

Chimps Belong on Human Branch of Family Tree, Study Says

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A new report argues that chimpanzees are so closely related to humans that they should be included in our branch of the tree of life. Chimpanzees and other apes have historically been separated from humans in classification schemes, with humans deemed the only living members of the hominid family of species.

Now, biologists at Wayne State University School of Medicine in Detroit, Michigan, provide new genetic evidence that lineages of chimps (currently *Pan troglodytes*) and humans (*Homo sapiens*) diverged so recently that chimps should be reclassified as *Homo troglodytes*. The move would make chimps full members of our genus *Homo*, along with Neandertals, and all other human-like fossil species. "We humans appear as only slightly remodeled chimpanzee-like apes," says the study.

"The loss of the [wild] chimp and gorilla seems imminent," said Morris Goodman, a study co-author. "Moving chimps into the human genus might help us to realize our very great likeness, and therefore treasure more and treat humanely our closest relative," he said.

However, experts say many scientists are likely to resist the reclassification, especially in the emotionally-charged and often disputed field of anthropology.

Knowing Me, Knowing You

The term genus describes a very closely related group of similar species, thought to have diverged from one another relatively recently, and is the first grouping above the species level. Common chimpanzees and bonobos have until now been classified into their own genus, *Pan*.

Historical classification schemes, based on physical similarities such as bones, argued that chimps and gorillas were each other's closest relatives, and that both were closely related to orangutans to the exclusion of humans.

However, with the advent of molecular techniques to compare similarities in our DNA starting in the 1960s, most experts have come to accept the fact that humans and chimps are most closely related. Studies indicate that humans and chimps are between 95 and 98.5 percent genetically identical.

Derek E. Wildman, Goodman, and other co-authors at Wayne State argue in their new study, published today in the journal *Proceedings of the National Academy of Sciences*, that given the evidence, it's somewhat surprising that humans and chimps are still classified into different genera. Other mammalian genera often contain groups of species that diverged much earlier than chimps and humans did, said Goodman. "To be consistent, we need to revise our definition of the human branch of the tree of life," he said.

Historically Flawed

Goodman and colleagues used computer methods to analyze the amount of similarity between 97 important human and chimp genes and as many of the same gene sequences as are currently available for less-studied gorillas, orangutans, and Old World monkeys.

The results suggested that within important sequence stretches of these functionally significant genes, humans and chimps share 99.4 percent identity. (Some previous DNA work remains controversial. It concentrated on genetic sequences that are not parts of genes and are less functionally important, said Goodman.)

Using the DNA data, the researchers argue that humans and chimp lineages evolutionarily diverged from one another between five and six million years ago. Many other genera more distant to people, some squirrels for example, include groups of species that have diverged from one another far earlier—many between 7 to 11 million years ago. Species

groupings should be equivalent between different groups of animals, said Goodman. "An objective yardstick is the age of origin of a branch [of animals]," he said.

"Historically, the philosophy behind how we group organisms was flawed," said Goodman. Starting with Aristotle in ancient Greece, species have been grouped according to their "degree of perfection," with man as the pinnacle. This "anthropocentric," or human-centered, view led to "exaggeration of the differences between humans and their relatives," he said, noting that his study gives "an objective view of man's place in the kingdom of life."

Confusion and Opposition

"This is an attempt to pull the classification of humans in line with other species...and is fundamentally a good idea if you want to accurately reflect the evolutionary differences between organisms," said Christophe Soligo of the Human Origins research group at The Natural History Museum in London, England. Humans have been the "odd-one out" in terms of mammalian classification, he said.

"However, whenever there is a big change in [classification] practice, it also leads to a lot of confusion and opposition," said Soligo. "The closer you get to humans the more contentious the issues become."

Reclassifying chimps would also have "political implications," challenging our long-held view of the boundary between humans and other animals, he said. Many recent studies "are contributing to blurring the boundaries between our species", said Soligo.

"The argument is whether genetic relatedness is the only thing you should take into account," said anthropologist Bernard Wood at George Washington University in Washington, D.C. "A genus should also be a group of very similar species, that share attributes such as behavior and [mode of movement]," he said.

Fossil human-like species are currently divided into at least three genera. Grouping them all in the genus *Homo* could be very confusing, Wood said. Classification schemes "should be the signposts for differences between organisms," said Wood. "The problem is, if you call the chimp *Homo troglodytes*, you deny yourself that tool to help guide you through the tree of life."