Untitled Essay, Research Paper

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A Massive Project for the Benefit of Mankind:

A Look at the Human Genome Project??? Scientists are taking medical technology to new heights as they race to

map all of the genes, nearly 100,000, in the 23 chromosomes of the human body. Along the

way, they hope to understand the basis of, and maybe even develop methods of treating

certain genetic diseases, such as Alzheimer?s and Muscular Dystrophy. They plan to do

this by identifying the DNA sequence of an abnormal gene in which a disease originates and

comparing it with the data of a normal or healthy gene. The entire research project is

entitled “The Human Genome Project.”

??? “The Human Genome Project” is a large scale project being

conducted by more than 200 laboratories, with even more researchers and labs having joined

in. Most of the labs and researchers are located in France and the United States. The

project started in 1990 and was slated to take 15 years and cost $3 billion in U.S. money

for the entire project coming to roughly $200 million per year. Federal funding for the

project is nearly 60% of the annual need. This has created some funding problems for the

project. There also have been technological advances and discoveries that have helped to

speed up the project. This automation may help to reduce the cost and help the project to

meet its objectives ahead of schedule. The project was estimated to have detailed maps of

all of the chromosomes and know the location of most of the human Genes by 1996.

Researchers have successfully located the gene and DNA sequence for Huntington?s

Disease on Chromosome 4 and have created a genetic test to determine if a person carries

this gene. “The child of a person with Huntington’s has a 50% chance of inheriting

the gene, which inevitably leads to the disease.” Once an individual acquires the

gene, it is only a matter of time before they acquire the disease. Because the medical

costs of treating such persons in terminal illnesses are extremely high, insurance

companies who want to stay in business see this genetic test, and others like it, as an

opportunity to screen prospective clients for the probability of such diseases. Some

people feel that this information gives insurance companies unfair advantage over those

covered by medical insurance and point out that release of genetic information to

insurance companies puts a severe disadvantage on the person who is screened, as well as

violates the patients right to privacy. If this genetic information is not safegua

rded as confidential for the patient?s and doctor?s knowledge alone, then the

patient can be labeled as undesirable and the patient may not be able to receive insurance

coverage at any price. This also brings up other ethical questions. “Does genetic

testing constitute an invasion of privacy, and would it stigmatize those found to have

serious inborn deficiencies? Would prenatal testing lead to more abortions? Should anyone

be tested before the age of consent?”

Obviously, many genetic advancements are to come of this research. One biotechnology that

will benefit from genetic testing is genetic engineering. It too, may have many social

implications depending on what is created from such experimentation.

Gene Therapy is one “spin-off” that has greatly benefited Gene-mapping. It

utilizes genetic engineering to treat genetic disorders by “introducing genes into

existing cells to prevent or cure diseases” . Most of the methods are still in the

experimental stages and have yet to be approved by the FDA. One example would be in a

proposed treatment for a brain tumor. Scientists would take a herpes gene and splice it in

to a nonvirulent virus. Viruses and liposomes have an uncanny ability to navigate through

cell membranes. The virus is then placed into a laboratory animal to reproduce itself, and

after reproduction, is injected into the human?s brain tumor. The virus is supposed

to invade the tumor cells. Thus, the herpes enzyme will render the tumor vulnerable to

drugs used to cure herpes, killing the tumor, the virus, and the animals’ cells used to

manufacture the virus.

With this and other ideas springing out from the “medicine cabinet”, many

researchers are optimistic about the results of their research. There is also a direct

correlation of the sequencing of genes and production of effective drugs on diseases which

may have different strands of defective genes, such as Alzheimer?s. Locating these

genes would be crucial to synthesizing a product to affect that specific location in the

gene. The director of the gene-therapy program at the University of Southern California,

Dr. W. French Anderson states, “Twenty years from now, gene therapy will have

revolutionized medicine. Virtually every disease will have it as one of its

treatments.” Such an impact on medicine would take much longer to occur with

“hit and miss” tactics, rather than methodically mapping out the blueprint for

the body.

So whether we, as society, want to go forward in this research slowly, or with blazing

speed, scientists will go forward and do what they set out to do. The fact that this

research will benefit humanity is resounding, we just need to remember to handle our

findings in such a manner that benefits all of society, not just those on top of the

economical food chain. Also, persons should be able to decide for themselves if they can

handle knowing what their genetic flaws are. Sometimes knowing you will eventually be

afflicted by a disease can be as emotionally devastating as actually having the disease.

Some states have already enacted laws guarding the rights of individuals genetically

tested . The problem is that most only cover certain procedures and not all of the

testing. Whatever way we govern such testing, we have to realize, will be inefficient by

most standards, as government always is, in complicated situations. I feel that if genetic

information should be public knowledge, then every country using this genetic concept

should provide “blanket insurance” coverage for everyone at the same rate. This

would be the only fair action that would have the common person?s interest in mind,

although it is a socialist concept, people would not be discriminated against and it would

put everyone on a level playing field. Since I don?t see a comprehensive health care

plan in our horizon, we should consider making personal genetic information excluded from

insurance companies, the government, etc., except for the actual treatment of the patient,

which was the original reason that these tests were created. The

reason that I feel genetic information should be totally excluded from insurance companies

is this: Once genetic testing becomes widely available, it would be easy for an insurance

company to require people to submit to a genetic test before they could be covered. If the

person applying is found to be unfit, it could go on his or her insurance “medical

report”, such as a “credit report”, which would blacklist that person from

ever getting coverage. Obviously there is a need for governmental laws to prevent this

from happening. No one can control what genes they will get, and just because you have

“bad” genes doesn?t mean you are a “bad” person, thus no one

should be discriminated against due to these “weaknesses”. I personally feel

that the Human Genome Project is a great undertaking intended for the benefit of mankind.

There are many advances that have been made in treatments as well as the creation of

various machines that automate the process of gene mapping. Machines that may be used to

automate th

e study of other organisms. I just don?t trust the motives behind the insurance

companies who could unduly benefit from such testing. I feel that the individual?s

right to privacy should remain paramount, and that there should be laws set in motion to

prohibit a person from being discriminated against because of genetic predisposition.Bibliography

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