The Origin Of Proteins

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Introduction

The evolutionary origin of life is admitted by evolutionists to have many unsolved problems. One major one is the probability of order and complexity arising from disorder. Modern experts admit this is strong evidence for creationism as opposed to evolution.

"This general argument has become of some importance as support for the view that proteins could not have arisen from natural pre biotic chemical processes on earth and as support for creationism." [1]

How unlikely is a simple bacteria to have formed by chance?
"In order to understand Stegmuller's objection, we shall have to rethink critically our statistical arguments [above]. In trying to estimate probabilities, following Monod, we assume tacitly that only of the approximately $10^{2,400,000}$ combinatorially possible sequences encodes the information for the construction of a simple organism, such as a bacterium, so that the probability for the chance synthesis is practically zero." [2]

As far as one in $10^{2,400,000}$, that is a one followed by 2.4 million zeros. If you type zeroes in Microsoft Word with Times New Roman font at size 10 [Zero margins] you can fit 8,687 zeros [119 per line] per page. To type this number you would need 276 pages of single sided A4 paper. Typed on one line would be over four kilometres long!

Even the origin one a single protein in five billion years is zero.
"Even if the whole earth had been made of nothing but amino-acids which had rearranged themselves randomly and completely ten times a second for the whole period of the earth's history, there would have been little chance of producing even once, for a tenth of a second, one molecule of insulin!" [3]

The Largest Human Protein

Titin is the longest known protein in the human body and is made of 34,350 amino acids. [4, 5] The molecule has over 500,000 atoms.

Table 1

Carbon	169,723
Hydrogen	270,464
Nitrogen	45,688
Oxygen	52,243
Sulphur	912
Total Atoms	539,030

Atomic composition of Titin.

The Titin family of proteins [with one exception] range in size from 27,000 to 33,000 amino acids.

Table 2.

Isoform	Description	Length
Q8WZ42-1	Full length sequence	34,350
Q8WZ42-3	Small cardiac N2-B	26,926
Q8WZ42-4	Soleus	33,445
Q8WZ42-6	Cardiac novex-3	5,604
Q8WZ42-7	Cardiac novex-2	27,118
Q8WZ42-8	Cardiac novex-1	27,051

The Titin family of muscle proteins.

A Very Long Number!

Probability - Amino Acids In The Correct Order

Since there are 20 amino acids in proteins, what is the probability of getting 34,350 in the right order?

$$\frac{1}{20^{34,350}} = \frac{1}{10^{44,690}}$$

The answer is $10^{-44,690}$

Probability – Chirality

Amino acids exist in both left handed and right handed forms. In living organism all amino acids in proteins are left handed. Since amino acids come in two isomers, what is the probability of getting 34,350 in the right order?

$$\frac{1}{2^{34,350}} = \frac{1}{10^{10,340}}$$

The answer is $10^{-10.340}$

Probability - Amino Acids In The Correct Order + Chirality

What is the probability of getting the amino acids in the right order and right chirality?

$$\frac{1}{40^{34,350}} = \frac{1}{10^{55,031}}$$

The answer is $10^{-55,031}$

Probability - Nucleotide Chance

The DNA molecule is made of long chains of the four [A, T, G, C] nucleotide bases. There are four nucleotide bases for each amino acid in a protein. What is the probability of getting 137,400 nucleotide bases in the right order? The factorial of 4 is 24. The probability is the number 24 raised to the power of the number of amino acids.

$$\frac{1}{24^{34,350}} = \frac{1}{10^{47,410}}$$

The answer is $10^{-47,410}$

Total Probability - Nucleotide + Amino Acids In The Correct Order + Chirality

The answer is $10^{-102,441}$

As far as one in $10^{102,441}$, that is a one followed by 102 thousand zeros. If you type zeroes in Microsoft Word with Times New Roman font at size 10 [Zero all margins] you can fit 8,687 zeros [119 per line] per page. To type this number you would need 12 pages of single sided A4 paper. An A4 sheet of paper is 210 millimetres wide. [8] Typed on one single line, the full number would be over 181 metres long!

Probability Comparison

Numbers like $10^{-75,712}$ are hard to grasp. A number with 75,000 zeroes! Here are some physical features to compare the protein's formation probability values to.

The number Hydrogen atoms that would be needed to equal the mass of the Earth is only 3.60×10^{48}

A Very Long Number!

How many sand grains of standard size [6] would it take to fill an empty sphere the volume of the earth? 8.50 x 10^{30}

If the Sun were pure Hydrogen with the same size and density [7] as it is now it would contain only 1.20 x 10^{51} atoms.

A sphere a light year in radius with the Sun's density would contain only 3.01 x 10^{75} Hydrogen Atoms.

A sphere a billion light years in radius with the Sun's density would contain only 3.01 x 10^{102} Hydrogen Atoms.

Elusimicrobium minutum Bacteria

This bacteria was first discovered in the stomach of a scarab beetle. [9] According to online databases [10] it has 1,528 difference proteins comprised of 493,618 amino acids.

Probability - Amino Acids In The Correct Order

$$\frac{1}{20^{493,618}} = \frac{1}{10^{642,212}}$$

The answer is $10^{-642,212}$

Probability – Chirality

$$\frac{1}{2^{493,618}} = \frac{1}{10^{148,594}}$$

The answer is $10^{-148,594}$

Probability - Amino Acids In The Correct Order + Chirality

$$\frac{1}{40^{493,618}} = \frac{1}{10^{790,188}}$$

The answer is $10^{-790,806}$

Probability - Nucleotide Chance

$$\frac{1}{24^{493,618}} = \frac{1}{10^{681,297}}$$

The answer is $10^{-681,297}$

Total Probability - Nucleotide + Amino Acids Order + Chirality

The answer is $10^{-1,472,103}$

As far as one in $10^{-1,472,103}$, that is a one followed by 1.5 million zeros. To type this number you would need 169 pages of single sided A4 paper. An A4 sheet of paper is 210 millimetres wide. [8] Typed on one single line, the full number would be 2.6 kilometres long!

A Very Long Number!

Table 3.

Human Titin Protein 20 Amino Acids	Insect Bacteria 20 Amino Acids	Probability Difference
$10^{-44,690}$	$10^{-642,212}$	$10^{597,521}$
Chirality	**Chirality**	
$10^{-10,340}$	$10^{-148,594}$	$10^{138,253}$
20 Amino Acids + Chirality	**20 Amino Acids + Chirality**	
$10^{-55,031}$	$10^{-790,806}$	$10^{735,775}$
Nucleotide	**Nucleotide**	
$10^{-47,410}$	$10^{-681,297}$	$10^{633,887}$
Nucleotide + 20 AA + Chiral	**Nucleotide + 20 AA + Chiral**	
$10^{-102,441}$	$10^{-1,472,103}$	$10^{1,369,662}$

Comparison of formation probabilities.
Information jump from single protein to bacteria.

Chimpanzee

According to online databases [11], Chimpanzees have 53,919 difference proteins comprised of 13,570,449 amino acids.

Probability - Amino Acids In The Correct Order

$$\frac{1}{20^{13,570,449}} = \frac{1}{10^{17,655,561}}$$

The answer is $10^{-17,655,561}$

Probability – Chirality

$$\frac{1}{2^{13,570,449}} = \frac{1}{10^{4,085,112}}$$

The answer is $10^{-4,085,112}$

Probability - Amino Acids In The Correct Order + Chirality

$$\frac{1}{40^{13,570,449}} = \frac{1}{10^{21,740,673}}$$

The answer is $10^{-21,740,673}$

Probability - Nucleotide Chance

$$\frac{1}{24^{13,570,449}} = \frac{1}{10^{18,730,086}}$$

The answer is $10^{-18,730,086}$

A Very Long Number!

Total Probability - Nucleotide + Amino Acids Order + Chirality

The answer is $10^{-40,470,760}$

Table 4.

Insect Bacteria 20 Amino Acids	Chimpanzee 20 Amino Acids	Probability Difference
$10^{-642,212}$	$10^{-17,655,561}$	$10^{17,013,349}$
Chirality $10^{-148,594}$	Chirality $10^{-4,085,112}$	$10^{3,936,518}$
20 Amino Acids + Chirality $10^{-790,806}$	20 Amino Acids + Chirality $10^{-21,740,673}$	$10^{20,949,868}$
Nucleotide $10^{-681,297}$	Nucleotide $10^{-18,730,086}$	$10^{18,048,789}$
Nucleotide + AA $10^{-1,472,103}$	Nucleotide + AA $10^{-40,470,760}$	$10^{38,998,657}$

Comparison of formation probabilities.
Information jump from single bacteria to Chimpanzee.

As far as one in $10^{40,470,760}$, that is a one followed by 40 million zeros. To type this number you would need 4,659 pages of single sided A4 paper. Typed on one single line would be over 70 kilometres long!

Human Beings

According to online databases [12], humans have 58,345 difference proteins comprised of 23,860,211 amino acids.

Probability - Amino Acids In The Correct Order

$$\frac{1}{20^{23,860,211}} = \frac{1}{10^{31,042,850}}$$

The answer is $10^{-31,042,850}$

Probability – Chirality

$$\frac{1}{2^{23,860,211}} = \frac{1}{10^{7,182,639}}$$

The answer is $10^{-7,182,639}$

Probability - Amino Acids In The Correct Order + Chirality

$$\frac{1}{40^{23,860,211}} = \frac{1}{10^{38,225,489}}$$

The answer is $10^{-38,225,489}$

Probability - Nucleotide Chance

$$\frac{1}{24^{23,860,211}} = \frac{1}{10^{32,932,131}}$$

The answer is $10^{-14,365,278}$

Total Probability - Nucleotide + Amino Acids Order + Chirality

The answer is $10^{-71,157,768}$

Table 5.

Chimpanzee	Human	Probability
20 Amino Acids	**20 Amino Acids**	**Difference**
$10^{-17,655,561}$	$10^{-31,042,850}$	$10^{13,387,289}$
Chirality	**Chirality**	
$10^{-4,085,112}$	$10^{-7,182,639}$	$10^{3,097,527}$
20 Amino Acids + Chirality	**20 Amino Acids + Chirality**	
$10^{-21,740,673}$	$10^{-38,225,489}$	$10^{16,484,816}$
Nucleotide	**Nucleotide**	
$10^{-18,730,086}$	$10^{-32,932,131}$	$10^{14,202,045}$
Nucleotide + AA	**Nucleotide + AA**	
$10^{-40,470,760}$	$10^{-71,157,621}$	$10^{30,686,861}$

Comparison of formation probabilities.
Information jump from Chimpanzee to Human Beings.

As far as one in $10^{-71,157,768}$, that is a one followed by 71 million zeros. To type this number you would need 8,191 pages of single sided A4 paper. Typed on one single line would be over 125 kilometres long!

Conclusion

Professor Hubert P. Yockey summed up the unlikelyhood of even getting a mini protein 50 amino acids long in a thousand million years of evolution.

"Taking into account only the effect of the racemic mixture the longest genome which could be expected with 95% confidence in 10^9 years corresponds to only 49 amino acid residues. This is much too short to code a living system so evolution to higher forms could not get started. Geological evidence for the "warm little pond" is missing. It is concluded that belief in currently accepted scenarios of spontaneous biogenesis is based on faith, contrary to conventional wisdom."[13]

"Since science has not the vaguest idea how life originated on earth, whether life exists anywhere else, or whether little green men pullulate in our galaxy, it would be honest to admit this to students, the agencies funding research, and the public. Leaders in science, speaking ex cathedra, should stop polarizing the minds of students and younger creative scientists with statements for which faith is the only evidence." [14]

The information jump in each stage listed in this essay is impossible. To jump from chimpanzee to human is to increase by a factor of $10^{30,686,861}$. To type this number on a single line would require a piece of paper over 54 kilometres long.

References

Introduction

1.   Theory For Protein Mutability And Biogenesis, By Kit Fun Lau,
      Proceedings of the National Academy of Sciences, January 1990, Volume 87, Pages 640, 641.

2.   Information and the Origin Of Life, By Bernd-Olaf Kuppers, MIT Press, 1990, Massachusetts,
      Pages 62.

3.   The Origin of Life and the Nature of the Primitive Gene, By A. G. Cairns-Smith, Journal of
      Theoretical Biology, 1965, Volume 10, Pages 54.

Titin

4.   http://en.wikipedia.org/wiki/Titin

5.   http://web.expasy.org/cgi-bin/protparam/protparam1?Q8WZ42@1-34350@

6.   http://en.wikipedia.org/wiki/Sand

7.   http://en.wikipedia.org/wiki/Sun

8.   http://en.wikipedia.org/wiki/A4_paper

Bacteria

9.   http://en.wikipedia.org/wiki/Elusimicrobium_minutum

10.   http://www.uniprot.org/uniprot/?query=taxonomy:423604

Chimpanzee

11.   http://www.uniprot.org/uniprot/?query=Pan+troglodytes&sort=score

Human Beings

12.   http://www.uniprot.org/uniprot/?query=homo+sapiens&sort=score

Conclusion

13.   A Calculation of the Probability of Spontaneous Biogenesis, By Hubert P. Yockey ,
      Journal of Theoretical Biology, 1977, Volume 67, Page 377.

14.   Self Organization Origin of Life Scenarios, By Hubert P. Yockey,
      Journal of Theoretical Biology, 1981, Volume 91, Page 29