

Life and its Amazing Design

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Qualifications

- Ph.D. in Nuclear Chemistry
- University Professor 1990-1995
- NSF-sponsored scientist with >\$200,000 in research grants
- Published over 30 articles in nationally recognized peer reviewed journals
- Currently writes junior high and high school science curriculum for homeschoolers

The Cell is the Basic Building Block of Life

Robert Hooke coined the term “cell” after looking at cork under the microscope. He saw that the wood was split into tiny sections that reminded him of the cells that monks live in.

It was long thought that cells are simple. Ernst Haeckel (early 1900s) said the cell was a “simple lump of albuminous combinations of carbon.”

[Denyse O’Leary (2004), *By Design or Chance*, p.42]

The Hope of The Simple Cell Destroyed

As we got better and better microscopes, we found that the cell was anything but simple!

We now know the cell is much like a city, with sections of organization that deal with production of materials, transport of those materials, production of energy, removal of waste, etc.

To get an idea of how complex a single cell is, watch the animation called “The Inner Life of a Cell” here:

http://multimedia.mcb.harvard.edu/anim_innerlife_music.html

Your Body Contains Trillions of Cells Like the One In That Animation

But it contains TEN TIMES as many bacterial cells, and that’s a good thing! The bacteria produce chemicals that you need, fight off organisms that want to make you sick, and interact with your immune system.

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If you were to count the number of unique bacterial genes in your body, you would find that they outnumber your own genes by about a factor of 100!

Bacteria and You: A Perfect Match

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[Yun Kyung Lee and Sarkis K. Mazmanian, “Has the Microbiota Played a Critical Role in the Evolution of the Adaptive Immune System?,” *Science*, **330**:1768-1773, 2010.]

What Do These Bacteria Do for Us?

They help us digest our food.

Mice that are deprived of intestinal bacteria have to eat 30% more food just to maintain their weight. [Sears CL, “A dynamic partnership: celebrating our gut flora,” *Anaerobe* 11(5): 247–51, 2005]

They make chemicals that we need.

The bacteria that live in your intestine produce vitamin K, which is essential for good blood clotting.

They compete with fungi and pathogenic bacteria to keep them from colonizing your body.

And much more...

Even At The Most Basic Level, Life is the Product of Design

1. Far from being the “simple lump of albuminous combinations of carbon” that scientists once thought, the basic building block of life is fantastically complex.
2. There is an enormous amount of cell-cell cooperation, not only among the cells that make up an organism, but among cells of many different organisms!

The Design We See in Life Convinced Noted Atheist Antony Flew

Dr. Flew was the son of a Methodist minister but became an atheist as a teen. He said, “It just seemed flatly inconsistent to say that the universe was created by an omnipotent and perfectly good being.” [<http://www.nytimes.com/2010/04/17/arts/17flew.html>]

In *The Presumption of Atheism* (1976), Dr. Flew stated, “The debate about the existence of God should properly begin from the presumption of atheism, that the onus of proof must lie upon the theist.” [Antony Flew (1976), *The Presumption of Atheism*, p. 14]

In 2004, He Became A Deist. Here is What He said:

“I believe that the origin of life and reproduction simply cannot be explained from a biological standpoint despite numerous efforts to do so...The difference between life and non-life, it became apparent to me, was ontological and not chemical. The best confirmation of this radical

gulf is Richard Dawkins' comical effort to argue in *The God Delusion* that the origin of life can be attributed to a 'lucky chance.' If that's the best argument you have, then the game is over." [http://www.tothesource.org/10_30_2007/10_30_2007.htm]

The Design Argument is Powerful, Which is Why Atheists Try to Attack It

1. They try to show "poor design" in nature, such as the vertebrate eye being wired "backwards."

"Any engineer would naturally assume that the photocells would point towards the light, with their wires leading backwards towards the brain. He would laugh at any suggestion that the photocells might point away from the light, with their wires departing on the side nearest the light. Yet this is exactly what happens in all vertebrate retinas." [Richard Dawkins (1986), *The Blind Watchmaker*, pp. 93-94]

The most recent research, however, shows quite the opposite: "The retina is revealed as an optimal structure designed for improving the sharpness of images." [Labin, A.M. and Ribak, E.N., Retinal glial cells enhance human vision acuity, *Physical Review Letters* **104**, 16 April 2010 | DOI:10.1103/PhysRevLett.104.15810]

Why is this "backwards" wiring really optimal? Because the eye has Muller cells, which direct the light where it needs to go. This actually reduces light noise that would be caused by light rays that reflect in the eye itself.

2. They try to show useless biological structures exist.

Darwin pointed to many "rudimentary" organs in human anatomy. He likened them to "silent letters" in a word that are not pronounced but can indicate origin.

In 1893, a follower of Darwin produced a list of 83 useless organs in humans. [Wiedersheim, R. (1893) *The Structure of Man: An Index to His Past History. Second Edition.*, Translated by H. and M. Bernard. London: Macmillan and Co., 1895.]

Over time, all but one of these organs (the male nipple) has been shown to have an important function.

In 2007, even the appendix was shown to have a necessary function in people. We now know that it functions as a "safe harbor" for intestinal bacteria. This makes it much easier to recover from diseases like dysentery and cholera. [http://www.independent.co.uk/life-style/health-and-families/health-news/the-appendix-does-have-a-use--rebooting-the-gut-396277.html]

Junk DNA is the Worst Example of This:

- Susumu Ohno was the first to use the term "junk DNA" in 1972. He was referring to pseudogenes, which we now know serve regulatory functions. "Junk DNA" was thought to be leftovers of the evolutionary process.
- It was once thought that 97% of the human genome was junk.
- "At one time, people said, 'Why even bother to sequence the whole genome? Why not just sequence the [protein-coding part]?' " [Anindya Dutta, *Science News* 172:154 2007]

- In order to use the information contained in DNA, the cell must “unwind” the DNA, copy the information contained in DNA, and send that information out of the nucleus of the cell. This is called transcription and requires a lot of resources and energy. It would not be done if the information were not being used. Current research shows that more than 90% of the human genome is transcribed. [Birney, E., et. al., Identification and analysis of functional elements in 1% of the human genome by the ENCODE pilot project, *Nature* **447**:799–816, 2007.]