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General discussion of dynamics of infectious diseases notes

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> *Notes from* Milon, Genevieve and Kevin Tan. "Discussion on dynamics of infectious diseases." Lecture, GEM4 session at MIT, Cambridge, MA, August 14, 2006. http://gem4.educommons.net/ (accessed MM DD, YYYY). License: Creative Commons Attribution-Noncommercial-Share Alike.

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JFERRER

GEM^4 – AUGUST 2006 8/14/06

GENERAL DISCUSSION OF THE DYNAMICS OF INFECTIOUS DISEASES

INFECTIOUS DISEASES ⇒ INVASIVE MICROBES THAT REACH:
- ONE OR MANY TISSUES
- TISSUES WHERE THESE MICROBES SENSE SIGNALS THEIR GENOME CAN PROCESS
→ PRODUCTION OF TRANSMISSIBLE PROGENY VIABILITY

- BEFORE 1970s NOT MUCH WAS PUBLISHED IN TEXT BOOKS ABOUT MICROBIAL INFECTIOUS DISEASES
- LAST 35 YEARS, A LOT OF ATTENTION ON MICROBIAL DISEASES
- CURRENTLY, GENOMICS HAVE SEQUENCED MANY OF PATHOGENIC MICROORGANISMS

ECOLOGY OF M. ULCERANS, THE CAUSATIVE AGENT OF BURULI ULCER (SKIN DISEASE)
→ CENTRAL + SOUTH AMERICA, CENTRAL AFRICA, INDIA, ASIA, SOUTH PACIFIC, AUSTRALIA

- NO TOOLS IN ENDEMIC AREA FOR EARLY DIAGNOSIS
- NO IMMUNOLOGICAL INTERVENTION
- MODE OF TRANSMISSION
→ NO INTER-HUMAN TRANSMISSION

"RESERVOIR" OF MICROBE IS AQUATIC ENVIRONMENT IN TROPICAL AREA.

→ IT IS NOT A BLOOD-FEEDER

COLLECTION OF SAMPLES OF INSECTS LIVING IN SWAMPY AREAS. THE ARE:

- CARNIVOROUS
- LIVE IN RIVERS, SWAMPY AREAS
- ABLE TO FLY
- ABLE TO "BITE" HUMANS THEY "MISPERCEIVE" AS PREYS.

SALIVA CONTAINS IMMOBILIZING AGENT

AFTER FED WITH M. ULCERANS, IT TENDS TO LOCALIZE AT THE SALIVARY GLANDS

INFECTION OF MICE EXPERIMENTS ⇒ LESS THAN 30 SECONDS OF EXPOSURE TO INSECT RESULTED IN TRANSMISSION.

- WATER BUGS ARE ABLE TO TRANSMIT M. ULCERANS TO LABORATORY MICE, LATTER DISPLAYING TAIL ULCERS

HOW M. ULCERANS IS LOADED TO INSECTS AS CARRIERS?

BY INSECTS FEEDING FROM OTHER ORGANISMS THAT EAT PLANTS CARRYING M. ULCERANS ON SURFACE

M. ULCERANS BINDS TO AND GETS INTERNALIZED BY PCASMACYTES