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Concepts in Protein Engineering and Design An Introduction

Editors: Paul Wrede • Gisbert Schneider

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Concepts in Protein Engineering and Design provides a collection of easy-to-read introductions to selected topics of a challenging and rapidly expanding field of research. In addition to thorough descriptions of established biochemical and biophysical techniques presenting the state-of-the-art, several new approaches to rational designs of proteins are discussed. The book focuses on the present and future potential of nanoscale molecular objects, site-directed mutagenesis studies, catalytic antibodies, artificial neural networks, de novo protein design, and membrane protein engineering. Not only successful projects but also limitations of methods involved in the design procedure and severe drawbacks are presented. Further progress in protein engineering and design can only be made by discussing and (re)evaluating new and old approaches, and many such concepts which may lead to a deeper understanding of underlying biochemical and biophysical principles are presented in this book.

From the Contents

Prologue Jane S. Richardson • An Introduction to Protein Engineering Thomas J. Graddis, Dale L. Oxender • Analysis and Characterization of Proteins Brigitte Wittmann-Liebold, Peter Jungblut • Structure Determination, Modeling and Site-Directed Mutagenesis Studies Ulrich Hahn, Udo Heinemann • Rational Design of Proteins with New Properties Dietmar Schomburg • Structural Design of Proteins Chris Sander • Antibody Catalysis Theodore Tarasow, Donald Hilvert • Design of Protein Targeting Signals and Membrane Protein Engineering Gunnar von Heijne • The Rational Design of Amino Acid Sequences Gisbert Schneider, Reinhard Lohmann, Paul Wrede • Structural Control and Engineering of Nucleic Acids Nadrian C. Seeman • Epilogue Alexander Rich

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Founded in 1877 as

Zeitschrift für Physiologische Chemie
by Felix Hoppe-Seyler

Felix Hoppe-Seyler (1825-1895) was a pioneer of physiological chemistry remembered not only for his own discoveries (most notably in the field of blood chemistry) but also for having been the mentor of Friedrich Miescher and Albrecht Kossel. In his preface to the first issue of Zeitschrift für Physiologische Chemie, Felix Hoppe-Seyler coined the term Biochemistry ('Biochemie') for the then newly emerging discipline.

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