Hyaluronan: Structure, Metabolism, Biological Activities, Therapeutic Applications, 2 Vols., E.A. Balazs, V.C. Hascall. Matrix Biology Institute, Edgewater, NJ, USA (2005). xxxii + 912 pp., $140-00, ISBN: 0-9771359-0-X

Hyaluronan is a naturally occurring polysaccharide, discovered, named and initially researched by the French chemist Portes during the last two decades of the eighteenth century. It is widely distributed in the connective tissue and vitreous and synovial fluid of mammals, and acts as a lubricant and shock-absorbing material in the fluid of joints. It is a linear polysaccharide consisting of a disaccharide-repeating unit containing D-glucuronic acid and 2-acetamido-2-deoxy-D-glucose. Hyaluronan has a very high molecular weight, affording very viscous aqueous solutions, even at low concentrations. Commercial sources include Cock's combs, human umbilical cords and via fermentation (*Streptococcus equi*). Biologically, it is far more than just a high viscosity space filler, since it is capable of interacting with a wide range of biomolecules, including tissue components, proteins, proteoglycans, growth factors, etc.

Hyaluronan: Structure, Metabolism, Biological Activities, Therapeutic Applications is a two volume set resulting from an international conference held at the Clevelend Clinic, Cleveland, Ohio, USA in conjunction with the Matrix Biology Institute, Edgewater, New Jersey, USA, to celebrate the research contributions of Torvard Laurent, Professor of Medical and Physiological Chemistry at the University of Uppsala, Sweden. The first volume begins with a brief overview of the career and achievements of Prof. Laurent by a close colleague and friend, Prof. John E. Scott. The volume is then divided into five chapters, each of which is composed of many articles (67 articles in total in this volume) that cover the topics of structure and properties in solution, biosynthesis, biodegradation, tumours, and modified hyaluronans and their therapeutic use. The second volume is divided into another five chapters, each of which is also composed of many articles (65 articles in total in this volume) that cover the topics of hyaluronan and the musculoskeletal system, the cardiovascular system and skin, reproductive systems and during development, neural tissues and kidney, and inflammation, granulation and regeneration.

These volumes provide detailed information on the functions and uses of hyaluronan, and cover the integration of work on the therapeutic application of hyaluronan with that of fundamental research, directed toward better understanding of the function of this molecule in health and disease. Basic, clinical and industrial investigations by scientists whose works are in the forefront of research on hyaluronan is provided, making *Hyaluronan: Structure, Metabolism, Biological Activities, Therapeutic Applications* essential references for all individuals with interests in hyaluronan chemistry, biochemistry, biotechnology and medical device technology.

John F. Kennedy *
Miqi Zhang
Chembiotech Laboratories, Institute of Research and Development, University of Birmingham Research Park, Birmingham B15 2SQ, UK

Available online 7 September 2006

* Corresponding author.
doi:10.1016/j.carbpol.2006.06.006

Chemistry for the Biosciences, J. Crowe, T. Bradshaw, Paul Monk. Oxford University Press, Great Clarendon Street, Oxford (2006). xx + 571 pp., £22-99, ISBN: 0-19-928097-5

Chemistry for the Biosciences consists of seventeen chapters, each chapter focusing on a different aspect of chemistry. Readers are introduced to the world of science, in the first chapter, which focuses on the importance of the subject. It questions '*Why bother with chemistry?*' and establishes the need-to-know basics: symbols, units and vital concepts. '*Atoms: the foundations of life*' (chapter two) describes the chemical elements and energy of atoms, atomic composition and structure, valence shells and valence electrons. A comprehensive discussion on compounds; bonding of atoms, compound formation, valence shells, Lewis dot symbols, and the ionic bond occurs in chapter three.

'*Molecular forces: holding it all together*', the fourth chapter, goes on to consider different types of bonding (chemical bonding versus non-covalent forces), non-covalent forces, polarity and polarization. The next two chapters cover the framework of life and organic compounds, and compounds of the organic range and their uses, respectively. Biological macromolecules – the 'everyday' chemicals: nucleic acids, amino acids and proteins, carbohydrates and lipids, which are natural energy stores constitute chapter seven. The proceeding two chapters focus on the shape and structure of molecules. Topics covered include structure and function, shape, bond angles, rotation and conformation, hybridisation and orbital shapes, structural complexity, biological structure, structural flexibility, muscle contraction and enzymes. Proving the existence of different chemicals, quantities and mass is the basis of chapters ten and eleven. Chapter ten focuses on chemical analysis, namely filtration, chromatography and electrophoresis, whilst chapter eleven covers connecting molar quantities to mass.

'*Isomerism: generating chemical variety*', (the next chapter), focuses on isomers, a group of compounds that comprise of exactly the same atoms, but constructed in different ways. Subjects include structural isomers, stereoisomers, chirality and the chemistry of isomers. Chapter thirteen studies different kinds of chemical reactions, describing the stoichiometry of chemical reactions.