

Book reviews

A Multilingual Glossary of Biotechnological Terms. Edited by H.G.W. Leuenburg, B. Nagel and H. Kölbl. Verlag Helvetica Chimica, Basel, 1995. 251 pp. Price £31.00. ISBN 3-906390-13-6.

Biotechnology is the integration of natural sciences and engineering sciences in order to achieve the application of organisms, cells, parts thereof and molecular analogues for products and services. This is the definition of biotechnology that was adopted by the General Assembly of the European Federation of Biotechnology in 1989. The definition reveals that biotechnology covers a wide range of specialised disciplines of science, including chemistry, biochemistry and chemical engineering.

A Multilingual Glossary of Biotechnological Terms contains IUPAC approved definitions of over two hundred and thirty terms frequently used in relevant literature, together with their translation into six languages, namely French, German, Japanese, Portuguese, Russian and Spanish. The terms are presented in dictionary format for ease of location, and are listed again in the index, without the definition, for ease of translation.

The aim of this book has been to facilitate communication between chemists, chemical engineers, biologists, and bioengineers, and to this extent this volume must be seen as a success. The terms detailed in the book form an extensive vocabulary which scientists can draw from. Translations of the different terms into the six other languages listed are easily accessible, even to those scientists who have no understanding of the other languages.

A Multilingual Glossary of Biotechnological Terms will prove to be a valuable reference source for workers with multilingual requirements in the fields of microbiology, genetic engineering, biochemistry, molecular biology, biochemical engineering, bioprocessing and anyone interested in the general concepts of biotechnology, and is thus highly recommended.

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Carbohydrate Building Blocks. By M. Bols, J. Wiley and Sons Chichester, 1996. ix + 182 pp. ISBN 0-471-13339-6.

Stereoselectivity in organic synthesis has become increasingly important as the usefulness of racemic products in the pharmaceutical industry decreases. Many routes have been devised for the synthesis of

complex asymmetric structures in an enantimerically pure form. The most fruitful of these takes advantage of readily available optically pure starting materials of known absolute configuration. The readily available carbohydrates and their numerous easily obtainable derivatives make unequaled sources of such enantio-merically pure starting materials.

Carbohydrate Building Blocks aims to make available a collection of building blocks from which the synthetic chemist can easily locate chiral starting materials that he or she would find useful.

The book begins with an overview of carbohydrates as starting materials in chiral synthesis. The main advantage when choosing a carbohydrate building block is one of cost, the price of these starting materials being so low that synthesis can be carried out on any scale without difficulty.

Traditionally, the most extensively employed method of selectively manipulating monosaccharides is the formation of acetal/ketal derivatives (Chapter 2). Besides the use of acetals, there exists a number of possibilities for the selective functional group conversion of the different hydroxyl groups in a monosaccharide (Chapter 3)

Oxidation or reduction of monosaccharides can lead to the formation of lactones or polyols respectively, which are useful building blocks for stereoselective synthesis (Chapters 4 and 5). 1,6-Anhydro sugars are a group of compounds of increasing potential use as building blocks due to their rigid structure and stability in the presence of many reagents. Also, their high crystallinity makes them easy to work with (Chapter 6).

Monosaccharides containing unsaturation are valuable synthons, particularly for making branched chain compounds. The most readily available unsaturated sugars are the 1,2-glycols, which serve both as useful building blocks in their own right and as precursors to many other unsaturated sugar derivatives (Chapter 7).

Reducing sugars undergo complicated reactions when treated with strong base or acid, however exceptions to this are D-fructose and lactose when treated with base (Chapter 8), and glucal when treated with acid (Chapter 9).

Some of the least expensive available carbohydrates are a number of disaccharides, which have in the past found little synthetic use. Chapter 10 gives an insight into how they can be made useful.

This book is well written and produced to a high scientific standard, with clear and precise reaction schemes. It is also well indexed with all of the chiral building blocks detailed in the book listed in a stereo-