

Mycobacterium

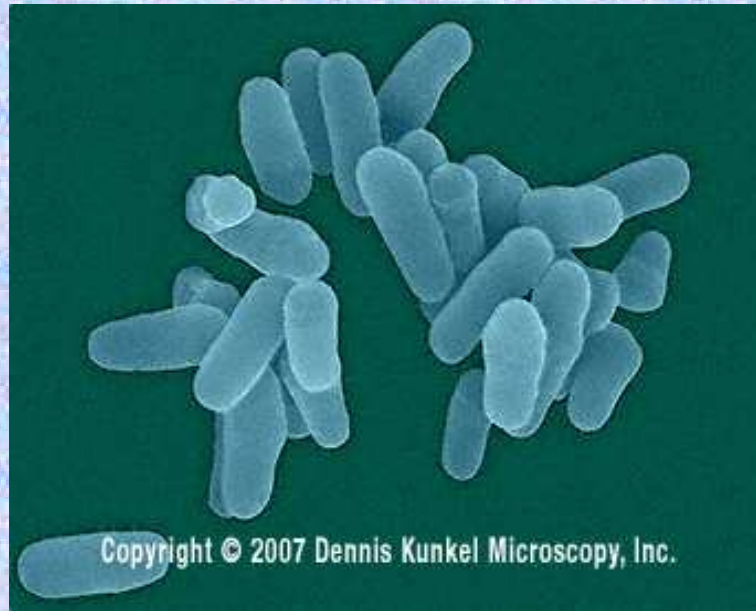




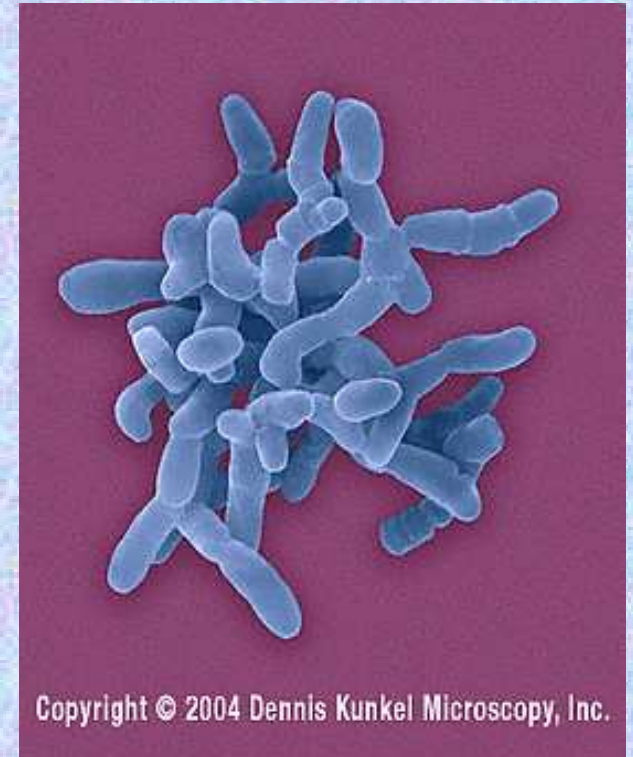
„květákovité kolonie“



Copyright © 2007 Dennis Kunkel Microscopy, Inc.



Copyright © 2007 Dennis Kunkel Microscopy, Inc.

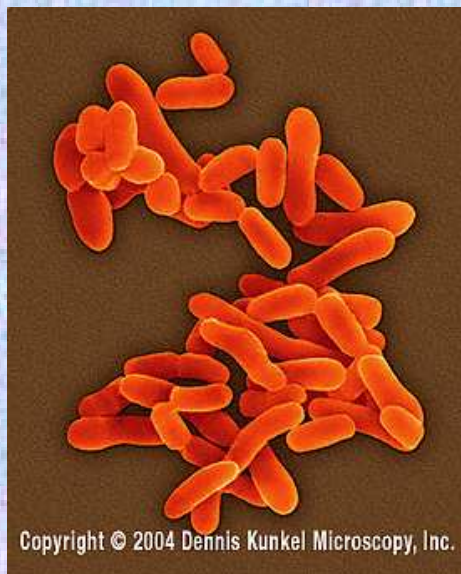


Copyright © 2004 Dennis Kunkel Microscopy, Inc.

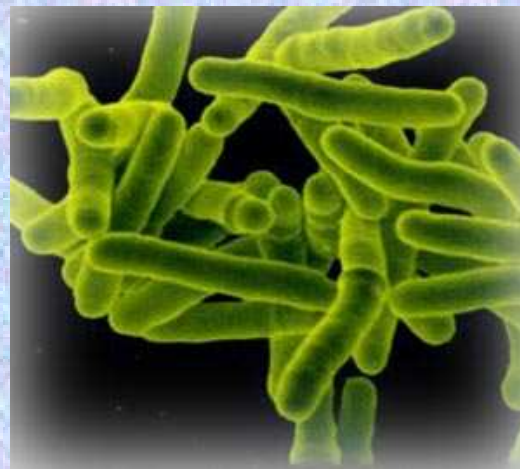
MDR-TB and XDR-TB strain

Mycobacterium tuberculosis

Mycobacterium paratuberculosis



Copyright © 2004 Dennis Kunkel Microscopy, Inc.





Mycobacterium avium –
zoonotic microorganism,
avian tuberculosis and MAC
(*Mycobacterium avium* complex)
in humans.
Secondary infection to AIDS, HIV.



Mycobacterium leprae

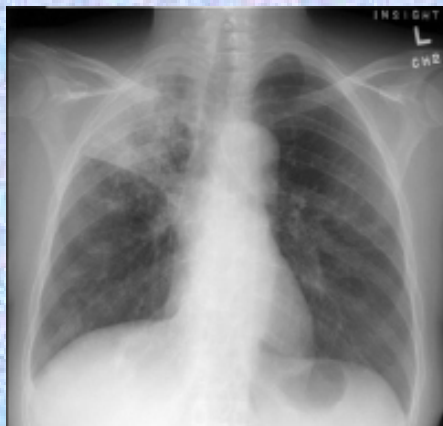
Diagnostika

- **Kožní testy – protilátky proti antigenu tuberkulinu**



- **rentgen**

- pro potvrzení aktivní nemoci a progrese choroby

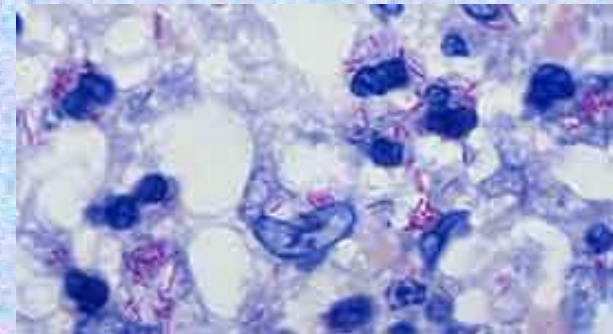


X-ray machines

Od 60-80.let v UK a USA

Diagnostika

- Vyšetření sputa
 - mikroskopie
 - kultivace – diagnost.půdy



Mykobakterie v granulomu plic

Robert Koch

***11.12.1843** (Clausthal-Zellerfeld) +**27.05.1910** (Baden-Baden)

**Eintrittskarte
zum
Robert Koch
Museum in
Wollstein (PL)**

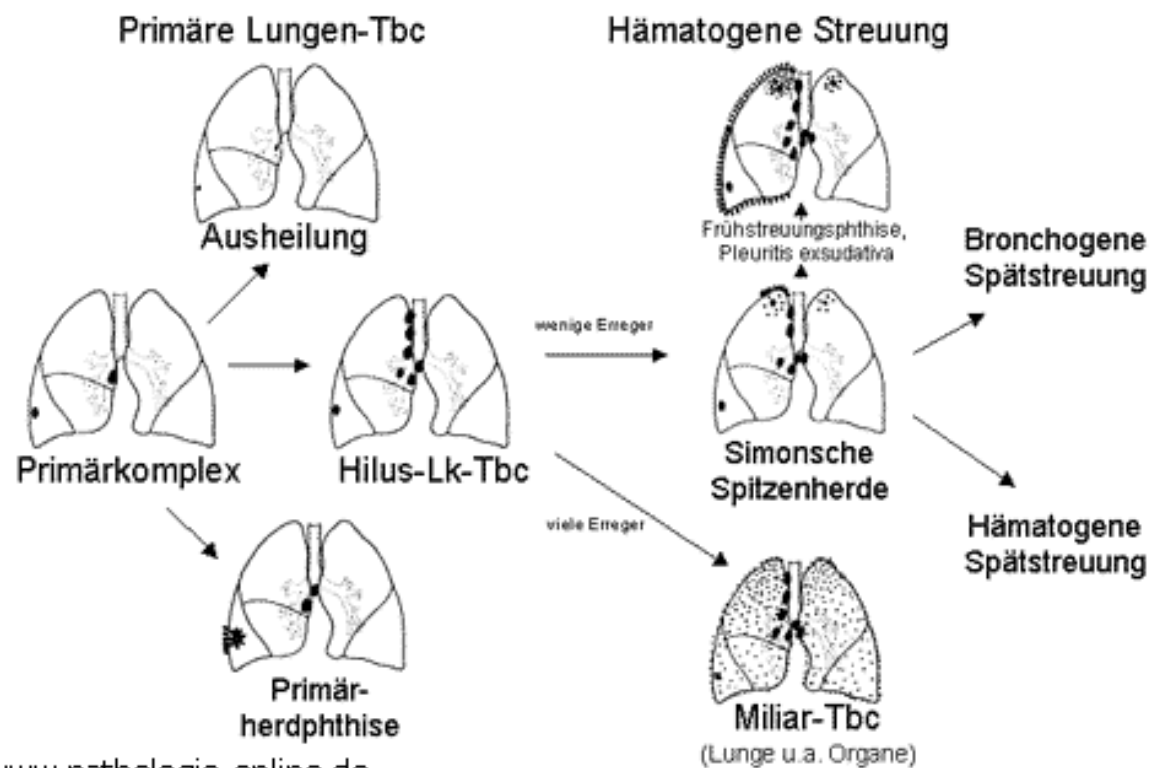


Dr Robert Koch 1843-1910

MUZEUM
DR ROBERTA KOCHA
W WOLSZTYNIE

BILET WSTĘPU NR 45

Primärinfektionsperiode



Reinfektionsperiode

Frühformen

Spätformen

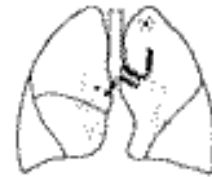
Exogene
Reinfektion
Reaktivierung:
Hämatogene,
bronchogene
Spätstreung



produktive azinöse
Lungenspitzen-Tbc



produktive Lungen-Tbc



Bronchitis caseosa



exsudative Lungen-Tbc

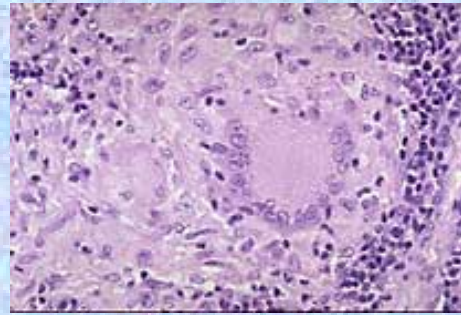
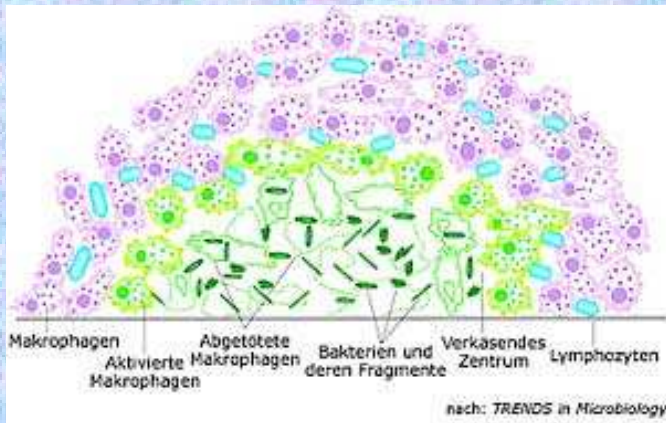
Hämatogene,
Spätstreung



isolierte Organ-Tbc



kavernöse Lungen-Tbc



Strukturen granulomu

histologický řez granulomem

TB control before the antibiotics era



Vakcinace

- BCG - is short for "Bacille Calmette-Guérin". *Mycobacterium* is a rod shaped bacterium, and this shape is described as a **bacillus**. Albert Calmette and Camille Guérin worked at the Pasteur Institute at Lille and Paris from 1908 to 1919.

By subculturing various virulent strains of *Mycobacterium tuberculosis* and *Mycobacterium bovis* on different culture media, they developed a strain that was less virulent. This **attenuated strain** - which could not cause an infection, but which stimulated the body's immune system to produce antibodies - was used as the basis for vaccine production.

Vakcinace

- Tuberculosis can usually be controlled using drugs called **antibiotics** to kill the infecting bacteria. It is not susceptible to antibiotics like penicillin. From 1945 the antibiotic streptomycin was used against TB; initially it was very successful and quickly replaced the sanatoria which provided treatment based on fresh air and isolation! However streptomycin has several unwelcome side-effects.

- Nowadays, **isoniazid** is the main antibiotic of choice because (when activated by bacterial catalase) it prevents the formation of the waxy component of cell walls in *Mycobacterium tuberculosis* which are its main defence. Another antibiotic often used is **rifampicin** which prevents bacteria from producing proteins.

- For treatment of latent TB, isoniazid is used on its own. However this treatment must be continued for 6-9 months.

Active TB is usually treated with a mixture of antibiotics, switching part way through the treatment to a completely different antibiotic

www.amuseum.de/mikroskopie/mikroskopvortrag3.htm

<http://www.wadsworth.org/databank/mycotubr.htm>