

Old Answers to Deep Questions in the Tree of Life

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HIGHLIGHT

Science has published many papers asking the question of where the root is for the Tree of Life (TOL). However, when it was given an answer to the question, *Science* just could not find a space for publishing it.

ABSTRACT

Despite over a century of research scientists so far are still unable to find the last common ancestor (LCA) for all life as it was speculated Darwin. In fact, the more they search and re-search the less certain they are with regarding the position of the root of the Tree of Life (TOL) or even the very existence of this LCA. Why? It is because Darwin was wrong in concluding that all extant life must be descended from a common ancestor cell. Thus, if Liu's alternative view on the origin and evolution of life is correct, any phylogenetic reconstruction of a universal tree of life will doom to fail because life actually originated from different acellular ancestors.

KEY WORDS

Life, Origin, Evolution, Common ancestor, Different ancestors, Tree of life, Phylogenetic, Darwin, Shi Liu

The Perspectives article "Genomics: deep questions in the tree of life" (P. J. Keeling, 28 September, 2007, v. 317 p. 1875) represented an outstanding problem in phylogenetic study of evolution – the rooting problem for the "tree of life" (TOL). While analyses on whole genome sequences might provide more convincing evidence for demonstrating the inherent difficulties in reconstructing the life history and the impossible challenge of building any genealogical-based phylogenetic TOL, logical reasoning and theoretical analysis had already yielded clear answers to these deep questions in the TOL (*1*).

The fundamental problems of Darwinian theory on the origin and evolution of life are its assertions that all life forms were originated from a single cellular ancestor – the last common ancestor (LCA) and that similarity means common descent by reproduction (*1*). However, it is more likely that life had multiple origins and the split of biotic forms were results of independent originations from different abiotic forms (*1*). The similarity we see in

life forms may reflect the formation and evolution of these life forms by some common mechanisms (*1*).

The above old answers to the deep questions in the TOL are now echoed in increasing numbers of high-profile publications (*2-4*). If this alternative view on life origin and evolution is correct and considering also the fact that "fossil" records for the early life history are hard if not impossible to find, it is unwise to waste more time and resource to construct any "universal" phylogenetic TOL. Instead, DNA sequence comparisons should be directed towards deciphering various life modules and constructing a "periodic table" for life. This approach may not give us any definite answer to the early history of life but it will yield better insight on how different life forms are organized and functioned.

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