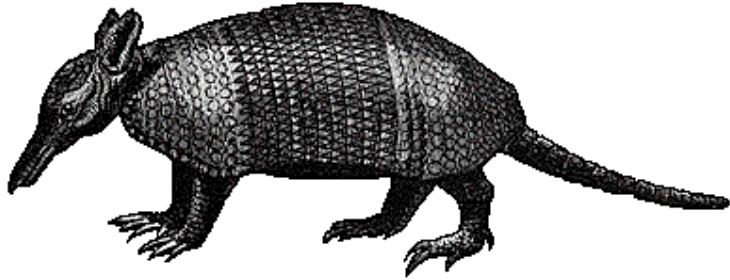


13.2 Recombinant DNA Technology

What is genetic engineering or recombinant DNA technology?



What are transgenic organisms?

How is a transgenic organism produced?

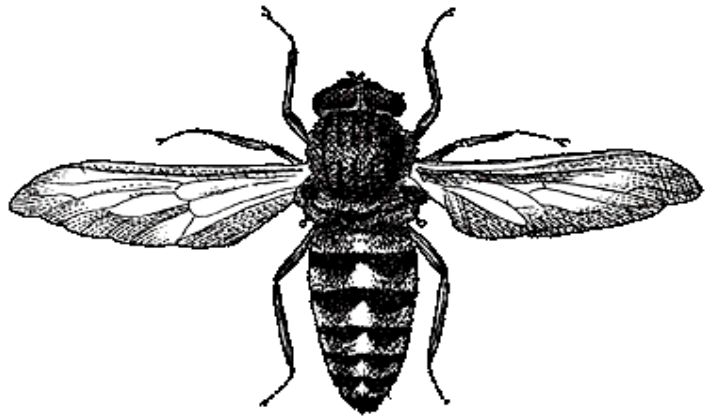
A faster and more reliable method for increasing the frequency of a specific allele in a population; the process involves connecting, or recombining fragments of DNA.

Organisms that contain foreign DNA; Recombinant DNA is inserted into the host organism's chromosomes.

In a 3-step process: 1) isolate the foreign DNA fragment, 2) attach the DNA fragment to a “vehicle”, 3) transfer vehicle to host

13.2 (cont.)

What are restriction enzymes?



What is a palindrome?

What are blunt ends?

What are sticky ends?

DNA cleaving enzymes consisting of bacterial proteins that have the ability to cut both strands of the DNA molecule at a specific nucleotide sequence. (similar to cutting a zipper into pieces)

A sequence of bases found on both DNA strands running in opposite directions.

Fragments of DNA that are cut by restriction enzymes straight across both strands.

Ends of the DNA strands that join to form double strands.

13.2 (cont.)



Complete MiniLab 13.1, pg. 351.

What is a vector?

A means by which DNA from another species can be carried into the host cell. They can be biological or mechanical.

What are some examples of biological vectors?

viruses and plasmids

What is a plasmid?

A small ring of DNA found in a bacterial cell.

What are examples of mechanical vectors?

micropipette and metal bullets

What is gene splicing?

Rejoining of DNA fragments.
The foreign DNA is recombined into a plasmid or viral DNA with the help of a second enzyme

13.2 (cont.)



What are clones?

Genetically identical copies.

What types of cells are often used to clone DNA?

bacterial

Why are clones possible?

Bacteria cells express genes that are introduced in plasmids and can produce large quantities of a desired product because they reproduce so fast.

Read “How to clone a Mammal”, pg. 364

How can DNA sequencing be studied by scientists?

By cloning DNA fragments, Separating the strands, and observing for mutations.

What are the three main areas proposed for recombinant bacteria?

industry, medicine, and agriculture