



Preface

Analysis and biological relevance of D-amino acids and relating compounds

It was believed for very long time that D-amino acids, the enantiomers of L-amino acids (Fig. 1), do not have any physiological significance in higher animals, especially in human beings [1]. However, naturally occurring D-amino acids (D-Ser, D-Asp and many other D-amino acids) were found these days in a wide variety of living organisms both in their free form and as the isomeric residues in many proteins [2]. This is due to the enormous advances in the analytical field in recent years, notably in chiral separation. Stereoselective metabolism of the amino acids and stereoselective synthetic enzymes have also been gradually unveiled, and the D-amino acids are now considered as naturally occurring novel physiologically active substances and biomarkers even in mammals. In order to accelerate investigations on D-amino acids and relating compounds, high-performance chromatographic, electrophoretic and other analytical methods based on chiral recognition are undoubtedly useful and indispensable. In view of the growing importance of enantioselective analysis of amino acids, as well as of the growing interest in the biological relevance of D-amino acids and relating compounds, the Journal of Chromatography B has decided to devote a special issue to the topic "Analysis and Biological Relevance of D-Amino Acids and Relating Compounds".

This special issue includes both review articles written by leading scientists in the respective fields and original research articles. Review articles are focused on analytical methods of D-amino acids using HPLC, GC and CE. The biological relevance and regulation of free and protein/peptide bound type D-amino acids in animals and food samples are also reviewed. The topics of original contributions are widely expanded in the research field of D-amino acids. Original research work reports on the development of novel analytical methods of D-amino acids, and on the clarification both of their quantity and distribution of D-amino acids in biological samples including tissues, physiological fluids, proteins, foods and beverages. In the special issue, research articles reporting on clinical applications of analytical methods, on novel results from computational studies and studies on the search for enzymes related to D-amino acids are also included.

The scientific interest in D-amino acids will be further spread out in the coming decade. We trust the present special issue would

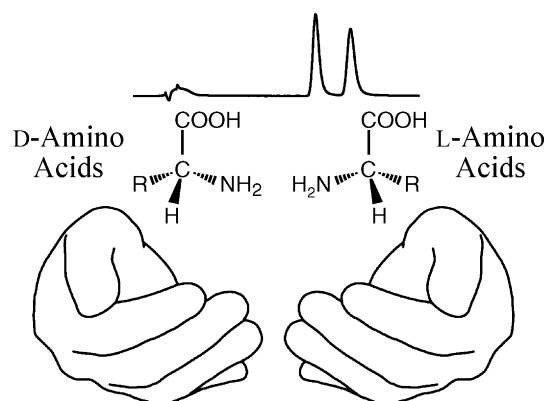


Fig. 1. Chirality of the D- and L-amino acids and enantiomer separation.

be a useful milestone and guide both for experienced scientists and students working in the outstanding and analytically challenging field of D-amino acids and relating compounds.

I would like to thank the editors of the Journal of Chromatography B for giving me a nice opportunity to organize and guest edit this special issue in the very attractive scientific field of D-amino acid analysis. I also deeply appreciate the authors for their contributions, the reviewers for their indispensable work in the peer-review process, the special issue editor Professor Dimitrios Tsikas, and the journal manager Eduard Hovens and its staff at the editorial office of the journal.

References

- [1] J.J. Corrigan, *Science* 164 (1969) 142.
- [2] R. Konno, H. Brückner, A. D'Aniello, G. Fisher, N. Fujii, H. Homma (Eds.), *D-Amino acids: A New Frontier in Amino Acids and Protein Research – Practical Methods and Protocols*, Nova Science Publishers, New York, NY, 2007.

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