

Content

List of Abbreviations	VIII
1. Introduction	1
1.1. Fundamental Remarks on the Immune System	1
1.1.1. Differentiation of B and T Lymphocytes	2
1.1.2. Antigen Recognition and Immunoresponse	5
1.2. Antibodies and Antigens	6
1.2.1. Structure of Immunoglobulins	6
1.2.2. Antibody Fragments	14
1.2.3. Antigens and Haptens	14
1.2.4. Antigen-antibody Reaction	16
1.3. Antibody Generation and Propagation	22
1.3.1. Immunization	23
1.3.2. Polyclonal Antibodies	25
1.3.3. Monoclonal Antibodies	25
2. General Problems	30
2.1. Solid Supports	30
2.2. Activation of Supports and Immobilization (Coupling) of Affinity Ligands	33
2.2.1. Activation of Supports for Covalent Fixation	34
2.2.2. Coupling of Ligands	40
2.2.3. Leakage of Ligands (Bleeding)	49
2.3. Adsorption and Desorption of Ligates	52
2.3.1. Adsorption of Ligates	53
2.3.2. Desorption Processes	55
2.4. High Performance Immunoaffinity Chromatography	60
2.5. The Avidin/Biotin System	64
3. Separation and Purification of Antibodies, Haptens and Antigens	66
3.1. Purification of Antibodies	66
3.1.1. Pretreatment of Antibody Source	70
3.1.2. Non-Chromatographic Separation Procedures	71
3.1.3. Chromatographic Separation Procedures	76
3.2. Positive and Negative Selection of Free and Structure-bound Haptens, Antigens and Receptors	101
4. Techniques Based on Immunosorption	119
4.1. Immunoassays	119
4.1.1. General Considerations	119
4.1.2. Heterogeneous Immunoassays	119
4.1.3. Homogeneous Immunoassays	125
4.1.4. Amplification of Immunoassays	127
4.2. Immunoblotting and Immunodot Techniques	128
4.3. Immunosorbents for Therapeutical Application - Immunosorbent Reactors	135
4.4. Immunosensors	137
4.4.1. Immunosensors with Electrochemical Detection	137
4.4.2. Non-electrode Sensors	139
5. References	143
6. Subject Index	167