



## The Physical and Chemical Basis of Molecular Biology: Fundamentals

By Thomas E. Creighton

Helvetian Press. Paperback. Book Condition: New. Paperback. 192 pages. Dimensions: 13.7in. x 11.0in. x 0.8in. The subject of molecular biology continues to be the most exciting and dynamic area of science and is predicted to dominate the 21st century. Only by investigating biological phenomena at the molecular level is it possible to understand them in detail. This volume describes the most fundamental aspects of molecular biology: thermodynamics for molecular biology (equilibrium constants, Gibbs free energy, coupled reactions, linked functions, enthalpy, entropy, heat capacity, and calorimetry), noncovalent interactions between atoms and molecules (molecular surfaces, electrostatic interactions, dipoles, van der Waals interactions, hydrogen bonds, intramolecular interactions, effective concentrations, and cooperativity), aqueous solutions (liquid water, hydrophobic interaction, partition coefficients, membranes, detergents, ionization, pH, buffers, salts and ions, solubilities, salting in, salting out, Hofmeister series, hydration, chemical potential, compressibility), kinetics (rate constants, half-time, relaxation time, transition state, free energy relationships, multi-step reactions and intermediates, rate-determining step, the steady state, and rapid reactions), isotopes and radioactivity (radioactive decay, alpha particles, beta particles, positrons, gamma rays, scintillation counters, Cerenkov radiation, autoradiography, fluorography, kinetic isotope effects, and hydrogen exchange), and mass spectrometry (electrospray ionization, ESI, matrix-assisted laser desorption/ionization, MALDI, quadrupole mass analyzers, time-of-flight analyzers, Fourier transform ion cyclotron...



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