Biochemistry (Moscow), Vol. 67, No. 12, 2002, p. 1406. Translated from Biokhimiya, Vol. 67, No. 12, 2002, pp. 1703-1704.

BOOK REVIEW

Molecular Systematics and Evolution: Theory and Practice

(Rob DeSalle, Gonzalo Giribet, and Ward Wheeler, eds., Birkhäuser Verlag, Basel-Boston-Berlin, 2002, 309 p.)

Techniques in Molecular Systematics and Evolution

(Rob DeSalle, Gonzalo Giribet, and Ward Wheeler, eds., Birkhäuser Verlag, Basel-Boston-Berlin, 2002, 407 p.)

Publishing of two books on molecular evolution one after another by Birkhäuser Verlag clearly indicates rising attention to this realm of molecular biology and biology as a whole. The reason for the growing interest in this area is advances that have been made already and that are anticipated in genomics and specifically comparative genomics including molecular phylogenetics as its essential domain.

As noted in the prefaces, the editors and the majority of the authors are either researchers of the American Museum of Natural History in New York, or persons in some way associated with AMNH.

The editors of the two volumes (who also wrote several chapters) are the same, the lists of other contributors overlap partially, but the issues and standpoints are different.

The volume entitled as "Molecular Systematics and Evolution: Theory and Practice" consists of 18 chapters in three sections.

Part 1, "Evolutionary analysis at different levels", includes 6 chapters, describing results obtained in studies of some exemplary groups of animals and typical problems arising in operation with taxa of different ranges: populations and species (*Heliconus* butterflies), species and genera (Hawaiian Drosophilidae), orders and families (birds, mammals, insects), phylums, classes, and orders (Metazoa).

The second part, "Current problems in molecular systematics" (7 chapters), touches on problems of DNA multiple sequence alignments and searching of optimal phylogenetic trees, comparison of different phylogeny reconstruction methods, general aspects of species and homology concepts, relationship between systematics and phylogeny, and correspondence of molecular and morphological data.

The final section, "New approaches to molecular evolution", consists of 5 chapters on evolution of protein families, specifically, spider silk proteins; problem of ancestral state reconstructing by comparative analysis; coevolution of squids and luminous bacteria (*Vibrio*); and contribution of horizontal gene transfer in microbial evolution and origin of Archaea, Bacteria, and Eucaria.

Not all topics represent a deep and broad insight into the problem. The editors' preferences in deciding on authors lead to some bias of subject matters of the book. However in any case the reader will find an author's view on an issue and main references. It is not likely that the book is a perfect source for the initial conversance with the methodology and advances of molecular phylogenetics while it is of obvious interest to trained researchers and experts in the groups of animals considered in the first section.

The manual "Techniques in Molecular Systematics and Evolution" is a 7th volume of the continuing edition "Methods and Tools in Biosciences and Medicine" started in 1999. There are 17 chapters distributed about equally between two parts: "Analytical methods" and "Laboratory methods".

The first part gives an insight into computer methods of sequence analysis—alignment procedures, phylogenetic tree constructing, estimating robustness of phylogenetic inferences, information on genomic data bases, and tools as well as short annotation of software for analyzing data at the population level.

The second part of the manual presents foundations and protocols for collecting and storing of biological samples for molecular evolutionary studies, DNA isolation from various sources (24 protocols used in different laboratories!), isolation, and amplification of DNA from fossilized mammalian bones, PCR methods, high-throughput DNA sequencing, microsatellite analysis, comparative study of developmental gene expression in animals using *in situ* hybridization techniques. Websites of many live stock, frozen tissue, seed, cell and tissue line collection centers, museums, herbaria, and botanical and zoological gardens as well as legal and ethical issues of biological studies and other molecular biology related sites are referenced.

The book is certainly a valuable tool for students and other persons for introducing the subject and also for researchers already experienced in molecular phylogenetics. This manual should be translated into Russian.

A. V. Troitsky

0006-2979/02/6712-1406$27.00 ©2002 MAIK "Nauka/Interperiodica"