

Utilizing Genetically Engineered Organisms

14.1. INTRODUCTION

In Chapter 8 we discussed how cells could be genetically engineered. The techniques of genetic engineering are fairly straightforward; the design of the best production system is not. The choice of host cell, the details of the construction of the vector, and the choice of promoter must all fit into a processing strategy. That strategy includes plans not only for efficient production but also for how a product is to be recovered and purified. The development of processes for making products from genetically engineered organisms requires that many choices be made. Any choice at the molecular level imposes processing constraints. As indicated in Fig. 14.1, an interdisciplinary team approach to process development is necessary to make sure that a well-designed process results.

In this chapter we will discuss some of the questions that must be considered in building processes using genetically engineered cells.

14.2. HOW THE PRODUCT INFLUENCES PROCESS DECISIONS

Genetically engineered cells can be used to make two major classes of products: proteins and nonproteins. Nonprotein products can be made by metabolically engineering cells, inserting DNA-encoding enzymes that generate new pathways or pathways with an