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0521462924 - Amino Acids and Peptides
G. C. Barrett and D. T. Elmore
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The authors' objective has been to concentrate on amino acids and peptides without detailed discussions of proteins, although the book gives all the essential background chemistry, including sequence determination, synthesis and spectroscopic methods, to allow the reader to appreciate protein behaviour at the molecular level. The approach is intended to encourage the reader to cross classical boundaries, such as in the later chapter on the biological roles of amino acids and the design of peptide-based drugs. For example, there is a section on enzyme-catalysed synthesis of peptides, an area often neglected in texts describing peptide synthesis.

This modern text will be of value to advanced undergraduates, graduate students and research workers in the amino acid, peptide and protein field.

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AND
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Foreword

This is an undergraduate and introductory postgraduate textbook that gives information on amino acids and peptides, and is intended to be self-sufficient in all the organic and analytical chemistry fundamentals. It is aimed at students of chemistry, and allied areas. Suggestions for supplementary reading are provided, so that topic areas that are not covered in depth in this book may be followed up by readers with particular study interests.

A particular objective has been to concentrate on amino acids and peptides, as the title of the book implies; the exclusion of detailed discussion of proteins is deliberate, but the book gives all the essential background chemistry so that protein behaviour at the molecular level can be appreciated.

There is an emphasis on the uses of amino acids and peptides, and on their biological roles and, while Chapter 8 concentrates on this, a scattering of items of information of this type will be found throughout the book. Important pharmaceutical developments in recent years underline the continuing importance and potency of amino acids and peptides in medicine and the flavour of current research themes in this area can be gained from Chapter 9.

Supplementary reading
(see also lists at the end of each Chapter)

Standard Student Texts

Standard undergraduate Biochemistry textbooks relate the general field to the coverage of this book. Several such topic areas are covered in

- Zubay, G. (1993) *Biochemistry*, Third Edition, Wm. C. Brown Communications Inc, Dubuque, IA
and
Voet, D. and Voet, J. G. (1995) *Biochemistry*, Second edition, Wiley, New York

 Foreword

Typically, these topic areas as covered by Zubay are

- Chapter 3: 'The building blocks of proteins: amino acids, peptides and proteins'
- Chapter 4: 'The three-dimensional structure of proteins'
- Chapter 5: 'Functional diversity of proteins'

Removed more towards biochemical themes, are

- Chapter 18: 'Biosynthesis of amino acids'
- Chapter 19: 'The metabolic fate of amino acids'
- Chapter 29: 'Protein synthesis, targeting, and turnover'

Voet and Voet give similar coverage in

- Chapter 24: 'Amino acid metabolism'
- Chapter 30: 'Translation' (i.e. protein biosynthesis)
- Chapter 34: 'Molecular physiology' (of particular relevance to coverage in this book of blood clotting, peptide hormones and neurotransmitters)

**Supplementary reading:
 suggestions for further reading**

(a) Protein structure

Branden, C., and Tooze, J. (1991) *Introduction to Protein Structure*, Garland Publishing Inc., New York

(b) Protein chemistry

Hugli, T. E. (1989) *Techniques of Protein Chemistry*, Academic Press, San Diego, California
 Cherry, J. P. and Barford, R. A. (1988) *Methods for Protein Analysis*, American Oil Chemists' Society, Champaign, Illinois

(c) Amino acids

Barrett, G. C., Ed. (1985) *Chemistry and Biochemistry of the Amino Acids*, Chapman and Hall, London

Barrett, G. C. (1993) in *Second Supplements to the 2nd Edition of Rodd's Chemistry of Carbon Compounds*, Volume 1, Part D: Dihydric alcohols, their oxidation products and derivatives, Ed. Sainsbury, M., Elsevier, Amsterdam, pp. 117–66

Barrett, G. C. (1995) in *Amino Acids, Peptides, and Proteins*, A Specialist Periodical Report of The Royal Society of Chemistry, Vol. 26, Ed. Davies, J. S., Royal Society of Chemistry, London (preceding volumes cover the literature on amino acids, back to 1969 (Volume 1))

Coppola, G. M. and Schuster, H. F. (1987) *Asymmetric Synthesis: Construction of Chiral Molecules using Amino Acids*, Wiley, New York

Dawson, R. M. C., Elliott, D. C., Elliott, W. H., and Jones, K. M. (1986) *Data for Biochemical Research*, Oxford University Press, Oxford

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- Greenstein, J. P., and Winitz, M. (1961) *Chemistry of the Amino Acids*, Wiley, New York (a facsimile version (1986) of this three-volume set has been made available by Robert E. Krieger Publishing Inc., Malabar, Florida)
- Williams, R. M. (1989) *Synthesis of Optically Active α -Amino Acids*, Pergamon Press, Oxford

(d) Peptides

- Bailey, P. D. (1990) *An Introduction to Peptide Chemistry*, Wiley, Chichester
- Bodanszky, M. (1988) *Peptide Chemistry: A Practical Handbook*. Springer-Verlag, Berlin
- Bodanszky, M. (1993) *Principles of Peptide Synthesis*, Second Edition, Springer-Verlag, Heidelberg
- Elmore, D. T. (1993) in *Second Supplements to the 2nd Edition of Rodd's Chemistry of Carbon Compounds*, Volume 1, Part D: Dihydric alcohols, their oxidation products and derivatives, Ed. Sainsbury, M., Elsevier, Amsterdam, pp. 167–211
- Elmore, D. T. (1995) in *Amino Acids, Peptides, and Proteins*, A Specialist Periodical Report of The Royal Society of Chemistry, Vol. 26, Ed. Davies, J. S., Royal Society of Chemistry, London (preceding volumes cover the literature of peptide chemistry back to 1969 (Volume 1))
- Jones, J. H. (1991) *The Chemical Synthesis of Peptides*, Clarendon Press, Oxford