

Book Review

Excitatory Amino Acid Receptors. Design of Agonists and Antagonists

(Series in Pharmaceutical Technology)

Edited by P. Krosggaard-Larsen and J. J. Hansen

(Series Editor M. H. Rubinstein)

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382 pages

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The last ten years has seen an explosion of interest in the role of excitatory amino acids (EAAs) as neurotransmitter agents. As always, progress in the area has been dependent on the availability of compounds that can mimic or antagonize the actions of what are thought to be the endogenous transmitter ligands, glutamate and probably also aspartate. The acidic nature and hydrophilicity of these compounds led initially to the design of analogues that were equally acidic and hydrophilic. These early tools have proved of immense value in the definition of the major classes of subtypes of EAA receptors, mainly through their use in in-vitro electrophysiological preparations. Krosggaard-Larsen and Hansen's book describes the discovery and development of these tools, but includes much more than that with excellent review chapters on neurodegenerative disorders (Sauer & Fagg), receptor distribution (Sakurai & Young) and techniques for their electrophysiological investigation (Lambert & Andreassen). If you are puzzled by the use of the terms "flip" and "flop", look no further than Graham Johnson's highly readable account of the structural characteristics of EAA receptors and the insights brought to them by use of recombinant DNA technology.

In addition to these very positive features, it is refreshing to

read arguments that run counter to what might seem to be the authors vested interests: thus, Griffiths et al put forward the case for a neurotransmitter/neuromodulatory role of sulphur-containing amino acids in some detail, but are sufficiently self-critical to place the arguments in perspective and raise the key questions and criteria which must be satisfied before any such hypotheses can be accepted.

In general, the book is as up-to-date as could be expected from such a well-produced text with many coloured and informative illustrations. The occasional "note added in press" also adds to the feeling that the chosen authors have their fingers on the pulse of a field that is moving forward rapidly. There are perhaps only two areas where a little more attention could have been applied. The first is the lack of consideration given to the mundane questions of brain penetration and bioavailability—design features that will turn pharmacological tools into clinically usable drugs. The second is the lack of detailed examination of the potential adverse side-effects of EAA ligands that will dictate whether such compounds get into the clinic at all. It is reasonable to suppose that these issues are less discussed because they are simply too close to the commercial heart of the pharmaceutical companies that sponsor much of the drug discovery research in this area. They are, however, the issues that will decide whether the therapeutic potential of EAA receptor ligands can be ultimately brought to fruition. It is unfortunate that progress on both fronts will determine the speed with which the contents of the book are rendered out-of-date. While it will always remain a highly readable account, it is a personal hope (and one expressed with due respect to the authors) that its long-term value will not be great.

M. TRICKLEBANK
MERCK SHARP & DOHME RESEARCH LABORATORIES, UK

Book Review

Biologic Rhythms in Clinical and Laboratory Medicine

Edited by Y. Touitou and E. Haus

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Examples of the observation and recording of time-dependent biological variation can be found in all civilizations. The burgeoning of the modern era of scientific research into biological rhythms can be traced to the 1950s, and the clear demonstration that observed rhythms were derived from endogenous clock mechanisms. It is only in the last decade, with the recognition of the clinical significance and practical applications of chronobiology, that the body of scientific knowledge in this area has begun to be accepted and integrated into the wider scientific consciousness.

This process of acceptance has been paralleled by, and promoted by, the appearance in the last few years of a number of comprehensive monographs and books. This volume is the latest (though almost certainly not the last), most comprehensive, and in many ways the most impressive.

The editors set out to cover the whole gamut of scientific research into biological rhythms, and have assembled an impressive team of acknowledged experts to help them achieve their goal.

The volume is comprised of 47 chapters grouped into 20 sections. The core of the material is contained in 10 sections devoted to a systematic treatment of physiology and pharmacology. These sections vary greatly in length. Thus there are

single chapters on psychiatry, the gastrointestinal tract, the respiratory system and the kidney. This contrasts with longer sections on endocrine and metabolic function (8 chapters) and cell proliferation and cancer (5 chapters). This imbalance largely reflects the extent to which clinical applications have been successfully demonstrated, but is also, one suspects, coloured to some extent by the particular interests of the editors.

This core of material is flanked by sections on basic concepts, underlying mechanisms, methodological considerations in epidemiology and laboratory medicine, and specific applications—rhythms in the young and in the old, rhythms in mental and physical performance, rhythms in shift-workers, after transmeridian flight, and in sleep.

Inevitably with such an ambitious, large-scale project there is some unevenness, and some chapters will be more accessible to the non-expert than others. All disciplines of science evolve their own jargon, and chronobiology is not immune from this tendency; there are occasions—mercifully rare—when this may deter the uninitiated, as will the tendency for different contributors to use different methods of presentation and different terminology. However, the overall standard is high and the individual chapters are well referenced.

This volume is essentially a work of reference and as such will prove invaluable to anyone working in the field. For the non-specialist too this is a book that can be dipped into with advantage. On both counts it deserves a place on the library shelf.

P. H. REDFERN
UNIVERSITY OF BATH, UK