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A BRAVE NEW **W**ORLD:

Where Biotechnology
and Human Rights Intersect

Chapter 4

A Right to Research

Canada

A Brave New World: Where Biotechnology and
Human Rights Intersect

July 2005

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A Right to Research

Judy Hunter

4.1 Introduction

Advances in biotechnology are expanding the frontiers of knowledge through scientific research and discoveries in many fields, such as health and the environment. The impact of scientific advances in this century is predicted to be greater than the impact telecommunications and computers in the last. However, because biotechnology research often involves the manipulation of living things, it can generate controversy, as well as excitement.¹

Should scientists interfere with nature and alter life? Should animals and humans be cloned? Should plants be genetically modified? Should human embryos be created or used for research purposes? All of these questions raise moral, ethical and legal concerns. It is difficult to reach a consensus in society as to whether these activities should be undertaken since individuals and groups often hold strong and diametrically opposed views.

Since 1999, the Canadian Biotechnology Secretariat (“CBS”) has tracked public opinion regarding biotechnology and the public policy that surrounds it. The CBS has consistently found in its opinion research that Canadians are open-minded and supportive of the benefits associated with biotechnology, especially those related to medical discovery, an improved quality of life, and new jobs. Two-thirds of those polled consider themselves supportive of Canada’s focus on biotechnology, as long as any potential risks are carefully managed and mitigated.²

This chapter focuses on the human rights issues that may arise with respect to scientific research. Research using embryonic stem cells derived from a human *in vitro*

embryo is used as an example throughout the chapter. This example was chosen because there is a general awareness of the scientific advances and promises respecting this area of research, and there is a plethora of academic commentary. Furthermore, the derivation and use of embryonic stem cells from human embryos generates widely differing moral, ethical and legal perspectives.³

4.2 Research Using an *In Vitro* Embryo

The possibility of using a human embryo for research purposes became a reality in the late 1970s and the early 1980s with the growing success of *in vitro* fertilization. Medical and scientific researchers began to use *in vitro* embryos to derive embryonic stem cells in the hopes of using them to invent cures for debilitating and life-threatening disease in humans.⁴ The use of human *in vitro* embryos in such research is troubling to many individuals since the derivation of stem cells from the embryo results in its destruction.

¹ Government of Canada, *Biotechnology Transforming Society: Creating an Innovative Economy and a Higher Quality of Life* (Report on Biotechnology, 1998-2003) at 2.

² *Ibid.* at 5.

³ Françoise Baylis, “Betwixt and Between Human Stem Cell Guidelines and Legislation” (2002) 11 Health L. Rev. No. 1, 44-50 at 2 (QL).

⁴ Denise Stevens, “Embryonic Stem Cell Research: Will President Bush’s Limitation on Federal Funding Put the United States at a Disadvantage? A Comparison Between U.S. and International Law” (2003) 25 Hous. J Int’l L. 623 at 3 (Lexis Nexis). For example, the application of biotechnology to reproductive materials, such as the *in vitro* embryo, may one day allow scientists to grow replacement tissues or organs for transplant that would not be rejected by the recipient. This technology could be used to solve the current shortages of compatible tissues and organs for transplant.

In some jurisdictions, researchers are able to create *in vitro* embryos solely for research purposes as a source of embryonic stem cells, either through *in vitro* fertilization, somatic cell nuclear transfer⁵ (therapeutic cloning), embryo splitting, or parthenogenesis.⁶ In these jurisdictions, researchers have a continuous supply of *in vitro* embryos and embryonic stem cells for their research activities. In other jurisdictions, that only permit the creation of *in vitro* embryos for reproductive purposes, researchers must rely on individuals or couples to donate their excess or supernumerary embryos to research, i.e., those *in vitro* embryos no longer required for reproductive purposes.

4.3 Background

The science

There are five possible sources of embryonic stem cells: (1) an *in vitro* embryo created for reproductive purposes and now considered supernumerary, (2) an *in vitro* embryo created specifically for research by the fertilization of an egg with sperm, (3) an *in vitro* embryo created by therapeutic cloning, (4) an *in vitro* embryo created through embryo splitting, and (5) an *in vitro* embryo created through parthenogenesis.

Stem cells

Approximately five days after fertilization, when the *in vitro* embryo becomes a blastocyst and has more than 100 cells, stem cells can be isolated from the inner cell mass and cultured in the lab to form embryonic stem cell lines. These cells are unique because they have the capacity to self-renew and to differentiate into other tissues in the body.⁷ The isolation and removal of these cells result in the destruction of the embryo.⁸

Embryonic stem cell lines can grow and divide indefinitely. They can also be frozen in small batches for future research and distributed to other scientists,⁹ and they can be stimulated to develop into any other cell type, such as nerve, blood, brain or muscle cells. Many researchers regard these microscopic cells as holding the key to future cures and therapies. They could potentially be used to replace damaged or diseased tissues or organs.¹⁰ Many diseases, such as Parkinson's disease and juvenile-onset diabetes, result from the loss or dysfunction of certain cell types.

The replacement of those damaged cells could offer an effective treatment or even a cure.¹¹ Furthermore, stem cells could be cultured in the laboratory to develop into specific tissue or organs for transplant. It is in this area of research that embryonic stem cells are thought to currently offer the most hope.

When stem cells divide, they either remain stem cells or become other more specialized cells. Theoretically, they could divide indefinitely to replenish other cells.¹² Most specialized cells in the human body do not divide but rather are replaced or replenished from populations of stem cells already present in most of the tissues of the body.¹³ These older stem cells are found in the tissues and organs of the human body and are referred to as "adult stem cells."¹⁴

These stem cells are most prolific in those tissues and organs that are constantly undergoing renewal, such as in bone marrow, in the skin, and in the lining of the small

⁵ "Somatic cell nuclear transfer" is a process whereby the nucleus of a human egg is removed and replaced with the nucleus from a donor cell. The egg is artificially stimulated and begins to develop as an *in vitro* embryo. (The President's Council on Bioethics, "Human Cloning and Human Dignity: An Ethical Inquiry" (Washington, July 10, 2002) at 132.)
Online: <http://www.bioethics.gov/reports/cloningreport/fullreport-print.html>.

⁶ "Parthenogenesis" is a form of nonsexual reproduction in which eggs are subjected to electrical shock or chemical treatment in order to initiate cell division and embryonic development (The President's Council on Bioethics, "Human Cloning and Human Dignity: An Ethical Inquiry" (Washington, July 10, 2002) at 132. Online: <http://www.bioethics.gov/reports/cloningreport/fullreport-print.html>

⁷ These cells are considered "pluripotent," meaning that they are able to give rise to most types of tissue but not capable of bringing a functioning organism into existence. They can be kept alive in an artificial medium and will proliferate more or less indefinitely; *ibid.* (D. Stevens) at 4.

⁸ *Supra* note 4 at 2 (Lexis Nexis).

⁹ Dr. Ao Asangla, McGill University Montreal (e-mail correspondence April 6, 2004); Stem Cell Network, Research Overview. Online <http://www.stemcell-network.ca/research/overview.php/php> Accessed April 2004; Opinion of the European Group on Ethics in Science and New Technologies to the European Commission, No. 15, *Ethical Aspects of Human Stem Cell Research and Use* (November 14, 2000) at 4.

¹⁰ The U.S. National Bioethics Advisory Commission (established by executive order of President Bill Clinton on October 3, 1995) *Ethical Issues in Human Stem Cell Research*, Vol. I (Rockland, Maryland, September 1999) at 8.

¹¹ *Ibid.* at 20.

¹² For basic information about stem cells see: <http://stemcells.nih.gov/stemcell/whatAreStemCells.asp#1>

¹³ Meredith Mariani "Stem Cell Legislation: An International and Comparative Discussion" (2002) 28 J. Legis. 379 at 2-3 (Lexis Nexis).

¹⁴ *Supra* note 4 at 2 (Lexis Nexis).

intestine.¹⁵ The cells in these tissues are constantly dying and being replaced by cells from a subpopulation of dividing stem cells that generate replacements for the relatively short-lived, terminally differentiated cells.¹⁶

Adult stem cells have been found to have less capacity to differentiate into other cell types, and their differentiation patterns are less predictable and less well controlled, than embryonic stem cells. To date, scientists have not been able to successfully grow large numbers of adult stem cells in culture: these stem cells are difficult to isolate and maintain.¹⁷ In addition, they do not possess the same degree of “elasticity” as embryonic stem cells because they serve the purpose of regeneration and repair only in specific tissues and organs.¹⁸

Recent studies have shown that adult stem cells may have more therapeutic potential than originally thought.¹⁹ However, most scientists believe that research should continue on both types of stem cells.²⁰

Many scientists still contend that embryonic stem cells are the “most fundamental and extraordinary of the stem cells.”²¹ They have been termed the “essence of the embryo” because they are the biological building blocks that serve as the common ancestry of all 210 different kinds of tissue in the human body.²²

Sources of Stem Cells

Supernumerary in vitro embryos

When an individual or couple undergo *in vitro* fertilization for reproductive purposes, many more *in vitro* embryos are usually created than can be transferred in a single treatment cycle. The remainder are usually frozen for their future reproductive use. Once the individual or couple complete their family, there are often frozen *in vitro* embryos remaining in storage. Their disposition options are limited to donating for the reproductive use of others, donating to research or allowing them to perish.

Those supernumerary *in vitro* embryos that are donated to research can become a source of embryonic stem cells for the scientist.

Embryos created for research

Along with the ability to fertilize a human egg with human sperm outside a woman’s body for reproductive

purposes, came the possibility use such an *in vitro* embryo for research purposes.

Therapeutic cloning

In 1997, Ian Wilmut at the Roslin Institute in Edinburgh, Scotland, successfully cloned a ewe. Wilmut used somatic nuclear cell transfer to create “Dolly,” the cloned ewe.

In February 2004, scientists in South Korea successfully created 30 therapeutically cloned *in vitro* embryos, grew them to the blastocyst stage (5–6 days) and derived a pluripotent stem cell line from them.²³ Scientists hope to use the stem cells to repair damaged tissue and to treat a variety of diseases.²⁴ This was the first successful cloning of human embryos and their successful growth to the stage at which embryonic stem cells could be derived.²⁵

Therapeutic cloning, sometimes referred to as somatic cell nuclear transfer, uses the same process as reproductive cloning. It involves the isolation of a somatic (i.e., body) cell from a donor, such as a skin cell, and the removal of the cell’s nucleus. The nucleus is then inserted into a donated human egg whose nucleus has been removed.²⁶ The egg is then stimulated electrically or chemically to begin cell division and development into an embryo.²⁷ The nucleus of the resulting embryo now contains only the skin cell donor’s genetic material.²⁸

¹⁵ *Supra* note 10 at 12.

¹⁶ *Ibid.*

¹⁷ *Supra* note 4 at 4; Andrew Pollack, *The Stem Cell Debate: Scientists Seek Ways to Rebuild the Body, Bypassing the Embryos* (N.Y. Times, Dec. 18, 2001) at F6; Meridith Mariani “Stem Cell Legislation: An International and Comparative Discussion” (2002) 28 J. Legis. 379 at 4 (Lexis Nexis).

¹⁸ *Supra* note 13 at 4 (Lexis Nexis).

¹⁹ *Ibid.*

²⁰ *Ibid.*

²¹ *Supra* note 10 at 7 (Lexis Nexis).

²² *Supra* note 4 at 2 (Lexis Nexis).

²³ The President’s Council on Bioethics, “Reproduction & Responsibility: The Regulation of New Biotechnologies” (Pre-Publication Version) (Washington, D.C., March 2004) at 127-8.

²⁴ Canadian Broadcasting Services, “Scientists clone human embryos” (February 12, 2004). Online: <http://www.cbc.ca/dgi-bin/templates/print.cgi?2004/02/12/clone04-212>.

²⁵ *Supra* note 23 at 128.

²⁶ *Supra* note 4 at 2 (Lexis Nexis).

²⁷ James J. McCartney, “Embryonic Stem Cell Research and Respect for Human Life: Philosophical and Legal Reflections” (2002) 65 Alb. L. Rev. 597 at 3 (Lexis Nexis).

²⁸ *Supra* note 4 at 2 (Lexis Nexis).

One might conclude that the resulting embryo is a clone or replica of the skin-cell donor. However, this is questionable since the plasma of the donated egg contains also contains DNA (from the egg donor) in its mitochondria which is different from the DNA in the embryo's nucleus (donated by the skin cell donor), and thus it is unlikely that the cloned embryo is an exact replica of the skin cell donor.

The scientific theory underlying this process is that stem cells removed from the therapeutically cloned *in vitro* embryo would be compatible with the skin cell donor, so that any cells, tissues or organs created from the stem cells could be transplanted into the donor without fear of rejection by the body. The customized cells, tissues or organs would contain the skin cell donor's own genes, and thus would not be attacked and destroyed by his or her immune system.²⁹

It is important to note, however, that there is no consensus on the issue of rejection or that somatic cell nuclear transfer is the most effective process to address this problem. Even if there is an immune rejection problem associated with donated stem cells, there may be other solutions to that problem that do not require the use of therapeutically cloned *in vitro* embryos.³⁰

Some scientists believe that as research proceeds, it may be possible to bank stem cell lines derived from donated *in vitro* embryos, or foetal tissue with defined major histocompatible complex backgrounds.³¹ Stem cell banks could be developed and stocked with each type of stem cell, similar to the system of typing and storing blood for transfusion, to provide those in needs of stem cell therapy with compatible cells. Other scientists believe it may be possible to develop universal donor stem cell lines by genetically manipulating the stem cells to reduce or actively combat immune rejection.³²

Embryo splitting

In the early 1990s, two scientists successfully used embryo-splitting to produce a few genetically identical organisms from the blastomeres of non-viable human *in vitro* embryos. The experiment was conducted for purely scientific objectives and without any intention of using the embryos for reproductive purposes.³³

In 1999, scientists successfully created, through embryo splitting, the first nonhuman primate, a rhesus monkey named Tetra. An eight-cell *in vitro* embryo was split to produce a set of identical quadruplet embryos, each consisting of two blastomeres. Two of the blastomeres were inserted into empty zona pellucidas,³⁴ creating one set of quadruplets. A pair of the quadruplet embryos were transferred into two fertile surrogate monkeys and both became pregnant. Tetra, born at 157 days after an uneventful pregnancy, resulted from one of the transferred embryos.³⁵

Scientists could obtain a number of human *in vitro* embryos for research purposes by removing several blastomeres from a single donated *in vitro* embryo at the 4 to 16 cell stage of development.³⁶ Each blastomere would theoretically be capable of developing into a genetically identical *in vitro* embryo in the laboratory.

Parthenogenesis

Scientists could create *in vitro* embryos through parthenogenesis. The term "parthenogenesis" is derived from the Greek words for "virgin birth." This process subjects a human egg to electrical shock or chemical stimulation that causes it to begin cell division and embryonic development, despite the absence of fertilization.³⁷ In modern biology, parthenogenesis refers to a form of reproduction

²⁹ *Ibid.* at 2-3 (Lexis Nexis).

³⁰ Françoise Baylis, Testimony before the Senate Standing Committee on Social Affairs, Science and Technology, February 26, 2004.

³¹ Statement of James Thomson, December 2, 1998. s. Hrg 105-939. Hearings before a subcommittee of the Committee on Appropriations United States: Senate. One Hundred fifth congress. The term "histocompatible" means that the tissues of different individuals would be compatible (Concise Oxford Dictionary, 10th Ed.).

³² Statement of John Gearhart December 2, 1998. s. Hrg 105-939. Hearings before a subcommittee of the Committee on Appropriations United States: Senate. One Hundred fifth congress.

³³ Sonia Le Bris and Marie Hirtle, "Ethical and Legal Aspects of Human Cloning: Comparative Approaches" in Bartha Maria Knoppers, ed., *Socio-Ethical Issues in Human Genetics* (Cowansville: Les Éditions Yvon Blais Inc., 1998) at 290.

³⁴ The "zona pellucida" is the thick transparent membrane surrounding the mammalian ovum before fertilization. (The Concise Oxford Dictionary, 10th Edition.)

³⁵ A.W. s. Chan, et al., "Clonal Propagation of Primate Offspring by Embryo Splitting" (2000) 287 *Science* at 317.

³⁶ *Supra* note 33 at 290.

³⁷ The President's Council on Bioethics, "Human Cloning and Human Dignity: An Ethical Inquiry" (Washington, July 10, 2002) at 132. Online: <http://www.bioethics.gov/report/cloningreport/fullreport-pring.html>.

in which an egg develops into a new individual without having been fertilized.³⁸ This form of reproduction occurs naturally among some insect species, such as bees and ants.

In vitro embryos created through parthenogenesis would be derived from an unfertilized human egg. These embryos have only the genetic material of the female and thus are unlikely to develop into an *in vitro* embryo that has the potential for human life.

In 2002, American researchers from Wake Forest University School of Medicine, the Mayo Clinic and Advanced Cell Technology Inc. reported that they had developed a large variety of specialized cells, including heart and brain cells, from embryonic monkey stem cells obtained from an *in vitro* embryo created through parthenogenesis. Dr. Varna, one of the researchers, noted that “parthenogenesis offers an important new therapeutic strategy for a host of medical conditions.”³⁹

4.4 Issues

This chapter discusses three issues that arise with respect to scientific research. First, do researchers have a human right to undertake research or scientific inquiry? Second, do individuals have a right to enjoy the benefits and applications of scientific progress? Finally, does the purpose or method of creating a human *in vitro* embryo alter its moral status?

The discussion under each issue is organized under the following headings: (1) relevant international and regional instruments, (2) the law in other jurisdictions, (3) the law in Canada, (4) a discussion, and (5) a conclusion.

4.5 Issue 1: Is There a Human Right to Undertake Scientific Inquiry?

In order to undertake research to derive and study embryonic stem cells, scientists must have access to *in vitro* embryos. The derivation of embryonic stem cells from a human *in vitro* embryo results in its destruction. For those individuals and jurisdictions that assign the *in vitro* embryo the status of a human being with legal rights, its use and destruction for research could not be justified. Other individuals and jurisdictions have

differing views of the *in vitro* embryo. It is often considered as either equivalent to other human tissue or as *sui generis* and, although deserving of respect, a proper subject of medical research.⁴⁰

For those individuals and jurisdictions in the latter group, research using *in vitro* embryos may be acceptable as long as certain conditions are met. For example, in the United Kingdom (“U.K.”), research on *in vitro* embryos is permitted, but only with a licence from the Human Fertilisation and Embryology Authority (“HFE Authority”) and is restricted to the first fourteen days following fertilization.⁴¹ The fourteenth day was chosen as the outer research limit in the U.K.’s 1985 *Warnock Report*⁴² since it is the point in development just prior to the appearance of the primitive streak (the beginnings of a central nervous system) and the development of the three germ layers in the embryo.⁴³

For many people, these physiological developments signal that the embryo is now a “unique individual” because it can no longer twin.⁴⁴ Prior to this point, the embryo can cleave naturally or artificially to produce identical siblings. For some individuals, up until this point, the embryo cannot be considered a “human individual” because the possibility still exists that the embryo could develop into more than one individual of the human species.⁴⁵

For others, the proposed moral dividing line set by the fourteenth day limit is purely arbitrary. However, this limit or “quasi-break” in the ontogeny of a human being has come to be regarded as the legitimate demarcation point in other countries, including Canada.⁴⁶

³⁸ Sean Henahan, “Asexual Stem Cell Production” Access Excellence Science Updates (02/05/02) Online: <http://www.accessexcellence.org/WNV/SU/SU102001/parthenogenesis.html>. Accessed April 7, 2004.

³⁹ Advanced Cell Technology, “Researchers Develop Primate Stem Cells Without Creating Viable Embryos” (January 31, 2002). Online: <http://www.advancedcell.com/2002-01-31.htm>. Accessed April 7, 2004.

⁴⁰ See Chapter 2 for a more in-depth discussion of the status of the embryo.

⁴¹ Section 3(3)(a) of the *Human Embryology and Fertilisation Act 1990*, (c.37).

⁴² *Report of the Committee of Inquiry into Human Fertilisation and Embryology* (London: Her Majesty’s Stationery Office, 1984) (hereinafter referred to as the *Warnock Report*).

⁴³ M. Warnock, *A Question of Life: The Warnock Report on Human Fertilisation and Embryology* (Oxford: Basil Blackwell, 1985).

⁴⁴ John A. Balint, “Ethical Issues in Stem Cell Research” (2002) 65 *Alb. L. Rev.* 729 at 2 (Lexis Nexis).

⁴⁵ *Supra* note 29 at 4 to 5 (Lexis Nexis).

⁴⁶ Matthew Herder, “The UK Model: Setting the Standard for Embryonic Stem Cell Research?” (2002) 10 *Health L. Rev.* No. 2, 14–24, at 1 (Lexis Nexis).

In many jurisdictions, supernumerary *in vitro* embryos may be donated for research purposes, including the extraction of embryonic stem cells. However, some scientists believe that unless they can therapeutically clone an *in vitro* embryo as a source of stem cells that genetically match the donor, essential research on certain medical therapies and cures would be precluded.

4.5.1 International and Regional Instruments

The rights set out in the UDHR⁴⁷ informed the ICESCR⁴⁸ and the ICCPR.⁴⁹ Article 19 of the ICCPR states:

1. Everyone shall have the right to hold opinions without interference.
2. Everyone shall have the right to *freedom of expression*; this right shall include freedom to *seek, receive and impart information and ideas of all kinds*, regardless of frontiers, either orally, in writing or in print, in the form of art, or through any other media of choice.
3. The exercise of the rights provided for in paragraph 2 of this article carries with it special duties and responsibilities. It may therefore be subject to certain restrictions, but these shall only be such as are produced by law and are necessary:
 - a. For respect of the rights or reputations of others;
 - b. For the protection of national security or of *public order* (ordre public), or of *public health or morals*. [emphasis added]

The Human Rights Committee (“HRC”) in General Comment 10 notes that paragraph 2 of article 19 provides two different but related rights, i.e., the right to disseminate information and ideas of all kinds and the right to seek and receive ideas and information of all kinds, regardless of the forum or the type of medium.⁵⁰

General Comment 10 further notes that paragraph 3 of article 19 provides that certain restrictions can be imposed

on the right to freedom of expression. State-imposed restrictions must be provided by law and must fulfil one of the purposes set out in paragraph 3, i.e., to protect the rights or reputations of others, and/or to protect national security, public order, public health or morals.⁵¹

The ICESCR provides in article 15(3):

3. The States Parties to the present Covenant undertake to respect the freedom indispensable for *scientific research* and creative activity. [emphasis added]

As noted in Chapter 1, Canada is a party to the ICCPR and the ICESCR.

UNESCO’s *Universal Declaration on the Human Genome and Human Rights*⁵² sets out the following principles in articles 11 and 12:

Article 11

Practices contrary to human dignity, such as *reproductive* cloning of human beings, shall not be permitted. States and competent international organizations are invited to co-operate in identifying such practices and in taking, at national or international level, the measures necessary to ensure that the principles set out in this Declaration are respected. [emphasis added]

⁴⁷ *Universal Declaration of Human Rights*, GA Res. 217 (III) GOAR, 3rd Sess., Supp. No. 13, UN Doc. A/810 (1948), [hereinafter UDHR].

⁴⁸ *International Covenant on Economic, Social and Cultural Rights*, 16 December 1966, 993 U.N.T.S. 3 (entered into force 3 January 1976), [hereinafter ICESCR].

⁴⁹ *International Covenant on Civil and Political Rights*, 19 December 1966, 999 U.N.T.S. 171 (entered into force 23 March 1976), [hereinafter ICCPR].

⁵⁰ Sarah Joseph et al., *The International Covenant on Civil and Political Rights: Cases, Materials, and Commentary* (New York: Oxford University Press, 2000) at 387.

⁵¹ *Ibid.* at 391.

⁵² *Universal Declaration on the Human Genome and Human Rights*, 11 November 1997, [hereinafter *Universal Declaration*]. Online: http://portal.unesco.org/en/ev.php@URL_ID=13177&URL_DO=DO_TOPIC&URL_SECTION=201.html Accessed March 24, 2004. The *Universal Declaration* was unanimously endorsed by the United Nations General Assembly on December 9, 1998

Article 12

- a. Benefits from advances in biology, genetics and medicine, concerning the human genome, shall be made available to all, with due regard for the dignity and human rights of each individual.
- b. *Freedom of research, which is necessary for the progress of knowledge, is part of freedom of thought.* The applications of research, including applications in biology, genetics and medicine, concerning the human genome, shall seek to offer relief from suffering and improve the health of individuals and humankind as a whole. [emphasis added]

The *Préparatoires*⁵³ to the *Universal Declaration* notes that article 11 specifically cites reproductive cloning “to replicate individuals” as an example of an activity that would be contrary to human dignity, but it makes no reference to therapeutic cloning.⁵⁴ With respect to article 12, the *Travaux Préparatoires* notes that paragraph (a) reaffirms an individual’s right to enjoy the benefits of scientific progress. This is also included in two of the major human rights texts, i.e., the UDHR and the ICESCR.⁵⁵ States are to balance the right to enjoy the benefits of scientific progress with the researcher’s intellectual property rights in the research findings. Furthermore, the *Travaux Préparatoires* notes that this principle should be applied and implemented in light of the state’s available material and human resources.⁵⁶

The *Travaux Préparatoires* notes that while article 12(b) recognizes that freedom of thought is “indispensable for scientific research and creative activity,” it is to be viewed as a corollary to the individual’s right to enjoy the benefits of scientific progress. In addition, the *Travaux Préparatoires* refers to UNESCO’s *Recommendation on the Status of Scientific Researchers*, which asks states to respect “the autonomy and freedom of research necessary to scientific progress.”⁵⁷

The UNESCO *Recommendation on the Status of Scientific Researchers*⁵⁸ was adopted by the General Conference on November 20, 1974. Under the heading *The civic and ethical aspect of scientific research*, the document provides that member states should encourage conditions in which researchers have the right to “work in a spirit of intellectual freedom to pursue, expound and defend the scientific truth as they see it.”⁵⁹

Principle 37 obliges states to encourage those who employ researchers to allow them freedom to publish the results of their work. The restrictions placed on researchers’ rights to publish their findings should be minimized.⁶⁰

The Council of Europe’s *Convention on Human Rights and Biomedicine*⁶¹ (“*Convention*”) states:

Article 15 – General rule

Scientific research in the field of biology and medicine shall be carried out freely, subject to the provisions of this Convention and the other legal provisions ensuring the protection of the human being. [emphasis added]

Article 18 – Research on embryos *in vitro*

1. Where the law allows research on embryos *in vitro*, it shall ensure adequate protection of the embryo.
2. The creation of human embryos for research purposes is prohibited.

The *Convention’s Explanatory Report*⁶² notes that, with respect to article 15, freedom to conduct research is justified by humanity’s right to knowledge and by the benefits of such research to patients’ health and well-being.⁶³ Paragraph 96 notes, however, that such freedom is not to be taken as absolute. In the context of medical research,

⁵³ UNESCO Committee of Governmental Experts for the Finalization of a Declaration on the Human Genome, *Final Report Annex I (B)* (Paris, July, 1997) (BIO-97/CONF.201/CLD.6).

⁵⁴ *Ibid.* at para. 42.

⁵⁵ *Ibid.* at para. 43.

⁵⁶ *Ibid.*

⁵⁷ *Ibid.* at para 44.

⁵⁸ UNESCO, *Recommendation on the Status of Scientific Researchers*. Online: http://www.unesco.org/human_rights/hrcf.htm Accessed March 2004.

⁵⁹ *Ibid.* at 6.

⁶⁰ *Ibid.* at 9.

⁶¹ *Convention for the Protection of Human Rights and Dignity of The Human Being with Regard to the Application of Biology and Medicine: Convention on Human Rights and Biomedicine*, (ETS no. 164) Oviedo, 4.IV.1997.

⁶² *Convention for the protection of Human Rights and dignity of the human being with regard to the application of biology and medicine: Convention on Human Rights and Biomedicine Explanatory Report* Online: <http://conventions.coe.int/Treaty/en/Reports/Html/164.htm>.

⁶³ *Ibid.* at para. 95.

limits provided by other fundamental rights set out in the *Convention*, and other legal concepts such as human dignity, operate as a check on the scientist's conduct and freedom of research.⁶⁴

With regard to article 18, the *Explanatory Report* states that paragraph (1) sets out the importance, for those countries that allow research using an *in vitro* embryo, to have legislation in place to adequately protect the embryo.⁶⁵ Although the *Convention* does not take a position on embryo research, the second paragraph specifically prohibits the creation of a human *in vitro* embryo for research purposes.⁶⁶

In 1998, the Council of Europe issued an amendment to its *Convention* entitled "*Additional Protocol to the Convention on the Prohibition of Cloning Human Beings*"⁶⁷ ("*Protocol*"). Article 1 states that any intervention to create a human being that is genetically identical to another human being is prohibited. The *Explanatory Report to the Protocol* notes that "one has to distinguish between three situations: cloning of cells as a technique, use of embryonic cells in cloning techniques, and cloning of human beings" through embryo splitting or therapeutic cloning.⁶⁸

The *Explanatory Report* notes that the *Protocol* is not intended to prohibit the cloning of cells and tissue for research purposes to develop medical applications. In fact, the *Explanatory Report* states that:

debracloning as a biomedical technique is an important tool for the development of medicine, especially for the development of new therapies. The provisions in this Protocol shall not be understood as prohibiting cloning techniques in cell biology.⁶⁹

The *Protocol* clearly prohibits reproductive cloning to create a human being. Rather than specifically prohibiting therapeutic cloning for research purposes, it notes instead that this process is an important tool for medical research. As noted in Chapter 3, although Canada is not a member of the Council of Europe, it has observer status. In the event of a dispute in Canada, the courts could be referred to the *Convention* and the *Protocol* as examples of how the countries in Europe have dealt with these issues.

In 2000, the European Union proclaimed the *Charter of Fundamental Rights* ("*European Charter*").⁷⁰ Article 10 provides the right to freedom of thought. Article 11 provides the right to freedom of expression, including the right to hold opinions and to impart information and ideas without interference by public authority and regardless of frontiers.⁷¹ Article 13 states that "scientific research shall be free of constraint."⁷² The Preamble states that the enjoyment of the fundamental freedoms protected by the *European Charter* entails responsibilities and duties to other persons, to the human community and to future generations.⁷³

4.5.1.1 Conclusion

Of all the international and regional instruments referred to above, the ICCPR and the ICESCR are the only instruments that are binding on Canada. While the UNESCO instruments and the European Convention are not binding, they can be referred to by the Canadian courts to inform its interpretation of the *Charter* and of domestic law. Often the courts do not make principled distinctions between binding and nonbinding instruments, but seem to selectively refer to instruments for interpretive purposes.

4.5.2 The Law in Other Jurisdictions

The following sets out legislation in the United States ("U.S.") and the U.K. which may impact on researchers' rights.

⁶⁴ *Ibid.* at para. 96.

⁶⁵ *Ibid.* at para. 115.

⁶⁶ *Ibid.* at para. 116.

⁶⁷ *Additional Protocol to the Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine, on the Prohibition of Cloning Human Beings* (CETS no. 168) (Paris, 12.I.1998) (<http://conventions.coe.int/Treaty/en/Treaties/Html/168.htm>).

⁶⁸ *Additional Protocol to the Convention on Human Rights and Biomedicine on the Prohibition of Cloning Human Beings*, "Explanatory Report" (ETS no. 168). Online: <http://assembly.coe.int/documents/adoptedtext/ta97/eopi202.htm>; <http://conventions.coe.int/Treaty/en/Reports/Html/168.htm>.

⁶⁹ *Ibid.* at para. 4.

⁷⁰ European Union, *Charter of Fundamental Rights*. Online: http://europa.eu.int/comm/justice_home/unit/charte/en/charte-preamble.html.

⁷¹ *Ibid.* at Article 11.

⁷² *Ibid.* at Article 13.

⁷³ *Ibid.* at Preamble.

The U.S.

Although federal legislation does not specifically prohibit research on an *in vitro* embryo, there is legislation prohibiting the federal funding of certain research activities. In 1997, President Clinton issued a Presidential Directive prohibiting federal funding by any federal agencies for human cloning.⁷⁴ In 1998, the President issued a Statement of Administration Policy supporting an amendment to a Senate bill on cloning that would have prohibited reproductive cloning to produce humans, but permitted therapeutic cloning for the purpose of obtaining embryonic stem cells. The Statement, however, did not have the force or effect of the 1997 Directive.⁷⁵

On August 9, 2001, President Bush announced that federal funding would only be available for research using embryonic stem cell lines that were created prior to that date. This decision meant that federal monies would not be made available to create any new embryonic stem cell lines.⁷⁶ This restriction has created problems for American researchers. As of March 14, 2004, there were 78 embryonic stem cell lines approved for federal funding. Concerns have been expressed about the limited value of these stem cell lines since they were grown on and are contaminated with mouse feeder cells, which limit their possible usefulness in therapies to treat humans.⁷⁷ If they were intended for transfer into a human, they would have to be treated as a xenotransplant.⁷⁸

Although there are restrictions on federal funding for embryonic stem cell research in the U.S., there is no federal legislation prohibiting therapeutic cloning, embryo splitting or parthenogenesis to derive embryonic stem cells. In February 2003, the U.S. House of Representatives passed the *Human Cloning Prohibition Act*.⁷⁹ It would ban all human cloning, both reproductive and therapeutic. At the same time, its companion bill, s. 245, was introduced into the Senate and referred to the Senate Committee on Health, Education, Labour and Pensions.⁸⁰ At the time of writing, it is unclear whether there would be enough votes in the Senate to pass s. 245.⁸¹

Some legislation does exist at the state level. In 1997, California passed a law prohibiting all forms of cloning. Since that time, Rhode Island, Virginia and New Jersey passed similar legislation. Arkansas, Iowa, Michigan,

Louisiana and North Dakota have legislation in place prohibiting both reproductive and therapeutic cloning.⁸²

In 2002, however, California relaxed its position and passed new legislation promoting stem cell research, including research on stem cells obtained from therapeutically cloned *in vitro* embryos.⁸³ New Jersey recently followed suit passing legislation that permits therapeutic cloning to obtain embryonic stem cells for research purposes.⁸⁴ The New Jersey statute permits research involving the derivation and use of human embryonic stem cells, germ cells and adult stem cells from any source, including therapeutically cloned *in vitro* embryos.⁸⁵

U.S. Constitution

Although there is no specific reference in the *United States Constitution* to a right of scientific inquiry, it is a highly valued principle in the U.S. Scientific theories have been protected because of the American ethos of the “sanctity of knowledge and the value of intellectual freedom.”⁸⁶

⁷⁴ *Supra* note 10 at 37

⁷⁵ *Ibid.*

⁷⁶ Randall Chase, “Lawmakers want to ease stem cell research restrictions” U.S.A. Today (March 8, 2004). Online: http://www.usatoday.com/tech/news/techpolicy/2004/03/08-stem-cell-petition_x.htm.

⁷⁷ *Ibid.*

⁷⁸ NIH Human Embryonic Stem Cell Registry. Online: <http://stemcells.nih.gov/registry/index.asp> Online. Accessed March, 2004.

⁷⁹ *The Human Cloning Prohibition Act* 2003 (HR 534). Online: <http://www.humaneventsonline.com/article.php?id=2117>.

⁸⁰ Office of Legislative Policy and Analysis, “Legislative Updates” (March 9, 2004). This is the same bill only renumbered and introduced into the Senate. Online: <http://olpa.od.nih.gov/legislation/108/pendinglegislation/cloning1.asp>.

⁸¹ *Ibid.*

⁸² National conference of State Legislatures, “State Human Cloning Laws” (Updated: January 6, 2004). Online: <http://www.ncls.org/programs/health/Genetics/rt-schl.htm>

⁸³ Suzanne H. Rhodes, “The Difficulty of Regulating Reproductive and Therapeutic Cloning: Can the United States Learn Anything from the Laws of Other Countries?” (2003) 21 Penn. St. Int’l L. Rev. 341 at 2 (Lexis Nexis).

⁸⁴ Governor James E. McGreevey, News Release, “McGreevey Signs Landmark Stem Cell Research Act” (January 4, 2004); Bionews, “New Jersey 2nd US state to promote stem cell research” (January 12, 2004). Online: <http://www.bionews.org.uk/hes.lasso?storyid=1938>. Vote on a similar bill is expected in the state of Illinois, and the states of New York and Massachusetts are considering introducing similar legislation.

⁸⁵ *Ibid.*

⁸⁶ Working Group on Reproductive Technologies, “Symposium on Cloning: Cloning Position Paper of the IIT Institute for Science, Law and Technology” (winter, 1998) 8 s. Cal. Interdis. L.J. 87 at 2 (Lexis Nexis)

Within the American *Bill of Rights*, the First Amendment right to free speech and the Fourteenth Amendment right to personal liberty are considered by some to encompass a constitutionally protected right of scientific inquiry.⁸⁷ The U.S. Supreme Court has not had the opportunity to determine whether these rights include a right to research and if so, the scope of that right. The First Amendment provides:

Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the *freedom of speech*, or of the press; or the right of the people peaceably to assemble, and to petition the government for a redress of grievances.⁸⁸ [emphasis added]

The relevant portion of the Fourteenth Amendment provides:

[n]o state shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any state deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws.⁸⁹

Case law

In *Branzburg v. Hayes*⁹⁰ (“*Branzburg*”), the U.S. Supreme Court extended First Amendment protection to the gathering of the news as a precursor to speech.⁹¹ The Court noted that the informative function of the press is also performed by lecturers, political pollsters, novelists, academic researchers, and dramatists.⁹²

In *Buckley v. Valeo*⁹³ (“*Buckley*”), the U.S. Supreme Court broadly interpreted the First Amendment’s freedom of speech to include and protect the *act* of donating money to finance political speech, including the act of donating money to a particular candidate, since it involved the symbolic act of expressing support.⁹⁴ In *Meyer v. Nebraska*,⁹⁵ the Court held that the right to liberty in the Fourteenth Amendment encompassed the freedom to “acquire useful knowledge... and generally to enjoy those privileges long recognized at common law as essential to the orderly pursuit of happiness by free men.”⁹⁶

Summary

Jurisdiction under the American Bill of Rights although not specifically dealing with a right to undertake scientific research, suggests that freedom of speech includes broad rights to inform or communicate (*Branzburg, supra*) and the physical activities association with expression (*Buckley, supra*).

The U.K.

In 2000, the *Donaldson Report*⁹⁷ was tabled in Parliament. It contained the findings of an expert group that had been appointed by the government to review and assess the anticipated benefits, risks and alternative of new areas of research using human embryos, and to advise the government as to whether such research should be permitted.⁹⁸

The first recommendation in the *Donaldson Report* was that research using *in vitro* embryos, either supernumerary, created by therapeutic cloning or by fertilization, should be permitted, subject to the controls in the *HFE Act*.⁹⁹ The *Donaldson Report* noted that many people in the U.K. have ethical concerns regarding the therapeutic cloning of embryos for research purposes. The expert group stated that the potential benefits of research, using cloned embryos to derive stem cells to treat a number of degenerative disorders, outweighed the ethical concerns. This was especially so because any research would be subject to certain conditions, tight controls, and the oversight of the HFE Authority.

⁸⁷ *Ibid.* at 2 (Lexis Nexis); Lori B. Andrews, “Is there a Right to Clone? Constitutional Challenges to Bans on Human Cloning” (Summer, 1998) 11 *Harv. J. Law & Tech.* 643 at 9 (Lexis Nexis).

⁸⁸ *United States Constitution, Bill of Rights*, First Amendment. Online: <http://www.law.cornell.edu/constitution/constitution.billofrights.html>.

⁸⁹ *Ibid.* (Fourteenth Amendment).

⁹⁰ *Branzburg v. Hayes et al.*, 408 U.S. 665; 92 S. Ct. 2646; 33 L. Ed. 2d 626 (U.S. Supreme Court).

⁹¹ *Ibid.* at 681-2.

⁹² *Ibid.* at 705.

⁹³ *Buckley v. Valeo*, 424 U.S. 1 (1976) (U.S. Supreme Court).

⁹⁴ *Ibid.* at 1218.

⁹⁵ *Meyer v. Nebraska*, 262 U.S. 390 (1923) (U.S. Supreme Court).

⁹⁶ *Ibid.* at 399.

⁹⁷ UK Department of Health, *Stem Cell Research: Medical Progress with Responsibility* (London: Department of Health, 2000). [hereinafter referred to as the *Donaldson Report*].

⁹⁸ *Ibid.* at 5.

⁹⁹ *Ibid.* at 45.

In 2001, the House of Commons passed regulations to the *HFE Act* permitting the therapeutic cloning of *in vitro* embryos in order to extract stem cells for research purposes. This controversial vote had been delayed pending the outcome of a High Court decision on a ProLife Alliance challenge to the regulations.¹⁰⁰

The ProLife Alliance sought judicial review of the HFE regulations, specifically that the definition of embryo under the *HFE Act* could not include cloned embryos since they are not created through reproduction. If that were the case, the HFE Authority would not be able to issue licences to allow therapeutic cloning and the retrieval of stem cells for research. The High Court agreed with the ProLife Alliance.¹⁰¹

The government appealed, and the Court of Appeal overturned the High Court's decision, by holding a legislative intent to include cloned embryos in the definition. In 2003, the HFE Authority granted its first licence to the Roslin Institute to allow the derivation of stem cells from human *in vitro* embryos.¹⁰²

4.5.3 The Law in Canada

No legislation in Canada provides researchers with a specific right of inquiry or research. Guidance documents set out the ethical principles to be followed by researchers in order to qualify for federal funding, but there are no provisions in the documents that suggest a right to research.

Royal Commission on New Reproductive Technologies

The Royal Commission on New Reproductive Technologies ("Royal Commission") in its 1993 report, entitled *Proceed with Care: Final Report of the Royal Commission on New Reproductive Technologies* ("Final Report"), included a discussion regarding research using human embryos. (The term "zygotes" is used by the Commission.¹⁰³) There is a brief reference to embryonic stem cells under the heading "Future Directions in Embryo Research."¹⁰⁴ The Royal Commission noted that the study of embryonic stem cells could yield important information about cell division which could assist in the understanding of diseases, such as cancer.¹⁰⁵ The scant attention paid to embryonic stem cells is likely due to the fact that they were only

successfully derived from *in vitro* embryos and cultured in 1998, well after the completion of the Final Report.¹⁰⁶

The Final Report did, however, make several general recommendations with respect to research using *in vitro* embryos. For example, the Royal Commission recommended that research on embryos should be restricted to the first 14 days of development, and an *in vitro* embryo should only be used for research when the gamete providers have consented to such a use.¹⁰⁷ With respect to cloning, the Final Report noted in Chapter 22 that during public consultations concerns were raised regarding the possibility that cloning techniques might be used in the future to create human beings.¹⁰⁸

Tri-Council Policy Statement

In 1998, the three Funding Councils of Canada¹⁰⁹ released their policy statement, the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*¹¹⁰ ("TCPS"). The TCPS sets out the ethical principles to which researchers and research institutions must comply in order to receive government funding.

The TCPS notes that the cardinal principle for research involving humans is respect for human dignity, which

¹⁰⁰ Dr. Kirsty Horsey, "IVF after 25 years: A history of regulation" *Bionews* (11 July 2003). Online: <http://www.bionews.org.uk/home.lasso>.

¹⁰¹ *Ibid.*

¹⁰² Juliet Tizzard, "Confusion over cloning" *Bionews* (10 June 2003). Online: <http://www.bionews.org.uk/home.lasso>.

¹⁰³ Royal Commission on New Reproductive Technologies, *Proceed with Care: Final Report of the Royal Commission on New Reproductive Technologies* (Ottawa: Minister of Government Services Canada, 1993) at 607. See Chapters 2 and 3 for more detailed discussions of the Royal Commission's Final Report.

¹⁰⁴ *Ibid.* at 618.

¹⁰⁵ *Ibid.*

¹⁰⁶ Thomson JA, J. Itskovitz-Eldor, SS Shapiro, MA Waknitz, JJ Swiergiel, VS Marshall and JM Jones, "Embryonic Stem Cell Lines Derived from Human Blastocysts" *Science* 1998; 282: 1445-1147.

¹⁰⁷ *Supra* note 103 (Recommendation 183 and 186).

¹⁰⁸ *Ibid.* at 608.

¹⁰⁹ The three Funding Councils are the Medical Research Council of Canada, the Natural Sciences and Engineering Research Council of Canada, and the Social Sciences and Humanities Research Council of Canada. In 2000, the Canadian Institutes of Health Research replaced the Medical Research Council.

¹¹⁰ *The Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* (Ottawa: Public Works and Government Services Canada, 1998) (with 2000, 2002 updates). Online: <http://www.pre.ethics.gc.ca/english/policystatement/policystatement.cfm>. Accessed March, 2004.

forms the basis of the ethical obligations in research.¹¹¹ Section 9 sets out the standards or criteria for researchers to apply when researching on human embryos. For example, article 9.4 states that it is unacceptable to create human embryos specifically for research purposes. Article 9.4(a) states that research on *in vitro* embryos that are excess to a person's reproductive needs is ethically acceptable, as long as the persons whose gametes were used to create the embryos have given their free and informed consent and there has been no exchange of money or services for the embryo.¹¹² Article 9.5 states that it is ethically unacceptable to undertake research that involves the cloning of a human being, including therapeutic cloning.¹¹³

The Canadian Institutes of Health Research

The Canadian Institutes of Health Research ("CIHR"), a federal funding agency for health research, has published guidelines for research using human stem cells entitled *Human Pluripotent Stem Cell Research: Guidelines for CIHR-Funded Research*¹¹⁴ ("Guidelines"). The Guidelines came into effect on March 4, 2002. They set out the conditions under which the CIHR will fund stem cell research, as well as the types of research that will not be eligible for funding.¹¹⁵

Article 1 of the Guidelines states that the TCPS applies to all research and institutions that receive funding from the CIHR.¹¹⁶ Article 4 states that a Stem Cell Oversight Committee will be established to conduct an ethical review of all stem cell research proposals. In order to receive funding, stem cell research proposals must be approved by this committee.¹¹⁷ Article 5 states that the CIHR will establish a stem cell registry consisting of all human embryonic stem cell lines generated using research funds from the CIHR.¹¹⁸

Article 7.1 provides a list of research activities that are eligible for CIHR funding. Research to derive and study embryonic stem cells will be eligible for funding, provided that the embryos were originally created for reproductive purposes, became supernumerary and were donated to research.¹¹⁹

Article 7.4 contains a list of research that will not be funded. Research involving the creation of an *in vitro* embryo solely to derive stem cells, as well as research involving therapeutic cloning, will not be eligible for funding.¹²⁰

It is important to note that neither the TCPS nor the Guidelines apply to privately funded research in Canada. Only research funded by the government is required to comply with these principles.

The Assisted Human Reproduction Act

Certain parts of the *Assisted Human Reproduction Act*¹²¹ ("AHR Act") were proclaimed in force on April 22, 2004. This included a majority of the prohibitions, including prohibitions against the creation of a cloned *in vitro* embryo and against the creation of an *in vitro* embryo for research purposes (sections 5(1)(a) and (b) of the Act). A contravention of the prohibitions could result in significant penal sanctions based on the federal criminal law head of power in section 91(27) of the *Constitution Act, 1867*.

Sections 5(1)(a) and (b) of the Act states:

5. (1) No person shall knowingly
 - a. create a human clone by using any technique, or transplant a human clone into a human being or into any non-human life form or artificial device;
 - b. create an *in vitro* embryo for any purpose other than creating a human being or improving or providing instruction in assisted human reproduction;

¹¹¹ *Ibid.* at i.5.

¹¹² *Ibid.* at 9.2.

¹¹³ *Ibid.* at 9.3.

¹¹⁴ Canadian Institutes of Health Research, *Human Pluripotent Stem Cell Research: Guidelines for CIHR-Funded Research* (Effective March 4, 2002). Online: <http://www.cihr-irsc.gc.ca/e/1487.html> Accessed March 2004. These Guidelines do not have the force of law and are not the product of "rule-making" in the technical sense, but they apply to all human pluripotent stem cell research funded by the CIHR, thereby affecting much of advanced research in Canada.

¹¹⁵ *Ibid.* at 2.

¹¹⁶ *Ibid.*

¹¹⁷ *Ibid.* at 3.

¹¹⁸ *Ibid.*

¹¹⁹ *Ibid.* at 4.

¹²⁰ *Ibid.* at 8.

¹²¹ *An Act Respecting Assisted Human Reproduction and Related Research*. Third Session, Thirty-Seventh Parliament, 52-53 Elizabeth II, 2004 (passed 12 March 2004 and certain sections proclaimed in force 22 April 2004). Online: <http://www.parl.gc.ca>.

Section 60 of the Act provides:

60. A person who contravenes any of sections 5 to 9 is guilty of an offence and
- a. is liable, on conviction on indictment, to a fine not exceeding \$500,000 or to imprisonment for a term not exceeding ten years or to both; or
 - b. is liable, on summary conviction, to a fine not exceeding \$250,000 or to imprisonment for a term not exceeding four years, or to both.

Section 5(1)(b) provides a very narrow exemption to the prohibition on creating an *in vitro* embryo for research purposes. It allows the creation of an *in vitro* embryo for research if the purpose is to improve the health and safety of assisted human reproduction (“AHR”) procedures for women or embryos.

The *AHR Act* allows research on supernumerary *in vitro* embryos, including research to derive embryonic stem cells. The researcher will require a licence from the future Assisted Human Reproduction Agency (“Agency”) and the Agency will have to be satisfied that the use of a human *in vitro* embryo is necessary for the proposed research project (s. 40(2) of the Act).

Although the *AHR Act* prohibits therapeutic cloning and embryo splitting, it is silent with respect to research using embryonic stem cells obtained from such embryos. That is because such research is beyond the scope of the *AHR Act* which is primarily about assisted reproduction.

As noted earlier, the CIHR Guidelines provide that only research using stem cells obtained from supernumerary *in vitro* embryos will be eligible for federal funding. It should be noted, however, that the CIHR Guidelines do not have the force of law but rather provide criteria necessary for researchers to meet if they wish to receive government funding. Research that is privately funded is not required to comply with the Guidelines.

The Canadian Charter of Rights and Freedoms

The *Canadian Charter of Rights and Freedoms* (“Charter”) protects freedom of expression. Section 2(b) of the *Charter* provides:

2. Everyone has the following fundamental freedoms:
 - b. freedom of thought, belief, opinion and expression, including freedom of the press and other media of communication;

The rights and freedoms set out in the *Charter* are not absolute. The state can limit *Charter* rights and freedoms, as long as it can justify the limitation as reasonable in a free and democratic society. Section 1 of the *Charter* states:

1. The *Canadian Charter of Rights and Freedoms* guarantees the rights and freedoms set out in it subject only to such reasonable limits prescribed by law as can be demonstrably justified in a free and democratic society.

Case law

The following discussion provides some of the leading jurisprudence regarding freedom of expression in section 2(b) of the *Charter*. This jurisprudence would be relevant to the courts consideration of a claim regarding a possible *Charter*-protected right to research.

In *Irwin Toy v. Québec (Attorney General)* (“*Irwin Toy*”),¹²² the Supreme Court of Canada was asked, among other things, whether Quebec’s legislation prohibiting advertising directed at persons under the age of 13 years, violated section 2(b) of the *Charter*. A majority of the Court held that the legislation constituted limitations on freedom of expression, but that such limitations were justified by the government under section 1 of the *Charter*.¹²³

In reaching its decision, a majority of the Court made the following comments about freedom of expression:

“Expression has both a content and a form, and the two can be inextricably connected. *Activity is expressive if it attempts to convey meaning*. That meaning is

¹²² *Irwin Toy v. Québec (Attorney General)*, [1989] 1 S.C.R. 927.

¹²³ *Ibid.* at 979 and 1000.

its content. Freedom of expression was entrenched in our Constitution to ensure that everyone can manifest their thoughts, opinions, beliefs, indeed all expressions of the heart and mind, however unpopular, distasteful or contrary to the mainstream. Such protection is... "fundamental" because in a free, pluralistic and democratic society we prize a diversity of ideas and opinions for their inherent value both to the community and to the individual. For Rand J. of the Supreme Court of Canada, it was "little less vital to man's mind and spirit than breathing is to his physical existence"... And as the European Court stated... freedom of expression... is applicable not only to "information" or "ideas" that are favourably received or regarded as inoffensive or as a matter of indifference, but also to those that offend, shock or disturb the State or any sector of the population. Such are the demands of [sic] that pluralism, tolerance and broadmindedness without which there is no "democratic society."¹²⁴ [emphasis added]

The majority noted that the approach to freedom of expression should be broad and inclusive.¹²⁵ Activity that conveys or attempts to convey a meaning in a non-violent form of expression would fall within the *Charter*-protected sphere of conduct.¹²⁶

In *R. v. Butler* ("Butler"),¹²⁷ the respondent had been charged under the *Criminal Code* with various counts of selling and possessing obscene material for the purposes of sale or distribution. The Supreme Court of Canada was asked whether certain published and video materials that depicted sexual activity for sale and rent in Mr. Butler's store met the *Criminal Code* definition of obscene. Mr. Butler alleged that the *Criminal Code* provision violated his *Charter* guarantee of freedom of expression.¹²⁸

The trial judge held that the obscene material was protected by the guarantee of freedom of expression in section 2(b) of the *Charter*. The judge convicted Butler on some charges and acquitted him on others. The Crown appealed. A majority of the Court of Appeal allowed the appeal and convicted Butler on all counts. The Court held that the materials in question fell outside the protection of the *Charter* since they constituted purely physical activity and involved undue exploitation and degradation of human sexuality.¹²⁹

Butler appealed. The Supreme Court held that the Court of Appeal erred in concluding that because the materials in question depicted purely physical activity, they fell outside of *Charter* protection under section 2(b). The Supreme Court stated that just because the subject matter of the materials is physical activity, "debra this does not mean that the materials do not convey or attempt to convey meaning such that they are without expressive content."¹³⁰ The Court referred to the example, provided in *Irwin Toy, supra*, of parking a car, which although a physical activity, could be regarded as conveying a message. In that case, the Court concluded that purely physical activity, such as parking a car, could be undertaken to protest an unfair method of assigning parking spaces and thus convey a message.¹³¹ In allowing Butler's appeal, the Supreme Court noted that activities cannot be excluded from the scope of the guaranteed freedom on the basis of the content or meaning being conveyed.¹³² In addition, the Court stated that "the content of a statement cannot deprive it of the protection accorded by section 2(b), no matter how offensive."¹³³

In *R. v. Keegstra* ("Keegstra"),¹³⁴ the Supreme Court of Canada was asked whether the *Criminal Code* provision, making the wilful promotion of hatred against identifiable groups a criminal offence, infringed the right to freedom of expression in section 2(b) of the *Charter*. The defendant, a high school teacher, had taught his students that Jews had "created the Holocaust to gain sympathy," and that they were "deceptive, secretive and inherently evil." His students were expected to reflect these views in their papers and exams if they wished to get good grades.¹³⁵

A majority of the Supreme Court held that the *Criminal Code* provision infringed freedom of expression. In so finding, the majority stated that "the term 'expression' as used in

¹²⁴ *Ibid.* at 968-969.

¹²⁵ *Ibid.* at 970.

¹²⁶ *Ibid.* at 931.

¹²⁷ *R. v. Butler*, [1992] 1 S.C.R. 452.

¹²⁸ *Ibid.* at 453.

¹²⁹ *Ibid.* at 486-7.

¹³⁰ *Ibid.* at 487.

¹³¹ *Ibid.*

¹³² *Ibid.* at 488.

¹³³ *Ibid.*

¹³⁴ *R. v. Keegstra*, [1990] 3 S.C.R. 697.

¹³⁵ *Ibid.* at 714.

section 2(b) of the *Charter* embraces all content of expression irrespective of the particular meaning or message sought to be conveyed.¹³⁶ The majority held that the legislative provision prohibited communications which convey meaning, in this case communications intended to promote hatred against the Jews, and thus infringed Keegstra's right to freedom of expression guaranteed by the *Charter*.¹³⁷ However, because the government justified the infringement, under section 1 of the *Charter*, the *Criminal Code* provision was held to be constitutionally valid.¹³⁸

Justice McLachlin, as she was then, wrote the dissent in *Keegstra*. She noted that freedom of expression is the pivotal freedom on which all other rights and freedoms depend. "Without the freedom to comment and criticize, other fundamental rights and freedoms may be subverted by the state."¹³⁹ McLachlin J. affirmed the importance of freedom of expression to the marketplace of ideas where although truth may not always emerge, that "does not negate the essential validity of the... value of the marketplace of ideas."¹⁴⁰

On reviewing the jurisprudence, she noted that to determine the scope of freedom of expression, it is necessary to consider the benefits to be gained from the pursuit of truth and creativity in *science*, art, industry and other endeavours. Justice McLachlin noted that the guarantees to freedom of expression found in international instruments, such as the ICESCR and the *European Convention for the Protection of Human Rights and Fundamental Freedoms*, explicitly permit a wide variety of limitations on the freedom, unlike the *Charter*, which provides a more comprehensive guarantee.¹⁴¹

Advocating a broad interpretation of section 2(b), McLachlin J. noted that if freedom of expression is curtailed by the state:

debra[s]cientists may well think twice before researching and publishing results of research suggesting difference between ethnic or racial groups... even political debate on crucial issues such as immigration, educational language rights, foreign ownership and trade may be tempered. These matters go to the heart of the traditional justifications for protecting freedom of expression.¹⁴²

In *Little Sisters Book and Art Emporium v. Canada (Minister of Justice)* ("*Little Sisters*"),¹⁴³ a gay and lesbian bookstore, charged with importing erotica from the U.S. contrary to the *Customs Act*, alleged that the Act infringed its freedom of expression under section 2(b) and its equality rights under section 15 of the *Charter*. In concluding that the legislative provisions infringed section 2(b), a majority of the Supreme Court noted that:

debrafreedom of expression is central to our identity as individuals and to our collective well-being as a society. Doubt about justification should be resolved in its [freedom of expression] favour.¹⁴⁴

Finally, in *R. v. Sharpe* ("*Sharpe*"),¹⁴⁵ the Supreme Court was asked whether possession of expressive material contrary to the *Criminal Code*, in the form of child pornography, is protected by the right to freedom of expression in section 2(b) of the *Charter*. A majority of the Court held that the mere possession of child pornography was protected by the right to freedom of expression and, in this case, the Court held that the government failed to justify the *Criminal Code* offence, under section 1 of the *Charter*.

McLachlin C.J., writing for the majority, noted that some of the values protected by a guarantee to freedom of expression include artistic creativity, education, *medical research* or other public purposes.¹⁴⁶ In reaching a decision, Chief Justice McLachlin noted:

Among the most fundamental rights possessed by Canadians is freedom of expression. It makes possible our liberty, our creativity and our democracy. It does this by protecting not only "good" and

¹³⁶ *Ibid.* at 729.

¹³⁷ *Ibid.* at 730.

¹³⁸ *Ibid.* at 786.

¹³⁹ *Ibid.* at 802-3.

¹⁴⁰ *Ibid.* at 803.

¹⁴¹ *Ibid.* at 807.

¹⁴² *Ibid.* at 860.

¹⁴³ *Little Sisters Book Emporium v. Canada (Minister of Justice)*, [2000] 2 S.C.R. 1120.

¹⁴⁴ *Ibid.* at para. 144.

¹⁴⁵ *R. v. Sharpe*, [2001] 1 S.C.R. 45. Chief Justice McLachlin wrote the majority opinion in *Sharpe*. Her broad interpretation of freedom of expression is evident in her dissent in *Keegstra*, *supra*, and her reasoning for the majority in *Sharpe*.

¹⁴⁶ *Ibid.* at para. 60.

popular expression, but also unpopular or even offensive expression. *The right to freedom of expression rests on the conviction that the best route to truth, individual flourishing and peaceful coexistence in a heterogeneous society in which people hold divergent and conflicting beliefs lies in the free flow of ideas and images.* If we do not like an idea or an image, we are free to argue against it or simply turn away. But, absent some constitutionally adequate justification, we cannot forbid a person from expressing it.

[...]

Nevertheless, freedom of expression is not absolute. Our Constitution recognizes that Parliament... can sometimes limit some forms of expression. Overarching considerations, like the prevention of hate that divides society... or prevention of harm that threatens vulnerable members of our society... may justify prohibitions on some kinds of expression in some circumstances... however, any attempt to restrict the right must be subjected to the most careful scrutiny.¹⁴⁷ [emphasis added]

The Chief Justice described section 2(b) as providing a continuum of intellectual and expressive freedom, consisting of “freedom of thought, belief, opinion and expression.”¹⁴⁸ She noted that the right to possess expressive material is:

debraintegrally related to the development of thought, belief, opinion and expression debra[W]ithout the right to possess expressive material, freedom of thought, belief, opinion and expression would be compromised.¹⁴⁹

4.5.4 Academic Literature and Other Commentary

The issue of cloning and embryonic stem cell research has generated a substantial amount of academic writing and commentary at both the national and international levels. In 2001, the International Bioethics Committee (“IBC”) of UNESCO issued its final report entitled *The Use of Embryonic Stem Cells in Therapeutic Research* (“UNESCO Report”).¹⁵⁰ The UNESCO Report provides a description of the science and potential therapeutic applications of

embryonic stem cells, and the various religious, ethical and philosophical positions regarding stem cell research.¹⁵¹

It notes that any debate on these issues will evoke strong positions and convictions making it very difficult for a State to reach a consensus.¹⁵² The IBC concludes that individual States must initiate dialogue on these issues amongst its citizens to identify which positions to adopt. If a State permits these research activities, it should ensure that they can only be conducted within a state-sponsored regulatory framework which provides appropriate guidelines and ensures the assessment of ethical considerations. States should facilitate research into alternative sources for stem cell lines, such as adult stem cells and therapeutic cloning.¹⁵³ Finally, the UNESCO Report concludes that research involving the embryo should be carried out in accordance with the principles set out in the UDHR and the *Universal Declaration on the Human Genome and Human Rights*.¹⁵⁴

At least one Canadian academic, Barbara Billingsley, has examined a possible ban on therapeutic cloning as a source of embryonic stem cells in the context of freedom of expression. Billingsley queries whether a federal prohibition on therapeutic cloning would constitute an unjustifiable violation of a person’s *Charter*-protected right to freedom of expression.¹⁵⁵ Billingsley notes that the Supreme Court of Canada has not had the opportunity to determine whether scientific or medical research constitutes “expression” under section 2(b) of the *Charter*.¹⁵⁶ However, she observes that the Court has generally defined “expression” to “include any activity which conveys or attempts to convey meaning and which is non-violent.”¹⁵⁷

¹⁴⁷ *Ibid.* at para. 21-22.

¹⁴⁸ *Ibid.* at para. 25.

¹⁴⁹ *Ibid.*

¹⁵⁰ International Bioethics Committee, UNESCO, “The Use of Embryonic Stem Cells in Therapeutic Research” (BIO-7/00/GT-1/2 (Rev. 3) Paris (April 6, 2001).

¹⁵¹ *Ibid.* at 1-8.

¹⁵² *Ibid.* at 9.

¹⁵³ *Ibid.* at 12-13.

¹⁵⁴ *Ibid.* at 14.

¹⁵⁵ Barbara Billingsley, “A Constitutional Analysis of the Proposed Ban on Non-Reproductive Human Cloning: An Unjustified Violation of Freedom of Expression?” (2002) 11 Health L. Rev. No. 1 at 32-39 (QL).

¹⁵⁶ *Ibid.* at 3 (QL).

¹⁵⁷ *Ibid.* (QL).

Billingsley notes that to date the Court has taken a broad “content neutral” approach to the right in section 2(b). The Supreme Court considers this right important enough for constitutional protection since it allows people to seek and attain truth, to participate in social and political decision-making and to pursue individual self-fulfilment and flourishing. As long as an activity related to one of these purposes is communicative, it will be protected under section 2(b), even if the expression has little moral value, such as hate propaganda and child pornography.¹⁵⁸

Billingsley ponders whether the courts would consider therapeutic cloning to constitute expression, i.e., does it attempt to communicate a meaning. Neither the Supreme Court of Canada nor the U.S. Supreme Court has considered whether medical research constitutes expression.

One could argue that the physical process of creating a cloned embryo is non-communicative. Billingsley argues, however, that the process could be viewed as communicative since it is essentially a response to an inquiry or a hypothesis. The physical experiment is undertaken in an attempt to respond to the inquiry or to test the hypothesis, “for the purpose of communicating a meaning or a message to the researcher.”¹⁵⁹ These purposes are in accordance with the underlying purposes of section 2(b), i.e., the pursuit of truth, self-fulfilment and societal advancement.¹⁶⁰

Billingsley suggests that the experiment or process itself may be viewed as communicating a message. The researcher, by undertaking the research, communicates to others the message that he or she believes that therapeutic cloning and stem cell research have the potential to offer a cure for certain diseases.¹⁶¹ In the alternative, she argues that the physical activity necessary for therapeutic cloning could be considered to be inseparable from the expressive activity of recording or disseminating the results of such research. It is clear that one can’t have research results without first having conducted the research.

Billingsley notes that the Supreme Court has specifically held that violent activity will not be protected by section 2(b). She ponders whether the courts might consider the derivation of stem cells from a cloned human embryo as a violent activity since it requires the intentional destruction of the *in vitro* embryo.¹⁶² In *Keegstra*,

supra, the SCC stated that for the purposes of section 2(b), violence is “expression communicated directly through physical harm.”¹⁶³ This may depend on whether the courts would consider the destruction of an *in vitro* embryo to be either violence or even murder.¹⁶⁴

There is much American commentary on the possibility that a legislated ban on human cloning would infringe researchers’ First Amendment right to free speech and/or their Fourteenth Amendment right to personal liberty. While some academic commentators argue that there is no constitutional right to engage in scientific research, such as the derivation of embryonic stem cells, others argue that the courts would find that scientific inquiry is protected speech under the First Amendment.

Before examining American academic commentary on the U.S. freedom of speech, it is important to highlight a significant distinction between the *Charter* and the *United States Constitution*. Section 1 of the *Charter* provides the state with an opportunity to justify an infringement as a reasonable limitation in a free and democratic society. For example, section 1 of the *Charter* made it possible in *Keegstra, supra*, for the state to justify the *Criminal Code* restriction on hate speech. The *United States Constitution* does not contain a similar “balancing” provision, making it often more difficult for the state to justify a limitation on freedom of speech.

John Robertson, a law professor and prolific academic writer, has authored what some may consider the seminal paper on this topic.¹⁶⁵ He undertakes a very thorough and detailed discussion as to whether the First and/or Fourteenth Amendments to the *United States Constitution* include a right of scientists to undertake research.

Professor Robertson begins by noting that scientific research has two dimensions that must be distinguished.

¹⁵⁸ *Ibid.* (QL).

¹⁵⁹ *Ibid.* at 5 (QL).

¹⁶⁰ *Ibid.*(QL).

¹⁶¹ *Ibid.* (QL).

¹⁶² *Ibid.* at 5-6 (QL).

¹⁶³ *Ibid.* at 6 (QL).

¹⁶⁴ *Ibid.* at 7 (QL).

¹⁶⁵ John A. Robertson, “The Scientist’s Right to Research: A Constitutional Analysis” (1978) 51 s. Cal. L. Rev. 1203.

One dimension is related to the choice of research *topic* — the particular knowledge that the researcher wishes to develop, while the other dimension concerns the *means* to pursue the research — the means or techniques for generating the data or conclusions that will verify or disprove a hypothesis and thus generate knowledge.¹⁶⁶

Freedom of research would engage a number of rights or freedoms, such as freedom of thought, freedom to communicate one's thoughts, ideas, explanations and conclusions, freedom to gather or generate data in ways that conform to scientific inquiry, including the freedom to experiment, i.e., to manipulate or arrange human and non-human agents and substances to generate data essential to the development of new knowledge.¹⁶⁷ He notes that the researchers' right to research is a negative right to be free from government intervention in the choosing of research topics and the choosing of the means to carry out the research. The freedom to choose the method of research would include the freedom to experiment. The corresponding duty on the government is a negative duty not to interfere, rather than a positive duty to fund or facilitate research.¹⁶⁸

The researchers' right to experiment would not be absolute. Professor Robertson suggests that although the researcher would be free to choose any means of conducting the research that is scientifically sound, they may not cause direct, substantial harm to the cognizable interests of others. In his view, most scientists would agree that the right to undertake scientific inquiry includes the right to choose the means of research, as long as external harm is slight and the property or personal interests of the manipulated material are not violated.¹⁶⁹

Professor Robertson posits that restrictions that limit the researchers' freedom to select the topic of research generally result from a judgement that certain categories of scientific knowledge will reveal truths that it would be preferable not to know, or that may lead to techniques or applications that may have harmful consequences. These restrictions may be found in legislation and licensing systems. In his view, they clearly limit the right of scientific inquiry and research, and thus bear a heavy burden of state justification to be found valid.

The second type of restriction limits the manner by which research ends may be pursued. In this case, scientists can pursue any topic they choose, but are restricted in the methods they may select. Generally speaking, these restrictions are intended to protect interests threatened by the scientific process used to generate the essential data. This type of restriction may pose a less serious threat to the right to scientific inquiry, especially if there is an alternate method for conducting the research that is not restricted by the state.¹⁷⁰

Robertson examines whether there is a constitutional right to undertake research. He notes that even if the courts held that there was such a constitutionally protected right, it would have to yield to overriding public interests, as is the case with the rights of journalists, speakers, parents, or pregnant women, when the exercise of their rights imposes sufficiently heavy costs on others.¹⁷¹ He suggests and discusses in detail a number of constitutional sources for the right to research, including the right to personal liberty and privacy in the Fourteenth Amendment, the right of free association, and the right to free speech in the First Amendment. The right to free speech was recently found by the U.S. courts to contain a right to receive or acquire information and ideas from a willing source, and the right to gather news. He notes that the courts have recognized in these two emerging doctrines, protection for the prior stages essential to speech, i.e., receiving information and newsgathering, which in his view could logically be extended to provide constitutional protection to the conduct of research with materials or willing sources.¹⁷²

Of particular interest is his discussion under the right to free speech. The commentary and jurisprudence regarding the U.S. constitutional right to free speech might be referred to Canadian courts to inform their interpretation of the *Charter* right to freedom of expression. Professor Robertson notes that the U.S. Supreme Court considers the First Amendment's primary concern to be with ensuring

¹⁶⁶ *Ibid.* at 1204.

¹⁶⁷ *Ibid.* at 1205.

¹⁶⁸ *Ibid.* at 1206.

¹⁶⁹ *Ibid.* at 1207.

¹⁷⁰ *Ibid.* at 1207-8.

¹⁷¹ *Ibid.* at 1209.

¹⁷² *Ibid.* at 1212, 1214, 1215, and 1219.

that citizens have a full opportunity for expression in all its varied forms to convey a desired message. “Full opportunity for expression serves both individual and societal ends — the individual’s interest in the information necessary for social and political decision making.”¹⁷³

In Robertson’s view, scientific knowledge and information are clearly within the protection of the First Amendment. He bases this view, in part, on the fact that science provides information relevant to a wide range of decisions — from individual to state decisions. For example, scientific information may inform individual choices regarding the purchase of certain products and it doubtlessly informs government policy making.¹⁷⁴

Professor Robertson sets out two main arguments for including a right to research within the right to free speech. First, he argues that most of the activities associated with scientific research have been traditionally protected by the First Amendment, such as speaking, talking, writing, and publishing.¹⁷⁵

Second, he argues that those aspects of research involving non-traditional forms of expression, such as experimentation, would also be protected. This is because the activity of research involves the production of information or knowledge to communicate to others and is an essential step in the process of dissemination of information and ideas, and thus would also qualify for constitutional protection. Without research there would be no dissemination of scientific information or knowledge. If research was not protected, government could easily restrict the dissemination of information and ideas by restricting the research itself. He notes:

debraint must follow that even earlier stages in the publication process are protected. Otherwise, government could control access to ideas by placing restraints at the point where the information is initially developed or obtained.¹⁷⁶

Professor Robertson concludes that research activities intended to produce knowledge for dissemination must therefore be protected as free speech.¹⁷⁷ He does not explore in depth the type of state restrictions on a right to research that might withstand a constitutional challenge.

Rather, he suggests that under the First Amendment, state restrictions could be justified on the basis that the research posed a threat to health or safety, or interfered with the rights of non-consenting persons.¹⁷⁸

American Roger Taylor also suggests that protection for research could flow from the First Amendment’s safeguarding of the “marketplace of ideas.”¹⁷⁹ In his view, based on First Amendment jurisprudence, the courts would probably treat experimentation on embryos as conduct containing both “speech” and “non-speech” aspects. Experimentation involves the recording and disseminating of results, both of which are elements of speech.¹⁸⁰

Taylor speculates that it would be difficult for the state to define a ban on therapeutic cloning narrowly enough to survive a constitutional challenge. In his view, this is because the state’s interest in protecting the *in vitro* embryo is likely less important when the embryo has no real potential for human life. In his view, *in vitro* embryos that have been cloned for therapeutic research purposes represent potential life only in a symbolic sense.¹⁸¹ Dolly, the reproductively cloned ewe, was the result of many failed attempts at reproductive cloning. He concludes that it is likely that cloning a human *in vitro* embryo for reproductive purposes would meet with similar difficulties when attempting to create a viable embryo with potential for human life.

Taylor concludes that because *in vitro* embryos created by means of therapeutic cloning “have so miniscule, perhaps only theoretical or symbolic, potential for life, the importance of the state interest in them may be insufficient for a ban on therapeutic cloning.”¹⁸² In his view, however, reasonable state regulation that does not amount to a ban would likely survive constitutional scrutiny since it

¹⁷³ *Ibid.* at 1215; *Saxbe v. Washington Post Co.*, 417 U.S. 50, 76 (1976).

¹⁷⁴ *Ibid.* at 1216.

¹⁷⁵ *Ibid.* at 1217.

¹⁷⁶ *Ibid.*

¹⁷⁷ *Ibid.* at 1218.

¹⁷⁸ *Ibid.* at 1279.

¹⁷⁹ Roger H. Taylor, “The Fear of Drawing the Line at Cloning” (2003) 9 B.U. J. SCI. & TECH. L. 379 (Lexis Nexis).

¹⁸⁰ *Ibid.* at 4 (Lexis Nexis).

¹⁸¹ *Ibid.* at 5 (Lexis Nexis).

¹⁸² *Ibid.* (Lexis Nexis).

would promote the government's interest in medical standards and ethics.¹⁸³

Another American commentator, Cass Sunstein, examines the issue from the perspective of a patient and argues that because there is no constitutional right to select a medical treatment, there is no fundamental right to engage in therapeutic cloning.¹⁸⁴ He limits his examination of such a possible right to the constitutional guarantee of privacy and liberty rather than to the constitutional right to free speech.

Sunstein suggests that the argument for a presumptive constitutional right to clone for therapeutic purposes would be extremely weak. At the same time, he suggests that the government's justification for intruding on a person's freedom of choice would also be quite weak.¹⁸⁵ The central argument is whether there is a constitutional presumptive right to select medical treatments. Doctors, scientists and patients might argue that there is such a right protected by the constitutional right to privacy. The state cannot interfere with a personal choice to select a particular medical treatment that is crucial to one's well-being. The difficulty with these arguments is that no Supreme Court decision has suggested the existence of such a right.

He cites the U.S. Supreme Court's recent decision supporting a ban on physician-assisted suicide and suggests that since individuals do not have the right to choose death, they must surely not have a right to access a particular set of medical experiments that might ultimately assist them to live.¹⁸⁶ The best state justification for a ban on therapeutic cloning is that it assists in making the ban on reproductive cloning effective.¹⁸⁷ Sunstein did not, however, undertake an analysis of therapeutic cloning from the perspective of the research scientist and the First Amendment's guarantee of free speech.

Law Professor Lori Andrews examines the issue from the perspective of a scientific researcher.¹⁸⁸ She notes that if such a ban were implemented, one possible constitutional challenge would be that it unduly interferes with the right of scientific inquiry. Scientific inquiry is considered to be somewhat sacred in the U.S. Andrews points out that the framers of the *United States Constitution*, concerned in the late 18th century with ensuring the promotion of scientific inquiry, provided authority for a system of patents. In her

view, if the First Amendment protects the "marketplace of ideas," it would likely equally protect the generation of information found in the marketplace.¹⁸⁹

Professor Andrews notes, however, that even if therapeutic cloning were protected by the *United States Constitution*, the state would likely be permitted to impose certain limitations. She speculates that there might be a distinction to be made between the right to pursue knowledge and the right to choose the method of scientific inquiry, which could be legitimately regulated to a certain extent. This would be the case if the method chosen by the researcher threatened an interest in which the state had a legitimate concern, such as health and safety.¹⁹⁰

In an article written for the *Southern Methodist University Law Review*, Kimberly Jackson examines the constitutional implications of federal cloning legislation.¹⁹¹ In her view, a complete ban on human cloning raises constitutional issues regarding free speech and free thought. Does the U.S. have constitutional authority to ban a whole area of scientific inquiry? She argues that the freedom to undertake scientific research could be viewed as falling within the First Amendment's guarantee of free speech.¹⁹² The U.S. Supreme Court's decision in *Griswold v. Connecticut*¹⁹³ ("*Griswold*") held that the First Amendment's protection of free speech includes "debatable right to read and freedom of inquiry, freedom of thought, and freedom to teach."¹⁹⁴

Jackson argues that scientific research and experimentation are part of the communication process itself and thus could be viewed as activities protected by the guarantee of free speech. She suggests that "scientific speech" would

¹⁸³ *Ibid.* (Lexis Nexis).

¹⁸⁴ Cass R. Sunstein, "Conceiving a Code for Creation: The Legal Debate Surrounding Human Cloning: Is There a Constitutional Right to Clone?" (2002) 53 *Hastings L.J.* 987 at 10 (Lexis Nexis).

¹⁸⁵ *Ibid.* at 2 (Lexis Nexis).

¹⁸⁶ *Ibid.* at 10 (Lexis Nexis).

¹⁸⁷ *Ibid.* at 12 (Lexis Nexis).

¹⁸⁸ Lori B. Andrews, "Is There a Right to Clone? Constitutional Challenges to Bans on Human Cloning" (1998) 11 *Harv. J. Law & Tec.* 643 (Lexis Nexis).

¹⁸⁹ *Ibid.* at 9 (Lexis Nexis).

¹⁹⁰ *Ibid.* at 10 (Lexis Nexis).

¹⁹¹ Kimberly M. Jackson, "Well Hello Dolly! The Advent of Cloning Legislation and Its Constitutional Implications" (1999) 52 *SMU L. Rev.* 283 (Lexis Nexis).

¹⁹² *Ibid.* at 5 (Lexis Nexis).

¹⁹³ *Griswold v. Connecticut*, 381 U.S. 479 (1965) (U.S. Supreme Court).

¹⁹⁴ *Supra* note 191 at 6 (Lexis Nexis).

be strongly protected under the traditional constitutional analysis for free speech and this protection would also extend to the publication of research results and the exchange of ideas. The difficulty arises with respect to the actual physical research. If one views research as only an action and not a communication, then traditional analysis would likely hold that it is not protected by the First Amendment. Jackson notes, however, that an argument could be made that the physical activity of research is a “building block of communication” and thus should be afforded constitutional protection under free speech.¹⁹⁵

Matthew Hsu examines this view of research activity in “Banning Human Cloning: An Acceptable Limit on Scientific Inquiry or an Unconstitutional Restriction of Symbolic Speech?”¹⁹⁶ He notes that a literal reading of the First Amendment suggests that it would only protect speech and not conduct. However, the U.S. Supreme Court has “long recognized” that these protections extend beyond verbal or written communication.¹⁹⁷

He notes that in *Spence v. Washington*,¹⁹⁸ the Supreme Court concluded that “when conduct is sufficiently imbued with elements of communication,” it will receive the same protection as speech under the First Amendment.¹⁹⁹ In fact, this protected conduct is referred to as “expressive conduct” or “symbolic speech.”²⁰⁰ Hsu notes that the courts will not protect all conduct, but rather only conduct that is intended to convey a “particularized message” that would most likely be understood by those in receipt of the message.²⁰¹

Hsu suggests that for human cloning to receive First Amendment protection, the activities related to cloning must contain sufficient elements of speech to raise it to the level of symbolic speech. The conduct must express an idea, and because the First Amendment protects scientific ideas, the scientist’s ability to conduct scientific research must also be protected. One could argue that the intent of the scientific research is to test a scientific theory. This conduct is necessary to prove or disprove an assertion made as a written theory. In the area of scientific research, experimentation is the conduct necessary to express ideas. Scientists engage in experimentation to express ideas, i.e., to prove or disprove a particular scientific theory. He concludes that because a cloning experiment would also

test a hypothesis, it should be considered symbolic speech and thus protected by the First Amendment.²⁰²

Roy Spence and Jennifer Weizerl propose a different approach to scientific research and free speech.²⁰³ They discuss critiques of the assertion that scientific research is protected speech. They refer, for example, to Professor G. Francione who rejects the notion that scientific research is expression or expressive conduct under the “marketplace of ideas” model.²⁰⁴

Francione argues that scientific experimentation does not become expressive conduct just because it facilitates the scientific process. He finds nothing inherent in the physical activity of experimentation that could be characterized as expression or expressive conduct. He notes that the U.S. Supreme Court in *Clark v. Community for Creative Non-Violence*²⁰⁵ implied that “purely facilitative conduct would not be covered by the First Amendment.”²⁰⁶ If an experiment lacks any communicative aspects, then the mere fact that it is facilitative to scientific speech does not make it expressive conduct and thus worthy of First Amendment protection.²⁰⁷

Spence and Weizerl posit that scientific experimentation or inquiry is protected since it is a central and unique part of a highly favoured process. This process is imbued with direct communicative processes, as well as conduct that can properly be considered expressive because of its

¹⁹⁵ *Ibid.* (Lexis Nexis).

¹⁹⁶ Matthew B. Hsu, “Banning Human Cloning: An Acceptable Limit on Scientific Inquiry or an Unconstitutional Restriction of Symbolic Speech?” (1999) 87 *Geo. L.J.* 2399 (Lexis Nexis).

¹⁹⁷ *Ibid.* at 4 (Lexis Nexis).

¹⁹⁸ *Spence v. Washington*, 418 U.S. 405 (1974) (U.S. Supreme Court).

¹⁹⁹ *Ibid.* at 409; *supra* note 193 at 4.

²⁰⁰ *Barnes v. Glen Theatre*, 501 U.S. 560, 567 (1991) (U.S. Supreme Court); *supra* note 196 at 4 (Lexis Nexis).

²⁰¹ *United States v. O'Brien*, 391 U.S. 367 at 376 (1968) (U.S. Supreme Court); *supra* note 196 at 5 (Lexis Nexis).

²⁰² *Supra* note 196 at 6 (Lexis Nexis).

²⁰³ Roy G. Spence and Jennifer Weizerl, “First Amendment Protection of Experimentation: A Critical Review and Tentative Synthesis/Reconstruction of the Literature” (1998) 8 *s. Cal. Interdis. L.J.* 185 (Lexis Nexis).

²⁰⁴ Gary L. Francione, “Experimentation and the Marketplace Theory of the First Amendment” (1987) 136 *U. Pa. L. Rev.* 417.

²⁰⁵ *Clark v. Community for Creative Non-Violence*, 468 U.S. 288 (1984) (U.S. Supreme Court).

²⁰⁶ *Supra* note 203 at 206.

²⁰⁷ *Ibid.* at 207.

essential part in the truth-searching enterprise.²⁰⁸ The authors point out that harmful scientific conduct would not be protected by the First Amendment. In their view, any medical or scientific experiment that would violate a person's rights should not receive *prima facie* constitutional protection.²⁰⁹

The authors concede that certain distinct aspects of scientific inquiry might not on their own be considered expression. However, when those distinct aspects are considered along with those parts of the scientific process that are clearly communicative, then logically both should be entitled to constitutional protection. As an example, they note that mixing cells in a Petrie dish might not be considered to constitute expression when viewed in isolation, but would nonetheless be protected as expressive conduct since the conduct is necessary to the scientist's pursuit of knowledge, which is part of the scientific method.²¹⁰

A further example cited by the authors is the facilitative relationship between "association" and "political speech." Political speech is highly valued in the U.S., but would be meaningless without an ability to reach a large audience. The courts have generally protected conduct that facilitates political speech, such as association and political funding of a candidate (*Buckley, supra*).²¹¹

Scientific speech is also highly valued and deeply imbedded in American tradition. Thought and experimentation have been recognized as nurturing aspects of scientific speech.²¹² The authors point out that the courts have held that First Amendment protection covers both thought and mentation generally.²¹³ They argue that mentation and experimentation are synergistic since each activity gives rise to and is complementary of the other. In their view, the courts should protect experimentation that is uniquely related to and bound up with the important process of mentation and scientific discovery.²¹⁴

4.5.5 Discussion

The pursuit of scientific inquiry has not always been considered a highly valued activity in society. Galileo (b. 1564) greatly improved on the first telescope and undertook experiments to prove his various scientific theories. In fact, circa 1590, he published *De Motu*,

a series of essays on the theory of motion, advocating a revolutionary new idea: one can test theories by conducting experiments.

Galileo's publications were not appreciated by all of society. In 1633, the Church was so threatened by some of his theories that it condemned him for heresy for publishing and defending his belief that the Earth orbited around the Sun. Over time, many of Galileo's theories have been proven by others to be correct and today his scientific writings are highly valued.²¹⁵

The framers of the Canadian *Constitution* and the framers of the *United States Constitution* included provisions either in the written constitution or the accompanying documents relating to the issuing of patents, an act illustrating the importance society was beginning to recognize and place on scientific inquiry and experimentation. One important purpose served by the patent regime is to encourage scientific inquiry and invention by granting the inventor a monopoly to capitalize on his or her invention.

Scientific inquiry and research are credited today with finding cures and treatments for countless life-threatening diseases and disorders, such as diabetes, polio, and smallpox. Without the ability for scientists and doctors to freely investigate and experiment, many cures and treatments would not have been discovered. However, rights to medical and scientific research should not be viewed as absolute rights.

The rights and freedoms provided in the *Charter* are not absolute, but rather must be balanced against other interests in society. The state can and does impose limitations on certain rights and freedoms in order to protect society-at-large. In the case of research on human participants,

²⁰⁸ *Ibid.* at 214.

²⁰⁹ *Ibid.*

²¹⁰ *Ibid.* at 215.

²¹¹ *Ibid.* at 216.

²¹² *Ibid.* at 217.

²¹³ *Ibid.* at 219. The authors cite in their analysis: *Stanley v. Georgia*, 394 U.S. 557 (1969), *United States v. Reidel*, 402 U.S. 351 (1971), and *Bowers v. Hardwick*, 478 U.S. 186 (1986).

²¹⁴ *Ibid.* at 218-9.

²¹⁵ J.J. O'Connor and E.F. Robertson, "Galileo Galilei". Online: <http://www-gap.dcs.st-and.ac.uk/~history/Mathematicians/Galileo.html>.

for example, the state would be justified in limiting a researcher's right to conduct such research if it was likely to result in harm or a threat to public health and safety.

Could the state prohibit research?

As noted earlier, several international and regional instruments reflect the importance of freedom of expression. Article 19(2) of the ICCPR suggests that the right to expression is broad; it includes oral, written and published communication. In addition, the article suggests that freedom of expression includes the right to actively seek information and ideas. One could argue this international human right suggests protecting the discovery of new knowledge, information, and ideas to disseminate to others, activities characteristic of scientific research. Article 19(3) notes, however, that freedom of expression is not limitless. The state would arguably be justified in limiting activities related to freedom of expression, if they posed a threat to public health or morals.

Article 15 of the ICESCR appears to be more explicit, obliging States Parties to provide scientists with the freedom to conduct research and recognizing the link between scientific freedom and research. The *Universal Declaration* also emphasizes the importance of freedom of research, while at the same time providing limits on research.

All of the international and regional instruments, cited above, note that the right to engage in scientific and medical research is not absolute.²¹⁶ Research must be undertaken in a manner that respects the human rights of research participants, such as requiring their free and informed consent prior to participation. Furthermore, research should conform to established ethical principles, such as respect for human dignity.

It is possible to conclude that the state can prohibit scientific research. If the state prohibited scientific research, researchers might look to the *Charter* for relief and might refer the courts to certain provisions in international human rights instruments and regional instruments to advocate an interpretation of freedom of expression that includes scientific inquiry.

Could a researcher claim that a state prohibition on scientific inquiry infringes his or her Charter-protected right to freedom of expression?

The Supreme Court of Canada has given freedom of expression an expansive and generous interpretation under section 2(b) of the *Charter*. In *Irwin Toy, supra*, the Court noted that its broad approach to freedom of expression would include activity that conveys or attempts to convey a message, as long as it does so in a non-violent manner.

In *Sharpe, supra*, Chief Justice McLachlin described the rights in section 2(b) as existing on a continuum, ranging from thought, at one end of the continuum, to expression, at the other end. Possession of expressive material was found to be a protected physical activity since it was integrally related to the development of the rights in the continuum. Finally, in the words of the Chief Justice, any government attempt to restrict the right to freedom of expression will be subjected by the Court "to the most careful scrutiny."²¹⁷ The case law serves to illustrate the generally expansive interpretation the Court has given to this freedom and provides an indication of the importance the judiciary ascribes to freedom of expression.

Freedom of the press and other media of communication are explicitly protected by section 2(b). It is most likely that scientific research in the form of publications, videos, lectures, dialogue, and other forms of communication would similarly be protected by Canadian courts under section 2(b). A strong argument could be made that the published results of scientific research would be protected expression, under the phrase "other media of communication." Any state restriction on a scientist's attempts to publish his or her research results would undoubtedly engage his or her *Charter* right to freedom of expression. Although unlikely, the state might be able to successfully justify a prohibition on the publication of research results in exceptional circumstances, the state's legislative objective would have to be pressing and substantial.

On occasion, the courts have cited scientific research as an example of values protected by the guarantee to freedom of expression.

²¹⁶ For an example, see article 15 of the Council of Europe *Convention on Human Rights and Biomedicine*.

²¹⁷ *Supra* note 145 at para. 21-22.

Would section 2(b) protect that part of the research that is mainly physical, i.e., the experiment itself?

In the U.S., the courts have found that the First Amendment's freedom of the press also protects the journalist's, and perhaps even the public's, right to gather news and information from willing sources.²¹⁸ This appears to be a logical interpretation of the scope of the freedom because if the physical act of gathering the news was not protected and could be restricted by the state, it would undoubtedly limit the journalist's freedom of the press. Applying the same logic to scientific research, if the right to experiment was not protected by freedom of expression, the right to publish or disseminate research results and scientific knowledge could be similarly limited by the state.

Relevant provisions in international and regional instruments suggest that the physical component of scientific inquiry, i.e., experiment or research, should also be protected under freedom of expression. For example, the *Travaux Préparatoires* to the *Universal Declaration* notes that there is an essential physical component to scientific research.²¹⁹

The Supreme Court has held that "conduct" is also protected by section 2(b) of the *Charter* as long as it conveys, or attempts to convey, a message in a non-violent way. In the words of Peter W. Hogg:

Is there any activity that is not expression under the Court's definition? The answer is not much, because "most human activity combines expressive and physical elements"; what is excluded is that which is "purely physical and does not convey or attempt to convey meaning."²²⁰

Even if the courts found the message conveyed by certain research activities to be offensive, it would still be protected. The protection offered by section 2(b) is content-neutral: the conduct will be protected as long as it is expressive and non-violent.

The carrying out of an experiment could be seen as conduct that expresses or attempts to express an opinion or belief that a particular experiment will yield a certain result. Furthermore, the experiment itself might be viewed as an expressive activity since it communicates a response to the researcher's question or hypothesis.

It has been suggested that the physical aspect of scientific research, i.e., the physical experiment, could also be viewed as an essential building block of communication. Without the physical activity necessary to conduct the experiment, there could be no research results or reliable answers to scientific questions. If the physical aspect of scientific research was prohibited by the state, arguably the state would also be prohibiting scientific thought, inquiry and expression.

Justice McLachlin, as she was then, advocated a broad interpretation of section 2(b) noting that if freedom of expression is curtailed by the state "debra[s]cientists may well think twice before *researching and publishing* results of research..."²²¹ [emphasis added] This statement suggests that the courts might find that both activities would be protected under section 2(b), i.e., the physical aspect of research and the publishing of research results.

Chief Justice McLachlin, in *Sharpe, supra*, noted that the right to physically possess expressive material was essential and integrally related to the development of thought, belief, opinion and expression. A strong argument could be made that the right to conduct an experiment is integrally related to the development of scientific thought, belief, opinion and expression.

The courts might consider some types of research using human embryos, such as the derivation of embryonic stem cells, as violent activity since it causes the destruction of the embryo. However, this is unlikely given the fact that *in vitro* embryos used in research are required by the AHR Act to be destroyed prior to the fourteenth day. Furthermore, individuals or couples who have excess *in vitro* embryos in storage may legally choose, as one means of disposition, to allow them to perish rather than donate them to others for reproductive or research purposes. In addition, under the common law, the *in vitro* embryo is not considered a person and as such, has no legal rights, such as the right to life.

²¹⁸ *Branzburg v. Hayes*, 408 U.S. 655 (1972); *Pell v. Procunier*, 417 U.S. 817, 834 (1974); *Saxbe v. Washington Post Co.*, 417 U.S. 843, 862-64 (1974).
²¹⁹ *Supra* note 53.

²²⁰ Peter W. Hogg, *Constitutional Law of Canada* (Loose-leaf Ed.) (Scarborough: Carswell Thomson Publishing, 1997) at 40.5(a).

²²¹ *Supra* note 134 at 860.

On the other hand, an argument could be made that the experiment portion of scientific research is purely physical activity, with no elements of expressive conduct whatsoever. A researcher's freedom to express scientific theories and hypothesis could be protected by section 2(b) of the *Charter*, but the physical experiment portion of research would not be protected and thus would be subject to unlimited state restriction. This argument is not too convincing given the comments made by the Supreme Court regarding research, albeit in *obiter dicta*,²²² and the Court's broad approach to the rights protected by section 2(b) of the *Charter*. Such a distinction, if permitted, would allow the state to indirectly restrict the researcher's right to publish findings and scientific knowledge by directly restricting his or her ability to conduct the necessary physical component of scientific inquiry, i.e., the experiment.

If the courts found experimentation to be a communicative activity or expressive conduct, protected by the *Charter*, it could then be argued that such research relates to two of the three purposes of expression described by the Court. Research arguably serves the purpose of personal self-fulfillment for the researcher, and assists researchers to seek and attain the truth regarding a hypothesis or scientific query.

Unlike the American jurisprudence under freedom of speech, the *Charter* provides the state with an explicit opportunity under section 1 to justify any limitation on freedom of expression. If the state's justification passes the judicial test under section 1, then the restriction would be found to be constitutionally valid.

A state prohibition on research using embryonic stem cells

As noted earlier, the U.S. prohibits federal funding for research on stem cells derived from *in vitro* embryos created through any method of embryo cloning. However, federal funds may be used for research using stem cells derived from supernumerary *in vitro* embryos. For researchers seeking federal funding in Canada, the CIHR imposes similar restrictions on the use of embryonic stem cells. The restriction in Canada, unlike the U.S., does not have the force of law. Privately funded research in both

the U.S. and Canada may be undertaken using stem cells derived from therapeutically cloned *in vitro* embryos.

For the purposes of the following discussion, an assumption is made that Canada has passed a law prohibiting research on embryonic stem cells. Such a prohibition would restrict Canadian researchers from an area of research expected to result in medical therapies and cures for debilitating and life-threatening human diseases in the not too distant future.

The prohibition could be challenged by researchers on the basis that it constitutes an unjustified limitation on their freedom of expression in section 2(b) of the *Charter* and is thus unconstitutional. An argument would be made that freedom of expression is broad and encompasses the researcher's choice of research topic, as well as the physical conduct of the research.

The Supreme Court has stated that conduct will only be protected under section 2(b) if it conveys or attempts to convey a message. What message would a researcher be conveying or attempting to convey by experimenting on embryonic stem cells?

The researchers would have to identify a specific message that the physical experiment was intended to convey to the scientist. If they succeed in articulating a message, the physical conduct of the research, i.e., the experiment, may be considered "expression" worthy of *Charter* protection. The courts might consider that the state prohibition on the activity of embryonic stem cell research is in effect preventing the researcher from expressing certain scientific information to others. The research is prevented by the state from contributing certain scientific knowledge and ideas to the marketplace of ideas. In addition, the physical research might be viewed as a right integrally related to the development of thought, belief, opinion and expression and thus worthy of *Charter* protection.

²²² "*Obiter dicta*" is a Latin term meaning a judge's expression of opinion uttered in court or giving judgement, but not essential to the decision and therefore without binding authority (Concise Oxford Dictionary, 10th Ed.)

It may be possible for the state to justify its restriction on embryonic stem cell research on the basis of protecting public morals. The derivation of embryonic stem cells results in the destruction of the *in vitro* embryo. The state's objective is to protect the *in vitro* embryo since it represents potential human life. Allowing such research would result in the destruction of *in vitro* embryos and would arguably diminish society's respect for the sanctity of human life. Researchers would be creating potential human life, represented by the therapeutically cloned *in vitro* embryo, to serve solely as a source of research materials.

4.5.6 Conclusion

The Supreme Court has taken a very broad interpretive approach to freedom of expression in section 2(b) of the *Charter*. In addition, freedom of expression is viewed by the Supreme Court as *the* pivotal freedom underlying democracy. State limitations on this freedom will receive the most careful scrutiny by the courts when they are challenged.

However, the Supreme Court does not consider this fundamental freedom to be absolute. As the case law illustrates, the state can successfully justify limitations on freedom of expression in order to balance competing societal interests.

If scientific research using embryonic stem cells was found to be expression and protected by section 2(b) of the *Charter*, it would then fall to the state to successfully argue, under section 1 of the *Charter*, that the prohibition is a reasonable limit, prescribed by law, and demonstrably justified in a free and democratic society.

4.6 Issue 2: The Right to Benefit from Scientific Progress

Assuming that a prohibition on embryonic stem cell research would engage a researcher's section 2(b) *Charter* right to freedom of expression, would such a prohibition also implicate other rights? If such research was prohibited by the state, would those persons expecting to benefit from medical therapies and cures resulting from the research argue that their human rights are also engaged? Is there a human right to benefit from scientific progress?

4.6.1 International and Regional Instruments

With respect to international human rights instruments, article 15(1)(b) of the ICESCR provides:

1. The States Parties to the present covenant recognize the right of everyone:
 - a. to take part in cultural life;
 - b. to enjoy the benefits of scientific progress and its applications;
 - c. To benefit from the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.

There is very little academic literature or commentary regarding the scope of the rights or the State obligations that flow from article 15(1)(b). In addition, there is no reference to this right in Canadian jurisprudence.²²³

Some commentators suggest that the rights in (b) and (c) must be balanced against each other. The right in (b) is not unlimited: it must be balanced against the rights of the inventor or author as set out in (c). Canadian courts could be faced with an argument that individuals have a right to access the benefit of technology, without state interference and the article above could be relied on to inform the courts interpretation of the *Charter* and of the legislative prohibition. Given the lack of commentary and jurisprudence at the international level, it is unclear as to how the courts in Canada would interpret these provisions.

4.6.2 The Law in Other Jurisdictions

No legislation in the U.S., Germany or the U.K. gives effect to the rights set out in article 15 of the ICESCR.

4.6.3 Academic Literature and Commentary

There is a dearth of commentary on what meaning should be assigned to the international right to enjoy the benefits of scientific progress in the ICESCR.

²²³ See Chapter 2 at 19.

Cook, et al. suggest that this right serves the goal of other human rights, such as the right to found a family, and the right of persons to enjoy the highest attainable standard of health.²²⁴ The authors argue that this right would include physical and mental health, as well as social well-being.²²⁵

The authors note that the right to health is currently regarded as more of a negative right than a positive right, meaning that although an individual may have a right to freely access medical therapies, the state is not under a positive obligation to publicly fund such services.²²⁶

4.6.4 The Law in Canada

No Canadian legislation gives effect to this international right and principle. Neither is there a *Charter* right to enjoy the benefits of scientific progress.

Section 7 of The *Charter* provides the right to life, liberty and security of the person. It states:

7. Everyone has the right to life, liberty and security of the person and the right not to be deprived thereof except in accordance with the fundamental principles of justice.

With respect to the “liberty” interest in section 7 of the *Charter*, the courts have determined that it has two aspects. The first aspect protects a person’s interest in his or her physical liberty. This interest would be engaged if a person was physically restrained by the state, for example through imprisonment or even the threat of imprisonment, or where the state affects a person’s ability to move freely, such as compelling a person to give oral testimony.

The second aspect of section 7 protects a sphere of autonomy within which a person may make decisions of a fundamentally personal nature that go to the core of what it means to enjoy individual liberty and independence. Decisions by persons as to the location of their residence or by parents respecting a child’s education or health care are examples of fundamental choices protected by the courts under this aspect of section 7.

Section 7 also protects a person’s security of the person interest. Security of the person also contains two aspects.

The first aspect concerns the person’s interest in physical integrity. Physical integrity protects a person’s right to be free from punishment or the threat of punishment by the state. The second aspect concerns psychological integrity. To constitute a breach of this right, the state action must result in a serious and profound effect on the person’s psychological integrity. It must be more than ordinary stress or anxiety and must be assessed objectively from the viewpoint of a person of reasonable sensibility. It does not, however, have to be so severe that it causes nervous shock or psychiatric illness.

It is important to note that the courts’ analysis under section 7 is in two parts. First the courts determine whether there is a real or imminent deprivation of life, liberty or security of the person. This inquiry may require the courts to consider whether the interest identified and claimed by the plaintiff falls within of the rights. Second, the courts determine whether the state deprivation is in accordance with the principles of fundamental justice. If it is, then there has been no violation or infringement. If the deprivation is not in accordance with the principles of fundamental justice, then a violation has occurred. The courts may or may not require the state to justify a violation under section 1 of the *Charter*.

Case law

In *Godbout v. Longueuil (City)*²²⁷ (“*Godbout*”), the municipality had in place a resolution that required employees to sign a declaration that they would live within the city boundaries during the course of their employment. If the employee moved out of the city during that time, they could be fired without notice.²²⁸ The resolution was challenged on the basis that it violated either the Charter of Quebec or the Canadian *Charter*.²²⁹ Justice LaForest, writing for L’Heureux-Dube and McLachlin J.J., held that the right to liberty in section 7 includes “debar within it a right to make fundamentally personal choices free from state interference and that choosing where to establish

²²⁴ Rebecca Cook, Bernard Dickens and Mahmoud F Fathalla, *Reproductive Health and Human Rights: Integrating Medicine, Ethics and Law* (Oxford: Oxford University Press, 2003) at 359.

²²⁵ *Ibid.*

²²⁶ *Ibid.* at 360.

²²⁷ *Godbout v. Longueuil (City)*, [1997] 3 S.C.R. 844.

²²⁸ *Ibid.* at para.16.

²²⁹ *Ibid.* at para.19.

one's home falls within the scope of that right."²³⁰ He concluded that the residence requirement violated section 7 and was not in accordance with the principles of fundamental justice.²³¹

Subsequent jurisprudence has confirmed that the liberty interest protects both aspects, i.e., physical and a protected sphere of decision-making autonomy. In the recent case of *Siemens v. Montreal (Attorney General)*²³² ("*Siemens*"), a majority of the Supreme Court held that while section 7 encompasses fundamental life choices, it does not include pure economic interests.²³³

In *Singh v. Minister of Employment and Immigration*²³⁴ ("*Singh*"), the Supreme Court of Canada held that the phrase "security of the person" in section 7 includes the right to be from the threat of physical punishment or suffering, as well as the right to be free from the punishment itself.²³⁵

In *New Brunswick (Minister of Health and Community Services) v. G.(J.)*²³⁶ ("*G(J)*"), the Supreme Court was asked whether section 7 applies outside the penal context to ensure that a parent has a right to state-funded legal counsel in a child custody/protection hearing. With respect to the parent's security of the person interest, the Court noted that a restriction will be made out where the impugned state action has a profound and serious effect on a person's psychological integrity.²³⁷ The effect of the state action must be assessed objectively from the perspective of a person of reasonable sensibility. The stress does not have to constitute nervous shock or psychiatric illness, but it must be more than ordinary stress or anxiety.²³⁸ Justice Lamer, writing for the majority, held that state removal of a child constituted a serious interference with the psychological integrity of the parent.²³⁹

*R. v. Monney*²⁴⁰ was concerned with whether a customs search for narcotics constituted an unconstitutional interference with the right to bodily integrity under section 7. The Court noted that in *Singh*, *supra*, it was held that state action which has the likely effect of impairing a person's health engages the fundamental right under section 7 to security of the person.²⁴¹ The Court concluded, however, that in this case the right to security of the person did not include a state obligation to provide medical supervision in response to the

respondent's self-induced health risk, notwithstanding the fact that the respondent had refused medical attention.²⁴²

In *R. v. Parker*,²⁴³ the Ontario Court of Appeal held that the prohibition on the cultivation and possession of marijuana, in the *Narcotic Control Act* and the *Controlled Drugs and Substances Act*, was unconstitutional. The appellant produced evidence in the lower court of the medicinal value of marijuana for a number of serious conditions, including epilepsy. The government argued that the appellant did not need marijuana to control his seizures since he had legal access to alternative therapies. The lower court held that the appellant required marijuana to control his epileptic seizures and that the prohibition against marijuana violated his rights under section 7 of the *Charter*.²⁴⁴

The Ontario court of Appeal held that preventing Parker from using marijuana to treat his physical condition by threat of criminal prosecution constitutes interference with his physical and psychological integrity. It prevents him from making choices concerning his own body and control over his physical and psychological integrity free from interference by criminal prohibition.²⁴⁵

4.6.5 Discussion

The absence of commentary and jurisprudence regarding the right to enjoy the benefits and applications of scientific progress in the ICESCR makes it difficult to speculate as to how the courts in Canada would be informed, if at all, by this international principle. The commentary above suggests that the right to enjoy the benefits of scientific

²³⁰ *Ibid.* at para. 58.

²³¹ *Ibid.* at para. 91.

²³² *Siemens v. Manitoba (Attorney General)*, [2003] 1 S.C.R. 6.

²³³ *Ibid.* at para. 45.

²³⁴ *Singh v. Minister of Employment and Immigration*, [1985] 1 S.C.R. 177.

²³⁵ *Ibid.* at para. 207.

²³⁶ *New Brunswick (Minister of Health and Community Services) v. G.(J.)*, [1999] 3 S.C.R. 46.

²³⁷ *Ibid.* at para. 60.

²³⁸ *Ibid.*

²³⁹ *Ibid.* at para. 61.

²⁴⁰ *R. v. Monney*, [1999] 1 S.C.R. 652.

²⁴¹ *Ibid.* at para. 55.

²⁴² *Ibid.*

²⁴³ *R. v. Parker*, 2000 CanLII 5762 (ON C.A.).

²⁴⁴ *Ibid.* at paras. 5 and 6.

²⁴⁵ *Ibid.* at paras. 109 and 110.

progress must be balanced with the intellectual property rights of inventors.²⁴⁶

However, a state prohibition on research would not require balancing since there is no concern with infringing an inventor's intellectual property rights. Rather, the question is whether the right to enjoy the benefit of scientific progress and advancement could be used by the Canadian courts to inform their interpretation of Charter rights or of domestic legislation.

As noted in Chapter 2, an examination of the text of the ICESCR provision and the *Travaux Préparatoires* to the ICESCR has led one academic to suggest that article 15(1)(b) contains four core elements.²⁴⁷ Two of the four core elements are applicable to this discussion. One of these elements would restrict the right to only socially beneficial science, as opposed to harmful science. The other applicable element would ensure that the benefits of scientific progress and its applications are enjoyed equally by everyone.²⁴⁸

States are encouraged to promote the provisions of the ICESCR through legislation and regulations. The principle in article 15(1)(b) encourages State Parties to ensure that the benefits of scientific progress and advancement are made available to everyone. State action restricting access to such benefits might be viewed as state action contrary to the principles set out in a binding international human rights instrument.

The underlying premise of the ICESCR could be characterized as promoting scientific research and advancement to relieve human suffering, but only where human dignity and human rights are protected. Those parts of article 15 which espouse the benefits of scientific research should be balanced against articles 10 and 11 which clearly establish, as paramount, the principle of respect for human dignity.

An important aspect of human dignity is autonomy, especially with respect to decision-making that affects the integrity of one's own body. A decision to access new technologies and therapies, resulting from scientific and medical research, for a life threatening disease or condition could be viewed as a fundamentally personal choice going to the core of individual independence and dignity.

Would a state prohibition on certain scientific research or experimental therapy engage any human rights issues?

A state prohibition on scientific research using embryonic stem cells in medical therapies could engage the interests of seriously ill persons whose access to such therapies might be beneficial.

If the state prohibition was backed by penal sanctions, it could be challenged on the basis that it engages the liberty and security of the person interests of such persons under section 7 of the *Charter*. Reference could be made to article 15(1)(b) of the ICESCR which provides the right to enjoy the benefits of scientific progress and its applications. This international provision could be used by the courts to inform its interpretation of the rights under section 7, specifically the right to liberty and to security of the person. An argument could be made the right "to enjoy the benefits of scientific progress" includes the right to choose to undergo an experimental medical therapy when one's life is threatened. A prohibition on this right would engage a person's liberty interest in section 7 of the *Charter*.

If the state deprived seriously ill persons of access to an experimental therapy, it would have to do so in accordance with the principles of fundamental justice. The complainant might identify arbitrariness and overbreadth as the relevant principles of fundamental justice, and allege that the prohibition is not in accordance with these principles. The complainant might also argue that the state's prohibition is not related to a reasonable apprehension of harm. The state may be required to justify the deprivation as reasonable under section 1 of the *Charter*.

4.6.6 Conclusion

Although the *Charter* does not contain a specific right to benefit from scientific progress, it does guarantee to individuals the right to life, liberty and security of the person in section 7. If a person were denied access to a promising but experimental medical therapy by a state-imposed

²⁴⁶ See the discussion in Chapter 2 of the Project paper with respect to the balancing between access to scientific advancement and the rights related to intellectual property.

²⁴⁷ *Ibid.* at 19.

²⁴⁸ *Ibid.*

restriction backed by penal sanctions, it would engage that person's section 7 *Charter* rights.

The international right to enjoy the benefits and application of scientific progress could be referred to the courts to inform its interpretation of section 7 *Charter* rights and of the domestic legislation. The lack of commentary as to the interpretation of this international provision arguably minimizes its usefulness and makes it difficult to predict how the court would interpret and use the provision. The state would have an explicit opportunity to justify any infringement of a section 7 right under section 1 of the *Charter*.

4.7 Issue 3: The *In Vitro* Embryo

Many activities in the area of AHR are related to the creation, use, manipulation, testing and destruction of human *in vitro* embryos. The legal status of the *in vitro* embryo is discussed in chapters 2 and 3. Both chapters noted that the courts have not yet determined the status of the *in vitro* embryo, or whether the *in vitro* embryo, existing as it does outside the body of a woman, possesses any legal or human rights.

As noted earlier, there are a number of different methods of obtaining or creating *in vitro* embryos for research purposes, including creation, donation of supernumerary embryos, therapeutic cloning, embryo splitting, and parthenogenesis. The following discussion examines whether the method used to create an *in vitro* embryo is a relevant factor or consideration in determining the embryo's moral status.

4.7.1 The Law in Other Jurisdictions

The U.S.

In 1999, the U.S. National Bioethics Advisory Council ("NBAC") recommended federal funding for research on spare *in vitro* embryos, but not for research using *in vitro* embryos created solely for research purposes.²⁴⁹ Since 2001 there has been federal legislation prohibiting the funding of research to create or use an *in vitro* embryo as a source of embryonic stem cells. Federal funding can only be used for research on existing stem cells that were isolated from an *in vitro* embryo prior to August 9, 2001. There are additional conditions on a researcher's use of

existing stem cell lines. For example, the embryo from which the stem cell line was derived must have already been destroyed and thus would have no potential for further development.²⁵⁰ There is no federal legislation or regulations applicable to the use of embryos in privately funded research.

At the state level, there is legislation in several states that prohibits both reproductive and therapeutic cloning. However, California and New Jersey have legislation that specifically permits the creation of *in vitro* embryos for research purposes.

Germany

In Germany, *in vitro* embryos cannot be created or used for research purposes. However, embryonic stem cells can be imported for research. Under the German *Law for the protection of embryos*,²⁵¹ the *in vitro* embryo is protected and has legal rights from the moment of creation.

The U.K.

The U.K. allows the creation of *in vitro* embryos, by *in vitro* fertilization and therapeutic cloning, for research purposes with the explicit consent of the gamete donors. The U.K.'s Donaldson Report examined research on embryos, including on embryonic and adult stem cells, and recommended that research using such embryonic stem cells be allowed, along with therapeutic cloning of *in vitro* embryos as one source of such stem cells.

The Donaldson Report acknowledged that there are differing opinions as to the morality of research on a human *in vitro* embryo. It noted:

Research involving embryos created by cell nuclear replacement [therapeutic cloning] raises new concerns for many people, including those opposed to all embryos research and possibly some of those in the middle ground. Even those who accept the current research uses of embryos might express

²⁴⁹ Cloning Human Beings Report and Recommendations of the National Bioethics Advisory Committee (1997) at 5. Online: <http://www.georgetown.edu/research/nrcb/nbac/pubs/cloning1/cloning.pdf>; *supra* note 179 at 3.

²⁵⁰ *Supra* note 23 at 132.

²⁵¹ *Law for the protection of embryos*, Bundesgesetzblatt, Part 1, 19 December 1990, pp. 2736-2748.

concern about the research use of embryos created in this way. Such embryos can be seen as being created as a means to an end and for use as a product source.

An alternative view is that the benefits of being able to develop an individual's own cells to create a new source of cells for their own future treatment make this action ethically justifiable. While research on embryos created by cell nuclear replacement does indeed involve using them as a means to an end, this can be said to apply to some degree to all research using embryos. The potential benefits of the research need to be weighted against these concerns... these benefits would be substantial and may represent the best prospect of developing treatments for a number of degenerative disorders.²⁵²

Canada

The AHR Act prohibits the creation of an *in vitro* embryo for research purposes, as well as the cloning of an *in vitro* embryo for reproductive or research purposes. The Royal Commission on New Reproductive Technologies noted in its 1993 Final Report to Parliament that *in vitro* embryos are deserving of respect, not solely because of their potential for human life, but based mainly on their connections to the human community.²⁵³

4.7.1.1 Summary

There is wide disparity between jurisdictions as to the moral and legal status of the *in vitro* embryo. It could be said that the U.K., by allowing the creation of *in vitro* embryos solely for research purposes, is at one end of the moral status continuum, while Germany, which assigns legal rights to the *in vitro* embryo from the moment of conception, is at the opposite end.

The U.S. federal government's view of the moral status of an *in vitro* embryo is similar to that of Germany. However, there are U.S. states that explicitly permit the creation of *in vitro* embryos solely for research purposes. Canada, with the adoption of the AHR Act, has assumed a mid position on the continuum by permitting research on supernumerary *in vitro* embryos, but prohibiting the creation of embryos solely for research purposes.

4.7.2 Academic Commentary

Professor John Robertson discusses both the moral and legal status of the *in vitro* embryo.²⁵⁴ He notes that early embryos, while less developed than foetuses, are genetically unique, living human entities that have the potential to develop into full persons.²⁵⁵

With advances in technology and the possibility of fertilization of a human egg with sperm in a dish in a laboratory, issues have arisen as to whether limits should be placed on external creation, storage, discard and manipulation of *in vitro* embryos. Robertson notes that only a small portion of fertilized eggs develop to the blastocyst stage — only one embryo in ten actually implants in the mother's womb and of those, thirty to forty percent are spontaneously aborted.²⁵⁶

He sets out a number of differing viewpoints as to the moral status of *in vitro* embryos, which range from a belief that the embryo is a human life possessing legal rights at the moment of fertilization to a view that, even at the latter stages of development, a prenatal human entity does not have any rights. Robertson notes that, despite these different views, most people believe that the embryo should be treated with special respect because it is genetically unique, living human tissue that has the potential to develop into a foetus and a newborn. He argues that it is precisely because the embryo is genetically unique and has the potential to develop, that it operates as a "powerful symbol" of the unique gift of human existence.²⁵⁷

Even though the embryo is not itself a rights-holder or a moral subject, it stimulates consciousness of the human community more than any other human tissue. However, Robertson argues that, unlike other symbols such as a national flag, whether the *in vitro* embryo is considered as

²⁵² *Supra* note 97 at 8.

²⁵³ *Supra* note 103 at 633.

²⁵⁴ John A. Robertson, "Reproductive Technology and Reproductive Rights: In The Beginning: The Legal Status of Early Embryos" (1990) 76 Va. L. Rev. 437. (Lexis Nexis).

²⁵⁵ *Ibid.* at 1 (Lexis Nexis).

²⁵⁶ *Ibid.* at 3 (Lexis Nexis).

²⁵⁷ *Ibid.* at 4 (Lexis Nexis).

a symbol of membership in the human community is a matter of choice, not moral duty.²⁵⁸

In his view, because of the rudimentary development of the early embryo and its slim chances of implanting and coming to term, it is a less powerful symbol of human community than would be the more developed foetus. Other symbols in society require individuals to subscribe to a unified view of the symbol as a criterion for membership, such as the American flag or membership in the national community. Divergent views of the embryo are more likely and more acceptable precisely because of its low potential for developing into a human being. Robertson argues that the question of whether the special respect assigned to early embryos must always be maintained is a factor of the competing interests that must be considered when questions of embryo disposition arise. He notes that views about research using *in vitro* embryos would, more than any other dispositional decision, most likely depend on one's views about the moral status of the embryo. "The issue of greatest controversy is whether embryos could be created solely for research purposes and then discarded with no intention or possibility of placement in the uterus."²⁵⁹

In Robertson's view, given that the research and discard of therapeutically cloned embryos would occur at the same stage of development as supernumerary *in vitro* embryos, donated for research, the origin of the embryo should be irrelevant. He suggests that strong policy arguments exist for permitting and supporting many types of embryo research under the system of Institutional Review Board approval and supervision. "There are compelling reasons for allowing embryos to be created for research purposes and then discarded, as this may be the only way to conduct many important kinds of research."²⁶⁰

Kimberly Jackson considers whether a cloned embryo can be considered unique human life.²⁶¹ She suggests that while both *in vitro* fertilization and therapeutic cloning can be considered "unnatural reproductive technologies," only *in vitro* fertilization results in the creation of a new and unique individual. Cloning merely creates a copy of an already existing individual.²⁶²

Roger Taylor suggests that unlike the deoxyribonucleic acid ("DNA") of an embryo created through *in vitro* fertilization, by the fusion of a sperm and an egg, the DNA of a therapeutically cloned embryo is not in any way unique. It is a copy of the DNA of an already existing person (the nucleus donor). He ponders why it is that research on supernumerary *in vitro* embryos receives less protection than research on cloned embryos.²⁶³ In his view, one would think logically that it should be the reverse.

The embryo created through *in vitro* fertilization has the potential to develop into a unique human person with an open future. On the other hand, the cloned human embryo may not possess the potential to develop into a human being and even if it did, it would not be unique and would not have an open future.²⁶⁴

David Smolin argues that the significance differences between therapeutically cloned embryos and embryos created by the fusion of sperm and egg result in an ambiguous moral status for the cloned embryo. He begins by discussing the ambiguities that science and medicine have recently created around the status of the early reproductive embryo.²⁶⁵

First, he notes that most embryos are lost in the natural reproductive process through a failure to implant in the uterus. Second, medicine has shifted the definition of pregnancy from fertilization to implantation. Third, modern birth control drugs prevent implantation, thus causing the destruction of any embryos. Fourth, society has accepted *in vitro* fertilization, which results in the discarding of many embryos per successful birth.²⁶⁶

With respect to the cloned embryo, he notes that cloning is an artificial form of asexual reproduction. Cloning does not involve conception. In addition, the constituent parts

²⁵⁸ *Ibid.* (Lexis Nexis).

²⁵⁹ *Ibid.* at 21-2 (Lexis Nexis).

²⁶⁰ *Ibid.* at 22 (Lexis Nexis).

²⁶¹ *Supra* note 191.

²⁶² *Ibid.* at 6.

²⁶³ *Supra* note 179 at 9.

²⁶⁴ *Ibid.*

²⁶⁵ David M. Smolin, "Should a Ban on Reproductive Cloning Include a Ban on Cloning for Purposes of Research or Therapy?" (2001/2002) 32 *Cumb. L. Rev.* 487 at 5.

²⁶⁶ *Ibid.* at 6.

of the cloned embryo are a human egg (devoid of a nucleus) and the nucleus of a somatic cell, neither of which have ever been considered to constitute an individual human life.²⁶⁷ In Smolin's opinion, if the cloned embryo cannot literally be considered an individual human life, then the symbolic value of protecting it may be outweighed by the ethical obligation to use it in research to find cures to heal and save lives.²⁶⁸

Not everyone shares this viewpoint. James McCartney²⁶⁹ argues that creating embryos as sources of stem cells, either by *in vitro* fertilization, cloning or parthenogenesis, is ethically problematic.²⁷⁰ He believes that ethicists would argue that creating human life for research is tantamount to using human life as a means only. However, in McCartney's view, the developing embryo is not an individual of the human species until approximately the fourteenth day post-fertilization when the primitive streak appears.²⁷¹

McCartney posits, however, that since these embryos are on their way toward becoming human individuals, they should be treated with reverence and accorded respect. They should not be created solely for the purposes of scientific research that would result in their destruction. He acknowledges that this view is not as strong as the view that embryos possess inalienable rights, such as the right to life. However, he believes it is sufficient to support ethical opposition to the creation of embryos for research purposes.

With respect to parthenogenesis, James McCartney speculates that if it was used successfully to create *in vitro* embryos, many of the ethical concerns associated with creating *in vitro* embryos specifically for research would be addressed. In his view, there would be minimal ethical concerns because the embryo would at no time be capable of developing into a human being.²⁷²

4.7.3 Discussion

Under the AHR Act, scientists are able to use supernumerary *in vitro* embryos that have been donated for research by the progenitors.²⁷³ Individuals or couples who create *in vitro* embryos for reproductive purposes usually have a few frozen embryos remaining once

their family is complete. The disposition options for the progenitors of these supernumerary embryos are: (1) donation to others for reproductive purposes, (2) donation for research purposes, and (3) destruction.

The difference between supernumerary *in vitro* embryos donated for research and *in vitro* embryos created through fertilization solely for research purposes is that the donated embryos were originally intended for reproduction. In all other aspects, supernumerary embryos, embryos created for research, and embryos created for reproduction are the same. It is likely that all three categories of *in vitro* embryos would theoretically have the same potential for human life. They have all been created through the union of a sperm and an egg resulting in a "unique" entity. Commentators have suggested that when the nucleus of the sperm and the egg unite, the genes combine to create a unique individual with an "open genetic future."²⁷⁴

Should research on the in vitro embryo be prohibited because of its potential for life?

Professor Robertson suggests that given the increased scientific knowledge regarding the various stages of pre-viable human life, it may be time for society to reassess the basis for differing viewpoints respecting the status of an *in vitro* embryo.²⁷⁵ Until the *in vitro* embryo has been transferred into a woman's uterus, has successfully implanted into the uterine wall, and has developed to the point at which it would be viable outside its mother's body, it is difficult to assess the *in vitro* embryo's potential for human life. The early embryo lacks sentience and cognition, and is not an individual until after implantation and further development. The potential to become a person does not mean that the *in vitro* embryo is a person with legal rights.

²⁶⁷ *Ibid.*

²⁶⁸ *Ibid.*

²⁶⁹ *Supra* note 27.

²⁷⁰ *Ibid.* at 7.

²⁷¹ *Ibid.*

²⁷² *Ibid.*

²⁷³ The term "progenitor" means the ancestor or genetic parent (Concise Oxford Dictionary, 10th Ed.).

²⁷⁴ The phrase "open genetic future" refers to the potential of the human being with a unique DNA, resulting from the combination of DNA from a sperm and the DNA from an ovum, to be shaped by his or her environment.

²⁷⁵ *Supra* note 256 at 2.

Scientific research has revealed that not every *in vitro* or *in utero* embryo has the potential to develop into a human being. A significant percentage of embryos have a genetic composition such that they could neither implant in the uterine wall nor develop once implanted. Even in sexual reproduction, a large number of fertilized eggs are aborted spontaneously, and some believe that “debraint is morally unconvincing to claim absolute inviolability for an organism with which nature itself is so prodigal.”²⁷⁶

The potential for human life may not be the most rational basis on which to prevent the creation of *in vitro* embryos solely for research purposes, since it is difficult to assess and all three types of embryos discussed above arguably have the same potential for human life.

Is there a difference between those embryos created through in vitro fertilization and those embryos created through therapeutic cloning?

There may be important differences between embryos created through fertilization (the union of a sperm and an egg) and embryos created by therapeutic cloning. Many persons consider the therapeutically cloned *in vitro* embryo to be a copy of another person (the nucleus donor). One could argue that such embryos are not unique creations with an open genetic future, but rather are copies of existing persons destined to share the same genetic characteristics as those of the nucleus donor.

On the other hand, the therapeutically cloned embryo contains DNA from the nucleus donor and mitochondria DNA from the female egg donor, and thus it is not an exact copy of the nucleus donor. One could argue that the therapeutically cloned *in vitro* embryo is also a unique individual with an open genetic future.

With respect to the potential for human life, it is difficult to predict the therapeutically cloned embryo’s potential for human life since no one has successfully used such an embryo for reproduction purposes. However, if the difficulties of successfully creating a cloned ewe are attributable to the cloned embryo’s potential for life, it would be possible to conclude that the cloned human embryo possesses minimal potential to develop into a healthy human being.

Some individuals may argue that these fundamental differences make it less ethically and morally troubling to create embryos by therapeutic cloning solely for research purposes. However, other individuals may be concerned that creating an entity with potential for human life, however small, as a means to an end and not as an end in and of itself, could diminish society’s respect for the sanctity of human life.

In addition to creating embryos through cloning, scientists may soon be able to create *in vitro* embryos solely for research purposes through parthenogenesis. The use of these embryos in research might be significantly less controversial.

In vitro embryos created through parthenogenesis are derived from an unfertilized human egg and are only able to develop to a certain point before they perish naturally. In addition, these embryos only have the genetic material of the female and thus are at no time capable of developing into a human being, i.e., they do not have the potential for human life. In order to create such an embryo, however, a woman must donate one of her ovum to research. Although perhaps not as controversial as the donation of an *in vitro* embryo for research, the use of a human egg in this way might still raise moral and ethical concerns.

For some individuals, the creation of an *in vitro* embryo by whatever method solely for research purposes raises issues of ethics and morality and displays a lack of respect for the sanctity of human life. The embryo can be viewed as part of the human community. An embryo created solely for research is arguably created as a means to an end, rather than an end in and of itself. For others, however, the donation to research of potentially viable supernumerary *in vitro* embryos, originally created for reproductive purposes, may be even more ethically troubling.

These concerns must be weighed and balanced with equally broad ethical and moral societal concerns related to progress in the fields of scientific and medical research. If research using *in vitro* embryos shows promises of producing medical cures and therapies for existing human

²⁷⁶ Royal College of Obstetricians and Gynaecologists. *Report of the RCOG Ethics Committee on In Vitro Fertilisation and Embryo Replacement or Transfer* (London: RCOG, 1983).

beings suffering with debilitating and life-threatening diseases, are there not broad moral and ethical concerns raised if such research is prohibited?

4.7.4 Conclusion

All embryos created through fertilization arguably have some potential for human life, even if science has demonstrated that such potential is less than originally believed. These *in vitro* embryos could be considered as unique entities with open genetic futures. The same cannot be said for those *in vitro* embryos created through therapeutic cloning and parthenogenesis since no one has successfully used them in reproduction. Based on animal research, they likely have less potential for human life than *in vitro* embryos created through fertilization. Cloned embryos may be considered by some to be mere copies of existing human beings, and thus would not be thought to possess a unique genetic makeup.

With respect to purpose, the *in vitro* embryo created through therapeutic cloning, embryo splitting or parthenogenesis is created solely for research purposes, with the intent of destroying it prior to the fourteenth day of development. These *in vitro* embryos have been created solely as a means to an end. On the other hand, *in vitro* embryos created for reproductive purposes were intended to develop into human beings. Once they become super-numerary, they become a proper subject of research.

It remains to be determined whether the differences discussed above would affect an embryo's moral status. Embryos created by cloning, splitting or parthenogenesis may be so fundamentally different, e.g. lack the potential for life, that concerns regarding their use in research would be minimized. For some individuals, however, the differences would not affect the moral status of an embryo which is derived from the fact that embryos are part of the human community. However, if scientists develop life-saving cures and therapies from research using the human embryo, society may be faced with choosing between the morality of research on an embryo and the morality of denying access to medical treatment.

4.8 Conclusion

Biotechnology is the result of scientific research. Without the freedom to ponder, opine, and experiment, scientists would not be able to research. This chapter examined the question of whether scientists have a human right to undertake scientific research. There are international and regional human rights instruments that link the principle of scientific freedom to human flourishing, and some of these instruments oblige State Parties to ensure that researchers have such freedom.

However, freedom to research, like any other human right, is not absolute. International and regional instruments note that freedom to research can be legitimately restricted by the state in those circumstances where other interests, such as public health, safety, morals, or ethics are implicated. The *Charter* guarantees freedom of thought, belief, opinion and expression in section 2(b). The Supreme Court of Canada has interpreted this continuum of freedoms broadly. The state can limit these freedoms but must be able to justify any restrictions under section 1 of the *Charter* as a reasonable limit prescribed by law in a free and democratic society.

Based on the existing jurisprudence, it is likely that scientific research would be found by the courts to fall within thought, belief, opinion and expression and thus would be protected by section 2(b). Although the experiment portion of scientific research is physical conduct, the Supreme Court has specifically noted that conduct that conveys or attempts to convey a message will be protected. The state would have an opportunity under section 1 to justify any restriction on scientific research and if successful, the restriction would be found to be constitutionally valid. There is no jurisprudence respecting a *Charter* right to undertake research and as such, this issue represents a novel area requiring future judicial interpretation.

It may be that there is a broad human right to enjoy the benefits and applications of scientific progress. Such a right might be relied on to argue that individuals have a right to access life-saving medical or scientific technology without state interference. A state restriction on access to such technologies, backed by penal sanction, would

engage a person's rights under section 7 of the *Charter*, specifically the liberty and security of the person interests.

The final issue discussed was whether *in vitro* embryos created through different processes and for different purposes can be assigned different status. Embryos created through parthenogenesis are currently considered not to have the potential for human life. One could argue that these embryos should be assigned a lesser status than *in vitro* embryos created for reproduction purposes through the union of a sperm and an egg. If that was the

case, the creation of *in vitro* embryos through parthenogenesis solely for research purposes would not likely raise ethical or moral concerns in society. On the other hand, the embryo may derive its status from the fact that it is part of the human community and as such, creation solely for research could not be justified. As biotechnology advances, society may have to choose between the creation and use of embryos solely for research, and the access of persons suffering with serious diseases and disorders to scientific cures and therapies derived from such embryos.