

Re: Cope's rule and bacterial evolution

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 - *Date:* Sun, 5 Mar 2006 16:53:30 -0500 (EST)
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I continue to think that the idea of a single LUCA (with only occasional HGT since then and only a very few cases of endosymbiosis) is the most fruitful hypothesis to drive research.

I respectfully disagree. IMO it's completely unknown at this time whether the various highly-conserved genes we track across all three domains co-evolved all the way back to a single LUCA or whether they criss-crossed or otherwise followed different whole-cell trajectories during the very early days. We should not pre-judge this question and direct all our research as if it were true. Instead we should draw evolutionary trees for each gene separately and then compare them to see which co-evolved together how far back and where such co-evolution ceases further back indicating a merging of those parts of the genomes at that point. Then we can effectively consider evidence for the very distant evolutionary history to judge how many different early common ancestors yielded genes we can trace to the present day.

In fact, I doubt that complete fusion of genomes was particularly important at any time since protein synthesis and the unpartitioned cytoplasm.

Except for endosymbiosis where two or more complete genomes merged into a single cell but remained in separate organelles within the cell, and only later most/all of the genes from one organelle miigrated to another, for example most of the mitochondrial DNA, and all of the spindle DNA, right? I'm not claiming that two genomes ever instantly merged into a single organelle. All I'm claiming is endosymbiosis as above, with DNA only gradually miigrating from one location to another within the cell, or direct horizontal-gene flow from one cell to another completely different cell, where only a small amount of DNA flows during any single event, but over hundreds of milions of years most/all of the DNA could get copied from each single clade to most/all of the other clades.

Well, I didn't notice any "hairbrained ideas" in this posting which

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could make you famous. I've heard almost all of those ideas before.

Yeah, but when you heard them before, did you think those people with those same ideas were crackpots who thought it was possible to build perpetual motion devices and travel back in time to change history, or did you think those people were bright kids who needed funding and a thesis advisor so they could perhaps develop their ideas into actual science?

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