

CONTENTS

Section I Basic Techniques of Experimental Biochemistry	1
Introduction	3
Experiment 1 Photometry	15
Experiment 2 Chromatography	25
Experiment 3 Radioisotope Techniques	45
Experiment 4 Electrophoresis	61
Section II Proteins and Enzymology	79
Introduction	81
Experiment 5 Acid-Base Properties of Amino Acids	105
Experiment 6 Sequence Determination of a Dipetide	111
Experiment 7 Study of the Properties of β -Galactosidase	123
Experiment 8 Purification of Glutamate Oxaloacetate Transaminase from Pig Heart	135
Experiment 9 Kinetic and Regulatory Properties of Aspartate Transcarbamylase	149
Experiment 10 Affinity Purification of Glutathione-S-Transferase	157
Section III Biomolecules and Biological Systems	163
Introduction	165
Experiment 11 Microanalysis of Carbohydrate Mixtures by Isotopic Enzymatic, and Colorimetric Methods	195
Experiment 12 Glucose-1-Phosphate: Enzymatic Formation from Starch and Chemical Characterization	205
Experiment 13 Isolation and Characterization of Erythrocyte Membranes	217
Experiment 14 Electron Transport	227
Experiment 15 Study of the Phosphoryl Group Transfer Cascade Governing Glucose Metabolism	
Allosteric and Covalent Regulation of Enzyme Activity	243
Experiment 16 Experiments in Clinical Biochemistry and Metabolism	253
Section IV Immunochemistry	261
Introduction	263
Experiment 17 Partial purification of a Polyclonal Antibody, Determination of Titer, and Quantitation of an Antigen Using the ELISA	279
Experiment 18 Western Blot to Identify an Antigen	291
Section V Nucleic Acids	301
Introduction	303
Experiment 19 Isolation of Bacterial DNA	333
Experiment 20 Transformation of a genetic Character with Bacterial DNA	339
Experiment 21 Constructing and Characterizing a Recombinant DNA Plasmid	345
Experiment 22 In Vitro Transcription from a Plasmid Carrying a T7 RNA Polymerase-Specific Promoter	359

Experiment 23 In Vitro Translation: mRNA tRNA, and Ribosomes	369
Experiment 24 Amplification of a DNA Fragment Using Polymerase Chain Recation	385
Section VI Information Science	397
Introduction	399
Experiment 25 Obtaining and Analyzing Genetic and Protein Sequence Information via the World Wide Web, Lasergene, and RasMol	405
Appendix Supplies and Reagents	409
Index	437