



Archdiocese of Hobart

Submission to the Review of the
Tasmanian *Human Embryonic
Research Regulation Act 2003* and the
*Human Cloning and other Prohibited
Practices Act 2003.*

10 August 2006

Introduction

The Catholic Church in Australia is a well-known advocate for respect and protection of the human embryo. This is grounded in the understanding that all human beings are equal in dignity, irrespective of their age, size, or abilities, and that respect for the dignity of every human being gives rise to the recognition of the 'inviolability' or 'sanctity' of human life and a series of basic human rights. As science clearly demonstrates that human embryos are complete, though immature, human beings, we believe that justice requires that embryonic human beings are protected by law in the same way that other human beings are.ⁱ

At the same time, institutionally and individually, Catholics make a substantial contribution to health care and medical research. We recognise the potential good that biotechnology may bring to the health and wellbeing of the Tasmanian community.

Therefore, the Church supports biomedical research and therapy which is undertaken within an ethical framework which respects human life and dignity at every stage and in every condition. In so doing, we join other Christian denominations, major religious traditions and many people of good will of no religion, who propose that medical and scientific research should be at the service of human life and dignity.ⁱⁱ

This submission follows the prompting of the *Issues Paper: Outline of the Tasmanian legislation and issues for public consultation, July 2006*, ISSUES FOR CONSIDERATION [3.3].

1. Do the Tasmanian Acts achieve their purpose?

The Catholic Archdiocese of Hobart does not support the principle object of the *Human Embryonic Research Regulation Act 2003* (hereafter, the *Embryonic Research Act*), which is to permit destructive embryo experimentation on excess artificial reproductive technology (ART) embryos in Tasmania, or the export of excess ART embryos from Tasmania to other Commonwealth States for use in licensed research.

We reject the argument that because 'excess ART embryos are going to die anyway' it is acceptable to use them for research. Many frail elderly people, prisoners on death row, and terminally ill patients are 'going to die soon anyway', but we hold back from using and killing them in research because we recognise their human dignity requires that we always treat them as an end in themselves and never merely as a means to serving the ends of other human beings.

While we would like to see this Act repealed, we accept that there is no public or political will to do so at the moment. We do, however, urge the Tasmanian Government to reject any proposed amendments to the *Human Embryonic Research Regulation Act 2003* which would embody a relaxation of laws regulating the use of excess ART embryos.

Any efforts to loosen restrictions upon this research would heighten our ethical concerns about the exploitation of the human embryo. **It would also seem to be scientifically unjustified:** while it is estimated that there are currently over 80 therapies and around 300 clinical trials underway using non-embryonic human stem cellsⁱⁱⁱ (so called ‘adult’ stem cells, or stem cells from umbilical cord blood or placentas), there are still no therapeutic applications of embryonic stem cell research for humans.^{iv}

A comprehensive review of the basic research and therapeutic application of all types of stem cells, by The Southern Cross Bioethics Institute, is attached to this submission. This paper concludes:

At this point in time stem cells derived from adult tissues or umbilical cord blood show the greatest clinical application and a rapidly growing repertoire of capacity for transdifferentiation. Coupled with the possibility for autologous transplant (and hence immunocompatibility), their stability, and recent expansion in quantities sufficient for therapy, adult and cord blood stem cells must be considered the most feasible option. In contrast, progress using ES [embryonic stem] cells has been slow and hampered by the risk of tumour formation and immune rejection.¹

Therefore, while the Archdiocese cannot in principle support the policy objectives of the Embryonic Research Act, we acknowledge that the terms of the Act place important governing limits on the destruction of excess ART embryos, and do not support amendments to the Act which would weaken these limits.

By contrast, the *Human Cloning and other Prohibited Practices Act 2003* (hereafter, the *Human Cloning Act*) is a generally sound piece of legislation, which, informed by objective and universal ethical principles and current scientific option, sets reasonable limits to medical research involving nascent human life. In doing so, it conforms to a range of international declarations and covenants, notably the 2005 *United Nations Declaration on Human Cloning*, which calls on all member states to ‘prohibit all forms of human cloning inasmuch as they are incompatible with human dignity and the protection of human life’ and Article 18 of the *European Convention on Human Rights and Biomedicine* which also specifically forbids the creation of embryos for use in research.^v

The Archdiocese therefore supports the policy objectives and terms of the Human Cloning Act and recommends that it is not subjected to any amendments that would allow the creation of human embryos, by any means, for any purpose other than attempting to achieve pregnancy in a woman. This includes maintaining the absolute prohibition of any form of human cloning and all other unacceptable practices currently identified by the Act.

¹ Gregory Pike. *Briefing Note on Stem Cells*, Southern Cross Bioethics Institute. August 2005.

2. Is the national regulatory and licensing scheme effective?

A national approach to the use of human embryos in experimentation and medical therapies is important because of the serious and far reaching human ethical issues that are involved. Consistent legislation across the States, which embodies basic objective ethical principles governing research involving human subjects, is both necessary, and achievable.

3. Do you support some or all of the Lockhart Committee's recommendations?

In 2002 the *creation* of human embryos for the purpose of research or therapies was banned by Federal Parliament without a dissenting voice. Now, less than four years later, the Lockhart Committee has recommended that this ban be lifted without a dissenting voice, and despite the fact that the great majority of the 1000 written submissions to the Committee were opposed to expanding destructive embryo research and permitting the creation of research embryos by human cloning and other forms of ART.

The Report proposes a *radical* departure from the current legislation, which would be out of step with basic ethical and community standards governing research involving human beings, and out of proportion to scientific developments and expectations in this area. There are very few recommendations which warrant support.

4. (a) Which do you support?

Recommendations 2-5, 7-11² of the Lockhart Committee are supported, however we also have a strong prior objection to the creation of human embryos by these means.

² 2 Reproductive cloning should continue to be prohibited.

3 Implantation into the reproductive tract of a woman of a human embryo created by any means other than fertilisation of an egg by a sperm should continue to be prohibited.

4 Development of a human embryo created by any means beyond 14 days gestation in any external culture or device should continue to be prohibited.

5 Implantation into the reproductive tract of a woman of a human-animal hybrid or chimeric embryo should continue to be prohibited.

7 Placing a human embryo into an animal or into the body of a human apart from into a woman's reproductive tract, or placing an animal embryo into the body of a human, for any period of gestation, should all remain prohibited.

8 Implantation into the reproductive tract of a woman of an embryo created with genetic material provided by more than two people should continue to be prohibited.

9 Implantation into the reproductive tract of a woman of an embryo created using precursor cells from a human embryo or a human fetus should continue to be prohibited.

10 Implantation into the reproductive tract of a woman of an embryo carrying heritable alterations to the genome should continue to be prohibited.

11 Collection of a viable human embryo from the body of a woman should continue to be prohibited.

The implantation or artificial gestation of these ‘research embryos’ is likely to be prohibitively risky for the embryo (and any woman who is impregnated with such an embryo) and an occasion of further dehumanizing experimentation rather than reasonable care and nurture.

Recommendations 1, 12 and 44 are supported without qualification.³

From an ethical perspective, the Archdiocese adopts a neutral stance towards a series of ‘regulatory’ or ‘procedural’ recommendations concerning practices which we do not, in the first place, endorse: Recs 14, 18-19, 29, 31-41, 43, 45-49, 52-54.⁴

³ 1 Clinical practice and scientific research involving assisted reproductive technologies (ART) and the creation and use of human embryos for research purposes should continue to be subject to specific national legislation.

12 Creation of human embryos by fertilisation of human eggs by human sperm should remain restricted to ART treatment for the purposes of reproduction.

44 Trade in human gametes or embryos, or any commodification of these items, should continue to be prohibited.

⁴ 14 Use of excess ART embryos in research should continue to be permitted, under licence, as under current legislation.

18 The Licensing Committee should develop a simple pro-forma application for licences to undertake training and quality assurance activities for ART clinics.

19 Consideration should be given to the use of cytoplasmic transfer (including transfer of mitochondrial DNA), under licence, for research on mitochondrial disease and other uses to improve ART treatment.

29 The National Health and Medical Research Council (NHMRC) should review its guidelines in relation to consent to research on excess ART embryos, in order to clarify the consent process in relation to the following issues:

- the circumstances, if any, where those who choose to donate excess ART embryos to research may be able to choose not to be contacted at some later stage to give consent to a particular research proposal
- the circumstances, if any, where a human research ethics committee can determine that the researcher need not ask for further consent to use embryos already declared ‘excess’
- the development of an appropriate form of consent that could be completed by the responsible persons for excess ART embryos shortly after the declaration that the embryos are excess
- the manner in which those who donate embryos or gametes for the creation of ART embryos may express any preference for the type of research for which the tissue will be used, once the embryo is declared excess.

31 The current principles of consent for participation in medical research must apply to sperm, egg and embryo donors, so as to ensure that decisions are freely made.

32 The NHMRC should develop guidelines for egg donation.

33 The present prohibition of the sale of sperm, eggs and embryos should continue, but the reimbursement of reasonable expenses should continue to be permitted.

34 The Embryo Research Licensing Committee of the NHMRC (the Licensing Committee) should continue to be the regulatory body responsible for assessing licence applications, issuing licences and monitoring compliance, as under current arrangements.

35 The role of the Licensing Committee should be extended to include assessment of licensing applications and issuing licences for any additional activities permitted, under licence (see Recommendations 14–27).

36 The Australian Parliament and the Council of Australian Governments should give urgent attention to the problem of delays in the filling of vacancies on the Licensing Committee.

4. (b) Which do you not support and why?

4.b.1 The Archdiocese does not support any recommendations of the Lockhart Committee that would expand the pool of human embryos potentially at risk of destructive experimentation.

We are particularly concerned about recommendations which support the creation of human research embryos. This would move us beyond the *designation* of a group of living human beings (excess ART embryos) for research, as is currently allowed, to the more objectionable stage of *creating* a group of living human beings solely for the purpose of exploitation as biological material. This would embody the ultimate form of commodification of human life. It could radically alter societal attitudes towards human dignity, equality and community.

37 There should be no attempt to recover the cost of administration, licensing, monitoring and inspection activities associated with the legislation from researchers at this point in time.

38 The Licensing Committee should continue to perform its functions in relation to licences and databases for research permitted by licences under the Research Involving Human Embryos Act.

39 Licensing Committee inspectors should be given powers, under the Prohibition of Human Cloning Act and the Research Involving Human Embryos Act, of entry, inspection and enforcement in relation to non-licensed facilities in the same manner and by the observance of the same procedures as applicable to search warrants under Commonwealth legislation, if such powers do not clearly exist.

40 There should be a continuation of the role of the Reproductive Technology Accreditation Committee in the regulation of ART.

41 The import or export of a patient's reproductive material, including ART embryos, for the purpose of that person's ongoing ART treatment should not require any regulation other than that required under existing quarantine regulation.

43 The existing requirements for the import and export of human biological materials are satisfactory and, for ethically derived human embryonic stem cells, no further restrictions are necessary.

45 Donors of tissue that is going to result in an immortal stem cell line should be informed by means of processes monitored by human research ethics committees about the potential use of that stem cell line, including the potential for commercial gain and the fact that they may not have any rights in potential stem cell developments.

46 The development of biotechnology and pharmaceutical products arising from stem cell research should be supported.

47 A national stem cell bank should be established.

48 Consideration should be given to the feasibility of the Australian Stem Cell Centre operating the stem cell bank.

49 A national register of donated excess ART embryos should be established.

52 A researcher who conducts research on the basis of a ruling or a licence should be protected from liability under the legislation, provided that they act in accordance with the relevant ruling or licence.

53 In view of the fast-moving developments in the field, and the range of amendments proposed herein, the two Acts should be subject to a further review either six years after royal assent of the current Acts or three years after royal assent to any amended legislation.

54 There should be ongoing public education and consultation programs in the areas of science that are relevant to the Acts.

Additionally, the Committee makes recommendations which would expand the range of ways in which human embryos are created, such as human cloning or the mixing of animal and human gametes.

These procedures are incompatible with the dignity of the human being and the dignity of human procreation.

We strongly disagree with the logic of the Lockhart Committee, which concludes that:

“...the moral significance of such a cloned embryo is linked more closely to its potential for research to develop treatments for serious medical conditions, than to its potential as a human life.” (*Lockhart Report*, p. xvii)

This reasoning departs radically from the widely held understanding that the moral significance of embryonic human beings is derived from what they ARE - very young human beings. These embryos do not gain or lose their humanity on the basis of how or why they are created. Yet the Lockhart Report suggests that a human embryo only counts as ‘someone’ if it will be nurtured and brought to birth. Otherwise it’s just ‘something’ to be studied in the lab, used for drug testing, dismembered to obtain stem cells, and ultimately destroyed. This attitude towards early human life is inherently illogical and unjust.

We also disagree with the Committee where they suggest:

Furthermore, the production and destruction of such an embryo is not dissimilar to the production and destruction of excess ART embryos, which is permitted by the legislation and widely accepted by society. Thus to permit one (production and destruction of ART embryos) but not the other (production and destruction of nuclear transfer and other bioengineered embryos) would be inconsistent and appear to attach more importance to the treatment of infertility than to the treatment of other diseases and conditions that could be helped as a result of this activity. (*Lockhart Report*, p. xvii)

It is misleading for the Committee to justify the creation and destruction of human embryos for research by conflating this with the creation of excess human embryos for reproductive purposes (ART). Creating embryos for reproductive purposes is radically different to creating embryos for research. Even though couples undergoing ART know that some embryos may be destroyed in the ART process, this is not something that they intend and want. The likelihood that some embryos will perish is accepted as a regrettable, but unavoidable side effect of ART.

As well as there being serious ethical objections to the creation of human embryos for research, there is also no compelling scientific case for these practices. There is still no evidence that stem cells can be obtained from a cloned human embryo, let alone be used for a treatment. Experience in mammalian cloning to date has shown that genetic disorders and non-viability are the most likely results for these embryos and so for any stem cell derived from them.^{vi}

Other practical (and ethical) problems surround the fact that many of these procedures depend upon the invasive ‘harvesting’ of eggs from women^{vii} and they are likely to be prohibitively expensive for most Australians.^{viii} Alternatively, many scientists think that developments in adult stem cell research and therapy will overcome the need to create human embryo clones and extract matched human cells for research and cell replacement therapies.^{ix}

For these reasons we strongly reject the recommendations 15-17, 20-27, 30 and 42.⁵

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- ⁵ 15 Research involving fertilisation of human eggs by human sperm up to, but not including, the first cell division should be permitted for research, training and improvements in clinical practice of ART.
- 16 Testing of human oocytes for maturity by fertilisation up to, but not including, the first cell division or by parthenogenetic activation should be permitted for research, training and improvements in clinical practice of ART.
- 17 Certain interspecies fertilisation and development up to, but not including, the first cell division should be permitted for testing gamete viability to assist ART training and practice.
- 20 An expert body should formulate objective criteria to define those embryos that are unsuitable for implantation.
- 21 Fresh ART embryos that are unsuitable for implantation, as defined by the objective criteria, should be permitted to be used, under licence, for research, training and improvements in clinical practice.
- 22 Fresh ART embryos that are diagnosed by preimplantation genetic diagnosis (according to the ART guidelines) as being unsuitable for implantation should be permitted to be used, under licence, for research, training and improvements in clinical practice.
- 23 Human somatic cell nuclear transfer should be permitted, under licence, to create and use human embryo clones for research, training and clinical application, including the production of human embryonic stem cells, as long as the activity satisfies all the criteria outlined in the amended Act and these embryos are not implanted into the body of a woman or allowed to develop for more than 14 days.
- 24 In order to reduce the need for human oocytes, transfer of human somatic cell nuclei into animal oocytes should be allowed, under licence, for the creation and use of human embryo clones for research, training and clinical application, including the production of human embryonic stem cells, as long as the activity satisfies all the criteria outlined in the amended Act and these embryos are not implanted into the body of a woman or allowed to develop for more than 14 days.
- 25 Creation of human embryos and human embryo clones by means other than fertilisation of an egg by a sperm (such as nuclear or pronuclear transfer and parthenogenesis) should be permitted, under licence, for research, training and clinical applications, including production of human embryonic stem cells, as long as the research satisfies all the criteria outlined in the amended Act and these embryos are not implanted into the body of a woman or allowed to develop for more than 14 days.
- 26 Creation of human embryos using the genetic material from more than two people, or including heritable genetic alterations, should be permitted, under licence, for research, training and clinical applications, including production of human embryonic stem cells, as long as the research satisfies all the criteria outlined in the amended Act and these embryos are not implanted into the body of a woman or allowed to develop for more than 14 days.
- 27 Creation of embryos using precursor cells from a human embryo or a human fetus should be permitted, under licence, for research, training and clinical applications, including production of human embryonic stem cells, as long as the research satisfies all the criteria outlined in the amended Act and these embryos are not implanted into the body of a woman or allowed to develop for more than 14 days.
- 30 The NHMRC should develop ethical guidelines for the use of embryos that are unsuitable for implantation for research, training and improvements in clinical practice (see Recommendations 20–22).
- 42 The import or export of ethically derived viable materials from human embryo clones should be permitted after approval by the appropriate authority.

4.b.2 The Committee's attempt to redefine the 'human embryo', Rec 28, should be rejected.

28. The definition of a 'human embryo' in both Acts should be changed to:

'A human embryo is a discrete living entity that has a human genome or an altered human genome and that has arisen from either:

(i) the first mitotic cell division when fertilisation of a human oocyte by a human sperm is complete; or

(ii) any other process that initiates organised development of a biological entity with a human nuclear genome or altered human nuclear genome that has the potential to develop up to, or beyond, 14 days and has not yet reached eight weeks of development.'

While the current definitions in the Acts are far from ideal⁶, the proposed definition arbitrarily assigns a later stage in human development, the first cellular division, as the moment when the embryo comes into existence. An alternate view is that the new human entity that we call an 'embryo' comes into existence when the first cell is formed by the fusion of the human oocyte and human sperm. The later process of mitosis that occurs in order to replicate that first cell ('the first cell division') happens in an already existing unicellular organism. The cell division is not the beginning of the new entity (the embryo), but something that occurs in an entity which already has a completed human genome and which is already organised for further development.

The intended effect of the new definition is to allow the creation of human research embryos by the fertilization of eggs with sperm, but to conceal this by not defining the resulting unicellular human being as an embryo. Although the Report does not appear to recommend lifting the prohibition on creating embryos by fertilization of eggs with sperm for research use, (Rec 12), the proposed definition of the embryo, facilitates the subsequent recommendation that research involving fertilisation of human eggs by human sperm up to, but not including, the first cell division should be permitted for research, training and improvements in clinical practice of ART (Rec 15). In reality, therefore, the Report merely shifts the point at which the new human being is called an embryo to a later stage in development (the first cell division, rather than the appearance of the two pronuclei) to allow the creation, and subsequent research with unicellular human organisms formed by fertilisation of human eggs by human sperm.

The Committee noted that changing the definition of a human embryo to a slightly later stage in the fertilisation process (the first cell division) would allow much of the research described above to occur without breaking the law, while still maintaining a very broad definition of an embryo in line with all the community views expressed to them during the reviews. (*Lockhart Report*, p. 167)

The proposed definition would also exclude new unicellular human entities formed as the result of procedures such as parthenogenesis, nuclear or pronuclear transfer and hybridisation.

⁶ "Human embryo means a live embryo that has a human genome or an altered human genome and that has been developing for less than 8 weeks since the appearance of 2 pro-nuclei or the initiation of its development by other means."

4.b.3 Regarding Recommendations 6 and 13, we support the continued prohibition of the “development of a human–animal hybrid or chimeric embryo” and the “creation of human embryos by fertilisation of human eggs by human sperm to create embryos for the purposes of research” but reject any move to introduce exceptions to these prohibitions. As such we would not endorse Recommendations 6 and 13 as they currently stand.⁷

4.b.4 We oppose recommendations 50 and 51 which seek to reinforce a ‘regulatory approach to legislation’.⁸ Unelected licensing committees should not be authorised to make binding rulings on the interpretation of an Act, or the regulations made under that Act, when these matters touch upon crucial public issues of protection for human life and dignity. This represents a dangerous encroachment upon the rights and responsibilities of elected parliamentary representatives and of the Courts.

Conclusion

The Catholic Archdiocese of Hobart welcomes the possibility that advances in biotechnology could improve the health and wellbeing of our community, but believes that this will be best achieved by ethical research which embodies respect for embryonic as well as adult human subjects. To do otherwise could radically alter Tasmanian societal attitudes towards human dignity, equality and community.

To this end, while the Catholic Archdiocese of Hobart cannot in principle support the policy objectives of the *Embryonic Research Act*, we acknowledge that the terms of the Act place important governing limits on the destruction of excess ART embryos and urge the Government to maintain this legislation in its current form.

The Archdiocese also supports the policy objectives and terms of the *Human Cloning Act* and recommends that it is not subjected to any amendments that would allow the creation of human embryos, by any means, for any purpose other than attempting to achieve pregnancy in a woman.

⁷ 6. Development of a human–animal hybrid or chimeric embryo should continue to be prohibited, except as indicated in Recommendation 17.

13. Creation of human embryos by fertilisation of human eggs by human sperm to create embryos for the purposes of research should continue to be prohibited except in the situation described in Recommendation 15.

⁸ 50 The Licensing Committee should be authorised under the Prohibition of Human Cloning Act to give binding rulings on the interpretation of that Act, or the regulations made under that Act, on condition that it reports immediately and in detail to the NHMRC and to parliament on such rulings.

51 The Licensing Committee should be authorised by the Research Involving Human Embryos Act to give binding rulings and to grant licences on the basis of those rulings for research that is not within the literal wording of the Act, or the regulations made under the Act, but is within their tenor, on condition that the Committee reports immediately and in detail to the NHMRC and to parliament on any rulings it gives, or any licences it grants, in that way.

This includes maintaining the absolute prohibition of any form of human cloning and all other unacceptable practices currently identified by the Act.

Attachments

Three attachments are included with this submission.

The first, as noted previously, is a comprehensive review of the basic research and therapeutic application of all types of stem cells, compiled by The Southern Cross Bioethics Institute.

The second attachment is a paper originally prepared as a resource for Senators Barnett and Santoro to share with colleagues during consideration of the report of the Lockhart Review. This briefing paper includes a number of attachments that are of value. In particular, attention is drawn to the paper titled *The Ethics and Myths of Stem Cells* written by Professor John Martin, Emeritus Professor of Medicine at the University of Melbourne and a John Holt Fellow at St Vincent's Institute of Medical Research. This was originally published in *Eureka Street*, July-August 2005 edition.

The third attachment is a recent article titled *Ethics and The Embryo* written by Christopher Pearson. It was published in *The Australian* newspaper on 29 July 2006.

These attachments form part of this submission and should be read in conjunction with the information provided above.

Endnotes

ⁱ The *International Convention on the Rights of the Child* provides that “the child, by reason of his or her physical and mental immaturity, needs special safeguards and care, including appropriate legal protection, before as well as after birth”. *Convention on the Rights of the Child*, United Nations General Assembly resolution 44/25, 20 November 1989.

ⁱⁱ The World Medical Association’s *Declaration of Helsinki* (2000) points out: “in medical research on human subjects, considerations related to the well-being of the human subject should take precedence over the interest of science and society.” World Medical Association, *Declaration of Helsinki Ethical Principles for Medical Research Involving Human Subjects*, 52nd WMA General Assembly, Edinburgh, Scotland, October 2000 A.5

ⁱⁱⁱ Editorial, Proceed with caution, *Nature Biotechnology* Vol 23 No 7 July 2005.

^{iv} “Techniques for culturing human embryonic cells have advanced...but an increasing appreciation of the hazards of embryonic stem cells has rightly prevented the emergence or immediate prospect of any clinical therapies based on such cells. The natural propensity of embryonic stem cells to form teratomas, their exhibition of chromosomal abnormalities, and abnormalities in cloned mammals all present difficulties.” Scolding N, Stem-cell therapy: hope and hype *The Lancet*: Jun 18-Jun 24, 2005; 365, 9477; Health and Medical Complete pg. 2073.

^v European Council of Europe. 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*, Oviedo, 4.IV.1997.

^{vi} “Some studies published by Advanced Cell Technology and others have been touted as showing benefits from stem cells harvested from cloned animal embryos—but in each case, the study had to achieve its therapeutic goal by implanting the embryo in an animal’s uterus and growing it to the fetal stage, then killing the fetus for more developed *fetal* stem cells. Such “fetus farming” is now apparently seen by some researchers as the new paradigm for human “therapeutic cloning,” and some state laws on cloning (e.g., New Jersey’s) are crafted to allow just such grotesque practices in humans. It may be that “therapeutic cloning” cannot be made to work without conducting the “reproductive cloning” that almost everyone condemns—placing embryos in women’s wombs, in this case in order to abort them later for their more developed tissues.” Richard Dorflinger, “The Many Causalities of Cloning,” *The New Atlantis*, Spring 2006, pp. 61.

^{vii} There are serious concerns within the community that the authorization of human cloning and other prohibited practices that require oocyte donation, would place women at risk of instrumentalisation and exploitation. As one scientist explains in *The Lancet*: “...in practice the specific issues of the source of oocytes used for any embryos created for the purpose of research is a major problem, in view of the well documented imbalance between needs and supply in egg donation. If there is a limited number of oocytes available should they preferentially be allocated to reproduction? Potential abuse of vulnerable women who might be enticed to sell their oocytes for research is a grave concern as it has been for several years in gamete donation.” Shenfield F, Semantics and ethics of human embryonic stem-cell research, *The Lancet*: Jun 18-Jun 24, 2005; 365, 9477; Health and Medical Complete pg. 2071.

^{viii} The Chairman of the Royal Society Working Group on Stem Cells and Therapeutic Cloning, Richard Gardner doubts whether ‘therapeutic cloning’ will ever be: “...a procedure that becomes widely available...There are concerns about the efficiency and elaborateness of the procedure, and it’s going to be very time-consuming and very expensive.” Sample I, Is there hope behind the stem cell hype? *Guardian* Aug 19, 2004. Similarly, Ruth Faden, John Gearhart, and eighteen other ethicists and scientists favoring ESC research, in the *Hastings Center Report*, November-December 2003 write: “Although [cloning by somatic cell nuclear transfer (SCNT)] might, in theory, solve the rejection-biological access problem, it can do so only one person at a time. The amount of time and money needed to create these uniquely cloned solutions makes it unlikely that SCNT will provide a practical, widespread solution to the biological access problem.”

^{ix} A research team at Griffith University, Queensland, led by Professor Alan Mackay-Sim has shown that adult stem cells from the human olfactory mucosa are able to give rise to new nerve, glial, liver, heart, kidney and muscle cells. Murrell W *et al.*, Multipotent stem cells from adult olfactory mucosa. *Developmental Dynamics* 233:496-515, June 2005.