

PRECLINICAL DEVELOPMENT OF PROTEIN PHARMACEUTICALS: AN OVERVIEW

DIPANKAR DAS AND MAVANUR R. SURESH

University of Alberta, Edmonton, Alberta, Canada

Contents

- 1 Introduction
- 2 Macromolecular Drugs
- 3 Genes, Directed Evolution, and Gene Shuffling
- 4 Molecular and Biochemical Characterization of Protein Drugs
- 5 Influence of Carbohydrate in Protein Drugs
- 6 Antibodies
- 7 Hybridoma-Derived Monoclonals
 - 7.1 Immunization
 - 7.2 Isolation of B-Cells from the Spleen
 - 7.3 Fusion and Postfusion
 - 7.4 Cloning
 - 7.5 Cell Line Characterization and Cryopreservation
 - 7.6 Small Scale Bioreactor Culture
 - 7.7 Purification
 - 7.8 Applications
 - 7.9 Immunogenicity Issues and Humanization
- 8 Bispecific Monoclonal Antibodies
- 9 Recombinant Antibody
 - 9.1 Phage Display
 - 9.2 Yeast Display
 - 9.3 Ribosome and mRNA Display
- 10 High Level Mammalian Expression of Recombinant Antibodies and Proteins by Gene Amplification System
- 11 Special Considerations