

# Circle of Life

An extraordinary pattern in the genetic code

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## Abstract

Here I will describe one of the most extraordinary patterns to emerge from the study of the genetic code.

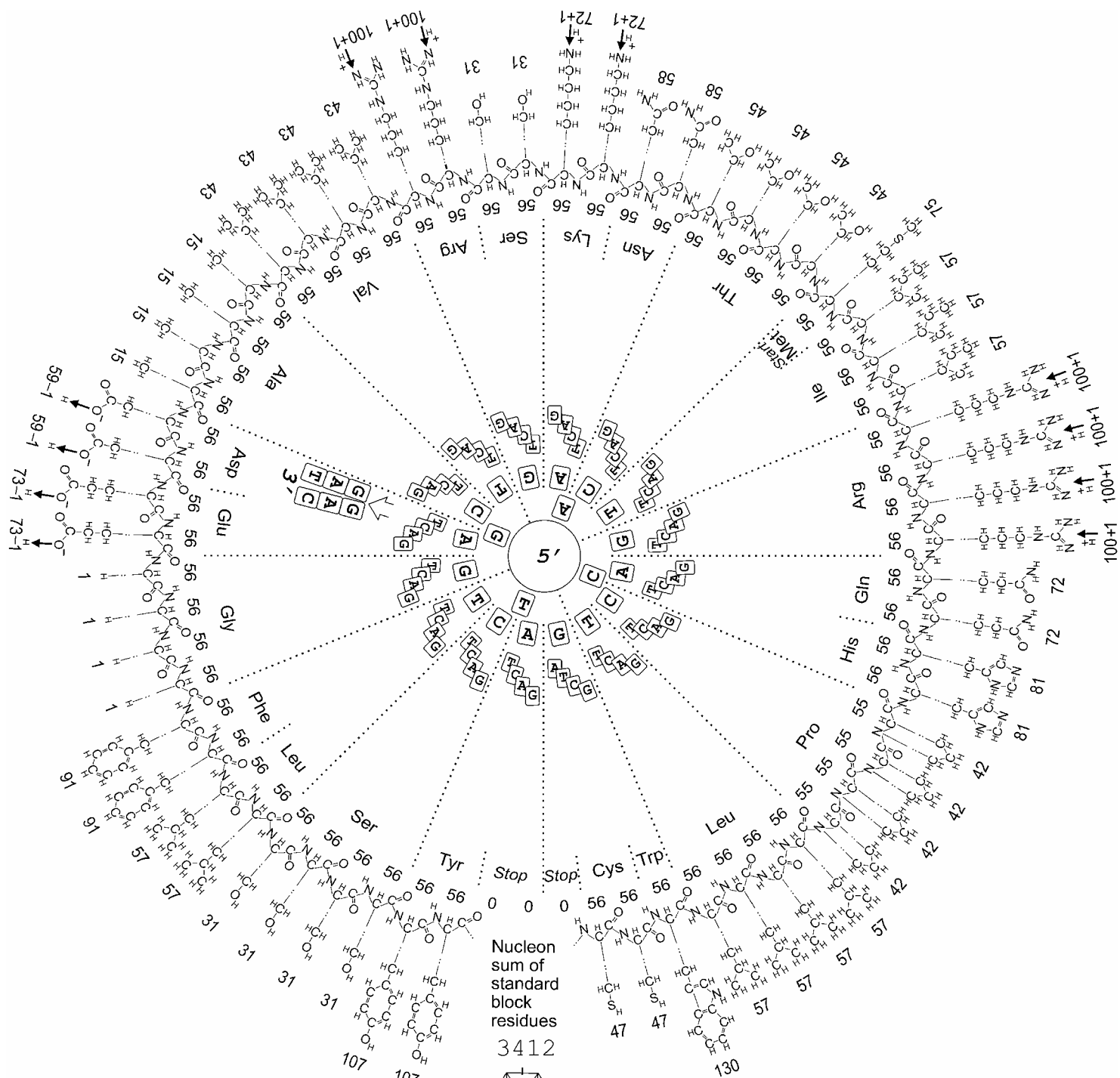
When all of the amino acids are arranged in a circle, as shown in the diagram below, we find that there is a perfect mathematical balance between the nucleon numbers of the side chains and the nucleon numbers of the standard block.

Such a coincidence is very surprising indeed, since –

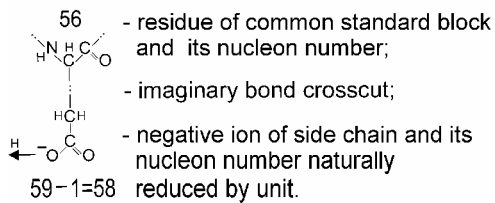
- 1) The amino acids never appear all together in nature at any one time.
- 2) The summation must take into account the “degeneracy” in the code, that is – where more than one codon codes for the same amino acid.
- 3) The summation process must distinguish between standard block and side chain – something that is extremely difficult for any natural process to do, but easy to do conceptually.

Shcherbak, who discovered this pattern, concluded that arithmetic must have somehow preceded life.

# The Circle of the Amino Acids



Amino acid Asp from internal part of a protein:

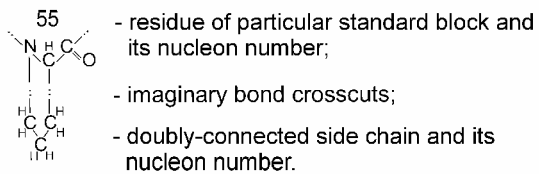


$59-1=58$



Nucleon sum of side chains  
3412

Special case of imino acid Pro:



42

In it's bonded state, each amino acid gives up a H<sub>2</sub>O (water) molecule from it's Standard Block, reducing the nucleon number of the standard block from 74 to 56. When this is done, it is found that there is a perfect MASS BALANCE between the number of nucleons in the STANDARD BLOCK and the SIDE-CHAINS.

**Table 1.** Data describing the 20 coded amino acids, listed in order of increasing mass

Amino acid	No. of codons	Distribution of mass			Total mass		
		SCM	$\Delta M$	MCM	Residue	Molecule	
Gly	G	4	1	-55	56	57	75
Ala	A	4	15	-41	56	71	89
Ser	S	6	31	-25	56	87	105
Pro	P	4	42	-13	55	97	115
Val	V	4	43	-13	56	99	117
Thr	T	4	45	-11	56	101	119
CySH	C	2	47	-9	56	103	121
Leu	L	6	57	1	56	113	131
Ile	I	3	57	1	56	113	131
Asn	N	2	58	2	56	114	132
Asp	D	2	58	2	56	114	132
Gln	Q	2	72	16	56	128	146
Glu	E	2	72	16	56	128	146
Lys	K	2	73	17	56	129	147
Met	M	1	75	19	56	131	149
His	H	2	81	25	56	137	155
Phe	F	2	91	35	56	147	165
Arg	R	6	101	45	56	157	175
Tyr	Y	2	107	51	56	163	181
Trp	W	1	130	74	56	186	204
Total (20 AAs)	61	1256	137	1119	2357	2735	
Mean of 20		62.8	6.85	55.95	118.75	136.75	
Total (61 CDNs)		3412	0	3412	6824	7922	
Mean of 61		55.93	0	55.93	111.87	129.87	

SCM = Side-Chain Mass

MCM = Main-Chain Mass (Standard Block)

Delta M = SCM – MCM

Residue = Total amino acid mass in ionized form (bonded)

Molecule = Total amino acid mass as free molecules (un-bonded)

In the diagram above, Proline is allotted it's actual STANDARD BLOCK of 55 nucleons, and it's actual SIDE-CHAIN of 42 nucleons.

## Summary of the Pattern

When we take one molecule of each amino acid the following summations result -

1. The summation of the standard block masses for each of the 20 amino acids comes to 1119

$$1119 = 3 \times 373$$

2. The summation of the side-chain masses for each of the 20 amino acids comes to 1256

$$1256 = 1119 + 137$$

However, many of the amino acids occur more than once in the circle because more than one codon codes for the same amino acid.

3. The summation of the standard block masses for all the amino acids in the Circle comes to 3412

$$3412 = 1119 + 137 + (1119 + 1037)$$

4. The summation of the side-chain masses for all the amino acids in the Circle comes to 3412

$$3412 = 1119 + 137 + (1119 + 1037)$$

You will notice that the pattern seems to be built around 1119 and 137.

## Shcherbak's Conclusions

Shcherbak writes that there is only one way for this arithmetic balance to have appeared in the past.....by 128 successive arithmetic summations.

*“But it is hard to expect some natural events could balance the genetic code in another way than by the arithmetical summation. The detached amino acids never gather to be ‘weighed’ at once. It is necessary to be aware of the actual degeneracy to repeat accordingly certain amino acid masses when weighing, e.g., the 57-nucleon isoleucine (Ile) side chain should be thrice repeated. Another result of those events should be in accurate cuts of bonds between amino acids blocks and chains with weighing of the ends that are easy to do in imagination, but not in reality. Intermediate weighing results should again be stored somehow in analog form. So when considering the origin of the nucleon equilibration in the genetic code, arithmetical summation is more realizable than physical weighing. It is shown in the Section below that the imaginary borrowing and some privileged numerical system would end the issue of the natural equilibration inside the code.”*

The existence of such perfect mathematical balance within the genetic code may be taken as evidence of Intelligent Design. As ShCherbak states, the only conceivable way for the summation to have appeared would be by some arithmetical process. Did arithmetic precede life?

*“Are not two sparrows sold for a penny<sup>[d]</sup>? Yet not one of them will fall to the ground apart from the will of your Father. 30And even the very hairs of your head are all numbered. 31So don't be afraid; you are worth more than many sparrows.”*

**Matthew 10 v 29**