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## Biotechnologies

### Project ideas

Improving water quality through biofiltration  
 Creating a perfume  
 Creating a genetically modified plant  
 Producing electricity using methane resulting from the biodegradation of waste  
 Developing a glue using organic substances  
 Should we worry about GMOs?  
 Eliminating polluting phosphates using microorganisms  
 Using daphnia to test the toxicity of various molecules that could be used as medicines  
 The study of the Pasteur effect on yeast fermentation  
 Examining the use of glucose in yeast fermentation  
 Studying XYZ proteins in metabolic pathway A  
 The rapid identification of biological pathogens through DNA amplification (PCR)  
 The effect of genetically engineered plants on agriculture, food and science  
 The use of DNA methylation in gene expression  
 Organogenesis or the human body on command  
 The use of chymosin in cheese production  
 Using *Escherichia coli* bacteria to detect pollutants  
 Bioremediation using *Rhizobium* to increase the effectiveness of chemical degradation  
 Biosorption and bioaccumulation of toxic metals by bacteria  
 Biotechnology and fragrances  
 Characterizing the mutation of gene P53 in the development of cancer  
 Designing a DNA chip to detect viral DNA  
 Developing synthetic carrot seeds  
 Is it possible to grow blood?  
 In vitro culture  
 Detecting food-borne pathogens using PCR  
 Beer production  
 Cheese production  
 Producing immune system regulators  
 The industrialized production of human hormones (e.g. insulin) using microorganisms  
 The resurrection of dinosaurs thanks to DNA  
 The stimulation of macrophages using echinacea  
 Gene therapy—a revolutionary approach  
 Phage therapy: what are phages and how are they used?  
 Biodiesel: a multi-purpose ecological solution  
 Bioterrorism  
 Cloning plants, animals and humans  
 Helping farmers decide whether or not to choose genetically modified rapeseed

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The prenatal detection of genetic disorders  
 The PERK1 gene favours the growth of *Arabidopsis thaliana*  
 Photobioreactor: a regenerator of oxygen in the air  
 The proteome in brewer's yeast  
 Resveratrol and its use in cancer research  
 Substitute blood  
 Gene transfer in plants  
 Are Frankenfoods good or bad for our health?  
 Genetically modified foods  
 Bacteriophages  
 Biocaptors  
 Biotechnologies used in the areas of justice and immigration  
 Stem cells for a better quality of life  
 Stem cells for greater longevity  
 Bleaching fungus and the paper industry  
 Plant hormones for growing vegetables  
 Biological wars (biopesticides)  
 Probiotics and animal health  
 Antibacterial and antifungal properties of natural products (e.g. Aloe)  
 Risks of permutation with DNA manipulation  
 Are hybrid plants harmful?  
 Modifying plants so that they can grow in the desert  
 Producing ethanol from the fermentation of immobilized yeast  
 Treating waste water using microorganisms  
 A goat that produces spider silk  
 Using bacteria to remove heavy metals from contaminated water  
 Using enzymes to whiten papermaking pulp  
 Using biomass to produce ethanol  
 Using plants to desalt water in order to make it drinkable