



23andMe

By Russ McGuire - russ.mcguire@gmail.com

I recently attended a seminar on technology advances across a number of disciplines. One of the sessions was on “Digital Biology.” The presenter described DNA as the programming language of life. As a coder, that description appealed to me. As a Christian, his application of the analogy offended me.

In Acts 3:15, Peter refers to Jesus as “the Author of life,” and in Psalm 139, the psalmist praises God for forming his inward parts, knitting him together, making him in secret, and seeing his unformed substance. As a technologist, the analogy of God as the Programmer, uniquely rolling the DNA code for each of us, works powerfully. However, the presenter, while acknowledging our unique and impressive design, did not honor the Designer and instead outlined the opportunity for scientists to read DNA, write DNA, and hack DNA.

According to their website, “23andMe is a DNA analysis service providing information and tools for individuals to learn about and explore their DNA.” You provide a spit sample to 23andMe and they analyze your DNA for you. Earlier this year, 23andMe lowered the price for their service to \$99, making it an affordable option for the masses. Who knows, you may even receive a 23andMe kit as a gift this Christmas.

As Christians who love technology and data, a service like 23andMe may be very appealing. Through

a Biblical grid, how should we view these “advances” for ourselves and for those in our congregations and ministries who are likely to ask our opinion as DNA services become mainstream?

What is DNA Analysis?

In 1987, President Reagan’s budget included funding for the Human Genome Project within the US Department of Energy (DOE). Over the years the project was jointly managed by the DOE and the National Institute of Health (NIH). The project resulted in a complete mapping of the human genome in 2001. (A genome is the entirety of an organism’s hereditary information coded within its DNA.) According to the presentation I heard, this initial DNA sequencing effort cost \$3.7B.

Each human’s DNA sequence is unique. Today, sequencing an entire genome for an individual has been reduced from 13 years to about a week, and from \$3.7B to about \$2000. Next year the cost is expected

to fall to be about the same as the cost of a chest X-ray, and by 2016 it will cost less than a pizza.

Within the entire DNA sequence, scientists have worked to identify specific genes, stretches of DNA that determine genetic traits including hair color, eye color, etc. A DNA Analysis service like 23andMe doesn't need to sequence a person's entire DNA to identify indicators of information of interest to consumers. 23andMe focuses primarily on health and ancestry information.

Some genes or mutations of genes can indicate increased likelihood to develop specific medical conditions ranging from male pattern baldness to cancer. The presenter shared how he has changed his lifestyle to reduce his likelihood of developing a vision problem that his DNA analysis indicated he was at high risk to develop. Most famously, earlier this year the actress Angelina Jolie had a preventive double mastectomy because her DNA analysis indicated she had an 87% risk of developing breast cancer.

23andMe also advertises that they can identify conditions that you may be a carrier for, even if you don't develop the condition yourself. This knowledge may lead some to choose to not have children. Ravgen is a company founded in 2000 to develop (from their website) "a fetal DNA based sequencing method to allow for safe, noninvasive, and accurate prenatal diagnosis of genetic disorders, such as Downs syndrome, early in pregnancy." Such tests are obviously designed to help parents decide whether or not to abort their babies.

23andMe also promotes the benefit of using their test to find out about your ancestry. They will tell you what percent of your ancestors come from different parts of the world. 23andMe also encourages you to share your DNA information so that you can find relatives you didn't even know about. They currently have 400,000 members in their database. Prenatal DNA



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testing is also promoted as a paternity testing method, which again can be helpful to mothers trying to determine whether to keep the baby or not.

What is good about DNA Analysis?

The past couple of centuries have seen tremendous advances in medical diagnostic technology. Today, we regularly trust in X-rays, MRIs, blood and urine tests, EKGs, etc. to accurately diagnose medical conditions that require treatment. DNA Analysis has the potential to continue this positive trend, providing information that can help us take action to avoid or lessen the

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impact of medical conditions. 23andMe also promotes the ability to identify how you'll respond to certain medications.

What is dangerous about DNA Analysis?

DNA Analysis is a new and developing discipline. Some have taken radical actions assuming that science can accurately predict the future. I would rather trust in a sovereign God, through whatever trials He may have planned for my eternal good.

A common theme in my articles is concern with privacy. The Genetic Information Nondiscrimination

Act of 2008 (GINA) prohibits the use of genetic information in health insurance and employment decisions. However, life insurance companies typically take a blood sample from which they can perform DNA analysis to determine your risk of early death. How much information about yourself do you want in how many places? (Interesting fact: Anne Wojcicki, 23andMe's founder is married to Google's Sergey Brin.)

The biggest issue I have with "Digital Biology" is reflected in the presenter's attitude towards authoring life – writing DNA and "hacking" DNA to create new life forms. Ever since Satan and his angels rebelled and were cast out of heaven, his deceitful appeal to Eve, and to the builders of the tower of Babel, and honestly to each of us is that we can be like God. Writing and "hacking" life itself is only the latest example.

Proverbs 3:4-5 commends us to "Trust in the Lord with all your heart, and do not lean on your own understanding. In all your ways acknowledge him, and he will make straight your paths."

It is my hope and prayer that these articles on the power and danger of technology will encourage you in your daily walk with Christ. Whether it is the printing press, radio, television, personal computers, the Internet, the Cloud, smartphones, or even DNA analysis, new

technologies continue to advance our ability to know God and to serve Him, wherever we go.

Russ McGuire is an executive for a Fortune 100 company and the founder/co-founder of three technology start-ups. His latest entrepreneurial venture is CXfriends (<https://cxfriends.com>), a social network for Christian families which is being built and run by four homeschooled students under Russ' direction.