Corynebacterium diphtheriae (“club-rod”, “two membranes”) (p. 561),
cub shaped bacteria in palisades or “V” morphology produced by “snap” fission
toxin lysogen-derived, interferes with protein synthesis throughout body
pseudomembrane forms: conglomeration of bacilli, damaged epithelial, blood cells, fibrin.
produce sequellae: damage to heart, kidneys, NS.
Transmission by droplet aerosols. Prevented with toxoid in DPT immunization shot.

IRREGULAR, NON-SPORULATING GRAM-POSITIVE RODS, MOSTLY PLEOMORPHIC

Mycobacteria tuberculosis (p 562-564): 1882: Koch found etiological agent of consumption.
Currently, 1/3rd world pop infected!
Obligate aerobe, requires O2, long division time (18 hrs), therefore insidious onset.
aerosol transmission: only those with active lung infections are infectious.
Reproduce inside WBC, lyse, release more, spread, cause inflammation, massive necrosis
Can solidify to granulomas. Cause bloody sputum.
tubercles: host walls off with collagen, calcified, viable for years, visible by X ray.
If tubercles break, bacilli disseminate, lead to miliary (small grains) TB.
Test: Mantoux Test: inject tuberculin intradermally (antigen from cell wall):
If previously exposed:
PosRxn: delayed hypersensitivity: causes induration (hardening), erythema
Vaccine: BCG (Bacillus of Calmette and Guerin)
Treatment isoniazid, (inhibits synthesis of mycolic acids), rifampin
(inhibits mRNA synthesis) for 1 yr.
MDR-TB are a serious problem, especially in ill-housed prisoners, AIDS PTs

Mycobacteria leprae (p 557)(Hansen's disease)
1st bact. shown to be human pathogen.
Destroys peripheral nerves, skin and mucous membrane.
Not highly contagious, transmitted only: continual close contact, easily treated.
Two forms:
Tuberculoid (neural) lose sensation, tubercles surround region
Lepromatous (progressive) skin cells infected, esp. mucous cells of nose

OTHER HIGH G+C GRAM POSITIVE BACTERIA
Propionibacterium P. freudenreichii in Swiss cheese, CO2: holes, propionic acid sharp taste.
P. acnes promotes acne, common on skin (p 567)
Gardnerella vaginalis pleomorphic. Causes up to ½ cases of vaginitis: “clue cells” (bacteria laden), “whiff” test.

ACTINOMYCETES: filamentous, v. common in soil, smell of soil due to these. Two important as source of antibiotics

Streptomyces None pathogenic. Produce over 500 different antibiotics some effective against bacteria, viruses, protozoans and fungi.

Actinomyces israelii (ray fungus) branching filaments, mainly soil, some in mouth. Some cause jaw abscesses, dental caries or periodical infections. A. israelii causes actinomycosis of head, neck or lungs: tissue destroying

NOCARDOFORMS: (p 559) aerobic, rudimentary filaments, Gin + pleomorphic, aerobic, usually acid-fast
Nocardia asteroides: pulm. nocardiosis, destroy feet, hands
(note similarity of diseases to Mycobacterium)