

Letter

A Journey to Expand Life's Language from DNA level to Functional or Protein level

Aijaz Rashid*

Postdoctoral Research Fellow, National Institutes of Health, NIH, USA

This letter is in response to recent articles published in nature and its analysis published in science (Malyshev et al., 2014; 1-3). I am writing this letter to reflect the attention of scientific community towards important points regarding synthetic biology. Incorporation of one more base pair(X-Y) is a wonderful achievement of modern science. In case of natural A-T, G-C base pair genetic code, our RNA, tRNA, stop, start codons and protein synthesis machinery (ribosomes) have evolved to incorporate the 20 natural amino acids in protein structure. So, by providing an additional base pair to life, we have to wait and watch the complementary evolution of life at protein synthesis level to accommodate new changes. The old language with new vocabulary needs adaptation and assimilation in life. Scientists can create micro-evolution of synthetic bacterial strains, containing new version of gene language inside laboratories by providing synthetic amino acids, base pairs and new challenging situations/environment to be adapted. If we succeed in enhance the micro-evolution of microbes and write the vocabulary of genetic bases of life, life forms will enter into an era of super-capabilities and super-intelligence. We can synthesise new proteins with novel functions. It will change the metabolism and cell division of bacteria.

Bacterial cell division involves positive and negative regulators of FtsZ assembly, addition of new regulators can modify the division time, metabolic pathways, gene repair mechanisms. We will be having additional plays in each and every metabolic pathways, all the players specifically

capable to perform new functions. In short life will be more robust and capable of adaptation to almost every demanding situation.

Incorporation of one more base pair(x-y) is a wonderful achievement of modern science. In case of natural A-T,G-C base pair genetic code, our RNA, tRNA and protein synthesis machinery (ribosomes) have evolved to incorporate the 20 natural amino acids into protein structure. So, by providing an additional base pair to life we have to wait and watch the complementary evolution of life at protein synthesis level to accommodate new changes. The old language with new vocabulary needs adaptation and assimilation in life. Scientists can create micro-evolution of synthetic bacterial strains containing new version of gene language inside laboratories by providing synthetic amino acids and base pairs. If we will be able to enhance the evolution, and write the vocabulary of genetic bases of life, life forms will be enter into an era of super-capabilities and super-intelligence.

References

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*Address for Correspondence: National Institutes of Health, NIH, USA
Tel.: +13017176597. E-mail: clbaijaz@gmail.com

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