Session Name: Section 2-2-1: Bioinformatics, Antigen Design, and Vaccine Development

Decoding non-coding DNA Codes: Human Genome Meta-Chromosomes Architecture

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CONTENTS:

- Part I - BACKGROUND:
  - Human genome Codon populations: Numbers and atomic weighs perfect balancing (2004-2009)

- Part II - RESULTS:

- Part III - FUTURES:

\[
\text{Proj} \ (m) = \left[ 1 - \left[ 4\pi \sqrt{\varphi \Phi^2} \right] \right] m
\]

\[
\text{with: } \sqrt{\varphi} = \frac{1}{\Phi} \quad \text{Phi is the GOLDEN RATIO} \quad \Phi
\]

\[
\varphi = \frac{1}{\Phi} \quad \varphi^2 = \frac{1}{\Phi^2}
\]
« Why are there Numbers in the Nature? »

Alan Turing... The Chemical Basis of Morphogenesis A. M. Turing


1 2 3 4... Pi... Phi...

*Numbers... Codes... Atomic Weights... Waves...*
90% of this conference contents provide from 2 publications (1991 and 2010) and from 2 french books (1997 and 2009)...

1991 and 1997... 2009 and 2010...

Decoding non-coding DNA Codes: Human Genome Meta-Chromosomes Architecture Dr. Jean-Claude Perez
In 1991 (1) then in 1997 (2), we proposed a fractal structure of genes-coding DNA at a logical level...


DNA supracode genesis:
- 1 - Working on neuro-computers we discovered an hypersensitivity of FRACTALS aroung the GOLDEN RATIO area (with Golden ratio Phi=1.618033... as 1/Phi = 1+Phi).
- 2 - FIBONACCI numbers ratios are GOLDEN RATIO like proportions!
- 3 - Then we think: « what about FIBONACCI numbers nucleotides proportions in DNA sequences? »
- 4- a « resonance » is by example: 55 T and 89 CAG in 144 bases TACG.

- In 1991 we proposed that Golden Ratio and Fibonacci/Lucas integer numbers define strong relationships between DNA gene-coding region sequences and Fibonacci’s embedded TCAG gene sequence patterns. We also prove the optimality of these patterns in the book L’ADN décrypté (“Deciphering DNA”).

- Examples involving evolution and pathogen analysis include genes or small gene-rich genomes, especially the HIV genome. This book explores a numerical property called the “DNA Supracode” consisting of exhaustive combinatorial research of “resonances” within gene-coding DNA sequences: a resonance is a harmonious proportion of exact Fibonacci/Lucas nucleotide numbers. For example: 144 contiguous TCAG nucleotides have exactly 55 T nucleotides and 89 A or C or G nucleotides. Then a resonance exists with an the Golden ratio: 55, 89 and 144 are consecutive Fibonacci numbers following the Golden Ratio. Gene-rich genomes like HIV have thousands of “resonances”, where the longer ones overlap 2/3rds of the whole genome length.
DNA supracode and Fibonacci serie: 1 1 2 3 5 8 13 21 34 55 89...
Example of resonances in HUMC1A1 gene