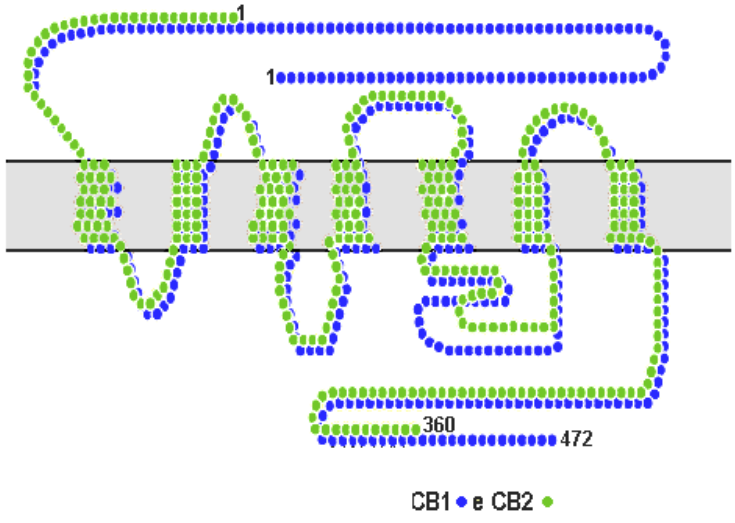
# The Probabilities of Cannabis Receptors 1 & 2 Folding Randomly

Here is the list of Left handed amino acids essential to human life:

| Amino Acid | SLC | DNA codons |
|---|---|---|
| Isoleucine | I | ATT, ATC, ATA |
| Leucine | L | CTT, CTC, CTA, CTG, TTA, TTG |
| Valine | V | GTT, GTC, GTA, GTG |
| Phenylalanine | F | TTT, TTC |
| Methionine | M | ATG |
| Cysteine | C | TGT, TGC |
| Alanine | A | GCT, GCC, GCA, GCG |
| Glycine | G | GGT, GGC, GGA, GGG |
| Proline | P | CCT, CCC, CCA, CCG |
| Threonine | T | ACT, ACC, ACA, ACG |
| Serine | S | TCT, TCC, TCA, TCG, AGT, AGC |
| Tyrosine | Y | TAT, TAC |
| Tryptophan | W | TGG |
| Glutamine | Q | CAA, CAG |
| Asparagine | N | AAT, AAC |
| Histidine | H | CAT, CAC |
| Glutamic acid | E | GAA, GAG |
| Aspartic acid | D | GAT, GAC |
| Lysine | K | AAA, AAG |
| Arginine | R | CGT, CGC, CGA, CGG, AGA, AGG |
| Stop codons | Stop | TAA, TAG, TGA |

This is what the Human Cannabis Receptor 1 & 2 look like relative to a 2D sequence homology and position relative to a cell's membrane:



The Probabilities for random creation of CB1 and CB2 are below:

# Chemical Composition of CB1

| Amino Acid | Count | Count! |
|---|---|---|
| A | 34 | 2.95233E+38 |
| C | 13 | 6227020800 |
| D | 24 | 6.20448E+23 |
| E | 15 | 1.30767E+12 |
| F | 28 | 3.04888E+29 |
| G | 21 | 5.10909E+19 |
| H | 13 | 6227020800 |
| I | 38 | 5.23023E+44 |
| K | 24 | 6.20448E+23 |
| L | 53 | 4.27488E+69 |
| M | 16 | 2.09228E+13 |
| N | 17 | 3.55687E+14 |
| P | 16 | 2.09228E+13 |
| Q | 14 | 87178291200 |
| R | 20 | 2.4329E+18 |
| S | 40 | 8.15915E+47 |
| T | 29 | 8.84176E+30 |
| V | 38 | 5.23023E+44 |
| W | 5 | 120 |
| Y | 14 | 87178291200 |
| | | Product of Count! |
| **Total** | **472** | 2.616376753034357751613131982822 1e+488 |

472! = 7.075636388050137411665978191267 2e+1058

N = n!/(p! x q! x r! …)

N = 7.075636388050137411665978191267 2e+1058/2.616376753034357751613131982822 1e+488

The number of sequential combinations

N = 2.704364491789696591982253363290 6e+570

N = 2.704e+570

**Probability = 1 in 2.704e+570 chance of CB1 folding right**

# Chemical Composition of CB2

| Amino Acid | Count | Count! |
|---|---|---|
| A | 32 | 2.63131E+35 |
| C | 13 | 6227020800 |
| D | 15 | 1.30767E+12 |
| E | 11 | 39916800 |
| F | 15 | 1.30767E+12 |
| G | 21 | 5.10909E+19 |
| H | 11 | 39916800 |
| I | 16 | 2.09228E+13 |
| K | 15 | 1.30767E+12 |
| L | 57 | 4.05269E+76 |
| M | 11 | 39916800 |
| N | 7 | 5040 |
| P | 16 | 2.09228E+13 |
| Q | 6 | 720 |
| R | 16 | 2.09228E+13 |
| S | 34 | 2.95233E+38 |
| T | 17 | 3.55687E+14 |
| V | 28 | 3.04888E+29 |
| W | 8 | 40320 |
| Y | 11 | 39916800 |
| | | Product of Count! |
| **Total** | **360** | 8.263757294205406851568883429465 3e+341 |

360! = 3.983166922118810678205990336564 7e+765

N = n!/(p! x q! x r! …)

N = 3.983166922118810678205990336564 7e+765 /
8.263757294205406851568883429465 3e+341

The number of sequential combinations

N = 4.820043450346526698524673008083e+423

N= 4.820e+423

**Probability = 1 in 4.820e+423 chance of CB2 folding right**

How random is that by chance?

- There are only $10^{18}$ seconds in the history of the universe.
- There are only $10^{66}$ atoms in the universe.
- There are only $10^{80}$ particles in the universe.
- In Physics a probabilities of Less than 1 in $10^{50}$ defies absurd