

# ASK A SCIENTIST

## Questions and Answers about Faith and Science



Evangelical Lutheran Church in America  
God's work. Our hands.

### **Question 1:**

*What is the ELCA official position concerning the origin of life and evolution?*

The ELCA has not officially taken a position about evolution. The ELCA teaches that the scriptures witness that all of life is a gift of God. However, the scriptures do not say, for example, how God's creating word, "Let there be...", brings creatures into being. Lutheran tradition has respected the work of the natural sciences in investigating phenomena in the natural world and explaining how they work and how they originated. Because our knowledge both of God and of other things is partial (I Corinthians 13:9), what is accepted at any one time as valid scientific knowledge and theory can be either added to or corrected by further scientific investigation and better theories to explain the phenomena we see in the world.

### **Question 2:**

*What is ELCA's position on early stem cell research?*

The ELCA has not taken a position on stem cell research or related matters such as embryonic stem cell research, adult stem cell research, or umbilical cord stem cell research. It is about to start a process to develop a social statement on genetics, however, with the aim of bringing a statement for consideration to the 2011 Churchwide Assembly. This social statement will address both human and non-human genetics. Updates on the development of this statement will be made periodically on the ELCA web site at [www.elca.org/socialstatements/genetics/](http://www.elca.org/socialstatements/genetics/). During the process, ELCA members and other interested persons will have opportunities to voice their concerns in listening posts and in hearings on a first draft of the social statement. Dates and other information about such events will be posted on the site above. If the social statement were to be adopted in 2011, it would guide ELCA advocacy in public policy and in corporate social responsibility.

### **Question 3:**

*Free will vs. determinism: Is there any scientific proof of determinism?*

Great question, and one that has been at the center of philosophical and scientific discussions of human nature for centuries. As scientific explanations grew to encompass more and more of the natural world, it was natural to question whether our deepest sense of self, our consciousness, could ever be explained as the product of physical processes occurring in our bodies. One solution was the belief that the physical and mental worlds were entirely distinct from one another. In this dualistic world view espoused by philosopher Rene Descartes, the mind exists completely separately from the body. Thus the mind is not controlled by the brain, but this only raised the thorny question of what, then, is responsible for the fact that our mental and physical worlds are perfectly coordinated (i.e., the idea in your mind of wanting your hand to reach for a pen is conveniently coupled with your hand moving to do so).

During the twentieth century, advances in the neurosciences (a wide array of related disciplines

ranging from psychology and cognitive science to neuroanatomy), convinced many people that ultimately our experience of consciousness, including our thoughts, emotions, and ability to choose and perform actions, are explainable as the product of physical processes occurring in our brains (and bodies). Remarkable progress has been made toward this ambitious objective, but much of our interior world still remains mysterious.

It should be noted, though, that other advances in research areas such as quantum physics and chaos theory have revealed that complex non-living systems (like the atmosphere), though determined entirely by physical laws and forces, may be in principle unpredictable. Such systems are remarkably sensitive to initial conditions, so that a tiny, unmeasurable change in the initial state may give rise to a vastly different result. Such systems are governed by physical laws, but their observed behavior depends on so many factors as to be effectively indeterminate. In other words, we can understand how weather evolves without being able to fully predict it!

The human brain may well be said to be the most complex object in the known universe. Even if our consciousness is the product of physical processes (neurons firing, chemicals being released) in our brains, those processes are themselves at every moment sensitively dependent on our environment (including other people), our previous choices, and many random influences. In short, our brain state is itself influenced by our actions, which in turn are determined by our brain state in a ceaseless feedback loop. No one factor, be it our genetic composition, our past, our social setting, is entirely responsible for our brain state and our choices, though all of them are influences.

A widely-held view of the mind and its relationship to the brain that I favor is called nonreductive physicalism. What this mouthful means is that, while we believe the mind to be the result of physical and biological process, the human mind and consciousness cannot be reduced to – fully described in terms of – these processes. In this view there is no need to postulate a separate, nonmaterial realm in which our minds exist literally disembodied from our brains. Our minds are believed to be located in our biological selves, but we are not mere automatons obeying blind physical laws. Rather, we are constrained and influenced by biology, by our genes, our heritage, our environment, but we are still free to make choices within these constraints.

I could cite some of the fascinating evidence for this view, but that would take us into deeper waters. Suffice it to say that this view is strikingly like our theological, biblically-based view of ourselves. We acknowledge certain constraints to our behavior, called original sin, that we cannot transcend by conscious choice. St. Paul writes: “For I do not do the good I want, but the evil I do not want is what I do.” (Romans 7:19) And yet, he rejects the idea that since we are bound to sin we are not responsible for our sinful actions. While acknowledging our bad choices, we find that only in God’s grace do we transcend our innate human tendency toward sin.

In summary, as Lutherans we don’t accept the old line, “the devil made me do it,” though we acknowledge that we are subject to devilish influences from within and without. But as God’s children, created in God’s image, we are still free to choose our actions. Those exceptional circumstances in which disease or damage to a person’s brain constrains their human behavior and actions (like causing them to forget their loved ones, to hear voices others don’t, or to act irrationally), only offer further evidence of the intimate connection between our minds and our brains, and the gift of God in the freedom we enjoy in their normal functioning.

*Answer written by the Rev. Dr. Patrick Russell, chairman of the ELCA Alliance for Faith, Science, and*

*Technology, and former Fellow in Theoretical Neurobiology at the Neurosciences Institute in La Jolla, CA.*

**Question 4:**

*I read that photosynthesis means "to put together with light." Then I read that God created light and then "separated the light from the darkness." Is there any scientific principle concerning the separation of the light from the dark?*

The scientific view of the separation of light from darkness is primarily a study of shadows. The original force of the statement in Genesis about separating light from darkness is an attempt to understand why day and night are so different. Sure enough, in science we say that when it is nighttime, we are in the shadow that the earth makes, and the sunlight is blocked out. Please note that in climates that are far from the equator and where there is a lot of humidity in the air, we have appreciable twilight and dawn, where the separation of light from darkness is less absolute than you would get in a dry climate nearer the equator.

*Answer Written by Dr. John Albright, a physicist who is also Visiting Professor of religion and science at the Lutheran School of Theology at Chicago and affiliated with the Zygon Center for Religion and Science.*

**Question 5:**

*What is the purpose of man's life on earth?*

The purpose of human life on earth is to fear and love God and to serve our neighbor in all that we do.

**Question 6:**

*What is the ELCA official position on In Vitro Fertilization?*

In Vitro Fertilization refers to the fertilization of a living human egg in an artificial environment outside the human body. When this happens, it usually is done in order to bear and give birth to children when conception has not been possible by normal means. A fertilized egg will then be artificially implanted in the womb of a woman so that the process of pregnancy may begin.

The ELCA currently has no policy regarding [In Vitro Fertilization](#). In 1983, however, the standing committee of the Division of Theological Studies of the Lutheran Council in the USA received permission from the American Lutheran Church, the Lutheran Church in America (both predecessor bodies of the ELCA), and the Lutheran Church-Missouri Synod to issue a report on In Vitro Fertilization (IVF). In the LCUSA report, there was agreement "that IVF in and of itself is not contrary to Christian values," although there was some disagreement among members of the standing committee about some issues associated with this process. The report further stated that "The committee has unanimously concluded that IVF does not in and of itself violate the will of God as reflected in the Bible, when the wife's egg and husband's sperm are used."

**Question 7:**

*I believe in an old earth theory, (4.3-4.6 Byo) and also I believe in evolution both macro and micro, does this conflict with my ELCA Church?*

Not at all. As a church body the ELCA believes that science per se is a gift of God to be used for the stewarding of creation, but it does not pronounce on the correctness of scientific theories or data. It does believe its members in their callings as scientists, technicians, and educated citizens should do so, though! The theories you mention represent the best thinking of science at this time. The proposed social statement on genetics puts it this way: "There is no inherent conflict between scientific findings and the understanding of God as creator, redeemer and sanctifier."

**Question 8:**

*Does the possibility of extraterrestrials have any negative implications for the Christian faith? I don't believe that there is intelligent life outside of Earth (that will ever be found), but I think it is possible that simple life could be found to have at least existed on Mars.*

The possibility of extraterrestrial life (ETs), including intelligent ETs would not require Christians to abandon any basic beliefs. But it does challenge us to think about those beliefs in some new ways. Of course we don't know now whether or not there are intelligent ETs, and estimates of the probability of them vary widely. But there is no theological problem with the idea that God could have created intelligent beings on other planets. Questions arise, however, when we start thinking about salvation and the traditional Christian claim that by Christ's life, death and resurrection on our planet, he has reconciled "all things" to God, as Colossians 1:15-20 says. How can what happened on earth result in the salvation of inhabitants of a planet ten thousand light years away?

Several theological answers have been suggested. Perhaps inhabitants of other planets haven't sinned – though given what we know about how evolution happens, that seems unlikely. Perhaps we should recognize that those biblical statements about "all things" are exaggerated poetic language, and Jesus is the savior only of people on earth. Perhaps there be multiple incarnations, or does God make the saving work of Christ on earth available to ETs in some ways that we don't know about?

And maybe the church is simply called to a new missionary task, to proclaim the good news of Christ to intelligent beings beyond the earth. If that's the case we will have to think about how to avoid the arrogance and exploitation that too often have accompanied missionary activity on earth!

These are not new questions. They have been debated since the beginnings of modern astronomy centuries ago, with some people arguing that the possibility of ETs falsified Christian teachings and others saying that a universe full of living things is what we should expect from a good God. Michael J. Crowe's book *The Extraterrestrial Life Debate, 1750-1900* (Dover, 1999) has a lot of examples of these arguments. It also is interesting to see how these religious questions have been addressed by writers like a number of science fiction writers.

