

Origins and history of life embedded in genomes of modern microbes

Biodiversity has always been predominantly microbial and the scarcity of fossils from bacteria, archaea and microbial eukaryotes has prevented a comprehensive dating of the tree of life. Here we show that patterns of lateral gene transfer deduced from the analysis of modern genomes encode a novel and abundant source of information about the temporal coexistence of lineages throughout the history of life. We use new phylogenetic methods to reconstruct the history of thousands of gene families and demonstrate that dates implied by gene transfers are consistent with estimates from relaxed molecular clocks in Bacteria, Archaea and Eukaryotes. An inspection of discrepancies between transfers and clocks and a comparison with mammal fossils show that gene transfer in microbes is potentially as informative for dating the tree of life as the geological record in macroorganisms.

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[O]ur demonstration that clocks and transfers contain complementary and compatible dating signals casts the phylogenetic discord of LGT in a new light, and suggests that integrative models of genome evolution will be invaluable in fully resolving a dated tree of life.

Read full, original post: [Gene transfers, like fossils, can date the Tree of Life](#)