Malaria

(Plasmodium vivax, ovale, malariae, and falciparum)

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Morphology

• Intracellular parasites are usually less than 7 microns in diameter

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Life Cycle

- Infected mosquito bites
  - Sporozoites inoculated to liver cells (merozoites)
- Break out $\rightarrow$ to red blood cells (all *Plasmoda sp.*) and to liver again (not *P. falciparum*)
- Liver $\rightarrow$ Red blood cell cycle can repeat many times, but not with *P. falciparum*
- In red blood cells $\rightarrow$ grow (trophozoites) $\rightarrow$ multiply (merozoites) $\rightarrow$ break out $\rightarrow$ other red blood cells
  - Some trophozoites differentiate into gametocytes which are then infective for mosquitoes
  - Parasites do not go from red blood cells back to liver cells ever.
Epidemiology

- Worldwide
- Not endemic in the United States, Canada, Europe, Russia, Israel, Cuba
Diagnosis

• Thick and thin blood smear
• Serology (Fluorescent antibody)
Symptomatology

• Rigors, fever, splenomegaly, anemia
• P. falciparum: can be malignant leading to cerebral malaria, coma, and death
  – No synchrony, though tendency towards every third day
• P. vivax and ovale: Chills and fever every third day (every other day)
• P. malariae: Chills and fever every fourth day (i.e. two days between febrile episodes)
Treatment

- Amodiaquine
- Chlorguanide (Proguanil)
- Chloroquine Phosphate
- Chloroquine Sulfate
- Hydroxychloroquine
- Primaquine
- Pyrimethanmine
- Pyrimethamine-sulfadoxine
Prevention

• Treatment of infected persons
• Vector control
• Chemoprophylaxis