Genetic Engineering

What happens if we transfer a gene from one organism, into a different organism? For instance, put a gene for spider silk into a goat?

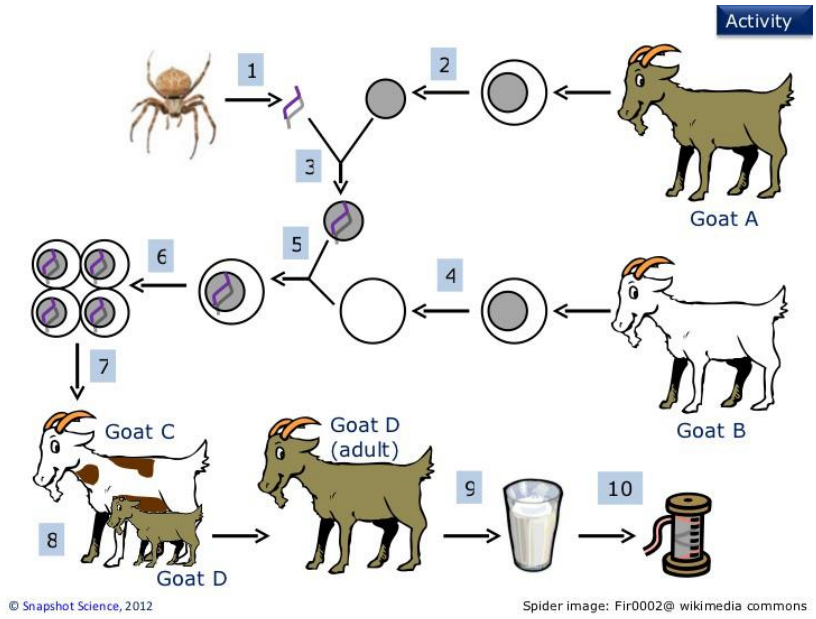
That gene will still work, and create the exact same protein, but in the new animal.

“We’re interested in dragline silk – the silk that spiders catch themselves with when they fall,” he tells me in his mid-west lilt. “It’s stronger than Kevlar. It really has some amazing properties for any kind of a fiber.”

“The trouble is, you can’t farm spiders,” Randy says with an almost comic deadpan face. “They’re very cannibalistic.”

“In the medical field, we already know that we can produce spider silk that’s good enough to be used in ligament repair,” he tells me.

“We already know we can make it strong enough as an elastic. We’ve done some studies that show that you can put it in the body and you don’t get inflammation and get ill. We hope within a couple of years that we’re going to be testing to see exactly the best designs and the best materials we can make from it.”



The gene that codes for the webbing protein is removed from the spider’s cell and put into the embryo of a goat, the embryo is then placed into a fertile female goat. When the kid (baby goat) is born, every cell in its body will have the protein, which means it will be in the milk, too!

When genes are transferred between species, the amino acid sequence of polypeptides translated from them is unchanged because the genetic code is universal

The genetic code is universal, meaning that for every living organism the same codons code for the same amino acids (there are a few rare exceptions)

This means that the genetic information from one organism could be translated by another (i.e. it is theoretically transferable)

Use as Talk Read Talk Write

Read and annotate article and answer questions using complete sentences:

- List the pros and cons of genetically modifying an organism.
- Should this be done on humans (make humans that can make new proteins from plants or animals)? Why/Why not?
- If a genetically engineered animal and plant were released into the wild, how do you think the evolution of species might be affected?
- Write a paragraph using complete sentences: **Do you believe organisms should be genetically modified? Support your answer with at least three statements.**