

Contents

Printing Peptide Arrays with a Complementary Metal Oxide Semiconductor Chip	1
Felix F. Loeffler, Yun-Chien Cheng, Bastian Muenster, Jakob Striffler, Fanny C. Liu, F. Ralf Bischoff, Edgar Doersam, Frank Breitling and Alexander Nesterov-Mueller	
Protein Engineering as a Tool for the Development of Novel Bioproduction Systems	25
Uwe T. Bornscheuer	
Compartmentalization and Metabolic Channeling for Multienzymatic Biosynthesis: Practical Strategies and Modeling Approaches	41
U. Jandt, C. You, Y. H.-P. Zhang and A.-P. Zeng	
Cell-Free Systems: Functional Modules for Synthetic and Chemical Biology	67
Marlitt Stech, Andreas K. Brödel, Robert B. Quast, Rita Sachse and Stefan Kubick	
New Bioproduction Systems: From Molecular Circuits to Novel Reactor Concepts in Cell-Free Biotechnology	103
Steffen Rupp	
Cell-Free Biosystems in the Production of Electricity and Bioenergy	125
Zhiguang Zhu, Tsz Kin Tam and Y.-H. Percival Zhang	
In Vitro Multienzymatic Reaction Systems for Biosynthesis	153
Inés Ardao, Ee Taek Hwang and An-Ping Zeng	

Directed Multistep Biocatalysis Using Tailored Permeabilized Cells	185
Steffen Krauser, Christian Weyler, Lisa Katharina Blaß and Elmar Heinzle	
Index	235