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Which fraction of random sequences can assume genetic functions?

LE JEUDI 31 MARS 2022 À 12 H 30

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Comparative genomic analyses have shown that genes can be created through duplication-divergence processes or de novo from random sequences. The latter mechanism has long been thought to be rare, but there are now well-studied cases from all domains of life which suggest that it is a rather frequent process. We have devised experiments in which we expressed random sequence peptides in *E. coli* and that a large fraction of them has an effect on the growth, either negative or positive. We have now studied this in more detail through transcriptomic analysis and find that peptides with a negative effect on growth trigger a stress response reaction in the cells, while peptides with positive growth effects have only very subtle effects on the transcriptome. I will discuss new insights from these experiments, but also possible pitfalls.

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