

PERSPECTIVES

GENOMICS:

Genomics and the Tree of Life

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Only a decade has elapsed since the first prokaryote and eukaryote genomes were decoded. More than 400 genomes have been completed, some 1600 additional genomes are currently in progress, and genome-scale data sets (e.g., expressed sequence tags) are being generated at an unprecedented rate. Among the many fields feeling the impact of this genomic avalanche is phylogenetics, the discipline concerned with discovering the evolutionary interrelationships among all living organisms, an effort frequently visualized in the form of the Tree of Life (see the figure) (1). The wealth of genomic data has allowed the discovery of new molecular markers for phylogenetic reconstruction, such as rare genomic changes, but it has also presented new challenges for theoretical phylogenetic research.

<http://www.sciencemag.org/cgi/content/summary/313/5795/1897>