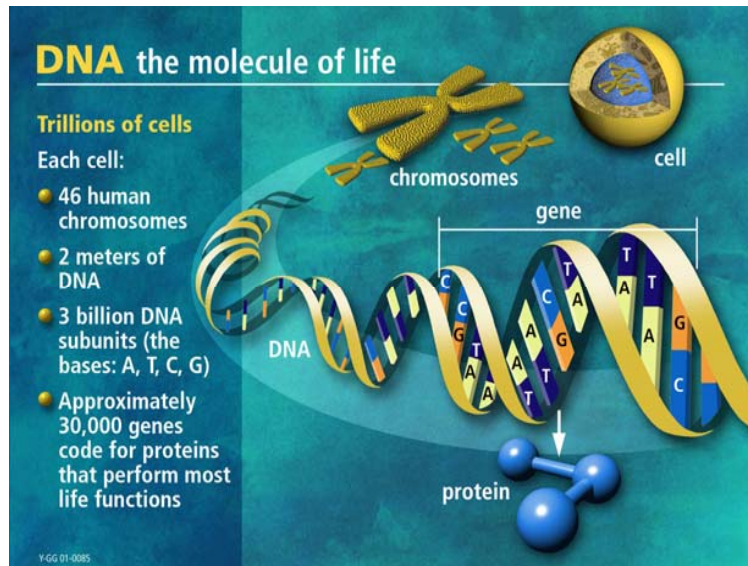


Creation, Evolution, and Scientific Facts

Don Johnson, Ph.D.s: Chemistry/Computer & Information Sciences

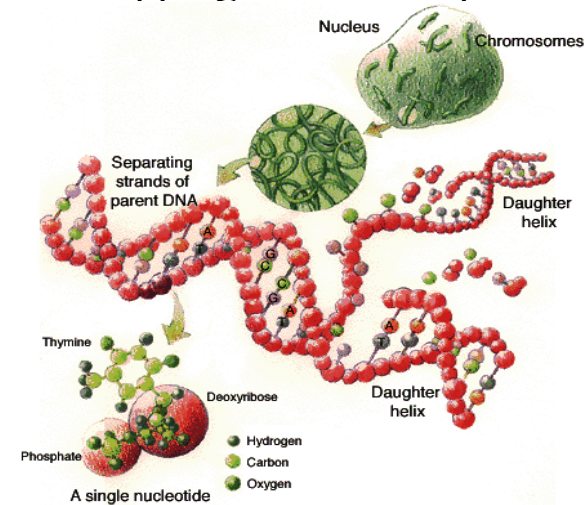
- #1 Science fundamentals and Biblical basis for series
- #2 Mass and energy: science, pseudoscience, and Biblical perspectives (origin, conservation, & entropy)
- #3 **Life and its origin: what does known science demonstrate**
- #4 Evolution, species, and "kinds": what changes are known to science
- #5 The flood, catastrophism, fossils, and time (e.g.-- ages of the earth and early men)
- #6 Scientific reliability of the Bible in a number of scientific fields, including statistics of prophecies



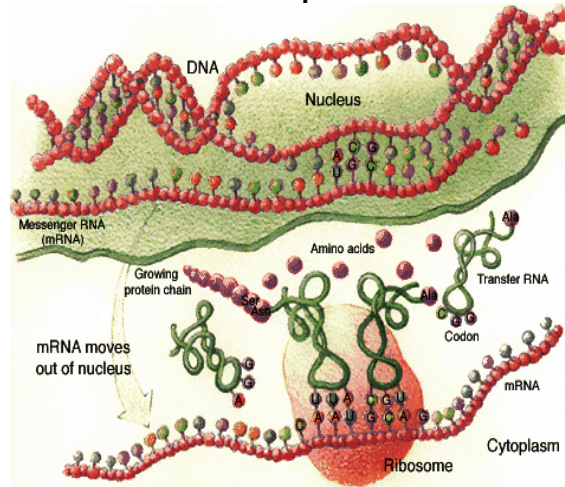
Overview of this Session

- High-level view of life components
- Illustrate that there's no “simple life”
- We are “fearfully and wonderfully made” (Ps 139:14)
- Proposed natural scenarios of life's origin
- Major difficulties with natural origin scenarios
- Natural origin killer: information & its processing

Unzipping DNA to Replicate



DNA Transcription Process



Cells: Wonderfully Made

- Membrane permits/denies passage to 1000s compounds
- Organelles perform nutrition, repair, waste disposal, communication, and reproduction

Each cell is a complex chemical factory (10^{-13} Viking's size)

<1 sec to do what scientists can manufacture in weeks

Self-replicating, 3-D, networked computing/storage system

Examples of Specialized cells

- Manufacturing hemoglobin requires 2.5×10^{17} ops/sec
- 100 billion neurons in human brain, each linked to 10,000 other neurons (10^{15} synaptic interconnections)
- Brain performs 10^{16} ops/sec (> all computers in the world)
- 1 sec of optic nerve's data: hours on supercomputer
- Talking: $>10^5$ neuromuscular events/sec, using >100 muscles (controlling diaphragm, tongue, cheeks, jaw, etc.)

Man is “fearfully and wonderfully made” Ps. 139:14

>25,000 genes, each with > 1000 bits of information

(many overlapping to produce >100,000 proteins)

>10 trillion distinctive traits by DNA sequence

>6,000,000 bases (ACGT) in folded 6', 10^{-12} gram chain

Digital (base 4) self-correcting encoded information

3 groups of 1-of-4 bases: 4^3 (= 64) possible codons

20 amino acids for proteins redundantly codon-specified

Information in 1 teaspoon of DNA: all people + all books

Even "simplest" organism's DNA has >150,000 nucleotides

DNA/RNA/proteins must be fully-formed/functional

>2000 enzyme proteins enable reactions

"Human DNA is like a computer program but far, far more advanced than any software we've ever created." Bill Gates, The Road Ahead, 1995, p.228.

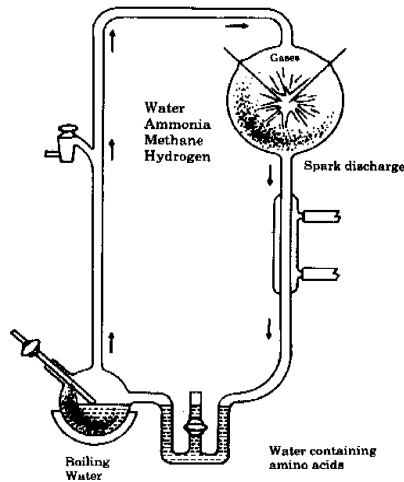
Interesting Observations

- “Physics books may be complicated, but ... the objects and phenomena that a physics book describes are simpler than a single cell in the body of its author ... organized with intricate architecture and precision-engineering into a working machine capable of writing a book... Each nucleus ... contains a digitally coded database larger, in information content, than all thirty volumes of the Encyclopedia Britannica.” *Richard Dawkins, Climbing Mount Improbable, 1996*

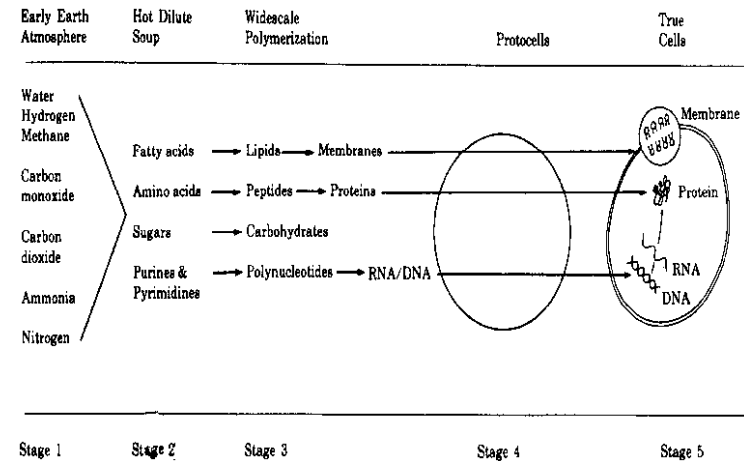
“Biology is the study of complicated things that give the appearance of having been designed for a purpose.” Dawkins “The Blind Watchmaker”, p. 1

“Although they claimed to be wise, they became fools and exchanged the glory of the immortal God for images made to look like man and birds and animals and reptiles.” (Rom 1:22)

Miller Experiment for Amino Acid Formation



Major Stages of Chemical Evolution (Thaxton, Fig.2-1)



The following is true for
Proteins First
DNA/Enzymes First
RNA (Ribozymes) First

“Chemical evolution is broadly regarded as a highly plausible scenario for imagining how life on earth might have begun. ... what has emerged over the last three decades ... is an alternative scenario which is characterized by destruction, and not the synthesis of life. ... The undirected flow of energy through a primordial atmosphere and ocean is at present a woefully inadequate explanation for the incredible complexity associated with even simple living systems” (Tha92, p. 182 & 186)

Interesting Observations

- "None of the papers published in JME (Journal of Molecular Evolution) over the entire course of its life (1971-) as a journal has ever proposed a detailed model by which a complex biochemical system might have been produced in a gradual, step-by-step Darwinian fashion." *Michael Behe., Darwin's Black Box: the biochemical challenge to evolution, 1996, p176*
- "The unexpected levels of complexity revealed at the molecular level have further strained the concept of the random assembly of a self-replicating system." *AW Swee-Eng, "The Origin of Life: A Critique of Current Scientific Models", CEN Tech. J. 10-3, pp300-314, 1996*
- "It's hard to see how the chemicals on early Earth could have combined to form the complicated nucleotides that make up RNA." John R. Davenport, "Possible Progenitor of DNA Re-Created," *Science Now, 11/16/00, p1*
- "Ribosome creation requires many RNA-modification enzymes that are still unknown." Patrick Barry, "Life from Scratch," *Science News Online: 173 (2), 1/12/08, p27*

Information Systems in Life

- Genetic system is a preexisting operating system
- Specific genetic programs are applications
- Native language has codon-based encryption system
- Codes are read by enzyme "computers" with own OS
- Enzyme's output is to another OS in a ribosome
- Codes are decrypted and output to the tRNA
- Codon-specified amino acid is transported to protein construction site
- There are multiple OSs, multiple programming languages, encoding/decoding hardware and software, specialized communications systems, error detection and correction mechanisms, specialized input/output channels for organelle control and feedback, and variety of specialized "devices" to accomplish the tasks of life.

Probabilities of Life

Law of Probability allows a maximum probability of forming-

- a typical functional protein^a: 1 part in 10^{175}
 - the required enzymes for life^b: 1 part in $10^{40,000}$
 - a living, self-replicating cell^c: 1 in $10^{340,000,000}$
- ^aThaxton, Bradley, & Olsen, *The Mystery of Life's Origin, 1992*
^bFred Hoyle, *The Intelligent Universe pp. 16-17, 1983*
^cHarold Morowitz, *Energy Flow in Biology, p. 99*

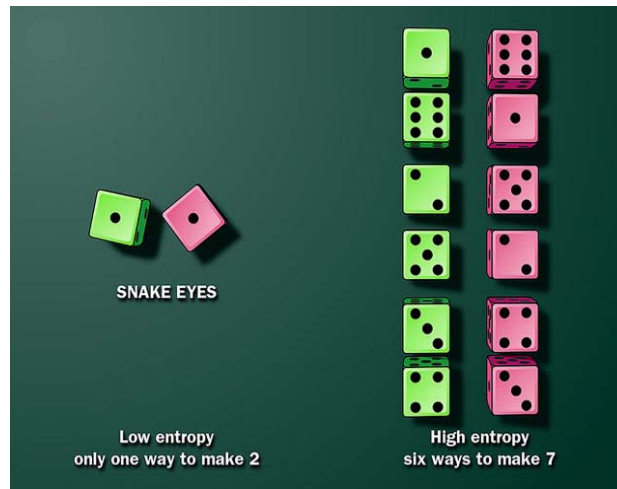
Equivalent to winning each (once is 1 in 41,416,353) CA Superlotto for: ^a23 times, ^b50 years, ^c125 million years

Life is unfathomably complex: "Functionally effective proteins have a vanishingly small chance of arising spontaneously in a prebiotic environment." *Jimenez-Montano, "Applications of Hyper Genetic Code to Bioinformatics", J. Biol. Sys. (12) pp5-20, 2004*

\$1 million Origin-of-Life Prize® www.us.net/life/

- "The Origin-of-Life Prize'® ... will be awarded for proposing a highly plausible natural-process mechanism for the spontaneous rise of genetic instructions in nature sufficient to give rise to life."
- LAW of biogenesis: life comes only from life
- "Those who insist on undirected natural causes of life are thus in an untenable position when it comes to known science. Not only can they not prove that it's possible (nonzero probability) for life to come about by undirected natural processes, but the information content of life precludes that possibility." **Don Johnson, Probability's Nature and Nature's Probability, 2009, p54**

Information Entropy (low probability = low entropy)



Shannon Channel Capacity (maximum mutual entropy)

Mutual entropy between input (x) and output (y) channels

$I(B;A) = I(A;B) = H(x) - H(x|y)$ (for alphabets A & B)

has conditional (x_i given y_i received) entropy

$H(x|y) = -\sum_{ij} p_{ij} \log_2 p_{ij}$ and information entropy

$H(x)_n = -\sum_{i=1}^n p_i \log_2(p_i)$ with probability vector elements

$p_j = \sum_i p_i p(j|i)$ (relates to conditional probability matrix)

The DNA-mRNA-protein system is:

discrete because all symbols in the alphabet are defined, **memoryless** with no dependence on previous symbols, and **unconstrained** since any symbol may follow any symbol.

Therefore, a particular DNA message can be treated as one member of a stochastic ensemble generated by a stationary Markov process, completely characterized by probability space coding $[Q, A, p_A]$, $[Q, B, p_B]$ with A(& any predecessors) $\geq B$ (or channel capacity would be exceeded).

Biblical Origin of Life

- “Then God said, 'Let the land produce vegetation’” Gen 1:11 (day 3)
- “And God said, 'Let the water teem with living creatures, and let birds fly above the earth across the expanse of the sky.’” Gen 1:20 (day 5)
- “And God said, 'Let the land produce living creatures according to their kinds.’” 1:24 (day 6)
- “Then God said, 'Let us make man in our image'... in the image of God he created him; male and female he created them... God formed the man from the dust of the ground and breathed into his nostrils the breath of life.” Gen 1:26-27 & 2:7 (day 6)

Conclusions

- **Life is incredibly complex, requiring all components**
- **It is impossible for life to have an undirected origin**
- **Life's origin is scientifically unknowable**
- **Source of life is a matter of faith**
- **Bible account of life is compatible with known science**
- **The Bible IS reliable and can be trusted – “All Scripture is God-breathed and is useful for teaching...” (2 Tim. 3:16).**
- **Our knowledge on any subject is limited – “Now we see but a poor reflection as in a mirror.” (1 Cor 13:12).**
- **The world is blind to many truths (Rom. 1:18-32, 1 Cor. 1:18-2:16) – “They exchanged the truth of God for a lie.”**