

Pre-requisites: Nil

Plant derived recombinant proteins; Choice of host plants, transformation and expression strategies for molecular farming; Plant viral expression vectors and transient gene expression; Foreign protein expression using plant cell suspension and hairy root cultures; Chloroplast derived antibodies, biopharmaceuticals and edible vaccines; Magnification and new generation transfection technology; Characterization of plant-derived recombinant proteins; Stability, glycosylation and trafficking of plant-made pharmaceuticals; Production and downstream processing of plant-derived recombinant therapeutic proteins; Quality control, biosafety and economics of recombinant pharmaceuticals

Texts:

1. R. Fischer and S. Schillberg, *Molecular Farming: Plant-made Pharmaceuticals and Technical Proteins*, Wiley-VCH, 2004
2. C. Cunningham and A. J. R. Porter, *Recombinant Proteins from Plants*, Humana Press, 1998.

Reference:

1. J. Knablein and R. H. Muller, *Modern Biopharmaceuticals: Design, development and Optimization*, Wiley-VCH, 2005.
2. E. E. Hood and J. A. Howard, *Plants as Factories for Protein Production*, Kluwer Academic Press, 2002.