

# Codon Balances in Human DNA

by Craig Paardekooper

It is surprising that, despite the complexity of the human genome, the frequency of occurrence of each of its 64 codons approximate to a simple whole number ratio – which is the golden ration 3 : 2. It is also surprising that the frequency of any codon where T is in first position is the same as the frequency of any codon where T is in second position or third position; and this applies for C, A and G also.

I am not sure what gives rise to these balances, but they may be due to the triplicate nature of DNA where the 3 different reading frames contain the same codons but displaced.

The approximation to a whole number ratio suggests that the codon frequencies are not random, but rather are due to some fixed mechanism, or to intelligent design.

Bespoke software, written in Visual Basic, was used to count the frequency of each codon for all 24 human chromosomes.

Table shows number of codons where 1st base is T (**1st T**) = number of codons where 2nd base is T (**2nd T**) = number of codons where 3dr base is T (**3rd T**), and similarly for C, A and G. [% = % of all codons within chromosome.]

## Balances

- T codon frequency = A codon frequency
- C codon frequency = G codon frequency
  
- 1st T = 2nd T = 3rd T
- 1st C = 2nd C = 3rd C
- 1st A = 2nd A = 3rd A
- 1st G = 2nd G = 3rd G
  
- Ratio of **T or A** to **C or G** approximates to **3 : 2**

| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C    | 2nd C    | 3rd C    | 1st A    | 2nd A    | 3rd A    | 1st G    | 2nd G    | 3rd G    |
|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1         | 22411715 | 22403394 | 22421072 | 16017631 | 16018852 | 16012925 | 22355271 | 22355862 | 22351460 | 16033247 | 16039756 | 16032407 |
|           | 29%      | 29%      | 29%      | 21%      | 21%      | 21%      | 29%      | 29%      | 29%      | 21%      | 21%      | 21%      |

  

| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C    | 2nd C    | 3rd C    | 1st A    | 2nd A    | 3rd A    | 1st G    | 2nd G    | 3rd G    |
|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 2         | 23994804 | 23995593 | 23990107 | 16104074 | 16104694 | 16104086 | 23928044 | 23926868 | 23929013 | 16147279 | 16147046 | 16150995 |

|           |          |          |          |          |          |          |          |          |          |          |          |          |
|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|           | 30%      | 30%      | 30%      | 20%      | 20%      | 20%      | 30%      | 30%      | 30%      | 20%      | 20%      | 20%      |
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C    | 2nd C    | 3rd C    | 1st A    | 2nd A    | 3rd A    | 1st G    | 2nd G    | 3rd G    |
| 3         | 19944586 | 19940388 | 19942608 | 13073383 | 13077240 | 13079152 | 19896820 | 19891923 | 19894502 | 13112260 | 13117498 | 13110787 |
|           | 30%      | 30%      | 30%      | 20%      | 20%      | 20%      | 30%      | 30%      | 30%      | 20%      | 20%      | 20%      |
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C    | 2nd C    | 3rd C    | 1st A    | 2nd A    | 3rd A    | 1st G    | 2nd G    | 3rd G    |
| 4         | 19536704 | 19541363 | 19539715 | 12078088 | 12080475 | 12074974 | 19521325 | 19514742 | 19519512 | 12108717 | 12108254 | 12110633 |
|           | 31%      | 31%      | 31%      | 19%      | 19%      | 19%      | 31%      | 31%      | 31%      | 19%      | 19%      | 19%      |
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C    | 2nd C    | 3rd C    | 1st A    | 2nd A    | 3rd A    | 1st G    | 2nd G    | 3rd G    |
| 5         | 18321404 | 18314373 | 18313995 | 11910130 | 11907674 | 11910339 | 18228736 | 18231245 | 18233780 | 11955727 | 11962705 | 11957883 |
|           | 30%      | 30%      | 30%      | 20%      | 20%      | 20%      | 30%      | 30%      | 30%      | 20%      | 20%      | 20%      |
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C    | 2nd C    | 3rd C    | 1st A    | 2nd A    | 3rd A    | 1st G    | 2nd G    | 3rd G    |
| 6         | 17125359 | 17119707 | 17123018 | 11211049 | 11216128 | 11216223 | 17113797 | 17112270 | 17114552 | 11237208 | 11239308 | 11233620 |
|           | 30%      | 30%      | 30%      | 20%      | 20%      | 20%      | 30%      | 30%      | 30%      | 20%      | 20%      | 20%      |
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C    | 2nd C    | 3rd C    | 1st A    | 2nd A    | 3rd A    | 1st G    | 2nd G    | 3rd G    |
| 7         | 15739808 | 15739547 | 15731111 | 10771936 | 10768734 | 10774301 | 15682028 | 15682488 | 15689177 | 10791195 | 10794198 | 10790378 |
|           | 30%      | 30%      | 30%      | 20%      | 20%      | 20%      | 30%      | 30%      | 30%      | 20%      | 20%      | 20%      |
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C    | 2nd C    | 3rd C    | 1st A    | 2nd A    | 3rd A    | 1st G    | 2nd G    | 3rd G    |
| 8         | 14427797 | 14435698 | 14433019 | 9675915  | 9676662  | 9674806  | 14444265 | 14439732 | 14445320 | 9703451  | 9699336  | 9698283  |
|           | 30%      | 30%      | 30%      | 20%      | 20%      | 20%      | 30%      | 30%      | 30%      | 20%      | 20%      | 20%      |
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C    | 2nd C    | 3rd C    | 1st A    | 2nd A    | 3rd A    | 1st G    | 2nd G    | 3rd G    |
| 9         | 11922544 | 11928385 | 11929327 | 8367874  | 8364029  | 8365502  | 11910511 | 11913613 | 11908765 | 8392010  | 8386912  | 8389345  |
|           | 29%      | 29%      | 29%      | 21%      | 21%      | 21%      | 29%      | 29%      | 29%      | 21%      | 21%      | 21%      |
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C    | 2nd C    | 3rd C    | 1st A    | 2nd A    | 3rd A    | 1st G    | 2nd G    | 3rd G    |
| 10        | 13003590 | 13013907 | 13005617 | 9216575  | 9206343  | 9213159  | 12957194 | 12957898 | 12956492 | 9238357  | 9237568  | 9240448  |
|           | 29%      | 29%      | 29%      | 21%      | 21%      | 21%      | 29%      | 29%      | 29%      | 21%      | 21%      | 21%      |

|           |          |          |          |         |         |         |          |          |          |         |         |         |
|-----------|----------|----------|----------|---------|---------|---------|----------|----------|----------|---------|---------|---------|
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C   | 2nd C   | 3rd C   | 1st A    | 2nd A    | 3rd A    | 1st G   | 2nd G   | 3rd G   |
| 11        | 13119079 | 13121547 | 13117505 | 9299328 | 9299472 | 9301795 | 13095186 | 13090985 | 13096811 | 9326691 | 9328280 | 9324173 |
|           | 29%      | 29%      | 29%      | 21%     | 21%     | 21%     | 29%      | 29%      | 29%      | 21%     | 21%     | 21%     |
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C   | 2nd C   | 3rd C   | 1st A    | 2nd A    | 3rd A    | 1st G   | 2nd G   | 3rd G   |
| 12        | 13162232 | 13160744 | 13164200 | 9029061 | 9027554 | 9032776 | 13121565 | 13124697 | 13119044 | 9060797 | 9060660 | 9057635 |
|           | 30%      | 30%      | 30%      | 20%     | 20%     | 20%     | 30%      | 30%      | 30%      | 20%     | 20%     | 20%     |
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C   | 2nd C   | 3rd C   | 1st A    | 2nd A    | 3rd A    | 1st G   | 2nd G   | 3rd G   |
| 13        | 10051965 | 10051377 | 10056514 | 6276089 | 6281961 | 6279399 | 10016648 | 10012418 | 10015582 | 6313204 | 6312150 | 6306411 |
|           | 31%      | 31%      | 31%      | 19%     | 19%     | 19%     | 31%      | 31%      | 31%      | 19%     | 19%     | 19%     |
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C   | 2nd C   | 3rd C   | 1st A    | 2nd A    | 3rd A    | 1st G   | 2nd G   | 3rd G   |
| 14        | 8968085  | 8971711  | 8969580  | 6138501 | 6140369 | 6143113 | 8893441  | 8888055  | 8889318  | 6186454 | 6186346 | 6184470 |
|           | 30%      | 30%      | 30%      | 20%     | 20%     | 20%     | 29%      | 29%      | 29%      | 20%     | 20%     | 20%     |
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C   | 2nd C   | 3rd C   | 1st A    | 2nd A    | 3rd A    | 1st G   | 2nd G   | 3rd G   |
| 15        | 8181135  | 8182546  | 8185666  | 5919065 | 5913832 | 5915362 | 8168401  | 8170560  | 8165245  | 5939032 | 5940695 | 5941360 |
|           | 29%      | 29%      | 29%      | 21%     | 21%     | 21%     | 29%      | 29%      | 29%      | 21%     | 21%     | 21%     |
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C   | 2nd C   | 3rd C   | 1st A    | 2nd A    | 3rd A    | 1st G   | 2nd G   | 3rd G   |
| 16        | 7588772  | 7590412  | 7593530  | 6058109 | 6057891 | 6054953 | 7515563  | 7520697  | 7519907  | 6103584 | 6097028 | 6097638 |
|           | 28%      | 28%      | 28%      | 22%     | 22%     | 22%     | 28%      | 28%      | 28%      | 22%     | 22%     | 22%     |
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C   | 2nd C   | 3rd C   | 1st A    | 2nd A    | 3rd A    | 1st G   | 2nd G   | 3rd G   |
| 17        | 7561337  | 7572512  | 7566373  | 6241479 | 6235457 | 6243664 | 7549078  | 7545107  | 7540506  | 6282536 | 6281354 | 6283887 |
|           | 27%      | 27%      | 27%      | 23%     | 23%     | 23%     | 27%      | 27%      | 27%      | 23%     | 23%     | 23%     |
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C   | 2nd C   | 3rd C   | 1st A    | 2nd A    | 3rd A    | 1st G   | 2nd G   | 3rd G   |
| 18        | 8058353  | 8061156  | 8060988  | 5263808 | 5261690 | 5267390 | 8018281  | 8014715  | 8015338  | 5353502 | 5356383 | 5350228 |
|           | 30%      | 30%      | 30%      | 20%     | 20%     | 20%     | 30%      | 30%      | 30%      | 20%     | 20%     | 20%     |

|           |          |          |          |          |          |          |          |          |          |          |          |          |
|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C    | 2nd C    | 3rd C    | 1st A    | 2nd A    | 3rd A    | 1st G    | 2nd G    | 3rd G    |
| 19        | 5094868  | 5093720  | 5091686  | 4648800  | 4651341  | 4652230  | 5047805  | 5045702  | 5046489  | 4685683  | 4686393  | 4686751  |
|           | 26%      | 26%      | 26%      | 24%      | 24%      | 24%      | 26%      | 26%      | 26%      | 24%      | 24%      | 24%      |
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C    | 2nd C    | 3rd C    | 1st A    | 2nd A    | 3rd A    | 1st G    | 2nd G    | 3rd G    |
| 20        | 6018683  | 6020456  | 6025535  | 4641935  | 4637842  | 4634955  | 5955016  | 5954622  | 5955880  | 4697020  | 4699734  | 4696284  |
|           | 28%      | 28%      | 28%      | 22%      | 22%      | 22%      | 28%      | 28%      | 28%      | 22%      | 22%      | 22%      |
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C    | 2nd C    | 3rd C    | 1st A    | 2nd A    | 3rd A    | 1st G    | 2nd G    | 3rd G    |
| 21        | 3953410  | 3951019  | 3949404  | 2729907  | 2727726  | 2725593  | 3937089  | 3939908  | 3941241  | 2739418  | 2741171  | 2743586  |
|           | 30%      | 30%      | 30%      | 20%      | 20%      | 20%      | 29%      | 29%      | 30%      | 21%      | 21%      | 21%      |
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C    | 2nd C    | 3rd C    | 1st A    | 2nd A    | 3rd A    | 1st G    | 2nd G    | 3rd G    |
| 22        | 3454933  | 3455080  | 3459648  | 3052217  | 3054027  | 3053533  | 3460194  | 3461445  | 3459596  | 3084635  | 3081427  | 3079202  |
|           | 26%      | 26%      | 27%      | 23%      | 23%      | 23%      | 27%      | 27%      | 27%      | 24%      | 24%      | 24%      |
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C    | 2nd C    | 3rd C    | 1st A    | 2nd A    | 3rd A    | 1st G    | 2nd G    | 3rd G    |
| X         | 15639813 | 15633576 | 15638736 | 10174180 | 10175700 | 10170958 | 15581758 | 15583674 | 15584949 | 10230304 | 10233105 | 10231412 |
|           | 30%      | 30%      | 30%      | 20%      | 20%      | 20%      | 30%      | 30%      | 30%      | 20%      | 20%      | 20%      |
| Human Chr | 1st T    | 2nd T    | 3rd T    | 1st C    | 2nd C    | 3rd C    | 1st A    | 2nd A    | 3rd A    | 1st G    | 2nd G    | 3rd G    |
| Y         | 5973987  | 5976423  | 5975224  | 3065212  | 3069247  | 3067677  | 7319027  | 7316913  | 7315663  | 4458135  | 4453778  | 4457797  |
|           | 29%      | 29%      | 29%      | 15%      | 15%      | 15%      | 35%      | 35%      | 35%      | 21%      | 21%      | 21%      |

## Envisioning the Pattern

The genetic code consists of 64 codons, which can be laid out as a 4 x 4 x 4 cube. The cube, therefore, has 4 layers from top to bottom, 4 layers from left to right, and 4 layers from front to back, each layer made of 16 codons (4 x 4)

When we look at the human genome, and the counts of each codon frequency are inserted next to the codon in the cube, it is found that –

- The front layer has the same total count as the top layer, and the top layer has the same total count as the left layer
- The second from front layer has the same total count as the second from top layer, and the second from top layer has the same total count as the second from left layer.
- The third from front layer has the same total count as the third from top layer, and the third from top layer has the same total count as the third from left layer.
- The fourth from front layer has the same total count as the fourth from top layer, and the fourth from top layer has the same total count as the fourth from left layer.

So we have a symmetry or reflection of codon counts in 3 dimensions. Corresponding perpendicular layers are in a 1 : 1 : 1 ratio. Alternate parallel layers are also always in a 1 : 1 ratio, whilst adjacent parallel layers are always in a 3 : 2 or 2 : 3.

1, 2, 3. Its like an ancient biological counting system – a mathematical design

<https://www.bitchute.com/video/nLGZFN86gF6p>

## A Possible Explanation

This result is surprising since human DNA codes for complex functions, so we would not expect that the DNA would have an additional non-functional constraint that it form symmetrical patterns in 3 dimensions, and that these balances approximate to whole number ratios. In other words, DNA seems to have form as well as function – an aesthetic as well as a utility.

One possible explanation for these patterns is that the DNA sequence is repeated in all three reading frames, and the starting point of each frame is displaced relative to each other. Previously I had found that some repeating sequences of amino acids are coded for by three different reading frames but displaced as suggested above – the conclusion being that these particular sequences had been written in triplicate across each reading frame. I did not investigate all sequences, but the current result suggests that the entirety of chromosomes may possibly be written in triplicate.

<https://howbad.info/triplicate2.pdf>

<https://www.bitchute.com/video/IIGWjgwUvmxv>