

Introduction

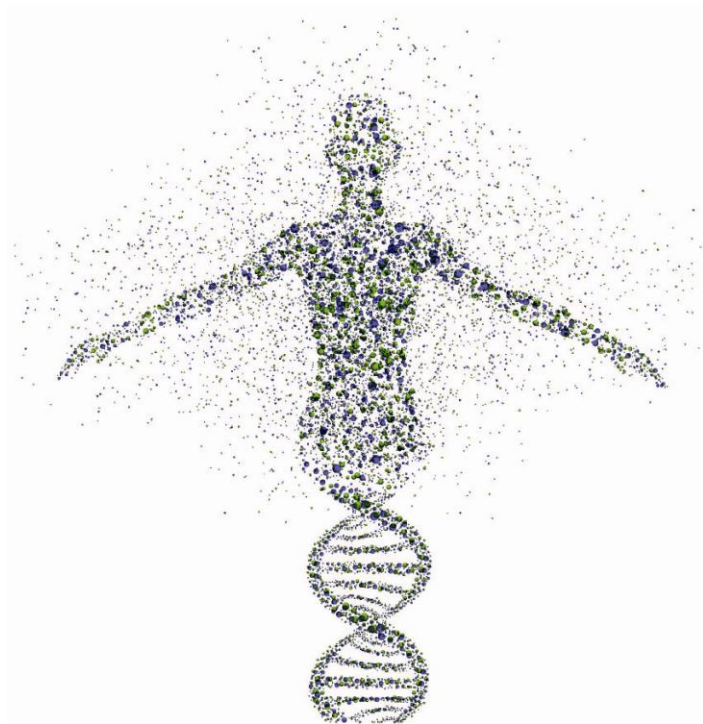
The focus of our first session is on faith: faith and science, faith and genetic technologies, faith and human dignity. This may not be an easy discussion, but it is certainly an important one.

Let's begin by considering this comment by sociologist Alex Mauron:

"It is claimed that our genome is important in a way that everything else isn't. The genome is construed as the ontological hard core of our being, the main determinant of our individual and species characteristics, the necessary and sufficient cause that makes us. The genome has practically become the secular equivalent of the soul."

This claim states that our genetic material is the primary determinant of who and what we are.

- How do we respond to such a claim?
- How does such a claim affect our self-understanding?
- Are we predetermined to be who we are because of our genetic makeup?
- Does genetic science or science in general say all there is to say about being human?



Scenario 1

Question to Think About

How do the values of our faith affect our ethical thinking and decision making about genetic procedures?

What, for you, is faith? Does it involve a radical acceptance of everything in your life, trusting that God will sustain you and be present to you in it? Or does your faith involve a radical trust that God will sustain you and be present to you if you act to *alter* the circumstances of your life in the light of what you believe to be true for you and to be in conformity to God's will for you? This first question is meant to help you articulate your understanding of faith and how your faith might make a difference in your thinking about genetic science and technology.

Narrative: An Invitation to Make Church Policy

Karen has been an active member of her church for most of her forty-five years. As someone knowledgeable about the science involved in genetic research, she has been nominated to be on a church policy review and development committee dealing with genetics, theology, and the Church. Her assignment is to write an essay showing how developments in genetic research affirm the faith of the Church and are in conformity with God's will.

Discussion Questions

If this assignment were given to you, what would you say? Does faith make a difference in approaching the legal, ethical, theological, and policy questions raised by genetic science? Could scientific discovery pose a threat to Christian faith? Could it pose a threat to your faith?

Scenario 2

Question to Think About

Does the science of genetics contribute to or contradict our belief that we are created in the image of God?

This question comes out of a very old dialogue between faith and science. There is a sense in which the questions raised by the concept of “genetic inheritance” are the same as those raised by Copernicus when he claimed that the Earth revolves around the sun or by Darwin when he claimed that we have evolved as a species from other species. What does it mean when we say that as created human beings we bear the marks of God? As we learn more about biology, neuroscience and genetics, is there room for thinking of humans as beings having the kind of freedom, dignity, and stature supported by religious communities and expressed in declarations of human values and human rights?

Narrative: The Book of Genesis and the Origins of Humankind

For years you have been an active member of your church and have participated fully in the communal and prayer life of your congregation. Recently, your growing knowledge of genetic science is leading you to use the lens of genetics to think about the teachings of your church regarding the origins of humankind. Within the context of your faith community you want to engage in this kind of reflection honestly and productively. Two questions stand out for you.

- How does the confession that we are created in the image and likeness of God connect with discoveries in genetic science that associate certain genetic markers with certain behavioural traits?
- How can we reconcile our belief in human freedom and free will with the constraints and limits indicated by our genetic profiles?

Discussion Questions

- 1) Does genetic science, as you understand it, pose any real threat to the belief that we are created in the image of God? Do faith and science describe two very different and incompatible ways of understanding our origins? Does genetics add something to the older debates about faith and reason, revealed and natural theology, religion and science? (You may find it helpful to read *Behavioural Genetics: Genes and their Environment*, to get a better understanding of the link

between genetics and behaviour characteristics that we may acquire through the expression of our genes.)

- 2) It may be that some genetic alleles invariably lead to particular outcomes. For example, if you have the allele for Huntington's disease, it is widely believed that you will get Huntington's disease. Other alleles are more complex. They do not create certainties but probabilities. Women with the BRCA1 or BRCA2 allele have an increased risk for breast cancer. Most of the alleles associated with behavioural traits are of this type. Does this mean that no matter what the behaviourally relevant allele is, if we resist the behavioural tendency we can preserve our free will and dignity as a human being? (You may want to review the remainder of the science section entitled Behavioural Genetics, particularly the subsection Genetic Variation and the Environment: Complex Interactions, where genetically linked disorders are discussed, including Huntington's disease, cystic fibrosis, and sickle cell anemia.)



- 3) Does the fact that most conceptions do not lead to live births influence your thinking about human life as a creation of God?
- 4) Does a basic understanding of genetic science make it difficult to maintain a traditional faith?

Scenario 3

Question to Think About

What ethical questions arise from the use of genetics in reproductive technologies and what are some of the theological responses?

In discussions about the use of genetics in reproductive technologies the phrase “playing God” frequently occurs. This term reflects the opinion that we are not meant to do certain things, even though we can. For example, scientists have recently reconstructed the genetic makeup of a primitive single-cell organism, using the

Review Genetics 101. This section contains a brief history of the discovery of genes and their fundamental -molecular backbone, deoxyribonucleic acid or DNA. It also gives some general structural information about the location and structure of genes in each cell of the body and familiarizes you with some basic terms used in genetics to distinguish the genes themselves and the characteristics associated with their functioning in the body. This section also will familiarize you with the impact of genetic variation on body functioning, using the example of genetic determination of various blood types. This is particularly important when someone needs a blood transfusion. In the glossary you will also find important terms.

minimum required number of genes to allow the cell to replicate and function. Is this “playing God” or is it an acceptable way of discovering new types of living organisms that might help people or the environment? This question makes us realize that we must think about the kind of world we want to live in and use our knowledge in a modest and resourceful way toward building that world. With every increase in our knowledge combined with our increasing ability to use that knowledge comes an increase in moral responsibility.

Narrative: Disability and Genetic Counseling

Ten years in the future, Jim and Joan are seated at a table with a genetic counselor. Their daughter, Sarah, is in a stroller beside them. They conceived Sarah using a method once considered normal – through sexual intercourse. Sarah was born deaf. Her parents are moderately well off and so they could have had testing to find out their carrier status and could have had prenatal testing to find out if Sarah had a genetic disorder. They belong to a community of faith

and sincerely believe that tinkering with reproduction in this way is a moral affront to God. They love Sarah and cannot imagine life without her, but feel terribly guilty about her suffering, suffering that they could have avoided if they had not played a kind of

genetic Russian roulette by conceiving via sexual intercourse. They want another child but do not want to risk having a child with a preventable genetic disorder. They are not sure they've made the right choice in asking for this meeting and avoid looking at each other as they wait to begin their interview.

The genetic counselor is knowledgeable and sympathetic. He tells Jim and Joan that they have available three of twelve embryos that are free of all known major genetic diseases. They have done genetic profiles on the three and Jim and Joan can choose from among them. Embryo #1 is a male. While normal in most ways, the embryo does have one of the alleles now associated with addictive behaviour. Embryo #2 is female. She has an allele that will produce insufficient human growth hormone (HGH) and is likely to be normal in all other ways, but will never grow beyond five feet, perhaps no taller than 4'



You may find it helpful to review Embryonic Development and Genetic Engineering. This section will give you a basic understanding of what an embryo is, how embryos are being used in stem cell research, and how they could be used in cloning animals and, potentially, human beings.

9." Embryo #3 is also female. Her profile also indicates a predisposition to addictive behaviour.

The counselor tells Jim and Joan that they can genetically modify the embryo with the HGH defect. Jim and Joan did not anticipate these kinds of choices and become increasingly uncomfortable as the counselor speaks. Finally, as the counselor talks about genetic modifications to create a child with a so-called normal height, Joan breaks down in tears and runs from the room. Jim follows.

Discussion Questions

- 1) Jim and Joan feel that trying to manipulate the reproductive process in the way the genetic counselor suggests is like playing God. They believe that selecting more desirable embryos or modifying existing embryos is interfering with the act of creation itself and is both dangerous and morally wrong. What do you think?
- 2) Jim and Joan love each other. They want their love to produce a child. Intercourse for the purpose of creating a child with all the longings, hopes, fears, and mystery that go with the act runs very deep in them. What does being a person of faith mean in the context of human reproduction?
- 3) Some would say that this scenario is an affront to Sarah and all people with disabilities and genetic disorders. Is the message to Sarah: "If we could have done so, we would have not had you?" Is the message to the disabled: "If we could, we would live in a world without you as you are?" What do you think? Is prenatal and pre-implantation genetic manipulation different from other kinds of nature-altering activities (e.g., seeking medical treatment for cancer or heart disease)
- 4) What is embryo adoption? What is it meant to do? Is it an appropriate response to the ethical issues arising from in vitro fertilization (IVF)?

