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HUMAN & CHIMPANZEE DNA—PROOF OF EVOLUTION?

Brad Harrub, Ph.D. and Bert Thompson, Ph.D.

The collision occurred without warning. Prior to the impact, thoughts had revolved around dinner plans. Images of fried chicken and mashed potatoes, however, now have been replaced by an ear-piercing siren and flashing strobe lights, which dance off of street signs and store windows. Following the injured's seven-minute ambulance ride, emergency room doctors access the situation. There is extensive internal damage, and several organs appear to be shutting down. The prognosis is dim-unless a healthy kidney and liver are transplanted within the next 12 hours. A call is made to the National Organ Donor Register, and the gravity of the situation is relayed to several donor officials. Within a matter of three hours, a chartered air ambulance delivers the organs in a bright red Igloo™ cooler. Just before the anesthesiologist prepares the patient for surgery he notices the surgeon walk over and inspect the donated organs. The last words the patient hears as he drifts off to sleep is the surgeon saying, "Well, I guess chimp organs will have to do; after all, we share over 98% of the same genetic material."

While many evolutionists proclaim that human DNA is 98% identical to chimpanzee DNA, few would lie by idly and allow themselves to receive a transplant using chimpanzee organs. As a matter of fact, American doctors tried using chimp organs in the 1960s, but in all cases the organs were totally unsuitable. The claim of 98% similarity between chimpanzees and humans is not only deceptive and misleading, but it also is scientifically incorrect.

In 1962, Francis Crick and James Watson received the Nobel Prize in physiology or medicine for their discovery concerning the molecular structure of DNA. Just nine years earlier, in 1953, these two men had proposed the double helical structure of DNA—the genetic material responsible for life. By demonstrating the molecular arrangement of four nucleotide base acids (adenosine, guanidine, cytosine, and thymidine—often designated A, G, C, and T) and how they join together, Watson and Crick opened the door for determining the genetic makeup of humans and animals. The field of molecular biology became invigorated with scientists who wanted to compare the proteins and nucleic acids of one species with those of another. Just thirteen short years after Watson and Crick received their famed Nobel Prize, the declaration was made "that the average human polypeptide is more than 99 percent identical to its chimpanzee counterpart" (King and Wilson, 1975, pp. 114-115). This genetic similarity in the proteins and nucleic acids, however, left a great paradox—why do we not look or act like chimpanzees if our genetic material is so similar? King and Wilson realized this quandary when they stated: "The molecular similarity between chimpanzees and humans is extraordinary because they differ far more than many other sibling species in anatomy and life" (p. 113). Nevertheless, the results were exactly what evolutionists were looking for, and as such, the claim has reverberated through the halls of science for decades as evidence that humans evolved from an ape-like ancestor.

One year following Watson and Crick's Nobel ceremony, chemist Emile Zuckerkandl observed that the protein sequence of hemoglobin in humans and the gorilla differed by only 1 out of 287 amino acids. Zuckerkandl noted: "From the point of view of hemoglobin structure, it appears that gorilla is just an abnormal human, or man an abnormal gorilla, and the two species form actually one continuous population" (1963, p. 247). The molecular and genetic evidence only strengthened the evolutionary foundation for those who testified of our alleged primate ancestors. Professor of physiology Jared Diamond even titled one of his books *The Third Chimpanzee*, thereby viewing the human species as just another big mammal. From all appearances, it appeared that evolutionists had indeed won a battle—humans were at least 98% identical to chimpanzees. However, after spending a lifetime looking for evolutionary evidence in molecular structures, biochemist Christian Schwabe was forced to admit:

> Molecular evolution is about to be accepted as a method superior to paleontology for the discovery of evolutionary relationships. As a molecular evolutionist I should be elated. **Instead it seems disconcerting that many exceptions exist to the orderly progression of species as determined by molecular homologies;** so many in fact that I think the exception, the quirks, may carry the more important message (1986, p. 280, emp. added).

In 2003, the finished human genome will be published. Before this massive project was created, scientists estimated that humans possessed 80,000 to 100,000 genes (a gene is a section of DNA that is a basic unit of heredity, while the genome constitutes the total genetic composition of an organism). With preliminary data from the genome project already in hand (see the February 16, 2001 issue of *Science*), we now know that number is closer to 30,000 to 40,000 genes. It appears that only about 1.5% of the human genome consists of genes, which code for proteins. These genes are clustered in small regions with large amounts of "non-coding" DNA (often referred to as "junk-DNA") between the clusters. The function of these non-coding regions is only now being determined. These findings indicate that even if **all** of the human genes were different from those of a chimpanzee, the DNA could still be 98.5 percent similar if the non-coding DNA of humans and chimpanzees was identical.

Jonathan Marks from the department of anthropology at the University of California, Berkeley, pointed out the often-overlooked problem with this "similarity" line of thinking.

> Because DNA is a linear array of those four bases—A, G, C, and T—only four possibilities exist at any specific point in a DNA sequence. The laws of chance tell us that two random sequences from species that have no ancestry in common will match at about one in every four sites. Thus even two unrelated DNA sequences will be 25 percent identical, not 0 percent identical (Marks, 2000, p. B7).

Therefore a human and **any** earthly DNA-based life form must be at least 25% identical. Would it be correct, then, to state that daffodils are one- quarter human? The idea that daffodils are one-quarter human is not profound or enlightening, it is outright ridiculous! There is hardly any biological comparison that could be conducted that would make daffodils human, except perhaps DNA. Marks went on to concede that

> moreover, the genetic comparison is misleading because it ignores qualitative differences among genomes.... Thus, even among such close relatives as human and chimpanzee, we find that the chimp's genome is estimated to be about 10 percent larger than the human's; that one human chromosome contains a fusion of two small chimpanzee chromosomes; and that the tips of each chimpanzee chromosome contain a DNA sequence that is not present in human (B-7).

The truth is, if we consider the absolute amount of genetic material when comparing primates and humans, the 1-2% difference in DNA represents approximately 80 million different nucleotides (compared to the 3-4 billion nucleotides that make up the entire human genome). To bring this number down to Earth, if evolutionists had to pay you one penny for every nucleotide in that 1-2% difference between the human and the chimp, you would walk away with $800,000. Given those proportions, a 1-2% does not appear so small.

CHROMOSOMAL COUNTS

It would make sense that if humans and chimpanzees were genetically identical, then the manner in which they store DNA also would be similar. Yet it is not. DNA, the fundamental blueprint of life, is tightly compacted into chromosomes. All cells that possess a nucleus contain a specific number of chromosomes. Common sense would necessitate that organisms that share a common ancestry would possess the same number of chromosomes. However, chromosome numbers in living organisms vary from 308 in the black mulberry (*Morus nigra*) to six in animals such as the mosquito (*Culex pipiens*) or nematode worm (*Caenorhabditis elegans*) [see Sinnot, et al., 1958]. Additionally, complexity does not appear to affect chromosomal number. The radiolaria, a simple protozoon, has over 800, while humans possess a total of 46. Chimpanzees, on the other hand, possess 48 chromosomes. A strict comparison of chromosome number would indicate that we are more closely related to the Chinese muntjac, (a small deer found in Taiwan's mountainous regions), which also possesses 46 chromosomes.

This hurdle of differing numbers of chromosomes may appear trivial, but we must remember that chromosomes contain genes, which themselves are composed of DNA spirals. If the blueprint of DNA locked inside those chromosomes codes for only 46 chromosomes, then how can evolution account for the loss of two entire chromosomes? The job of DNA is to continually reproduce itself, and if we infer that this change in chromosome number occurred through evolution, then we are asserting that the DNA locked in the original number of chromosomes did not do its job correctly or efficiently.

Considering that each chromosome carries many genes, losing chromosomes does not make physiological sense, and probably would prove deadly for new species. No respectable biologist would suggest that by removing one (or several) chromosomes, a new species would likely be produced. To remove even one chromosome would remove the DNA codes for millions of vital body factors. Eldon J. Gardner summed it up this way: "Chromosome number is probably more constant, however, than any other single morphological characteristic that is available for species identification" (1968, p. 211). Humans have always had 46 chromosomes, whereas chimps have always had 48.

REAL GENOMIC DIFFERENCES

One of the downfalls of previous molecular genetic studies has been the limit at which chimpanzees and humans could accurately be compared. Scientists often would use only 30 or 40 known proteins or nucleic acid sequences, and then from those extrapolate their results for the entire genome. Today, however, we have the majority of the human genome sequences, almost all of which have been released and made public. **This allows scientists to compare every single nucleotide base pair between humans and primates—something that was not possible prior to the human genome project**. In January 2002, a study was published in which scientists had constructed and analyzed a first-generation human chimpanzee comparative genomic map. This study compared the alignments of 77,461 chimpanzee bacterial artificial chromosome (BAC) end sequences to human genomic sequences. Fujiyama and colleagues "detected candidate positions, including two clusters on human chromosome 21 that suggest large, nonrandom regions of differences between the two genomes" (2002, 295:131). In other words, the comparison revealed some "large" differences between the genomes of chimps and humans.

Amazingly, the authors found that only 48.6% of the whole human genome matched and was covered with chimpanzee nucleotide sequences. The human Y chromosome was only 4.8% covered by chimpanzee sequences! This study analyzed the alignments of 77,461 chimpanzee sequences to human genomic sequences obtained from public databases. Of these, 36,940 end sequences were unable to be mapped to the human genome (295:131). Almost 15,000 of those sequences that did not match with human sequences were speculated to "correspond to unsequenced human regions or are from chimpanzee regions that have diverged substantially from humans or did not match for other unknown reasons" (295:132). While the authors noted that the quality and usefulness of the map should "increasingly improve as the finishing of the human genome sequence proceeds" (295:134), the data already are supporting what creationists have exclaimed for years—the 98% figure is grossly misleading.

In a separate study, Barbulescu and colleagues also uncovered another major difference in the genomes of primates and humans. In their article "A HERV-K Provirus in Chimpanzees, Bonobos, and Gorillas, but not Humans," the authors wrote: "**These observations provide very strong evidence that, for some fraction of the genome, chimpanzees, bonobos, and gorillas are more closely related to each other than they are to humans**" (2001, 11:779, emp. added). The data from these results go squarely against what evolutionists have contended for decades—that chimpanzees are closer genetically to humans than they are gorillas. Another study using interspecies representational difference analysis (RDA) between humans and gorillas revealed **gorilla-specific** DNA sequences (Toder, et al., 2001)—that is, gorillas possess sequences of DNA that are not found in humans. The authors of this study suggested that sequences found in gorillas but not humans "could represent either ancient sequences that got lost in other species, such as human and orangutan, or, more likely, recent sequences which evolved or originated specifically in the gorilla genome" (9:431).

The differences between chimpanzees and humans are not limited to genomic variances. In 1998, a structural difference between the cell surfaces of humans and apes was detected. After studying tissues and blood samples from the great apes, and 60 humans from various ethnic groups, Muchmore and colleagues discovered that human cells are missing a particular form of sialic acid (a type of sugar) found in all other mammals (1998, 107[2]:187). This sialic acid molecule is found on the surface of every cell in the body, and is thought to carry out multiple cellular tasks. This apparent miniscule difference can have far-reaching effects, and might explain why surgeons were unable to transplant chimp organs into humans in the 1960s. With this in mind, we never should declare, with a simple wisp of the hand, "chimps are almost identical to us" simply because of a large genetic overlap.

CONCLUSION

Homology (or similarity) does not prove common ancestry. The entire genome of the tiny nematode (*Caenorhabditis elegans*) also has been sequenced as a tangential study from the Human Genome Project. Of the 5,000 best-known human genes, 75% have matches in the worm (see "A Tiny Worm Challenges Evolution"). Does this mean that we are 75% identical to a nematode worm? Just because living creatures share some genes with humans does not mean there is a linear ancestry. Biologist John Randall admitted this when he wrote:

> The older textbooks on evolution make much of the idea of homology, pointing out the obvious resemblances between the skeletons of the limbs of different animals. Thus the "pentadactyl" [five bone—BH] limb pattern is found in the arm of a man, the wing of a bird, and flipper of a whale, and this is held to indicate their common origin. Now if these various structures were transmitted by the same gene couples, varied from time to time by mutations and acted upon by environmental selection, the theory would make good sense. Unfortunately this is not the case. Homologous organs are now known to be produced by totally different gene complexes in the different species. The concept of homology in terms of similar genes handed on from a common ancestor has broken down… (as quoted in Fix, 1984, p. 189).

Yet textbooks and teachers still proclaim that humans and chimps are 98% genetically identical. The evidence clearly demonstrates vast molecular differences—differences that can be attributed to the fact that humans, unlike animals, were created in the image and likeness of God (Genesis 1:26-27; see Lyons and Thompson, 2002a, 2002b). Elaine Morgan commented on this difference when she observed:

> Considering the very close genetic relationship that has been established by comparison of biochemical properties of blood proteins, protein structure and DNA and immunological responses, the differences between a man and a chimpanzee are more astonishing than the resemblances. They include structural differences in the skeleton, the muscles, the skin, and the brain; differences in posture associated with a unique method of locomotion; differences in social organization; and finally the acquisition of speech and tool-using, together with the dramatic increase in intellectual ability which has led scientists to name their own species *Homo sapiens sapiens*—wise wise man. During the period when these remarkable evolutionary changes were taking place, other closely related ape-like species changed only very slowly, and with far less remarkable results. **It is hard to resist the conclusion that something must have happened to the ancestors of *Homo sapiens* which did not happen to the ancestors of gorillas and chimpanzees** (1989, pp. 17-18, emp. added).

That "something" actually is "Someone"—the Creator.

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