

Do genetic differences disprove that Neandertals and modern humans interbred?

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New research results from the comparison of mitochondrial DNAs (mtDNA) have shown substantial differences between Neandertals and modern humans, including the Cro-Magnons of Ice Age Europe.¹⁻³ (Mitochondrial DNA, which is not the same as that carried on the chromosomes (nuclear DNA), is generally inherited directly from the mother). The differences have been taken as evidence that Neandertals were a different ‘species’ from humans.

However, even some evolutionary scientists express caution over the new mtDNA results. Mark Stoneking, a supporter of the mitochondrial Eve hypothesis (which actually favours the idea of Neandertal non-humanity⁴), is concerned about possible DNA contamination, which can occur easily.³ Furthermore, the number of Neandertal and Cro-Magnon specimens was quite small, and certain modern people groups were over-represented. Therefore, the results may not apply to larger populations.

Alan Cooper, an evolutionary molecular biologist at Oxford, believes there is a slim possibility that Neandertals are ancestors of modern humans and may have contributed mtDNA to modern human populations which was lost during human population bottlenecks at the end of the Ice Age.⁵

This is quite possible according to creationist biologist David DeWitt, an associate professor at Liberty University, Virginia, who has discovered that many of the mtDNA differences occur at mutational ‘hotspots’ unlike the differences between modern humans and chimps.^{6,7} These are sectors where substantial mutational change (without much, if any, effect on the whole organ-

ism) can occur in short periods of time. Last year, Gutierrez *et al.* showed that the ‘Neandertal-Human and Human-Human pairwise distance distributions overlap more than previous studies suggest.’⁸ They also said, ‘The separate phylogenetic position of Neandertals is not supported when these (other) factors are considered [i.e. the high substitution rate variation at these hot spots].’⁸ This is similar to recently discovered rapid mtDNA changes in mice from the Chicago area.^{9,10} Thus, these mtDNA findings do not disagree with the conclusion, from the evidence of fossil hybrids and artefacts, that Neandertals were fully human (descendants of Adam and Eve) and interbred with anatomically modern *Homo sapiens*.¹¹

References

1. Klein, R.G., Whither the Neandertals? *Science* **299**(5612):1525–1527, 2003.
2. Caramelli, D. *et al.*, Evidence for a genetic discontinuity between Neandertals and 24,000-year-old anatomically modern Europeans, *Proc. Nat. Acad. Sci. USA* **100**(11):6593–6597, 2003.
3. Bower, B., Stone age genetics: ancient DNA enters humanity’s heritage, *Science News* **163**(20):307, 2003.
4. Wieland, C., No bones about Eve, *Creation* **13**(4):20–23, 1991.
5. Cooper, A., cited in: Viegas, J., Study: human DNA Neandertal-free, *Discovery News*, <dsc.discovery.com/news/briefs/20030512/neandertal.html>, 12 May 2003.
6. Skinner, W. and DeWitt, D., The Neandertal’s place in human history, *Virginia Journal of Science* **51**(2):83, 2000.
7. DeWitt, D. and Skinner, W., Rate heterogeneity and site by site analysis of mtdna suggests Neandertals and modern humans share a recent common ancestor, *Discontinuity*, p. 31, 2001.
8. Gutierrez *et al.*, A reanalysis of the ancient mitochondrial DNA sequences recovered from Neandertal bones, *Mol. Biol. Evol.* **19**:1359–1366, 2002.
9. Pergams, O.R.W., Barnes, W.M. and Nyberg, D., Rapid change in mouse mitochondrial DNA, *Nature* **423**(6938):397, 2003.
10. Wieland, C., ‘Fast mouse evolution’ claims: creationists should get excited, <www.answersingenesis.org/mouse>.
11. Wong, K., Who were the Neandertals, *Scientific American Special Edition* **13**(2):28–37, 2003.