Book review

5HT_{2C} Receptors in the Pathophysiology of CNS Disease

Giuseppe Di Giovanni, Ennio Esposito, Vincenzo Di Matteo (Editors). Published by Humana Press, New York, 2011. 557 pages, hardback \$239. ISBN 978-1-60761-940-6.

I remember the debate in the 1960s and 1970s as to whether there were two or three 5-HT (serotonin) receptors and was an interested spectator to the subsequent explosion in molecular pharmacology that led to our current tally of 14 receptors for 5-HT reliably characterized by expression cloning. The maturity of this field of study today is well illustrated by this book, where 557 pages are devoted to a summary of our state of knowledge of just one of these receptors. The book is well presented, with good use of diagrams, some in colour, although micrographs suffer from being reproduced on matt rather than glossy paper. In the main it is suitably up to date, with many citations from the 2010 literature, although a few chapters had clearly been longer in gestation. There is a good mix of international authors, with acknowledged leaders in the field being responsible for some key chapters.

The book opens with a chapter on the history of the discovery of the 5HT_{2C} receptor some 25 years ago by a traditional pharmacology approach at the then Sandoz laboratories in Basle. Initially called the 5-HT_{1C} receptor on the basis of ligand-binding studies, it was renamed 5HT_{2C} after its second messenger was found to be the phospholipase C cascade and expression cloning revealed a family resemblance to the other 5-HT₂ receptors. Subsequent chapters describe the widespread but heterogeneous distribution of the 5HT_{2C} receptor in the brain, with good evidence emerging for a role in modulating the dopamine pathways. The special features of the receptor are given suitable prominence, revealing that this is one of the small number of G-protein-coupled receptors that displays constitutive activity and is subject to RNA editing during its expression. The hot topic of receptor dimerization also

receives a mention, although it is not yet clear whether this is a property of the 5HT_{2C} receptor *in vivo*. It is pleasing to find a chapter devoted to the medicinal chemistry of 5HT_{2C} ligands, explaining the challenge of making molecules that adequately distinguish between 5HT_{2A}, 5HT_{2B} and 5HT_{2C} receptors. The use of transgenic animals, in particular 5HT_{2C}^{-/-} mice, in order to help elucidate the diverse physiological functions of this receptor is also comprehensively described. There is a succession of interesting chapters dealing with the possible role of the receptor in depression, schizophrenia, addiction, eating behaviour, dyskinesias, sleep, epilepsy, cognition, Alzheimer's disease and ocular hypotension. For the non-expert, it would have been valuable to have followed these with an expert summary that attempted to put all of this in context and point out the areas of most likely clinical relevance. As it was, the book was left open ended, which may not be an issue if it is intended only for the bookshelves of the cognoscenti.

In summary, this is a useful book describing the properties of a receptor that may well turn out to be a therapeutically important drug target, with selective ligands already being evaluated in phase II trials for control of appetite. However, the high price of the book and the lack of a concluding summary chapter may restrict it to use by experts in the field.

Competing Interests

There are no competing interests to declare.

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RECEIVED

1 January 2011

ACCEPTED

1 January 2011

ACCEPTED ARTICLE

8 June 2011