The Honorable William S. Cohen  
United States Senate  
Hart Senate Office Building 332  
Washington, DC 20510

Dear Senator:

I am writing to inform you about developments in the biomedical sciences which in the opinion of many scientists threatens the quality and conduct of our nation's health-related research effort. This threat is a program known as the human genome initiative. The goal of this program is to obtain the complete nucleotide sequence of human DNA. Most scientists recognize the value of having this information provided the means to obtain it do not prevent or retard research which, in the immediate future promises a much higher probability of serving the health needs of the American people.

Recent reports in major scientific journals on the means to achieve the goals of the human genome project raise serious questions about whether the quality of thinking and strategies are capable of achieving the goal without an enormous waste of resources, both monetary and human. The conduct of this program will result in many investigators abandoning creative research programs of significant health relevance to participate in the initiative because this will be the only way they can support their research careers. Yet we all know that once you obtain a DNA sequence, the path to understanding the function of the gene has only begun. The gene responsible for cystic fibrosis has recently been isolated but even with an intense effort, and a good measure of luck, it will be years before sufficient understanding is obtained to benefit the patient. At present we know the DNA sequence of hundreds of genes. Yet for only a few of these genes do we understand how the sequence information results in a biological phenotype. This intense, immediately relevant, highly creative research is being sacrificed to obtain more DNA sequence, 95% of which will be irrelevant, meaningless sequence.
Throughout the nation's universities and medical schools outstanding scientists and promising young scientists cannot obtain funding to pursue very important research. The reasons for the shortage of funds are many and complex. The human genome initiative has still only a minor impact, however, if it moves forward as its architects envisage then its impact will be major.

Given the importance that research in biomedical science has to the welfare of the American people, it is surprising that Congress has not even had a rigorous debate on the human genome initiative (has it discussed the topic at all?). Is Congress concerned or cognizant of the social implications of having the complete sequence of the human DNA in 10 years? Are we prepared ethically and morally to address the problems which will arise from the use of this awesome information or will we also dump the biological bomb on our naive world? It is inevitable that the complete sequence of the human genome will be obtained, but do we need a Manhattan-Project-like assault in the project? No one can identify a single disease which requires this project for cures, certainly not cancer, or heart disease, or diabetes or AIDS, our major diseases. Solutions to these diseases could well be retarded by the human genome initiative.

Leslie P. Kozak, Ph. D.
Senior Staff Scientist
The Jackson Laboratory