

9. Molecular Genetics and Comparative Evolution

J. Langridge

This book breaks new ground by taking into account the striking advances of molecular biology in explaining the occurrence and causes of evolution in all organisms from bacteria to man. Its focus is on the structure of genes and the control of gene action rather than on the physical evidence of past evolution or the comparative morphology of contemporary organisms. The author re-examines the underlying problem of evolution, how genetic changes are produced, in the light of modern molecular biology. The evidence presented indicates that, in addition to point mutations, mechanisms of generating genetic change such as the rearrangement of gene parts, conversion, reverse transcription and transposition are responsible for major evolutionary advances. Alterations in gene structure that lead to adaptive changes are discussed at the sub-specific, specific and ordinal taxonomic levels; and reasons are suggested for the slowing or cessation of major evolution in many groups.

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