

# A new evolutionary history of primates

March 17 2011

---

A robust new phylogenetic tree resolves many long-standing issues in primate taxonomy. The genomes of living primates harbor remarkable differences in diversity and provide an intriguing context for interpreting human evolution. The phylogenetic analysis was conducted by international researchers to determine the origin, evolution, patterns of speciation, and unique features in genome divergence among primate lineages. This evolutionary history will be published on March 17 in the open-access journal *PLoS Genetics*.

The authors sequenced 54 gene regions from 186 species spanning the primate radiation. The analysis illustrates the importance of resolving complex, species-rich phylogenies using large-scale comparative genomic approach. Patterns of species and gene sequence evolution and adaptation relate not only to human genome organization and genetic disease sensitivity, but also to global emergence of zoonoses (human pathogens originating from non-human disease reservoirs), to mammalian comparative genomics, to primate taxonomy and to species conservation.

To date, available molecular genetic data applied to primate systematics has been informative, but limited in scope and constrained to just specific subsets of taxa. Now, a team of international researchers from the US, Brazil, France and Germany, have provided a highly robust depiction of the divergence hierarchy, mode and tempo governing the extraordinarily divergent primate lineages. The findings illustrate events in [primate evolution](#) from ancient to recent and clarify numerous taxonomic controversies. Ongoing speciation, reticulate evolution,

ancient relic lineages, unequal rates of [evolution](#) and disparate distributions of genetic insertions/deletions among the reconstructed primate lineages are uncovered.

The authors said: "Advances in human biomedicine, including those focused on changes in genes triggered or disrupted in development, resistance/susceptibility to infectious disease, cancers, and mechanisms of recombination and genome plasticity, can not be adequately interpreted in the absence of a precise evolutionary context or hierarchy. Resolution of the primate species phylogeny here provides a validated framework essential in the development, interpretation and discovery of the genetic underpinnings of human adaptation and disease."

**More information:** Perelman P, Johnson WE, Roos C, Seuáñez HN, Horvath JE, et al. (2011) A Molecular Phylogeny of Living Primates. *PLoS Genet* 7(3): e1001342. [doi:10.1371/journal.pgen.1001342](https://doi.org/10.1371/journal.pgen.1001342)

Provided by Public Library of Science

Citation: A new evolutionary history of primates (2011, March 17) retrieved 23 April 2024 from <https://phys.org/news/2011-03-evolutionary-history-primates.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.