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The 64-triplet genetic code structure revisited and refuted, from combinatorial perspective

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Molecular biologists upon observing in the early 1950s that the sequence of the DNA four bases A, T, G, C (Adenine, Thymine, Guanine, Cytosine) in the nucleus of a cell influenced the sequence of the twenty amino acids of protein in the surrounding cytoplasm thought of establishing a code to typify the correlation between the two entities, and sought for ways of doing so. In 1954, George Gamow, a Russian cosmologist, offered them his proposal of 64 triplet code words given by 43 and they produced them with Punnett Square and got them experimentally allocated unevenly to the twenty amino acids and three non-descript operational control signals and declared the code deciphered and adopted it in 1968 for coding application in protein synthesis studies. The declaration notwithstanding, genetics literature since then till date is rife with discussions on irregularities of the 64-triplet code. Many dissatisfied scientists are now seeking for a derivation free from irregularities. This revisit is made from the perspective of computational combinatorics, which is concerned with the generation of permutations and combinations of specified input set and selection. Combinatorial computation errors of derivation are detected and corrected to yield an irregularity-free genetic code structure of 24 permutation quadruplet codons to the achievement of collinearity as well as codon integrity and potency. Merits of the new 24 quadruplet codons in the light of computational combinatorics are also furnished with assurance of combinatorial validity and significance in molecular biology.

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