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How different are we from chimps?

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It is often maintained that humans are more than 98.5% similar to chimpanzees in our DNA sequences. In the Early Edition of the [Proceedings of the National Academy of Sciences](#), Roy Britten at [Caltech](#) challenges this dogma and shows that when sequence insertions and deletions (indels) are taken into account the divergence can be estimated at around 5% (*PNAS*, DOI:10.1073/pnas.172510699, September 23, 2002). Britten compared the sequence of five chimp BACs - covering 779 kilobases - with the draft human genome sequence. Sequence substitutions account for about 1.4% divergence, but twice as much divergence (3.6%) is contributed by indels. The frequency of indels is less than the frequency of substitutions, but the gaps can be tens of nucleotides long and appear in both human and chimp sequences. Further analysis of the gaps in other genomes may provide useful insights into evolutionary relationships between humans and our closest relatives.

References

1. Construction and analysis of a human-chimpanzee comparative clone map.
2. *Proceedings of the National Academy of Science USA*, [<http://www.pnas.org>]
3. Caltech, [<http://www.caltech.edu>]