



ENCYCLOPEDIA OF INFECTIOUS DISEASES

Modern Methodologies

Edited by
Michel Tibayrenc



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ENCYCLOPEDIA
OF INFECTIOUS DISEASES



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Dennis E. Slice, born 1958, specializes in the development and application of tools for morphometric analysis. His work ranges from software development to research in forensic anthropology, ecology, and evolutionary biology. For a number of years, he has taught morphometrics courses at the University of Vienna. Department for Anthropology, University of Vienna, Althanstrasse 14, A-1091 Vienna (Austria)
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Marc Souris, PhD, born 1954, develops algorithms, methodology, and software in the field of geographic information systems and remote sensing since 1983. He is the principal author of the SavGIS global GIS software solution. He works for urban planning, risk analysis, and mitigation for natural disasters, and spatial and environmental epidemiology and disease emergence modeling.

COLOR PLATES

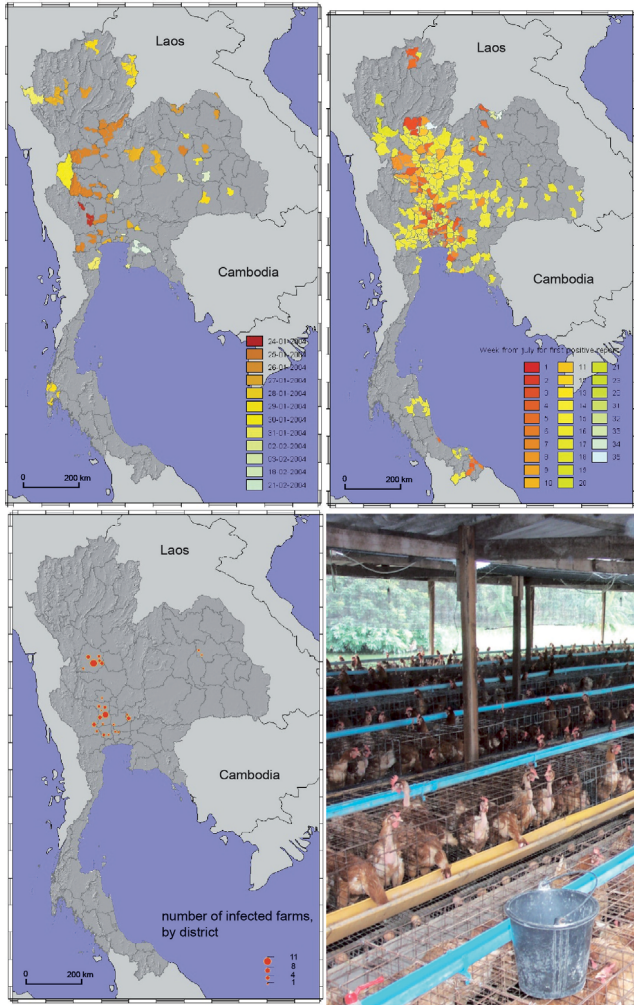


Fig. 32.18. Highly pathogenic avian influenza in Thailand. See text for full caption.

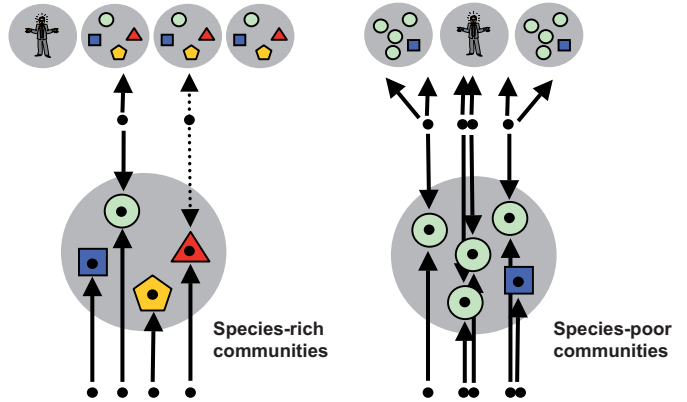


Fig. 33.7. Schematic representation of the ecology and epidemiology of transmission of Lyme vector-borne disease. See text for full caption.

World distribution of dengue – 2000

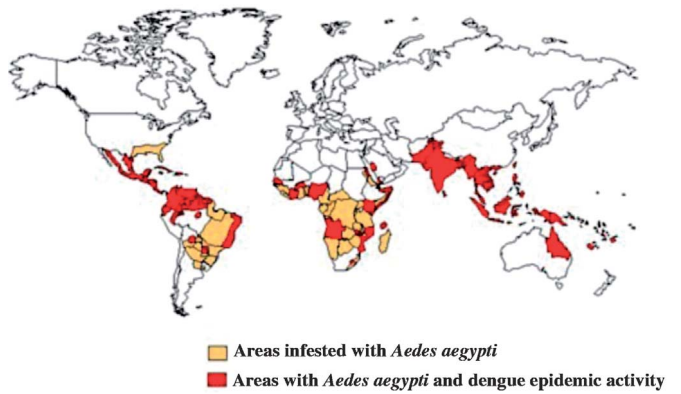


Fig. 35.5. Distribution of *Aedes aegypti*-infested areas and dengue epidemic areas (www.cdc.gov/.../dengue/map-distribution-2000.htm).

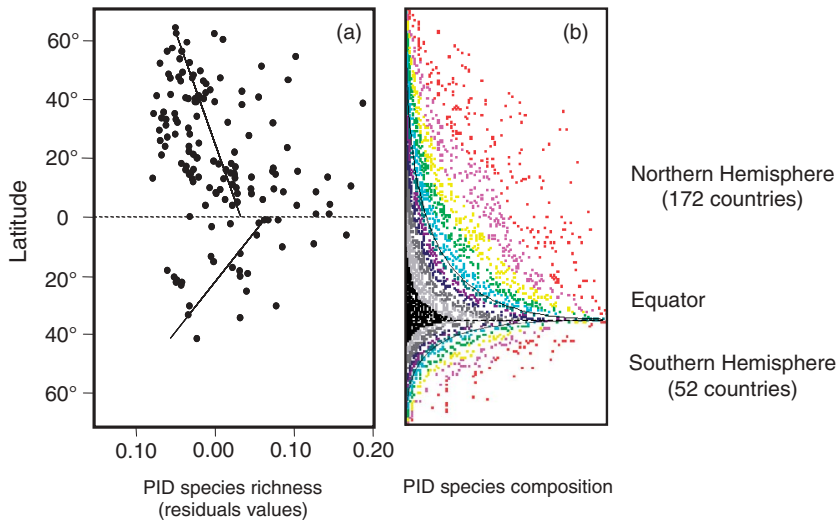


Fig. 33.8. (A) Evolution of parasitic and infectious disease (PID) species richness with latitude across the two northern and southern hemispheres. See text for full caption.

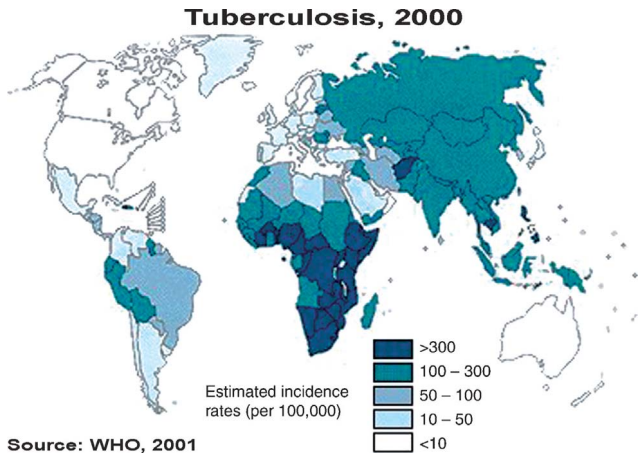


Fig. 35.6. Incidence rates for tuberculosis worldwide (www.travel-vacs.ca/.../Fact_Sheets12.cfm).

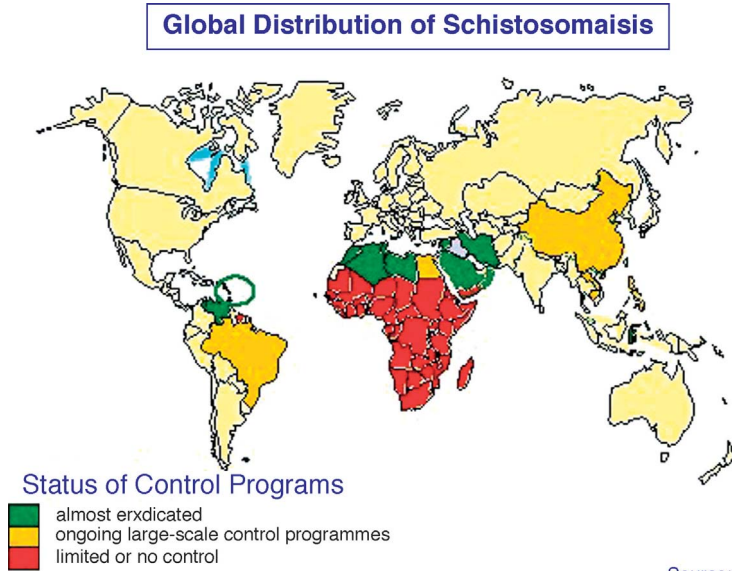


Fig. 35.7. Distribution and control programs of schistosomiasis (www.schisto.org/.../global_distribution.htm).



Fig. 38.4. VITEK—automated specimen-processing and handling system (BioMerieux).

COLOR PLATES

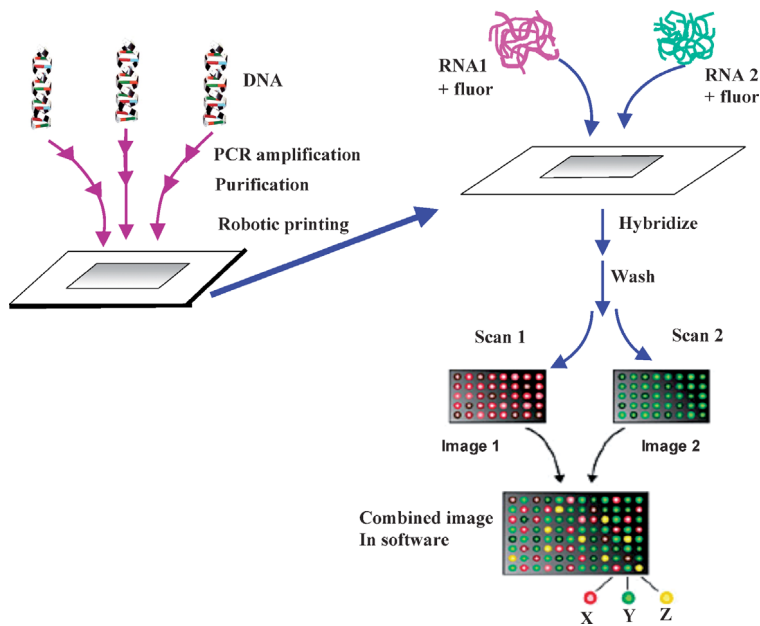


Fig. 38.5. Schematic presentation of microarray technology. See text for full caption.

INTEGRATED PHARMACOGENOMIC APPROACH

Genetics – Compares genotypes and allele frequencies between ‘responders’ and ‘non-responders’

Transcriptomics – Compares levels of mRNA transcripts in biologically relevant tissue between ‘responders’ and ‘non-responders’

Proteomics – Compares amounts of protein in biologically relevant biofluid tissue between ‘responders’ and ‘non-responders’

Metabonomics – Compares endogenous metabolites in biofluids between ‘responders’ and ‘non-responders’.

Adapted from Johnston & Penny from *DrugPlus International*, September 2005

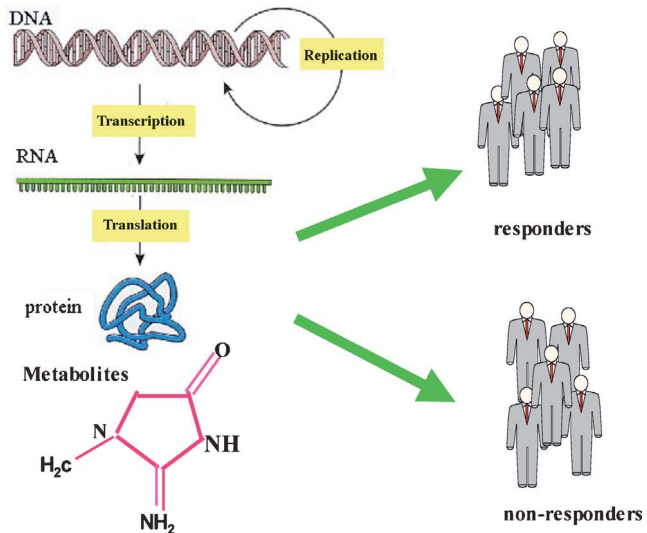


Fig. 38.7. Integrated pharmacogenomic approach to discern responder from nonresponders to drugs. (Adapted from Johnston G and Penny M, *DrugPlus International* 2005;4:19–22.)



Fig. 40.2. *The Triumph of Death* by Pieter Bruegel the Elder (toward 1562). Death is in the center of the painting. It is armed with a scythe and is astride an emaciated horse. It is pushing Man into a large box whose door is marked with a cross—clearly a trap door. A hoard of skeletons is invading the scene. They are striking down everyone, with no exception: the king, the mother, and her baby; the knight and the fair ladies; the peasant and the lovers playing music who do not notice the presence of a skeleton behind them. Card players are defending themselves with swords; they have not understood that all resistance is futile. The landscape reflects this death: the trees and grass are dried out, behind the hills there is an infernal fire burning, skeletons everywhere are slaughtering humans: drowning them, hanging them, cutting their throats. A man about to be decapitated is praying in vain, his rosary in his hands. Any promise of redemption or resurrection is absent in this painting. Skeletons are sounding the knell, and there is no hope.



Fig. 40.10. *Death and Life* (G. Klimt 1916) oil on canvas, 178 × 198 cm Vienna, Dr Rudolf Leopold Collection.



Fig. 40.6. Wax sculpture (Jules Baretta (1834–1923) Moulages 2923, 11, 17, 208 Jules Baretta (1834–1923) Collection générale de l'Hôpital Saint Louis. Extrait de: *Le musée des moulages de l'hôpital Saint-Louis*. G. Tilles et D. Wallach, 1996. Ed. APHP et Doin.



Fig. 40.11. *Les Femmes d'Alger (O. J. M.)* (Pablo Picasso, 1907). Museum of Modern Art, New York. Oil on canvas (224 × 234 cm).