

PRINCIPLES *of*

CELLULAR ENGINEERING

Understanding the
Biomolecular Interface

Edited by
MICHAEL R. KING

For the first time there's a single resource focused on engineering at a cellular level. This groundbreaking new work presents basic concepts, key experimental results, and expert conclusions about how cells interact with biomolecular surfaces. It highlights situations in which cells interact and adhere with other cells and surfaces in complex mechanical environments, such as the cardiovascular system. *Principles of Cellular Engineering* explains the applications of state-of-the-art technologies, including new optical microscopy systems, transfected cell systems, animal models, and computer simulations. Chapters carefully describe novel biomolecular surfaces that have been engineered to control and measure cell function. The book also provides thorough discussion of successful applications of engineering concepts in biomedicine, using the cardiovascular and immune systems as examples. Other topics covered include computer simulation of biological processes, adhesion of cells and macromolecules to biomaterial interfaces, cell motility, and mechanical signaling.



The editor, **Michael R. King**, is currently faculty in biomedical engineering and chemical engineering at the University of Rochester, New York. He is the recipient of the prestigious James D. Watson Investigator Award from New York State, as well as an NSF CAREER Award. Dr. King's professional interests include research in biofluid mechanics and cell adhesion.



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