



## **The Human Genome Project**

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**Institute for Theological Encounter with Science and Technology**

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# The Human Genome Project

## Abstract:

What is the Human Genome Project? What is Christianity's interest in such things as DNA and the Human Genome Initiative. Despite centuries of deepening theological abstraction and generalities, Christianity is essentially an earthy religion. It is the covenant in the Body and Blood of Christ, not in his spirit. There is nothing ethereal about it. We believe that we shall rise from the dead physically, recognizably ourselves.

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## Foreword:

DNA!

The language of the second half of our century has made a place for these letters as both an adjective and a noun. Biologically, we may turn it into a – verb to “DNA” a person or an animal or a plant, to transform it at its most basic physical level.

If I may use an almost unavoidable pun, the discovery of DNA, the working out of its structure and its alteration for therapy or for enhancement of potentiality or achievement may be the most pregnant scientific/technical advance of mankind. It's one thing to view the galaxies with our astronomical instruments; it's another to view the “master molecule” of life. It will be a very long time before we can technologically affect, even slightly, the vast galaxies that our cleverness has discovered. We are, and have been for a very long time, altering the molecule that directs our own life and that of every creature living on our planet.

In the face of the great things that lie in our living future we need a sense of perspective. We have manipulated

human heredity in many ways, from exposing newborn children to death, setting up “noble bloodlines,” ethnic cleansing, mating only within the clan or tribe, slavery or selective breeding of one kind or another. We have certainly altered for good or ill strains of plants and animals through hybridization and breeding. Eugenics in all its forms and varieties is not a new idea. The means at our disposal now, however, are quite new and seem to be almost of another kind.

The methods of the past were basically *ad hoc*, even at the therapeutic level. Now we are beginning to think of predictable and reproducible changes in our physical composition. When the potentiality will become actual capability is not clear. Several breakthroughs are needed before we shall be able to alter living beings and/or their descendants predictably and reproducibly. Breakthroughs by their very nature are unpredictable, both in their timing and in the direction they will lead us. Nonetheless, it is not too soon for us to ponder these capabilities that may well be ours in the next century.

DNA! Some call it the miracle molecule, or the magic molecule. Walter Gilbert, as quoted in this book, calls it the “Holy Grail” of science. In this volume Fr. Peter Leonard and Dr. David Schlessinger discuss the physical make-up of the molecule and what it does. In doing so, they treat at length the concepts behind the mapping and sequencing of the human genome. In short, they explain the Human Genome Project (HGP) or the Human Genome Initiative (HGI), whichever individuals wish to call it. Drs. Evelyn Crump and Stephen Lefrak discuss both the history of the project as well as the ethical and scientific concerns it raises. Mr. Gary Menard, SJ, reviews the computer aspects of the work and treats both the capabilities and limitations of today’s computerization with regard to the Human Genome Initiative. Dr. Philip Hefner addresses the theological challenges which this project brings to light.

We regret that this set of Proceedings does not include a paper from Dr. Hefner. He did not wish us to publish his pre-paper and promised a revised version for the Proceedings. Having failed to receive this revised paper from Dr. Hefner, the editorial staff has decided to proceed without it in the interest of reasonably timely publication of the Proceedings. The editor has tried to note where necessary in the text that an intervener is referring to that original pre-paper.

The discussions proceeded from the physical to the biological. It will be clear in the proceedings that there was a strong desire on the part of the attendees for biological information. Also, there was a great deal of discussion on broader scientific concerns, on funding and on the ethical concerns about mapping and sequencing the human genome. Questions of use/abuse were raised, as everyone would expect. Concerns about big science/little science were frequently voiced. In this, the workshop resembled much of the debate of a few years ago in the scientific community itself. Is this massively expensive project the best way to proceed scientifically? Is it, as Stephen Lefrak framed the question, a strategic plan or is it a boondoggle? Is it cost effective? Will it succeed? What affect will it have on the scientific enterprise itself? Will it funnel scientists in a scientific/technical project which, when done, will leave large numbers of scientists unemployed or underemployed?

What will insurance companies or employers do with the information gained from genetic screening? Will insurance coverage or employment possibilities be affected by such screening? What therapies will be applied? What enhancements will people expect? All these questions are treated at one point or another in the text. Do not expect clean or definitive answers to them. That was not the purpose of the workshop. Nor are definitive answers to ethical questions possible in a society that sees morality bound up with values (*desiderata*, according to the dictionary) rather than with virtues, especially the virtue of prudence. Public policy also constituted a part of the discussion.

Interestingly enough, there was disagreement about whether there was too little theological consideration or too many theologies proposed. In short, it was a typical ITEST Workshop. The purpose of these ITEST meetings is

basically informational: there is no intention on the part of the organization to provide a “how-to-do-something-in-ten-easy-steps” book on life in a scientific/technological culture. Rather, the purpose is to provide those present with informational grist for their own mental mills. This, I believe, was admirably achieved at the Workshop on the Human Genome Project.

Perhaps, the most interesting and important aspect for a Christian is the meaning of this kind of advance. What, indeed, is Christianity’s interest in such things as DNA and the Human Genome Initiative? Despite centuries of deepening theological abstraction and generalities, Christianity is essentially an earthy religion. It is the covenant in the Body and Blood of Christ, not in his spirit. There is nothing ethereal about it. We believe that we shall rise from the dead physically, recognizably ourselves.

In the incarnation God assumed a body and truly and literally became one of us. Consequently, like us, God has a history and a destiny. Part of that history is the graced human drive to alter (improve, hopefully) the environment, and ultimately ourselves. It is likely that these new powers will be used, at some future date, to change significantly our bodies, to modify their shape, texture and function. How far in the future, I do not know. The mapping and sequencing of the human genome (and probably the genomes of plants and animals) will make this transforming practically inevitable. To cope with this in a Christian fashion we need prolonged prayerful reflection on our bodiness as an absolutely indispensable element of our being and of our being-in-Christ.

We have from both the Hebrew and Christian scriptures the promise of a *New Human*, the subject of a new and everlasting covenant with God. Science is promising us the advent of a *genetically new human*. Is there any relation between the two? During the discussions of the Human Genome Initiative Father Joseph Murphy introduced the notion of self-creation and self-definition. Left to itself, genetics will, more likely than not, lead to attempts at self-creation and self-definition. It is our Christian task to attempt to ensure that these new powers will be used to enhance the Kingdom of God, not to feed our own human egos. How can we do that? That indeed is the question. How can we do it, even if we will. Two things we must never forget: science does not usually set its own direction; power follows the direction of hope. We certainly have our hope in Jesus Christ our Lord. To set the direction of science we must rely on Christians in science, the only evangelists we have in the scientific/technical community. We must rely on the excellence in their science and on their dedication to Christ. Setting the direction of science demands high scientific competence and some sense of God’s will for his creation.

The latter – piercing a bit the mystery of God’s will for his creation – is the task of all of us. Our first task – one we usually turn to only as a resort – is prayer. Then, we must learn as much as we can, but learn with love – our love for God and our love for the bountiful and beautiful creation with which he has gifted us. It is our task to preserve, yes, but also enhance this gift through our learning and through our love for each other, for the creation and ultimately for God. It is our love of God, growing out of his love for us, that directs the use of the Human Genome Initiative’s results.

What a glorious challenge God has given us in the opportunity to be present at the beginnings of our ability deliberately to “create” the new human! What will be our response?

Robert Brungs, SJ  
Director: ITEST  
March 1993



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