

‘Ancient genes’ could point to our last universal common ancestor

Around 4 billion years ago there lived a microbe called LUCA: the Last Universal Common Ancestor. ...

If we trace the [tree of life](#) far enough back in time, we come to find that we’re all related to LUCA. If the war cry for our exploration of Mars is ‘follow the water’, then in the search for LUCA it’s ‘follow the [genes](#)’.

...

Previous studies of LUCA looked for common, universal genes that are found in all genomes, based on the assumption that if all life has these genes, then these genes must have come from LUCA. ..

Bill Martin and his team realized that a phenomenon known as lateral gene transfer (LGT) was muddying the waters by being responsible for the presence of most of these 11,000 genes. ...

Knowing this, Martin’s team searched for ‘ancient’ genes that have exceptionally long lineages but do not seem to have been shared around by LGT, on the assumption that these [ancient genes](#) should therefore come from LUCA. ...

Once they had finished their analysis, Bill Martin’s team was left with just 355 genes from the original 11,000, and they argue that these 355 definitely belonged to LUCA and can tell us something about how LUCA lived.

Such a small number of genes, of course, would not support life as we know it, and critics immediately latched onto this apparent gene shortage, pointing out that essential components capable of nucleotide and amino acid biosynthesis, for example, were missing. “We didn’t even have a complete ribosome,” admits Martin.

Read full, original post: [Looking for LUCA, the last universal common ancestor](#)