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New Findings Solve Major Human Origins Mystery

Apes Evolved From Humans – Darwin in Reverse

Los Angeles, California – An extraordinary advance in human origins research reveals evidence of the emergence of the upright human body plan over 15 million years earlier than most experts have believed. More dramatically, the study confirms preliminary evidence that many early hominoid apes were most likely upright bipedal walkers sharing the basic body form of modern humans. On October 10th, the leading online journal PLOS One, published the report based on research from Harvard University’s Museum of Comparative Zoology and from the Cedars Sinai Institute for Spinal Disorders that connects several recent fossil discoveries to older fossils finds that have eluded adequate explanation in the past. National Geographic News will report this to the wider public on October 30th.

The report deals with the “homeotic” genetic mechanisms that encode anatomical assembly in the embryo, and their relevance to a series of discoveries of hominoid fossil vertebrae. It concludes that a specific gene change – in the Pax system - that generated the upright bipedal human body form may soon be identified. The various upright “hominiform” hominoids appear to share this morphogenetic innovation with modern humans. Homeotics concerns the embryological assembly program for midline repeating structures such as the human vertebral column and the insect body segments.

The study analyses changes in homeotic embryological assembly of the spine in more than 200 mammalian species across a 250 million year time scale. It identifies a series of modular changes in genetic assembly program that have taken place at the origin point of several major groups of mammals including the newly designated ‘hominiform’ hominoids that share the modern human body plan.

“From an embryological point of view, what took place is literally breathtaking. This critical event involves a major embryological change unique to the human lineage that was not previously recognized because the unusual human condition has been incorrectly

viewed as ‘normal’.” says study author Dr. Aaron Filler a Harvard trained evolutionary biologist and a medical director at Cedars Sinai Medical Center’s Institute for Spinal Disorders who has also served as associate director of UCLA’s Comprehensive Spine Program. Dr. Filler - student of Stephen Jay Gould, Ernst Mayr and David Pilbeam - is widely considered one of the world’s leading experts in spinal biology and is the author of three books about the spine – “Axial Character Seriation in Mammals” (BrownWalker 2007), “The Upright Ape” (New Page Books 2007), and “Do You Really Need Back Surgery” (Oxford University Press 2007).

“In most vertebrates including most mammals,” he explains, “the dividing plane between the front (ventral) part of the body and the back (dorsal) part is a ‘horizontal septum’ that runs in front of the spinal canal. This is a fundamental aspect of animal architecture. A bizarre birth defect in what may have been the first ancestral human led to the ‘transposition’ of the septum to a position behind the spinal cord in the lumbar region. Oddly enough, this configuration is more typical of invertebrates.”

The mechanical effect of the transposition was to make horizontal or quadrupedal stance inefficient the report states. “Any mammal with this set of changes would only be comfortable standing upright. I would envision this malformed young hominiform – the first true ancestral human – as standing upright from a young age while its siblings walked around on all fours.”

The earliest example of the transformed hominiform type of lumbar spine is found in *Morotopithecus bishopi* an extinct hominoid species that lived in Uganda more than 21 million years ago. “From a number of points of view...” Filler says “humanity can be redefined as having its origin with *Morotopithecus*. This greatly demotes the importance of the bipedalism of other ancestral humans such as ‘Lucy’ (*Australopithecus afarensis*) since we now know of four upright bipedal species that precede her, found from various time periods on out to *Morotopithecus* in the Early Miocene.”

The paper in PLOS One is entitled: “Homeotic evolution in the Mammalia: Diversification of therian axial seriation and the morphogenetic basis of human origins.”

For more information and download of the article proof:

http://www.uprightape.net/Homeotic_Evolution.html

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