

An interview with
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credit: <http://csbi.mit.edu/faculty/Members/tarjei>.

DL: There is a lot of excitement about the implications this research may have on the process of evolution. What role do you think the Chimpanzee Genome Project plays in the overall scheme of understanding human evolution?

TM: Concretely, the results of this research give us a full catalog of differences between the human and the chimpanzee genomes. We have always known that humans and chimpanzees are very similar—only 1% difference. Now we know where that 1% is.

DL: From these differences, do you think we now know what makes us human?

TM: I think the answer lies in that 1%, but to say that 40 million genetic differences is what makes us

human isn't a very satisfying answer to me. For one thing, the majority of these changes are random changes in junk DNA, and have no impact on our biology. And for those that are relevant, we'd like to know why. What we will do is sift through the changes and identify the biologically important changes from the random ones.

DL: How do we identify which genes are "biologically relevant"?

TM: There are two approaches. One way is to examine regions of the genome that show evidence of recent natural selection. When a genetic mutation is favorable, it tends to spread rapidly through a population, and this leaves signals in the genome which we can look for. The other method is just to zoom out and ask, "Are there specific classes of genes that have changes more rapidly in humans?" Using that method, we can simply count the number of changes in each protein between humans and chimps.

DL: Considering the animal rights movements today, do you foresee these conclusions hindering scientific research in any manner?

TM: Not at all. For one thing, there are already currently a lot of restrictions on conducting research on chim-

panzees. But moreover, the chimpanzee genome didn't tell us anything new about how close we are to the chimpanzees, but where these differences can be found.

DL: Tell us a little about the project itself. What was the most interesting aspect of this research to you?

TM: Well, to be honest, the most striking aspect of the project was probably that there wasn't anything striking. There wasn't any big blob of DNA in the chimpanzee genome that doesn't exist in the human genome, just a number of small differences. And the process that made humans was no different from the process that created the chimpanzees. What we found was what we expected to find—what theories have predicted. But I think all of us were also hoping to find a big signal—a smoking gun—in the research.

DL: For you personally, what are you most excited to see come from this research?

TM: I hope that, in time, [The Chimpanzee Genome Project] will provide us with some deeper understanding of evolution. There is a lot that we still don't understand about humans, and this research may just provide the key to some of those answers. **H**