

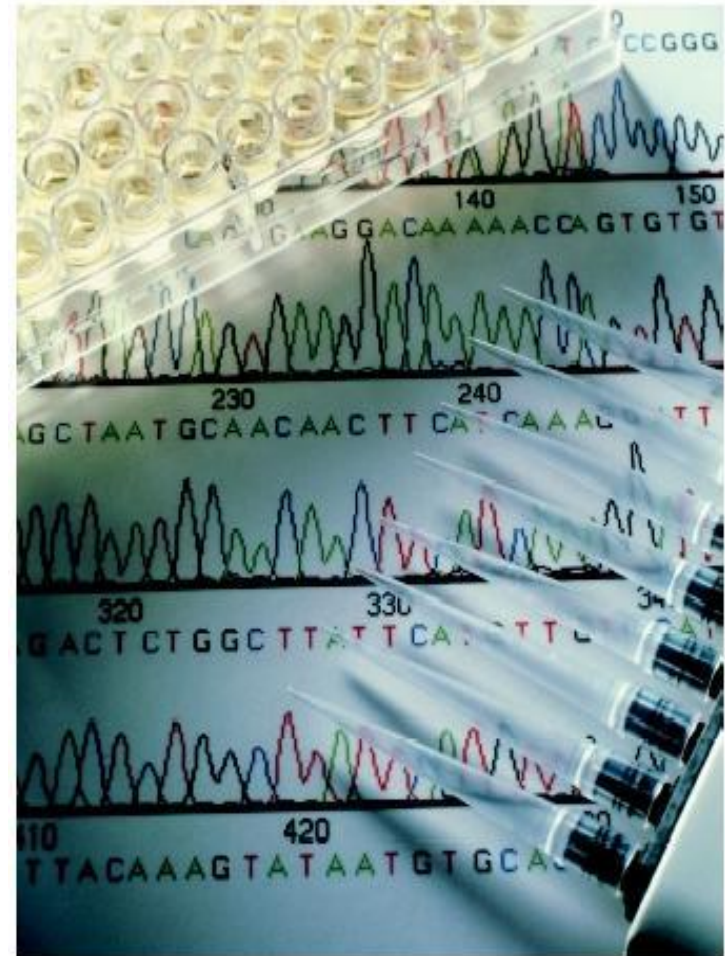
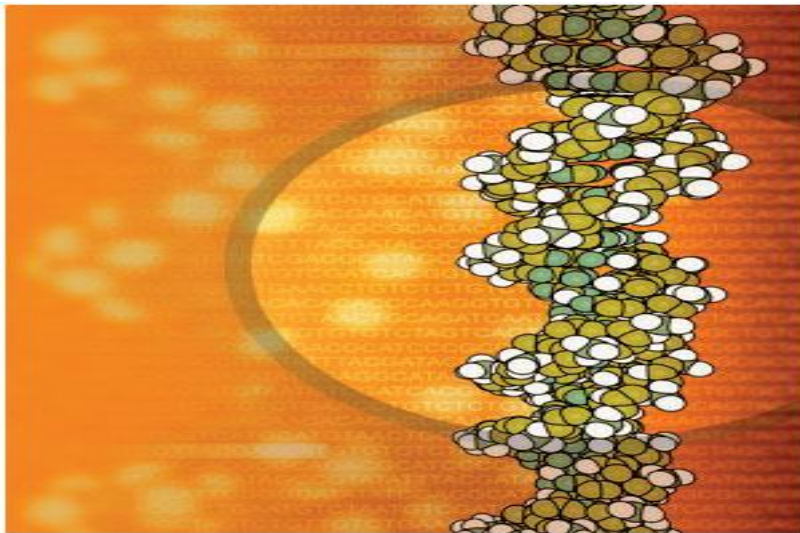
Applications of Gene Cloning

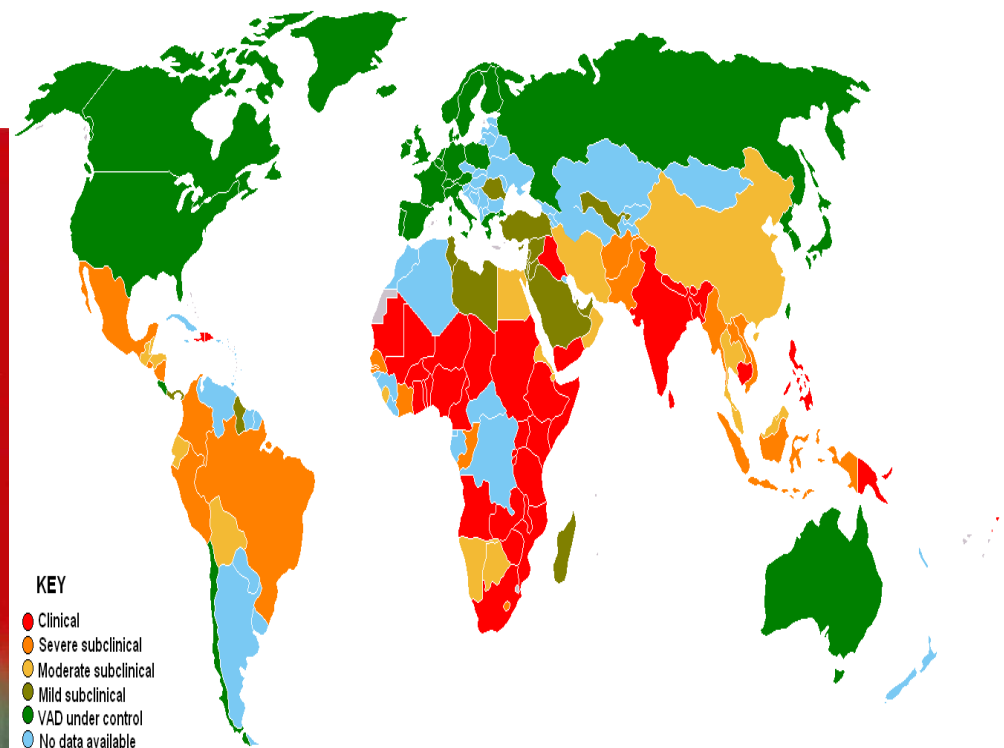


Mohamed N. Seleem



Genome Sequencing and studying Human genes





Golden Rice

Vitamin C

Citrus fruits, green peppers, strawberries, tomatoes, broccoli and sweet and white potatoes are all excellent food sources of vitamin C (ascorbic acid)

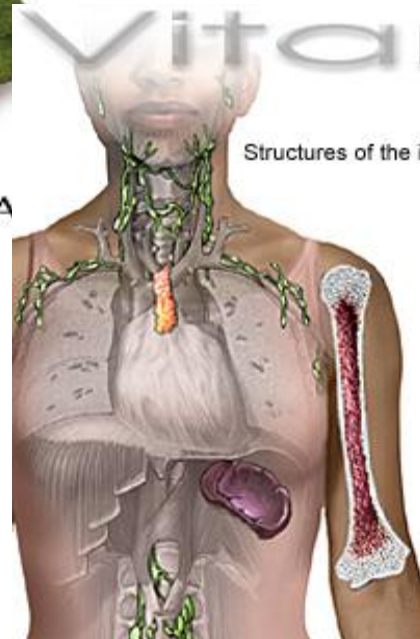


ADA



Vitamin C

Structures of the immune system



Vitamin C promotes a healthy immune system, helps wounds heal, maintains blood vessels and connective tissue and aids in the absorption of iron

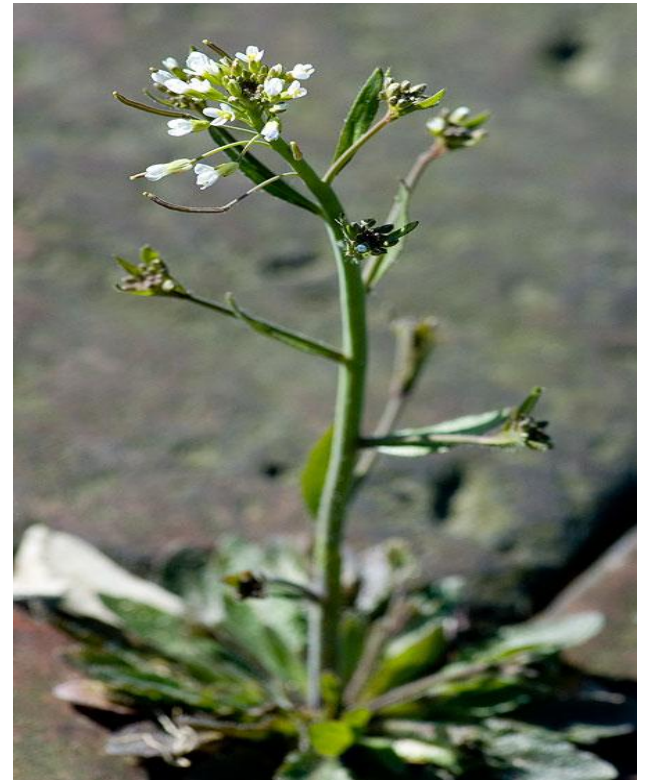
RDA: 60 mg

Water-soluble

ADAM.

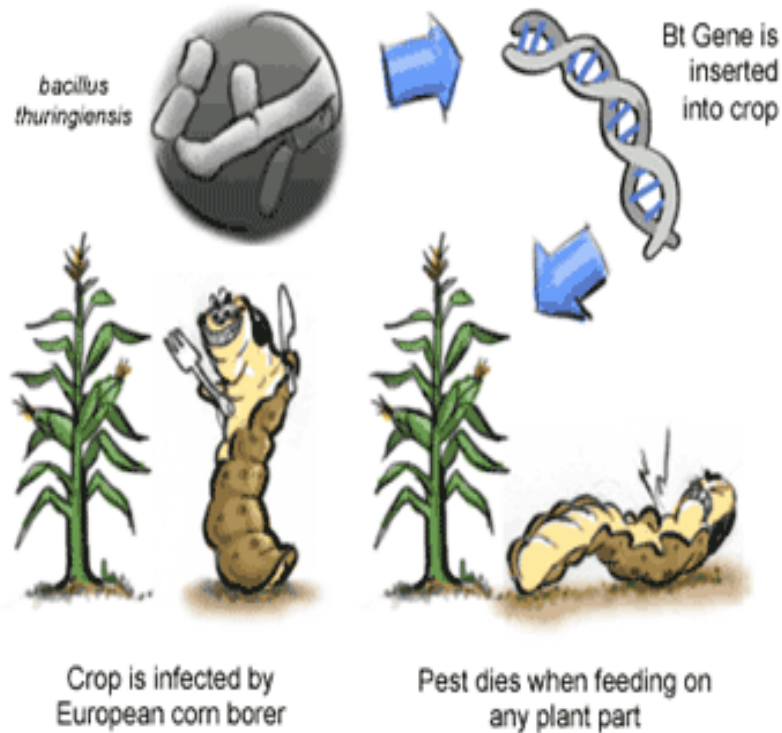


4XSalt



Arabidopsis thaliana

Friendly Insecticides



Bacillus thuringiensis bacteria produce a protein toxin that kills insect larvae pests and is 80,000 times more toxic than the typical chemical insecticide.

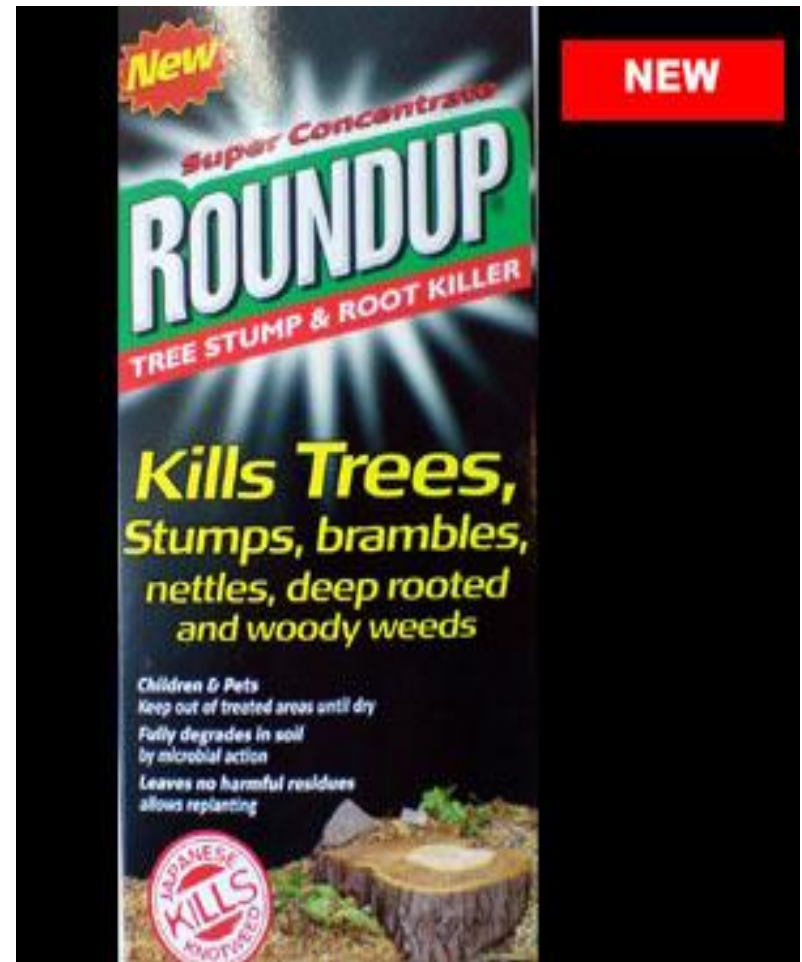




Resistant to Herbicides

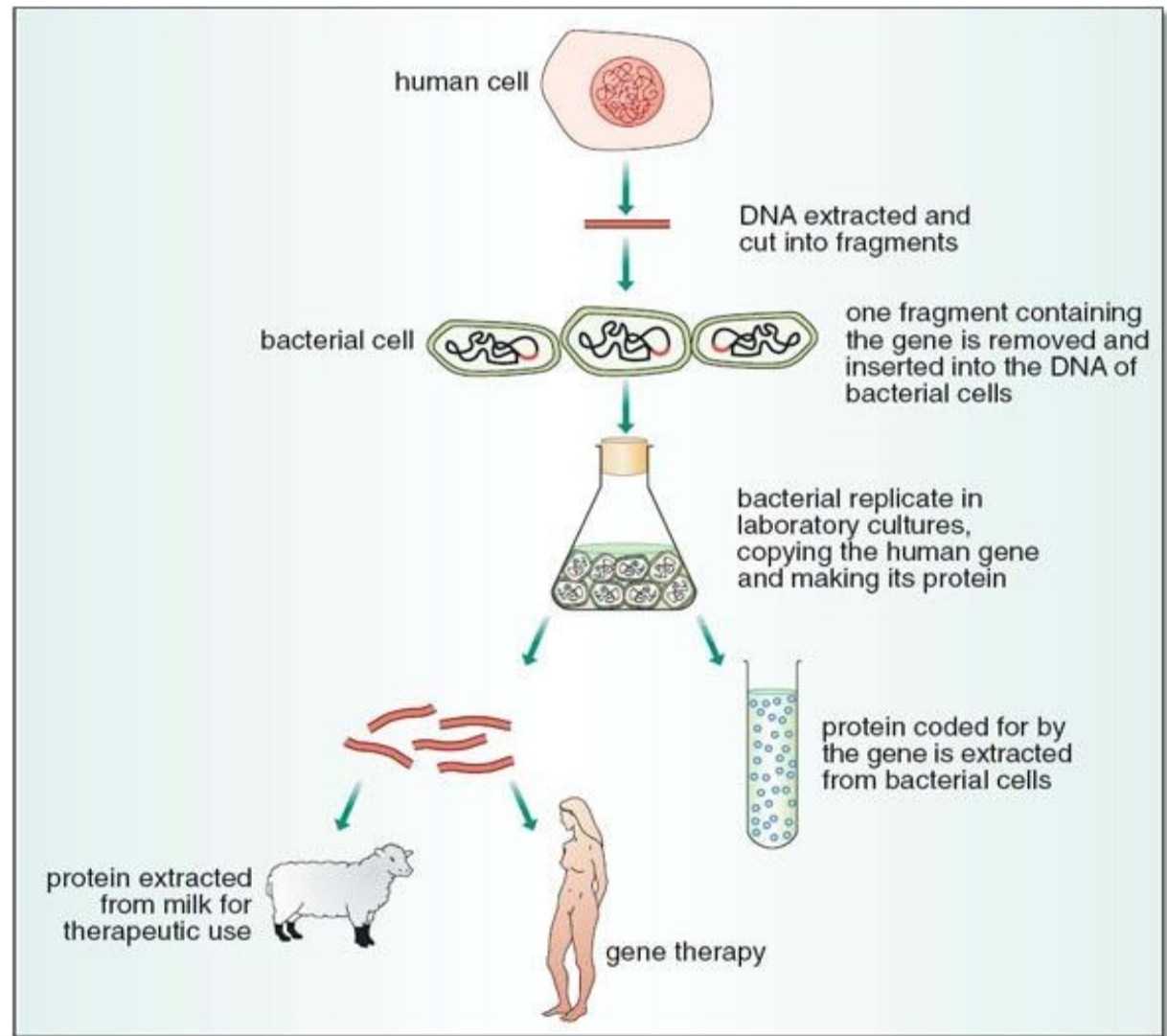
Glyphosate
Roundup

(corn, cotton, soybeans)

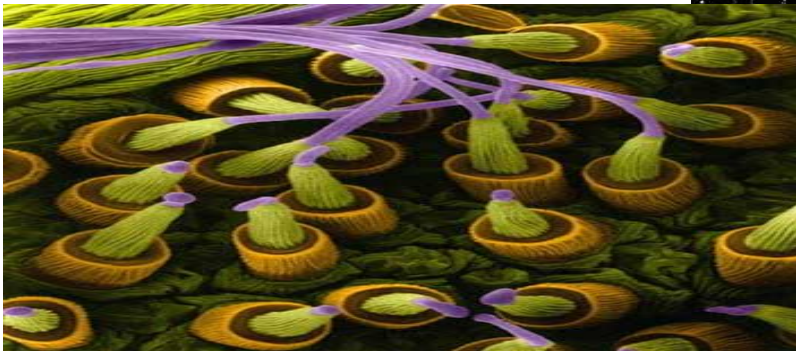




Synthetic Insulin

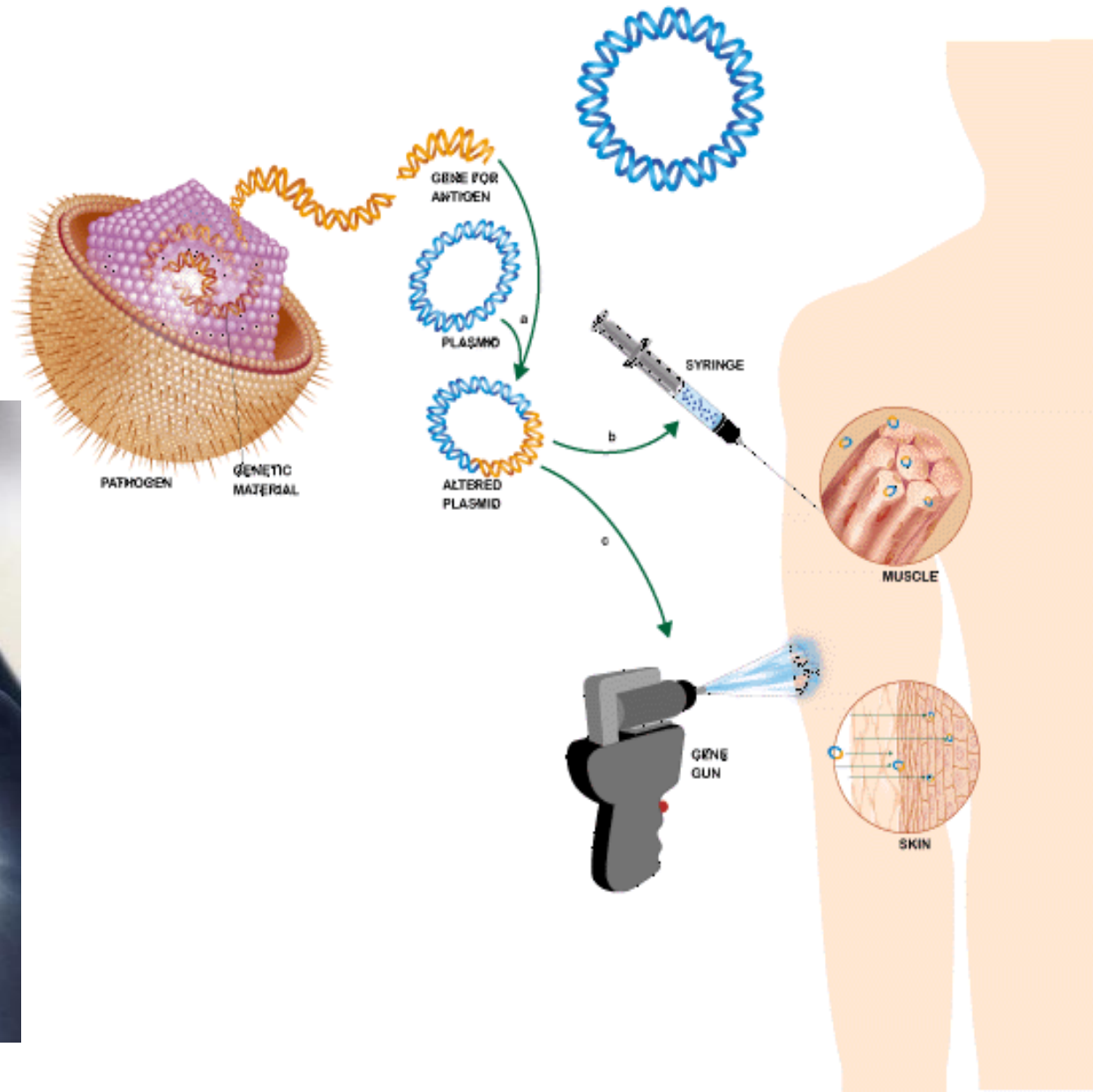
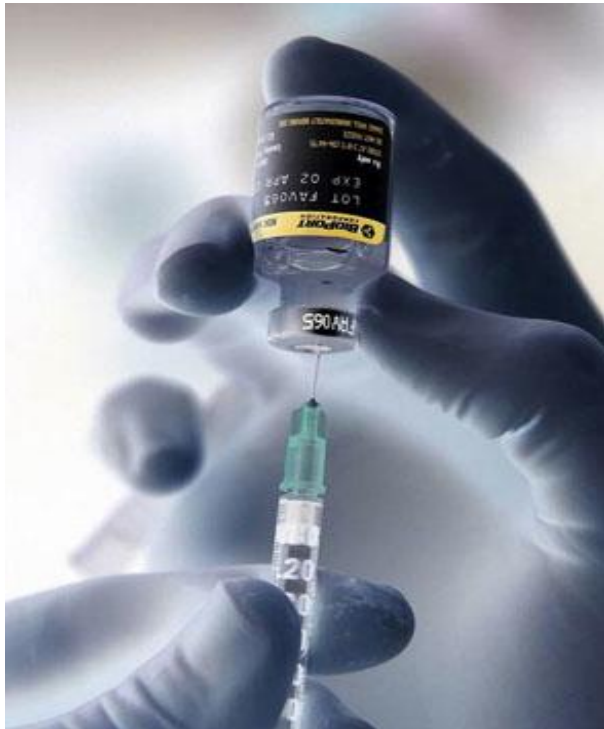


Spider Silk



5X stronger than steel

DNA Vaccine





One Vaccine Many Diseases

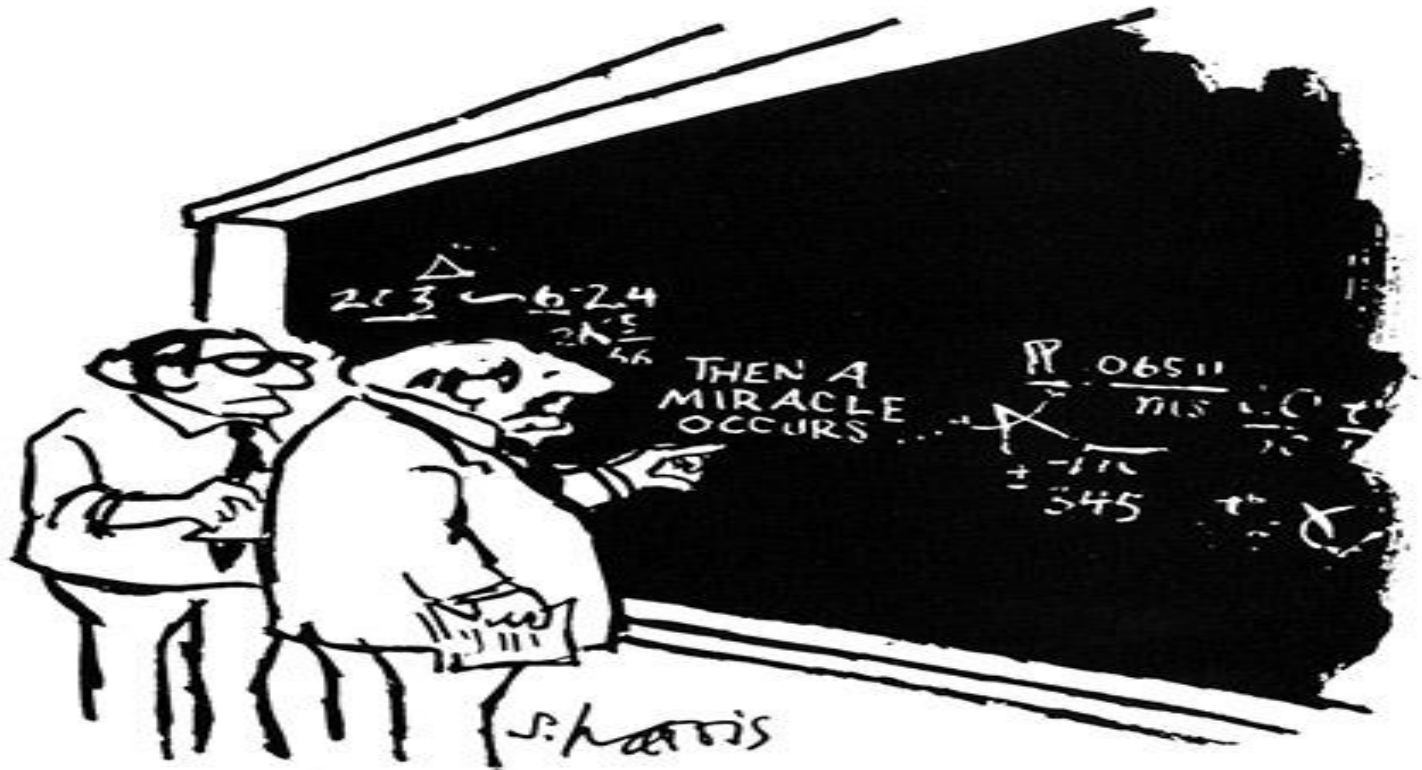


16.1 *Some Medically Useful Products of Biotechnology*

PRODUCT	USE
Colony-stimulating factor	Stimulates production of white blood cells in patients with cancer and AIDS
Erythropoietin	Prevents anemia in patients undergoing kidney dialysis and cancer therapy
Factor VIII	Replaces clotting factor missing in patients with hemophilia A
Growth hormone	Replaces missing hormone in people of short stature
Insulin	Stimulates glucose uptake from blood in people with insulin-dependent (Type I) diabetes
Platelet-derived growth factor	Stimulates wound healing
Tissue plasminogen activator	Dissolves blood clots after heart attacks and strokes
Vaccine proteins: Hepatitis B, herpes, influenza, Lyme disease, meningitis, pertussis, etc.	Prevent and treat infectious diseases



Questions



"I think you should be more explicit here in step two."

If we knew what it was we were doing, it would not be called research, would it?" - Albert Einstein