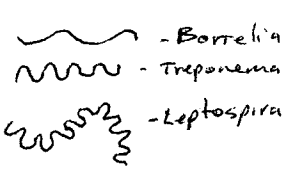
SPIROCHETES

- TREPONEMA ↔ oral Treponemes / T. Pallidum (syphilis)
- BORRELIA
- LEPTOSPIRA



ORAL TREPONEMES — ORAL SPIROCHETES are all Treponema

- rarely found in healthy sites, can be abundant in ANUG/Periodontitis

4 species = T. Denticola, vincentii, pectinovarum, Socranskii

VIRULENCE MECHANISMS: Adheres + Invades

- has INTERNAL Flagella - can move in Viscous Environment
- has Cytotoxic proteins - proteases, phospholipases, esterase, To break down cells
- uses IRON SEQUESTRATION

Use the MURINE ABCESS Model to test its virulence - Inject Treponema into animal, measure the size of the abcess. T. Denticola + other bacteria create synergistic effect.

TREPONEMA pallidum = Syphilis. - get it from direct contact (sexual/blood/saliva). Can cross Placenta (congenital syphilis)

BORRELIA BURGDORFERI — Least curved spirochete

- Reservoir = small mammals, deer, transmission via TICK
- creates Lyme Disease - Arthritis + generalized Neuro + cardiac manifestations

LEPTOSPIRA — MOST Highly Curved.

- creates Leptospirosis - Mild Flu-like illness or severe/fatal attacks with jaundice + Renal Failure.

CHLAMYDIA

- C. Trachomatis - eyes, genitalia, pneumonia in neonates
- C. pneumoniae - pneumonia, Atherosclerosis

C. TRACHOMATIS → Ocular Infections - neonatal Conjunctivitis, Keratoconjunctivitis, BLINDNESS

→ GENITAL Infections - STD ~~(Chlamydia, Lymphogranuloma Venereum)~~ (NonGonococcal Urethritis)

↳ most common STD; if you have baby and you have this, it infects their eyes, causes pneumonia in Neonates also

C. Pneumoniae - causes pneumonia, can infect many cell types

- has BIPHASIC LIFE CYCLE: 1) ELEMENTARY BODY — For Extracellular survival - Infectious.

2) Reticulate Body — Intracellular, replicative form

- Also assoc. w/ Atherosclerosis + cardiovascular disease.

Gram Positive Bacilli

- Corynebacterium – Diptheria
- Listeria – B-hemolytic, Food Borne.
- Bacillus – Anthrax, spore formers
- Lactobacilli → Cariogenic
- Clostridium → Spore forming, TOXINS
- Proprionibacterium → Normal Skin Flora
- Eubacterium → Normal Colon Flora
- Actinomyces → early plaque colonizers
- Nocardia → Soil, Pulmonary Infections

Corynebacterium – C. diptheriae – produces powerful exotoxin,

Listeria Monocytogenes. → Food Borne Listerosis (soft cheeses) grows in fridge
- Invades + Survives inside macrophages, β-hemolytic enzymes
- uses Internalin – To invade + enter cells
  Listeriolysin O – To lyse cell membrane it has invaded to leave + enter another
  Act A – Polymerizes Actin tail for mobility.

Bacillus – Spore Forming – B. Anthracis – has antiphagocytic capsule, produces potent exotoxins

Lactobacilli – In Urogenital tract – beneficial – inhibits opportunistic pathogens
– In Oral Cavity = Cariogenic (L. acidophilus, L. casei).

Clostridia – Spore Forming + Toxins Treat w/ Antitoxins – antibiotics don't kill spores
- C. Perfringens = Histotoxin – food borne illness – meat
- C. Tetani = Neurotoxin – Tetanus – Severe muscle spasms
- C. Botulinum = Neurotoxin – Most potent toxin known – Food Poisoning
- C. Difficile = Enterotoxin + Cytotoxin – disrupts cytoskeleton, diarrhea.

Propionibacterium – Normal Skin Flora

Eubacterium – Normal Colon Flora, can create Anaerobic mixed Infections w/ pus + foul smell

Actinomyces – Filamentous growth – can create Actinomycosis at cervicofacial area as a result of poor dental hygiene, tooth extraction, trauma. → lumpy jaw.
- early plaque colonizers (with strep), see higher numbers in healthy sites.
A. Odontolyticus seen in endodontic infections

Nocardia – Soil bacteria, cause pulmonary infections.