



Human Genome Features

Unlocking the Blueprint of Life:
Key Discoveries from the Human
Genome Project.



3,164.7 Million

Total Base Pairs in the Human Genome.

This massive sequence contains the exact genetic code required to build and maintain a human being.

The Complexity Myth

**80,000 to
140,000**

Previous estimates assumed a massive number of genes was required to account for human biological complexity.

The Refined Blueprint

~30,000

The actual total number of genes is drastically lower than expected.

Unknown Functions: Over 50% of these newly discovered genes still have entirely unknown functions.



Average Human Gene = 3,000 bases

The Dystrophin Gene = 2.4 Million bases.

Dystrophin represents the largest known human gene, showing the incredible variation in structural size across the genome.



You've Learned the Theory. Let's Test Them Now.

$$E=mc^2$$



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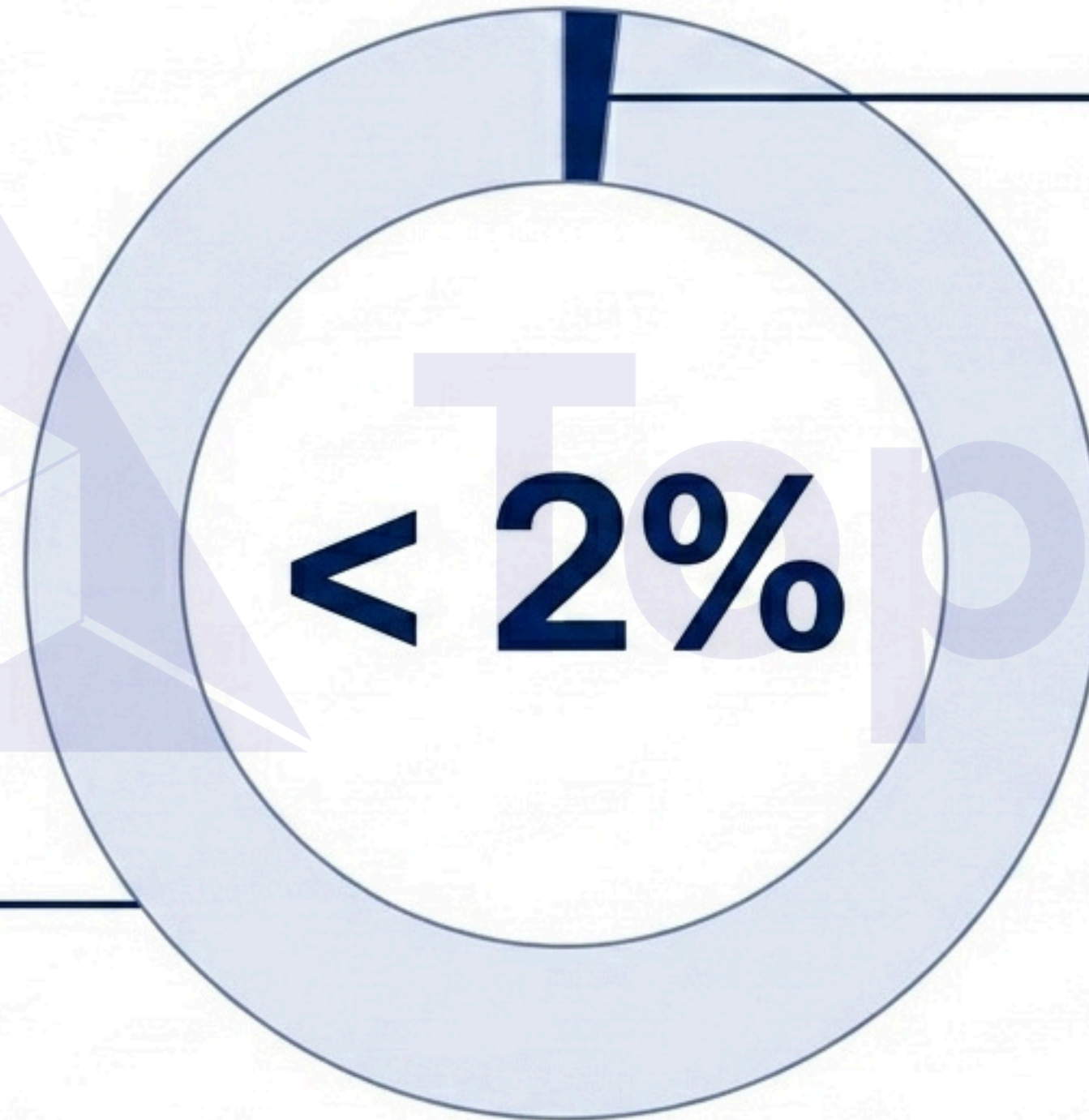
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Key Highlights

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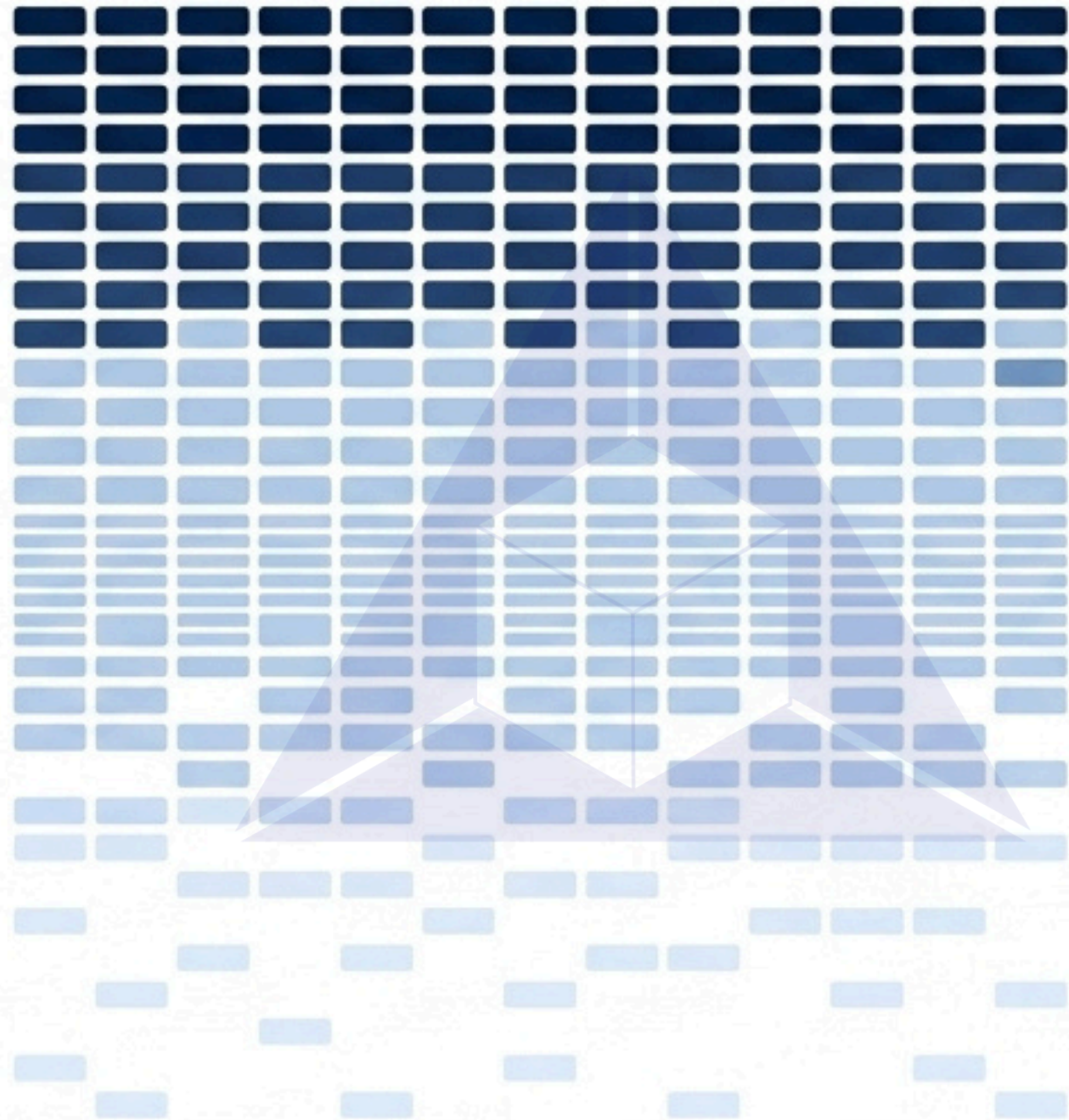


The Protein Paradox



Less than 2% of the genome actually codes for proteins.

The vast majority of the human blueprint consists of non-coding sequences.



Repetitive DNA Sequences

A very large portion of the genome is made up of stretches of DNA repeated many times—sometimes hundreds or thousands of times.

Core Functions

Though they have no direct coding functions, these repeats shed critical light on:

1. Chromosome structure
2. Chromosome dynamics
3. Evolutionary history

Chromosome Extremes



Chromosome 1

2,968 Genes

Contains the most genes.



Chromosome Y

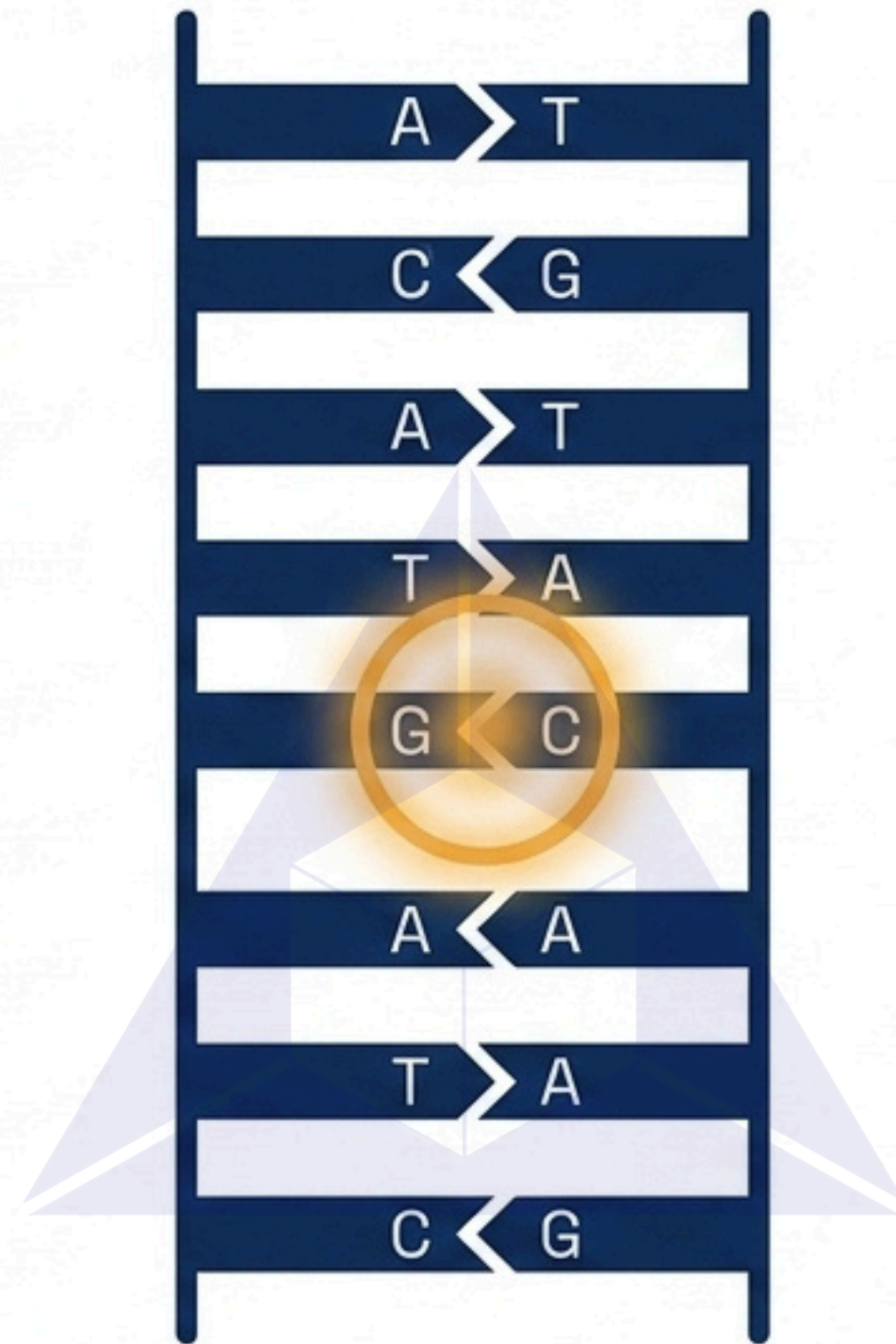
231 Genes

Contains the fewest genes.



99.9%
Identical

Almost all nucleotide bases are exactly the same in all humans across the globe. Our foundational biological blueprint is universally shared.



Single Nucleotide
Polymorphisms (SNPs)

**1.4 Million
Locations**

Scientists have identified approximately 1.4 million locations where single-base DNA differences—pronounced “snips”—occur in humans.

This 0.1% variance promises to revolutionise the processes of finding chromosomal locations for disease-associated sequences and tracing human history.

KEY TAKEAWAY

The Human Genome Project revealed that our biological complexity doesn't originate from a massive number of genes (~30,000), but from how our 3.16 billion base pairs are intricately structured and regulated. While we are 99.9% identical, the tiny fraction of variation (SNPs) provides a revolutionary map for understanding human evolution, history, and personalized medicine.



You've Learned the Theory.

Now Let's Test It.

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