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Action of different bioactive compounds in diverse organisms is based on common molecular mechanisms. From this point of view understanding of interactions of ligands and corresponding receptors is equally important for solving pharmacological, agrochemical and environmental problems. Despite to the fact that the first modern investigation of quantitative-structure-activity relationships (QSAR) of physiologically active molecules was focused on action of auxin derivatives on plant systems the present state of knowledge of QSAR in medicine has far outstripped that in agrochemistry. For this reason methods and conceptual approaches developed in QSAR studies of drugs are inspiring for scientists investigating mechanisms of action of phytohormones and developing new pesticides.

The book is based on contributions presented on a symposium sponsored by Division of Agrochemicals of the American Chemical Society which was held in Los Angeles, California, in September, 1988. It consists from four sections containing 24 papers. Section 1 (View on the Field) is focused on progress in design of bioactive molecules, prediction of activity and molecular modelling, Section 2 (Ways and Means) on computer and statistical modelling and sequence – function relationships of proteins. The third section (Agrochemical Mechanisms) contains papers dealing with QSAR studies of agrochemicals as e.g. inhibitors of insect juvenile hormone esterase, fenvalerate and ether-type pyrethroids and photosystem II inhibitors and more conceptual contributions focused on agrochemical design strategies and molecular designs of fungicide development. Sections 4 and 5 are dedicated to drug and toxicity mechanisms, respectively.

The book is a good example of successful multidisciplinary approach to solution of problems of general biological importance. It clearly shows how combination of statistical and computer-based surveys of known structures of receptors and ligands can minimize classical testing of broad spectrum of ligand analogues and predict characters of the most promising chemical structures. This elegant and inspirational text can be recommended to scientists studying mechanisms of action of plant growth regulators and developing new agrochemicals.