



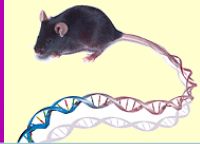
Genetically Engineered Organisms and You

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What is a genetically engineered organism?

- An organism that has genetic modifications which alter its genetic makeup. These organisms do not occur naturally, and scientists use technological resources and tools in order to alter the genes of the organism



How are they made?

- DNA molecules of interest are usually transferred to a specially modified bacteria. These bacteria then infect the organism and transfer the new DNA to the organism.

-OR-

- A special "gene gun" will directly shoot cells with the new DNA into the organism.



Why is this important to me?

- Many of the foods we eat everyday are genetically modified in order to improve flavor and texture, or to make them resistant to pests and diseases.
- The average American uses 760 lbs of paper per year. In order to keep up with this demand scientists are learning to use genes to speed up the growth of trees for lumber and paper products.
- Gene Therapy, the insertion of genes into a person's cells or tissues, uses GEOs to help treat diseases such as cystic fibrosis, hemophilia, and sickle cell anemia.
- Even some of your pets may be genetically engineered! Some species of fish have had a bioluminescence gene inserted so they glow similarly to jellyfish, which naturally have the gene. Scientists are also working on hypoallergenic cats!



These fluorescent fish are the first genetically modified pet, and can be found in nearly all pet stores.

What might happen without GEOs?

- Many crop species could be destroyed by diseases and viruses.
- Foods would not be as palatable. Flavors, textures, and resistance to pests would be compromised.
- Many studies to alleviate human diseases would not be possible.

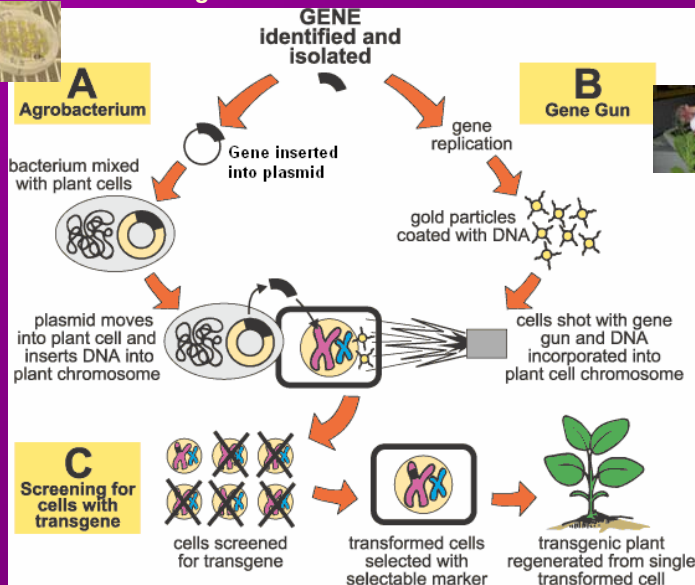


Did you know?

There was an outbreak of the Papaya ringspot virus which was spreading rapidly and killing all papaya trees. Scientists found a gene that when inserted caused resistance to the virus. This is what saved all the trees so we can still enjoy papaya today!



Diagram of Genetic Transformation



The same bioluminescent gene that is inserted into fish can be inserted into any organism, including these fluorescent mice.

