ENIGMAS OF THE GENETIC CODE, ENIGMA 1: A HIDDEN ARITHMETICAL ALGORITHM (Version 1)

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Abstract

In a certain way, this enigma is standing in relation to so-called Gaussian arithmetical algorithm, valid for the genetic code (Rakočević, 2006)[1]. However, the difference is, among other things, that there (in the article on the Gaussian algorithm) I said and showed all openly - what is the enigma [classes of AAs (2 x 2), or (4 x 5), or (2 x 4) with 11, 21, 31, 41, – , 61, 71, 81, 91 of atoms within their side chains, respectively]; and here the hidden algorithm is hidden twice: once by the very Nature, the other way from myself. I make here, namely, only a hint of the solution. Certainly, in coming a few weeks (or months), I will present the solution, if someone else, in meantime, offers (or doesn't offer) the solution.

The Problem

Find the key number X (Starting result);
At the starting result X add X - 10 (First new result);

[1] About Gaussian algorithm see in: arXiv:q-bio/0610044v1 [q-bio.OT]) ("Genetic code as a harmonic system") (Rakočević, 2006).

At the first new result add X - 9 (Second new result);
At the second new result add X - 8 (Third new result).

Four results (Starting, plus three new results) correspond to the number of atoms in the four classes of protein amino acids (4 x 5 = 20 canonical amino acids in the genetic code).

The sum of the four results (Y) corresponds to the total number of atoms in 20 protein amino acids (within their side chains).

The sum of three addings, Z = [(X–10)+(X–9)+(X–8)], corresponds to one quarter[2] of the total number of atoms (Y/4).

To solve this problem (Table 1) one must know about four diversity types of protein amino acids in the forms as we presented in our two Notes (Note 1 and Note 2) at our web-site (www.rakocevcode.rs).

Comment

The solutions of this enigma give the satisfaction to our hypothesis that the genetic code was complete from the very beginning and that it represents a unique system in which the positions of each amino acid is strictly determined, and that with several different aspects (Rakočević, 2004).

[2] Notice that this "X" is only and one possible solution (within the set of natural numbers) with such three addings (Z), where Z = Y/4.

a_1	b_1	c_1	d_1	n_1	a = X
a_2	b_2	c_2	d_2	n_2	b = [X + (X – 10)]
a_3	b_3	c_3	d_3	n_3	c = [X + (X – 10) + (X – 9)]
a_4	b_4	c_4	d_4	n_4	d = [X + (X – 10) + (X – 9) + (X – 8)]
a_5	b_5	c_5	d_5	n_5	**a + b + c + d = Y** n_1: n_3 = 1:1 (n_4+ n_5) : n_2= 2:1 (n_5 = n_4 + 10) n_1+ n_2+ n_3+ n_4+ n_5 = Y
a	b	c	d	Y	

Table 1. The number of atoms within side chains of four classes of amino acids (a_1-a_5, b_1-b_5, c_1-c_5, d_1-d_5) corresponds to the four results (a, b, c, d) and to solutions of presented enigma, i.e. problem (X,Y,Z).

REFERENCES

Rakočević, M. M. (2004) A harmonic structure of the genetic code, J. Theor. Biol. 229, 221–234.

Rakočević, M. M. (2006) Genetic code as a harmonic system, arXiv:q-bio/0610044v1 [q-bio.OT].