

Preface

Welcome to the *Handbook of Affinity Chromatography, Second Edition*. The purpose of this book is to guide scientists, students, and laboratory workers in the theory, use, and applications of affinity chromatography. Since its original use almost 100 years ago, affinity chromatography has become an important tool in a large variety of areas. This is illustrated in this book through examples and topics that range from the fields of biology, biotechnology, biochemistry, and molecular biology to analytical chemistry, pharmaceutical science, environmental science, and clinical chemistry.

This handbook is divided into six sections. Section I (Chapters 1 to 4) provides an overview of affinity chromatography and discusses important factors to consider in the development of affinity methods, including the choice of support material, immobilization method, and application or elution conditions. Section II (Chapters 5 to 10) provides detailed reviews of common affinity methods, such as bioaffinity chromatography, immunoaffinity chromatography, DNA affinity chromatography, boronate affinity chromatography, dye-ligand and biomimetic affinity chromatography, and immobilized metal-ion affinity chromatography.

Sections III, IV, and V of this book (Chapters 11 to 16, 17 to 21, and 22 to 25, respectively) explore the preparative, analytical, and biophysical applications of affinity methods in areas such as biochemistry, molecular biology, biotechnology, pharmaceutical analysis, proteomics, clinical testing, and environmental analysis. Section VI (Chapters 26 to 30) considers recent developments in this field, including the use of affinity ligands in capillary electrophoresis, mass spectrometry, microanalytical systems, chromatographic immunoassays, and molecularly imprinted polymers.

This book is the result of a collaborative effort involving 48 scientists and students from 23 laboratories and organizations located throughout the world. I would like to thank each of these individuals for their contributions to this project. I would also like to thank my wife Jill and my sons Ben and Brian for their assistance in the preparation of this text. I hope that all who use this handbook will find it a valuable addition to their work in affinity chromatography or related areas.

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