

Table of Contents

Foreword	
Preface	
Contributors	
Acknowledgements	

1 Introduction

1. Diagnostic Testing in Medical & Veterinary Laboratories	
2. Research & Testing Laboratories	
3. Career Opportunities in Laboratory & Diagnostic Technology	
4. Applications in Biotechnology	
5. Omics: Techniques & Applications	
6. The Practical Role of Genomics in Human & Animal Health Screening.....	

2 Biologicals

1. Immunology	
2. Laboratory Diagnostic Methods for Agent Identification, Serological Testing & Pen-Side Testing	
3. Detection of Antibodies, Antigens, DNA, RNA, & Nanoparticles.	
4. Vaccines & Biologicals	
5. Quality Assurance in Laboratories	
6. Biosafety Laboratory Level 1-4 Agents & Procedures	

3 Agriculture: Real Life Example (Foot & Mouth Disease)

1. Tissue Selection & Diagnostic Sample Preparation	
2. Agent Identification: Antigen ELISA, RT-PCR, Virus Isolation, CF	
3. Serological Testing: Virus Neutralization, ELISA–Complement Fixation	
4. Pen-Side Tests: Lateral Flow Assays	
5. DIVA Vaccination	

4 Food Safety & Environmental Health

1. Diagnostic Techniques in Food Security, Food Safety, & Food Defense	
2. Testing of Samples for Microbial Contamination in Food or Food Products	
3. Nutritional Analysis	
4. Water & Wastewater Analysis	
5. Laboratory Toxicology	

1. Tissue Selection & Diagnostic Sample Preparation
2. Screening Tests vs. Confirmatory Tests
3. Influenza Vaccination & Exposure Management
4. Virology Techniques