

David N. Cooper and Hildegard Kehrer-Sawatzki (eds): Handbook of Human Molecular Evolution

Wiley, Chichester, 2008, 1,717 pp, £295.00, ISBN 978-0-470-51746-8; two volumes

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This handbook or set of handbooks forms part of Wiley's ambitious 'Encyclopaedia of Life Sciences' comprising 26 volumes that cover wide-ranging aspects of biological sciences. It is also available as an 'on-line' version (www.els.net). The handbook focuses exclusively on human molecular evolution. It is a massive and challenging task that has been extremely well-managed by the editors, who are themselves renowned human geneticists and have a sound understanding of the theoretical and applied aspects of human genetics and genomics.

The two volumes cover more than 280 chapters, elegantly written by some 400 authors, all of whom are evidently well-informed and leaders in their chosen area of evolutionary genetics, comparative biology, genomics or human genetics. Both volumes are produced as hard bound volumes each weighing a wrist-spraining 2.4 kg! The two volumes are divided into sections: general concepts in evolutionary genetics; mutation, adaptation and natural selection; evolution and population genetics; human evolution; human genome evolution; evolution of human gene structure and function; evolution of gene expression; mitochondrial genome evolution; evolution and disease susceptibility; and finally analysis of ancient DNA. Each section contains a number of articles organised according to complexity, starting with introductory articles (suitable for undergraduates and non-specialists) and proceeding to more complex articles presumably aimed at post-graduates and advanced researchers.

Each article is brief, most around 3–4,000 words with appropriate illustrations and tables, references and a brief

guide to 'further reading'. Some contain impressive colour illustrations that highlight the importance of molecular cytogenetic techniques in comparative genomics and in applied genomics/genetics. The editors have done a splendid job in maintaining the uniformity of tone and clarity throughout, yet still allowing authors to express themselves and reflect their individual views and opinions.

The publishers and editors deserve to be congratulated for publishing this major book which coincides with the 200th anniversary of the birth of Charles Darwin. The book is well-timed, with biologists, theologians and sociologists engaged in intense debate on the Darwinian Theory on the origin of species, evolution and natural selection. The foreword by Richard Dawkins is most appropriate, reflecting his and other followers' enthusiasm for evolution, natural selection and the importance of genetics and genomics. Some sections of the book deserve to be highlighted. The section on human evolution provides a detailed account of the origins of *Homo sapiens*. Every biology teacher will find this section extremely useful in the preparation of lectures and tutorials on human evolution. In addition, several sections discuss applied molecular aspects of evolution that are relevant to modern medicine. The concept of Darwinian medicine is discussed in a separate article which puts all the evidence of evolution, natural selection and the genomic bases in the context of complex human phenotypes.

There is little doubt that this marvellous publication should be in the library of universities and academic institutions dealing with basic and applied biology research and education. Despite the cost, this book should be worth every penny given the wealth of information and invaluable data it provides all embedded in one resource. It will not be surprising if the individual academic or researcher decides to invest in this resource and enrich their personal collection of leading books in genetics and genomics.

Commissioned-not peer reviewed.

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