

Exploiting the inherent combinatorial mechanism in the biosynthesis of antibodies, an almost limitless variety of biocatalysts may be generated. Catalytic antibodies are capable of performing almost any type of reaction with high selectivity and stereospecificity.

Here, the pioneers in the use of catalytic antibodies review the entire scope of this interdisciplinary field, covering such topics as:

- Immunological evolution of catalysis
- Theoretical studies of antibody catalysis
- Mechanistic aspects of antibody catalysis
- Catalytic antibodies for organic synthesis
- Structure and function of catalytic antibodies
- Antibody production and screening methods
- In vitro evolution of catalytic antibodies
- Medicinal potential of catalytic antibodies
- Catalytic antibodies via reactive immunization
- Selectivity in antibody-catalyzed reactions
- Photochemistry and oxidation reactions with antibodies
- Monoclonal versus polyclonal catalytic antibodies
- Naturally occurring catalytic antibodies
- Historical perspective of antibody catalysis

Backed by the leading authorities in antibody catalysis, this is the first book to provide such comprehensive coverage and constitutes a prime reference for biochemists, organic chemists, biotechnologists and biomedical researchers.



Ehud Keinan is the Dean of the Faculty of Chemistry at the Technion – Israel Institute of Technology and Adjunct Professor at The Scripps Research Institute in La Jolla, California. He was born and educated in Israel, received his Ph.D. degree under Y. Mazur from the Weizmann Institute of Science and was a postdoctoral fellow under B.M. Trost at the University of Wisconsin. Professor Keinan, who holds the Benno Gitter Ilana Ben-Ami Chair of Biotechnology, was the founder and first Head of the Institute of Catalysis Science and Technology (ICST) in Israel. His list of awards includes the New England award for academic excellence, the Joseph and Madeleine Nash award, the Shannon award, the CapCure award, and the Herschel-Rich award for scientific excellence. He has published over 150 scientific papers and holds 15 patents in various fields, including biocatalysis with antibodies and enzymes, organic synthesis, organometallic chemistry, drug discovery, and molecular computing devices.

ISBN 3-527-30688-9



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