

**II. early disseminate** – borrelia lymphocytoma (skin lesion), neurological + cardiac expresses

**III. later** – acrodermatitis chronica atrophicans (skin lesion), arthritis, carditis, polyneuritis

**Epidemiology:** transport due to ticks (*Ixodes ricinus*)

**Diagnostic: direct:** cultivation, PCR, ELM, dark field microscopy

**Indirect:** ELISA screening, in case of positivity WB confirmation

3-4 weeks after beginning of disease occurs IgM (antibodies against **flagelin, Osp C**)

In 4-6 weeks occurs IgG (against antigens **p18, 39, 100**)

**Therapy:** PNC, doxycyclin, ceftriaxon

## Drawback fevers

### *B. recurrentis*



**Pathogenicity:** repeated fevers

**Epidemiology:** transfer – body louse

**Diagnostic:** direct: dark field microscopy, indirect: agglutination

**Therapy:** doxycyclin

# Treponemas

*T. pallidum (lues, syphilis)*



www.medmicro.info

**Microscopy:** eclipsed, spirales

**Cultivation:** not cultivable on medias, only on rabbit

**Pathogenicity:** stages - **early**

primary – ulcus durum, ulceration on genitals, heal itself, antibodies - 4 weeks later

secondary – fever, condylomata lata, heal itself, serology +

early latent – asymptomatic, about the year after secondary lues

**later** - later latent priod (various length)

tertiary – gummata (on skin, bones), neurosyphilis (progressive paralysis, brain atrophy), cardiovascular syphilis (aneurysma)

**Congenital:** early congenital lues - hepatosplenomegaly, periostitis

latence, later congenit. stage (after 2 years length) - malformation, deafness, saddle-back nose, barrel incisors, + often abortion

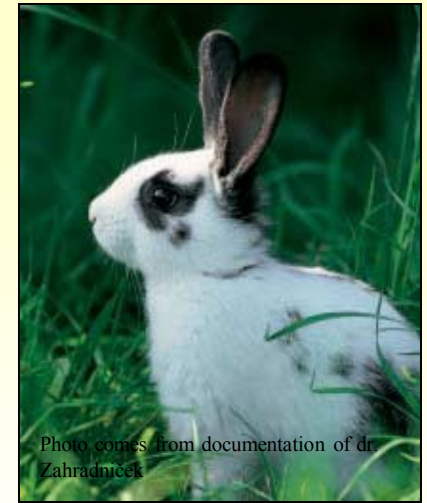


Photo comes from documentation of dr. Zahradnick

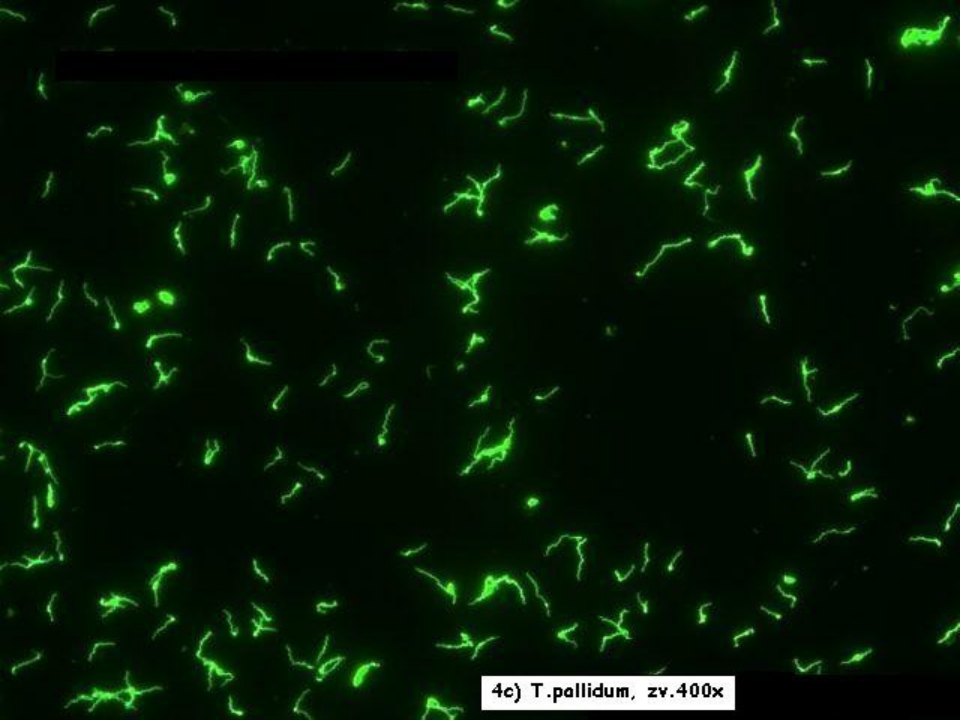
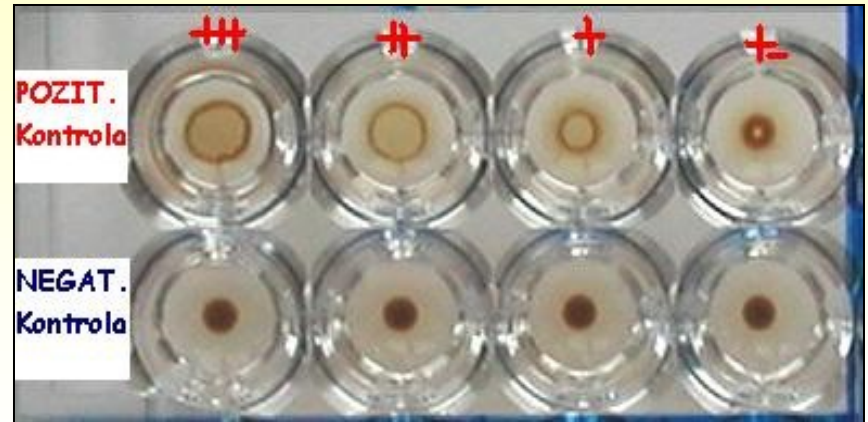


Photo: www.medmicro.info



**Diagnostic: direct:** dark field microscopy, PCR, rabbit, immunofluorescence, silver staining

**indirect:** screening - 2 reactions: **RRR** and **TPHA**, in case of positivity confirmation via **FTA-ABS**, **ELISA** and **WB** (IgM + IgG), **TPIT** (Treponema Pallidum Immobilisation Test) - obsolent

**RRR** - antigen is a cardiolipin, not treponema, must be completed **TPHA**

**Therapy and epidemiology:** transport - sex. contact, prevention – screening in pregnancy, screening of blood-donors, safe sex, PNC, macrolides, doxycyclin

# Leptospira

*L. icterohaemorrhagiae, grippotyphosa, sejroe*

**Microscopy:** spirales curved on both ends

**Cultivation:** long, special medias

**Pathogenicity:** 2 forms:

icteric – bleeding, icterus, renal insufficiency – **Weil's disease** (*L. icterohaemorrhagiae*)

anicteric – **field fever** (*L. grippotyphosa*)

**Epidemiology:** contact with animals (pigs, horses, cowfeet, rodents  
– rats, !on fields, channels)

**Therapy:** PNC, doxycyclin

**Diagnostic:** *direct:* microscopy, cultivation

*indirect:* MAT (microscopic agglutination test),  
specialised laboratories

