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Titolo	Fundamentals of Biocatalysts : Cell Structure and Function // by F. Xavier Malcata
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ISBN	9783031411557 3031411552
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (1113 pages)
Disciplina	660.634
Soggetti	Biotechnology Biochemical engineering Mathematical models Industrial microbiology Chemistry, Technical Chemical Bioengineering Bioprocess Engineering Mathematical Modeling and Industrial Mathematics Industrial Microbiology Industrial Chemistry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Part I: Introduction to Biotechnology -- Historical Overview -- Part II: Biocatalyst Features -- Cell Morphology -- Cell Genetics -- Cell Metabolism -- Cell Operation -- Cell Stoichiometry -- Cell Engineering -- Cell Interaction. .
Sommario/riassunto	This textbook covers the essentials of cells as biocatalysts, including cell morphology, cell genetics, cell metabolism, cell operation, cell stoichiometry, cell engineering, and cell interaction. A pragmatic and systematic approach is provided to all such topics, from the point of view of a biological engineer – illustrated by criteriously selected and carefully solved problems, proposed at the end of each section. In the first part of this textbook, readers will find a brief historical review of biotechnology; and in the second part, the author explores the

performance of biocatalysts, in terms of native features and upon rational manipulation thereof. Whenever appropriate, mathematical derivations are put forward that are easy to follow step-by-step – even by students holding only elementary mathematical and biochemical backgrounds; and are developed at a pace suitable for self-learning. Furthermore, the functional forms and meanings of the expressions produced are explored, and the final germane formulae are duly highlighted and graphically interpreted in dimensionless form – to facilitate the perception of major trends and asymptotic patterns. Therefore, this book offers a valuable resource for both instructors and undergraduate/graduate students – as an aid to grasp and relate basic concepts dealing with living cells as catalysts designed for bioreactors, rather than engaging in cumbersome descriptions of their physiological behaviour. This textbook, together with the companion volumes Operation Fundamentals in Bioreactor Engineering and Modelling Fundamentals in Bioreactor Engineering, fill the gap between qualitative approaches, focused on biochemistry; and technological approaches, which often resort to empirical correlations – unlikely to support a fundamental understanding of the essential concepts.
