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Book Reviews

Hydrolases in Organic Synthesis. by U. T. Bornscheuer and R. J. Kaslauskas. Wiley-VCH: Weinheim, 1999. 336 pp. ISBN 3-527-30104-6.

This an excellent book by two highly qualified experts in the field. Bornscheuer and Kaslauskas have set out, and succeeded, in producing a definitive manual on hydrolytic enzymes (especially lipases, esterases, and proteases) for organic chemists. The book opens with a short introduction followed by an excellent account of the structure and availability of lipases, esterases, and proteases. In view of the important contributions made by Kaslauskas to our understanding of lipase structure and mechanism, this chapter is authoritatively written and contains much useful information distilled from the literature. The chapter concludes with an interesting section on directed evolution, an area of research that promises much for the optimisation of enzyme activity and stability. Chapters 3 and 4 deal with the practical aspects of using hydrolytic enzymes in the laboratory, followed by two excellent chapters, 5 and 6, which give numerous examples of the range of chiral intermediates that can be prepared using lipases. These two chapters are organised in a way that will be appealing to organic chemists since the authors make use of high quality diagrams to illustrate the complementary specificity of the different enzymes. Chapters 7, 8, and 9 continue in the same vein, covering phospholipases, proteases, and esterases, respectively. The only minor criticism by this reviewer is that chapters 10, 11, and 12, which conclude the survey of hydrolytic enzymes by covering epoxide hydrolases, nitrile hydrolases, and glycosidases, respectively, do not do complete justice to the volume of literature associated with these enzymes. The book concludes with a 100-page section devoted to references which represents an invaluable resource. Remarkably this book, which arrived on my desk in late May, contains some 1999 citations, a tribute to the efficiency and hard work of both the authors and publishers.

This is quite simply the best book of its type and can be unreservedly recommended to organic chemists who have an interest in using hydrolytic enzymes in synthesis. In view of the continuing increase in the use of biocatalysis for organic synthesis, I suspect that this book will become a classic before too long.

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