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REPORT OF IBC ON HUMAN CLONING AND INTERNATIONAL GOVERNANCE

This Report has been drawn up by the International Bioethics Committee (IBC) on the basis of the reflection carried out in 2008 on the issue of human cloning and international governance: in particular, the deliberations of its working group on this issue and discussions held during the fifteenth session of IBC and the joint session of IBC and the Intergovernmental Bioethics Committee (IGBC) in October 2008.

I. BACKGROUND AND MANDATE

1. The issue of human cloning and its practical applications and the appropriate international system for its governance have stirred profound reflection and debate within the United Nations system and in the international community at large. International reflection began in UNESCO more than ten years ago and led to the consensual position of Member States on human reproductive cloning as reflected in Article 11 of the UNESCO Universal Declaration on the Human Genome and Human Rights (1997). In August 2001, the Permanent Missions of France and Germany to the United Nations requested the Secretary-General of the United Nations to include a supplementary item in the agenda of the 56th session of the General Assembly entitled "*International Convention against the Reproductive Cloning of Human Beings*". An international convention would be legally binding to Member States.

2. After almost 4 years of discussion, by resolution A/RES/59/280 the United Nations General Assembly adopted (by vote) the UN Declaration on Human Cloning on 8 March 2005. The Declaration passed with 84 countries supporting it, 34 countries voting against and 37 abstaining. The wording of the document left room for very different interpretations of the text, which reflected, in part, the lines of division between different Member States on this issue. The main point of contention was the question of linking the issues of reproductive and non-reproductive cloning, which was not agreeable to many States, who abstained or voted against the Declaration.

3. In 2007, the United Nations University Institute of Advanced Studies (UNU-IAS) produced a Report entitled *Is Human Reproductive Cloning Inevitable: Future Options for UN Governance*, which summarized up-to-date technical information on cloning, ethical issues accompanying it and the state of the art of international governance of these issues. It specifically analyzed the 4 year long debate at the United Nations General Assembly that led to the vote on the United Nations Declaration of Human Cloning. The Report expressed the view that further development of international governance would be needed and envisaged several options along this line.

4. The Director-General of UNESCO expressed his wish that the examination of the UNU-IAS report be added as an agenda item for discussion by IBC at its session(s). Consequently, the discussion of the UNU-IAS report and the issue of human cloning and international governance were included in the work programme of IBC for 2008-2009.

II. THE UNU-IAS REPORT

5. The UNU-IAS Report *Is Human Reproductive Cloning Inevitable: Future Options for UN Governance* is an important document that gives a comprehensive account of the present situation in international governance of human reproductive cloning. Whilst it is understood that the report does not intend to provide a complete review of the scientific issues, it is nevertheless noted that it does not take into account of several new scientific advances (such as induced pluripotent cells, role of epigenetics in individual development), which are not just mere technical details, but add new aspects to the bioethics and governance issues.

6. The options for further activities offered in the UNU-IAS Report seem to be limited in the sense that they are based on the framework of discussions previously held on this topic. In this respect, the report mostly describes what cannot be achieved given current differences of opinion between Member States, especially regarding the moral status of the embryo. It is important to search for different approaches to this issue, rather than remaining in the same arena where many of the arguments were based on technical distinctions which are becoming obsolete (e.g. use of embryonic stem cells as opposed to other stem cells).

III. PRESENT SITUATION OF THE INTERNATIONAL GOVERNANCE OF HUMAN CLONING

7. At the international level, two United Nations declarations and a World Health Organization resolution are the present instruments of governance of human cloning.

8. The Universal Declaration on the Human Genome and Human Rights, adopted on 11 November 1997 by the General Conference of UNESCO and endorsed by the General Assembly of the United Nations by resolution 53/152 of 9 December 1998, is the first international instrument which prohibits human reproductive cloning. Indeed, Article 11 of the Declaration states that:

Practices which are 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.

9. The World Health Organization states in Resolution WHA51.10 of 16 May 1998 that "cloning for the replication of human individuals is ethically unacceptable and contrary to human dignity and integrity". Therefore it "urges Member States to foster continued and informed debate on these issues and to take appropriate steps, including legal and juridical measures, to prohibit cloning for the purpose of replicating human individuals". This resolution confirms another WHO resolution adopted at the 50th session in 1997 (WHA 50.37).

10. The United Nations Declaration on Cloning of 8 March 2005 states in its paragraph b):

a) Member States are called upon to adopt all measures necessary to protect adequately human life in the application of life sciences;

b) Member States are called upon to prohibit all forms of human cloning inasmuch as they are incompatible with human dignity and the protection of human life;

11. At regional level, the only instrument explicitly referring to human cloning is the 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 of the Council of Europe, on the Prohibition of Cloning Human Beings, adopted in 1998. Article 1 of the Protocol states that:

1. Any intervention seeking to create a human being genetically identical to another human being, whether living or dead is prohibited.

2. For the purpose of this article, the term human being "genetically identical" to another human being means a human being sharing with another the same nuclear gene set.

12. At the national levels, the regulations governing human embryo research and cloning are diverse and reflect the different cultural, religious, social and political backgrounds of countries. An updated review of national legislation is provided in the Annex to this Report.

IV. WORK CARRIED OUT BY IBC IN 2008-2009

13. To respond to the wish of the Director-General, the Bureau of IBC, at its meeting in January 2008, decided to establish a Working Group on human cloning and international governance initially consisting of four members: Prof. (Mr) Toivo Maimets (Estonia) as Chairperson, Dr (Mrs) Ephrat Levy-Lahad (Israel), Prof. (Mr) Qingli Hu (China) and Prof. (Mr) Gamal Ibrahim Abou Serour (Egypt). After the 15th Session of the IBC (October 2008) Prof. (Mr) Fernando Lolas Stepke (Chile) was included as a member of the Working Group. The focused task and mandate of the Working Group was to explore whether there was any scientific, social or political change that would justify a new initiative at the international level, instead of initiating another ethical and scientific analysis of the issue of human cloning.

First meeting of the IBC Working Group on human cloning and international governance (Paris, 30 June – 2 July 2008)

14. The Working Group held its first meeting from 30 June to 2 July 2008 at UNESCO Headquarters in Paris. One day of the meeting was devoted to public hearings of specialists in the field. These hearings, open to the participation of Member States, constituted a starting point for the deliberations of the Working Group and allowed transparency and clarity as per the mandate and the work of the Committee⁽¹⁾.

15. The experts involved were: Dr (Mr) Darryl Macer (Adjunct Professor of the UNU-IAS and one of the authors of the UNU-IAS Report), Professor (Mr) Richard Gardner (University of Oxford), Professor (Mr) Hans Galjaard (Erasmus MC Rotterdam) and Dr (Ms) Marie-Charlotte Bouësseau (World Health Organization, WHO). The speakers were given an outline including the following questions:

1. In August 2001 the Permanent Missions of France and Germany requested the Secretary-General of the United Nations to include an additional item on the agenda of the 56th Session of the General Assembly entitled “International Convention against the Reproductive Cloning of Human Beings”. After years of debates, instead of a convention, a legally non-binding United Nations Declaration on Human Cloning was adopted on 8 March 2005. Three years later, is there any scientific, social or political change that would justify a new initiative at the international level?

2. The UNU-IAS report states that “international regulation is a necessity in this area...” and offers three possible options:

- a. the International Bioethics Committee of UNESCO (IBC) takes up the issue of reproductive and research cloning;
- b. the sixth committee of the General Assembly takes up the issue of customary international law on cloning;
- c. dissemination, discussion and debate on cloning issues at the international level, so that all countries, including the developing and least developed countries, can participate and put forward their concerns regarding this new technology.

Would any of these actions be realistic in terms of different cultural, religious and social backgrounds of Member States and their interests in developing medical research towards treatment of numerous incurable diseases?

3. The same UNU-IAS document describes the following options available for regulation of cloning:

- a) total ban on all cloning research,
- b) ban on reproductive cloning,
- c) ban on reproductive cloning and allow research cloning,
- d) ban reproductive cloning, allow research cloning for 10 years,
- e) place a moratorium on all cloning research.

For further actions within the United Nations system, what options could be feasible and serve the interests of Member States in the best possible way?

4. The terms and definitions we use can themselves start leading the discussion and build boundaries. Do the words “reproductive cloning” and “therapeutic cloning” introduced into bioethical debates several years ago still adequately describe the technical procedures scientists use (and are potentially able to use) today?

1. The report of the meetings are all available online (www.unesco.org/bioethics) or upon request at the Division of Ethics of Science and Technology of UNESCO.

16. As a follow up to the meeting, the Working Group drew up a report, which included a progress report on the work done so far by the group including the one-day public hearings, an overview of the current scientific, social and political developments that call for a new initiatives in international governance of human reproductive cloning, and the major preliminary suggestions of the working group (Report of the Working Group of IBC on Human Cloning and International Governance, Ref. SHS/EST/CIB-15/08/CONF.502/2 of 19 September 2008).

Fifteenth session of IBC (Paris, 27-29 October 2008)

17. The preliminary results of the working group were presented and discussed at the fifteenth (ordinary) session of IBC held at UNESCO Headquarters in Paris from 27 to 29 October 2008, bringing together more than 200 participants from 89 countries.

18. The working session on human cloning and international governance was divided into two parts: the first part was devoted to a second round of public hearings with representatives of national bioethics committees and international scientific organizations while the second part focused specifically on the work of the IBC Working Group on this issue.

19. The experts involved in these hearings were: Dr (Mr) Dirceu Bartolomeu Greco from the National Commission of Ethics in Research (CONEP) of Brazil, Dr (Mr) Rajaona Andriamananjara, Chairperson of the Madagascar's Committee for Ethics of Science and Technology (CMEST), Dr (Mr) Carolus B. Kusmaryanto, Member of the National Committee of Health Research Ethics (KNEPK) of Indonesia and Prof. (Mr) Lars Åhrlund-Richter, Professor of Molecular Embryology, Karolinska Institute, Sweden, representative of the International Society for Stem Cell Research (ISSCR). The hearings were organized around the same outline elaborated for the July hearings (see above).

20. During the discussion, some speakers considered that IBC should focus on those aspects of human cloning and international governance that seem to indicate a possible consensus, for example on banning human cloning carried out with a sole purpose of human reproduction, and to reflect on the possibility of strengthening the international regime that governs this practice.

21. Regarding recent scientific developments, the core question tackled by the participants in the debate was whether there have been sufficient changes to justify new international governance initiatives: while some speakers argued that no significant changes have occurred, others pointed out that the new advances in the production of iPS cells and hybrid cells are among the emerging factors that call for the need to strengthen existing mechanisms governing the issue of human cloning.

22. Several participants echoed the IBC working group in underlying how the terms and definitions traditionally used in this field have themselves led to discussions and have created boundaries: the words "reproductive cloning" and "therapeutic cloning" introduced into bioethical debates several years ago do not adequately describe the technical procedures used (or potentially to be used) today. A call for reflection on this subject was therefore voiced.

Joint session of IBC and IGBC (Paris, 30-31 October 2008)

23. The joint session of IBC and IGBC, convened by the Director-General at UNESCO Headquarters in Paris on 30 and 31 October 2008, gave the opportunity for IBC to hear comments from members of IGBC and allowed for a free exchange of opinions between members of the two Committees.

24. The permeating theme of numerous interventions was the necessity to find the right balance between prohibiting cloning practices for strictly human reproductive purposes – an issue on which international consensus seems to be emerging, and allowing scientists working in the field of stem-cell research to pursue their efforts in an ethically regulated framework to find cures for today’s incurable diseases and to gain a better understanding of human physiology.

25. In this respect, while several participants noted what seemed to be a unity of opinion against human reproductive cloning, raising hope for the international commitment to a legally-binding regime on human reproductive cloning, it was nevertheless considered extremely important to remember the political debate at the United Nations General Assembly in 2005 when, due to the drastically different positions of Member States, the non-binding UN Declaration on Human Cloning was adopted by a vote. Most speakers remarked that as countries’ positions remain relatively unaltered since 2005, it would be counterproductive for UNESCO to reopen the debate without a reasonable guarantee of reaching a consensual position.

26. Notwithstanding, strong emphasis was given to the fact that developing and least developed countries have very limited, if any, specific regulations on human cloning. This became clear during the Fourteenth Session of IBC in Nairobi (May 2007), when experts from the African region attested to the lack of national regulation or legislation on biotechnology and related issues in sub-Saharan Africa, which is to a great extent true for human reproductive cloning. In the developing and the least developed countries, the absence of national regulation makes people vulnerable against external and profit-driven scientific and technological research. Under these circumstances, a more legally-binding international instrument would benefit the safeguarding of the interests of these nations and their peoples. For this reason, there was a call from many participants not to shy away from openly discussing ways to effectively regulate human cloning at the international level.

V. NEW SCIENTIFIC, LEGAL AND SOCIAL DEVELOPMENTS: A PRELIMINARY ANALYSIS

27. The reflection and discussion within IBC focused primarily on the preliminary issue of whether sufficiently important scientific, legal or social changes have occurred to necessitate a re-examination of international governance mechanisms for human cloning. Within this reflection, IBC also addressed the issue of terminology used and the distinction between therapeutic and reproductive cloning.

28. From a scientific point of view, it appears that a number of new scientific developments may have an impact on future development of international governance of cloning. On one hand, the work carried out since 2006 on induced Pluripotent Stem (iPS) cells and their possible uses has created more technical possibilities for reproductive manipulation of human embryos and hence brings new problems into the debate. Since it has been demonstrated that functional germ cells may be created from embryonic stem cells, this raises the possibility of creating germ cells from somatic cells (via iPS cells) which further blurs the borders between different stages of human development and reproduction. In addition, the financing of human embryo research has also considerably increased over recent years, whereas more and more multinational commercial private interest is being involved. This is accompanied by international exchange (both legal and illegal) of embryos, eggs and stem cells.

29. On the other hand, it is clear to scientists that “cloning” in the sense of producing identical human beings is impossible because of differences in developmental and environmental conditions, epigenetic modifications of the DNA involved, etc. In addition, it is scientifically clear that in the current state of technology, reproductive cloning is associated with serious health risks for both women and fetuses. The use of the term “clone” is therefore scientifically and etymologically misleading; it overlooks the differences that would

appear between a person and his genetically identical “clone”. The importance of epigenetic factors in this respect must be stressed. Nonetheless, it has been recognised that the term “cloning” should not be abandoned since this term is already used in a number of national legislations and international guidelines that are currently in effect.

30. Similarly, the words “reproductive cloning” and “therapeutic cloning” introduced into bioethical debates several years ago do not adequately describe the technical procedures used (or potentially to be used) today. While “reproductive” is a term that clearly indicates the ultimate intention of the procedure, the term “therapeutic” fails to clearly define the purpose of the procedure, considering that at present, no cloning procedure has resulted in a therapeutic use. This confusion stems primarily from the differences in the status attributed to the human embryo in different cultures and societies. If the argument remains at the level of the moral status of the embryo, there is no room for achieving consensus. However, as previously detailed, reproductive cloning may become possible without using embryos. So there is a clear need to move to ethics of international governance of cloning, where different countries can find agreement, e.g. a ban on reproductive cloning.

31. From the legal point of view, several Member States have recently updated their national regulations of governance of human cloning and embryo research in general and therefore there is more awareness and information among politicians in these countries. A review of existing national legislation shows that a convergence of views emerges on the refusal to adopt legislation or guidelines permitting reproductive cloning. However, with regard to other developing techniques of human embryo research, variations among national regulatory responses are far more important. Strong divisions persist on the legitimacy of human cloning carried out as part of research agendas even if it is conducted with the intention to further our knowledge in biology or help find effective cures for today’s incurable illnesses.

32. On the other hand, it should be stressed that, while some countries have adopted specific regulations on human cloning, many others, and in particular developing ones, still lack such regulations. The absence of such national regulation makes people vulnerable against external and profit-driven scientific and technological research. Under these circumstances, a more robust, legally-binding international instrument on human reproductive cloning would benefit the safeguarding of the interests of these nations and their peoples.

33. Finally, during the last few years since the adoption of the United Nations Declaration on Human Cloning, the public sensitivity and awareness of the issue has increased, although the information and dissemination of the issues could be improved. One of the international governance options indicated in the UNU-IAS Report (p. 26) is the “dissemination, discussion and debate on cloning issues at the international level”, so that all countries including the developing and least developed countries can participate and put forward their concerns regarding this new technology. Activities in this direction should be actively developed in parallel with any other possible normative development

VI. SUMMARY AND CONCLUSIONS

34. The complexity of ethical questions arising from human cloning is as deep as the range of religious and cultural perspectives on the issue around the world. The existing diversity of opinion is hardly surprising considering that cloning of a human being, whether for reproductive or research purposes, begs the fundamental question about dignity of life, the beginning of life and the status of the embryo.

35. In response to the wish of the Director-General, the International Bioethics Committee (IBC) has attempted to determine whether sufficiently important scientific, legal or social changes have occurred to necessitate a re-examination of international governance mechanisms on human cloning and to formulate possible suggestions for future action.

36. On the basis of reflection and debate held in 2008-2009, IBC has been able to identify the following:

- Changes have occurred in the last three years that may have an impact on future development of international governance of cloning: new scientific developments such as research on induced Pluripotent Stem (iPS) cells and its application; increased international exchange (both legal and illegal) of embryos, eggs and stem cells; increased public sensitivity and awareness together with the development of national regulations of governance of human cloning and embryo research in general (see Section V of this draft report). In particular, scientific developments in areas such as iPS cells open new possibilities of research and, at mid term, of therapeutic applications, but they also bring new ethical challenges and problems requiring further reflection and debate.
- The terminology used in the bioethical debates is misleading and does not adequately describe the technical procedures used (or potentially to be used) today. An in-depth analysis aiming at re-defining this terminology according to the new developments in human embryo research would be highly beneficial.
- National regulations of governance of human cloning and embryo research in general adopted so far confirm the convergence of views on the refusal to adopt legislation or guidelines permitting reproductive cloning, while they still show variations on the legitimacy of human cloning carried out as part of research agendas.
- Many countries, in particular developing ones, still lack specific regulations on human cloning. A clear and effective regulation of reproductive human cloning at the international level would greatly benefit the safeguarding of the interests of these nations and their peoples.
- While the technology required to give birth to a human being by cloning is not yet available, it could be developed in the near future and the existing international non-binding texts relevant to human cloning (i.e. the UNESCO Universal Declaration on the Human Genome and Human Rights of 1997 and the UN Declaration on Human Cloning of 2005) are not sufficient to prevent human reproductive cloning.
- The dissemination, discussion and debate on cloning issues at the international level remain essential to foster public sensitivity and awareness-raising, so that all countries, including the developing and least developed countries, can participate and put forward their concerns regarding this new technology. These activities are very important and should be actively pursued in parallel with the other possible normative developments.

37. Based on these findings, IBC is of the position that, although it may be premature for the international community to engage now in the elaboration of a new binding normative instrument aiming at harmonizing both practices and principles in this area, the issues surrounding the international governance of human cloning cannot be ignored and a focused international dialogue is crucially needed. UNESCO, with its ethical mandate that remains unique within the United Nations system and its normative achievements in the field of bioethics (Universal Declaration on the Human Genome and Human Rights of 1997, International Declaration on Human Genetic Data of 2003 and Universal Declaration on Bioethics and Human Rights of 2005) is in a privileged position to continue this reflection in a way that accommodates the multiplicity of views on the issue and explore the ethical aspects of new scientific developments and their impact on the present international normative framework.

38. For this purpose, UNESCO should involve as far as possible other bodies of the United Nations, in particular the World Health Organization (WHO). It should also consult national scientific organizations, bioethics entities, the civil society and all other groups that could be concerned.

39. Within this context, IBC is ready to continue to play its role in the international bioethics system and the debate on human cloning and its international regulation, together with the Intergovernmental Bioethics Committee (IGBC) and provide the Director-General and Member States with the results of its work and, where appropriate, suggestions and possible orientations for a more intensified engagement in this field over the coming years.

40. Finally, IBC considers that UNESCO could develop specific strategies and materials to promote international discourse on this topic and more actively encourage and support national research organizations/academies and national bioethics committees in disseminating and debating cloning issues.

Study on National Legislation concerning Human Cloning

This document presents an overview of existing legal framework concerning human cloning. It does not pretend to be exhaustive and will be periodically revised².

Table 1 is limited to national legislation on human cloning and does not include:

- 1) national *guidelines*, even if these guidelines are, in state practice, applied in the same manner as laws.;
- 2) patents laws that prohibit granting of a patent for processes intended to lead to human cloning;
- 3) public national laws that guarantee the fundamental human rights such as human dignity or the human rights in biomedical research. It should be noted that in view of official positions from governments and/or national bioethics bodies in these countries, human cloning directly violates these fundamental rights and is therefore banned;
- 4) provisions which could be interpreted as banning human cloning if such interpretation has not been legally implemented by a convention or a court decision.

Not being listed in this table does not mean that a country has no human cloning policy, or that it does not apply it. Indeed, many countries have opted for *guidelines* in order to regulate human cloning activities or have officially expressed their position through governmental declarations or by official recommendation of national bioethics bodies.

Furthermore, some countries, having ratified conventions related to the ban of human reproductive cloning, have applied its provisions without adopting specific domestic legislation on it. These countries can be found in Table 2 related to international treaties and conventions.

A note on main sources

Because many national sources are unavailable on the web or not translated, this table is using many reliable secondary sources like Digest of Legislation of WHO or Official reports. When the legal text is available and translatable, the provision is cited directly; when only a reliable secondary source is mentioned, a summary replaces the original wording.

². Any information on relevant law and regulations that could assist in updating this document should be addressed to the division of Ethics of Science and Technology (fax +33 (0) 45 68 55 15; e-mail: s.colombo@unesco.org).

Table I – National legislation

STATES	DOMESTIC LAWS			
	REPRODUCTIVE CLONING		RESEARCH/THERAPEUTIC CLONING	
	Reference	Main Provisions	Reference	Main Provisions
Argentina	<p>Presidential Decree n°200/97 on the Prohibition on Human Cloning Research of 7 March 1997</p> <p>REGIONAL LAWS</p> <p><u>Province of Mendoza</u> Mendoza Law n°6581 on the prohibition of human cloning experiments of 24 March 1998</p> <p><u>Province of Neuquén</u> Law n°2258 on the creation of a permanent provincial commission on fecundation and genetic research of 15 October 1998</p> <p><u>Province of Jujuy</u> Law n°5133 establishing a Program for responsible maternity and paternity of 3 June 1999</p> <p><u>Province of Cordoba</u> Law n° 6222 on practices and activities in relation with human health of 17 November 1978 as amended by Law n° 9072 of 13 January 2003</p>	<p><u>Article 1:</u> Cloning experiments in relation with human beings are prohibited.</p> <p><u>Section 1:</u> Cloning experiments in relation with human beings are prohibited on the whole territory of Mendoza.</p> <p><u>Article 5:</u> Cloning practices, creation of hybrids, trade of human gametes and of cryoconserved embryos remain prohibited, with severe sanctions at stake.</p> <p><u>Article 3:</u> Every health institution depending upon the Welfare Ministry will offer the following services and cares: f) Providing information and access to treatment of infertility and sterility except for cloning and other methods in contradiction with ethics [...].</p> <p><u>Article 7:</u> It is prohibited to: [...] s) Create human reproduction by the technique of cloning, in the understanding that such a process leads to the creation of a human being derived from a unique individual without the characteristics of sexual reproduction”.</p>	<p><i>IDEM</i></p> <p><i>IDEM</i></p> <p><i>IDEM</i></p> <p><u>Province of the autonomous city of Buenos Aires</u> Law n°712/2001 safeguarding human gene pool</p>	<p><u>Article 1:</u> Cloning experiments in relation with human beings are prohibited.</p> <p><u>Section 1:</u> Cloning experiments in relation with human beings are prohibited on the whole territory of Mendoza.</p> <p><u>Article 5:</u> Cloning practices, creation of hybrids, trade of human gametes and of cryoconserved embryos remain prohibited, with severe sanctions at stake.</p> <p><u>Section 14:</u> The City adopts as program, for the regulation and the interpretation of good practice in research on human genome and its applications, the Universal Declaration on Human Genome and the Human rights of UNESCO of 11 November 1997 (Annex I) (Ref. Article 11).</p>

<p>Australia*</p>	<p>The Prohibition of Human Cloning for Reproduction Act of 19 December 2002 as amended by Act n°172 of 12 December 2006</p> <p><i>Notice of variation</i> signed between the Commonwealth, the States and the Australian Capital Territory of 13 April 2007.</p>	<p><u>Section 9:</u> A person commits an offence if the person intentionally places a human embryo clone in the body of a human or the body of an animal. Maximum penalty: Imprisonment for 15 years.</p> <p><u>Section 20 (3):</u> A person commits an offence if the person intentionally places an embryo in the body of a woman knowing that, or reckless as to whether, the embryo is a prohibited embryo. Maximum penalty: Imprisonment for 15 years.</p> <p>Comment: Prohibited embryos are notably embryos “<i>created by a process other than the fertilization of a human egg by human sperm</i>”. (Section 20 (4) of the Act)</p> <p>The States, ACT and the Commonwealth signed an Intergovernmental Agreement for the implementation of the legislation adopted in 2006 consisting in the ban of reproductive cloning.</p>	<p><i>IDEM</i></p> <p><i>IDEM</i></p>	<p><u>Section 22:</u> A person commits an offence if: (a) the person intentionally creates a human embryo by a process other than the fertilization of a human egg by a human sperm, or develops a human embryo so created; and (b) the creation or development of the human embryo by the person is not authorised by a licence. (1)</p> <p>This agreement consists in implementing a national consistent legislative scheme on human embryo research as well.</p>
<p>Austria**</p>	<p>Federal Law on Reproductive medicine of 1992 as modified in 2001 and 2004 (n°98/2001 and n° 163/2004)</p>	<p>Article 9 of this law prohibits implicitly human reproductive cloning as it prohibits the use of human embryos (fertilized eggs) for another purpose than the medically assisted procreation which is, itself, submitted to strict restrictions. A violation is subject to administrative or criminal prosecution.</p>	<p><i>IDEM</i></p>	<p>Research on embryonic cells is prohibited for the same reason.</p>
<p>Belgium*</p>	<p>In Vitro Embryos Research Act dated of 11 May 2003</p>	<p><u>Article 6:</u> Human reproductive cloning is forbidden.</p> <p><u>Article 13:</u> Any person who commits a forbidden intervention prohibited by articles 3 (5), 4, 5 or 6 of this law is liable to a 1 to 5 years imprisonment penalty and/or a 1000 to 10000 Euros fine.</p> <p><u>Article 14:</u> Without prejudice to article 13, any condemnation for the facts forbidden by article 6 is liable to a 5 years ban of exerting any medical or research activity.</p>	<p><i>IDEM</i></p>	<p><u>Article 3:</u> Research on in vitro embryos is allowed if all requirements of this law are respected and notably if: 1° It has a therapeutic objective or aims at improving knowledge in the fields of fertility, sterility, transplant of organs or tissues, prevention or treatment of diseases. [...] 5° It is carried during the embryo 14 first days of development, freezing period not included. 6° There is no alternative research method providing a corresponding effectiveness.</p> <p><u>Article 4:</u> §1. The creation of embryos for research purposes is forbidden excepted if the aim of the research cannot be reached by research on excess embryos and only if all</p>

* Countries that have a legislative ban on reproductive cloning and the corresponding penal provisions.

** Countries with a ban on reproductive human cloning, but without penal provisions.

				requirements of this law are respected.
Brazil*	Law n°11105 on Biosecurity of 24 March 2005	<p><u>Art. 6:</u> The following activities, inter alia, are prohibited: [...] human cloning.</p> <p><u>Art. 26:</u> Performing human cloning is punished by a 2 to 5 years imprisonment penalty and a fine.</p>	<i>IDEM</i>	<p><u>Art. 5:</u> Embryonic stem cells obtained from human embryos produced by in vitro fertilization and not used in the respective procedure may be used for research and therapeutic purposes, provided that the embryos are non-viable or have been frozen for three years or more prior to the publication of this Law.</p> <p><u>Art. 6:</u> The following activities, inter alia, are prohibited: genetic engineering involving human germline cells, human zygotes, or human embryos; and human cloning.</p> <p>Comment: The Brazilian Supreme Court upheld this legislation allowing stemcell research by a decision of 29 May 2008. However, research cloning is excluded as the human cloning prohibition covers both reproductive and therapeutic hypothesis (Art. 3).</p>
Bulgaria	Order n°28 of 20 June 2007 on assisted reproduction	<p><u>Art. 1.</u> (1) This regulation: 1. approves medical standards for assisted reproduction under Annex № 1;</p> <p><u>Annex № 1 to Art. 1, para. 1, item 1</u> Medical standards regarding "assisted reproduction" [...] Section IV Medical-biological activities and laboratory methods used for assisted reproduction: [...] 3. When carrying out assisted reproduction it is not permitted: [...] 3.12. to perform reproductive cloning; [...]</p>	Health Act 2004 n°70 as amended in 2008	<p><u>Art.134.</u> [...] 2) [...] Ovum, sperm and fertilized ovum that are not used to produce offspring, can be provided to scientific, educational and medical institutions in the State and abroad for medical, scientific and educational purposes after obtaining the written and informed consent of the donor, and in the case of fertilized eggs, of both donors, through a procedure established by order of the Minister of Health.</p> <p><u>Art.135.</u> [...] (2) The use of assisted reproduction techniques for the transfer of the genetic information of a single individual to his descendants is prohibited. (3) The reproductive cloning of human beings is prohibited, including if its purpose is the donation of organs, tissues and cells.</p> <p>Comment: Research on embryos and gametes is allowed to a certain extent however research cloning is prohibited.</p>
Canada*	The Assisted Human Reproduction Act, 29 March 2004	<p><u>Section 3:</u> "human clone" means an embryo that, as a result of the manipulation of human reproductive material or an <i>in vitro</i> embryo, contains a diploid set of chromosomes obtained from a single — living or deceased — human being, foetus or embryo.</p>	<i>IDEM</i>	<p><u>Section 5 (1) (a):</u> No person shall knowingly 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;</p>

		<p><u>Section 5 (1) (a):</u> No person shall knowingly 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;</p> <p><u>Section 60:</u> A person who contravenes any of sections 5 to 9 is guilty of an offence and :</p> <p>(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</p> <p>(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.</p>		<p><u>Section 5 (1) (b):</u> No person shall knowingly create an <i>in vitro</i> embryo for any purpose other than creating a human being or improving or providing instruction in assisted reproduction procedures.</p> <p><u>Section 60:</u> A person who contravenes any of sections 5 to 9 is guilty of an offence and</p> <p>(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</p> <p>(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.</p> <p>Comment: It appears that the creation of in vitro embryos is allowed for very limited research purposes (Section 5 (1) (b)). Nevertheless, research cloning remains prohibited as section 5 (1) (a) prevents the creation of a clone for any reason.</p>
Chile*	Law n°20120 of 7 September 2006 concerning scientific research on the human being, the human genome and the prohibition of cloning	<p><u>Article 5:</u> This provision prohibits the cloning of human beings whatever the purpose or the method used.</p> <p><u>Penal:</u> According to article 17 of this law, a person guilty of cloning a human being would be liable to imprisonment and to an interdiction of exercising his profession.</p>	<i>IDEM</i>	<p><u>Article 6:</u> This provision authorizes the culture of tissues and organs but only for diagnostic purposes or scientific research and prohibits the destruction of human embryos to obtain stem cells to give rise to such tissues and organs. Hence, research cloning is prohibited.</p> <p><u>Penal:</u> The same penalties as for reproductive cloning have been prescribed.</p>
China**	Ethical Guiding principles for research on Human Embryonic Stem cells (2003-460)	<p><u>Article 4:</u> Any research aiming at human reproductive cloning shall be prohibited in the People's Republic of China.</p>	<i>IDEM</i>	<p><u>Article 5:</u> Human embryonic stem cells used for research purpose can only be derived from the following means with voluntary agreement: [...] Embryos obtained by somatic cell nuclear transfer technology or parthenogenetic split embryos;</p> <p>Comment: Thus, research cloning is allowed.</p>

	<p><u>Hong Kong special administrative region</u> Human Reproductive Technology Ordinance n°47 of 2000 as amended by law n°106 of 2002 and law n° 130 of 2007.</p>	<p><u>Section 15:</u> 1) No person shall: (e) replace the nucleus of a cell of an embryo with a nucleus taken from any other cell; or (f) clone any embryo.</p> <p>Comment: Penal provisions are to be issued by the Ministry of Health and the Council on Human Reproductive Technology.</p>	<p><i>IDEM</i></p>	<p><u>Section 15:</u> 1) No one shall: (a) for the purposes of embryo research (i) bring about the creation of an embryo; [...] (f) clone any embryo</p> <p><u>Section 21:</u> A person may make an application to the Council to be granted a licence to carry on a relevant activity in premises specified in the application.</p> <p><u>Section 2:</u> "relevant activity" means an activity which consists of or involves- [...] (b) the conducting of embryo research;</p> <p>Comment: Though research on embryos is allowed in a certain respect, research cloning is excluded from this scope.</p>
<p>Colombia*</p>	<p>Law n°599 of 24 July 2000 establishing a new criminal code which introduces a Chapter 8 on genetic manipulation</p>	<p>Article 133 of the Colombian criminal code: <i>Human being duplication</i> -Those who would be creating identical human beings by cloning or by any other process would be liable to a 2 to 6 years imprisonment penalty.</p>	<p><i>IDEM</i></p>	<p>Article 132 and 134 respectively only prohibit the manipulation of human genes that could alter the genotype and the fertilization of human eggs if those experiments are carried out for a different purpose than scientific research, treatments or diagnostics. In this perspective, research cloning is allowed in Colombia.</p>
<p>Costa Rica**</p>	<p>Case law n°2000-02306 by the Supreme Court invalidating Decree n°24029-S on "In Vitro Fertilization and Human embryos transfer" of 3 February 1995</p>	<p>Human reproductive cloning is not prohibited by law but is commonly condemned like any manipulation of embryos. The Supreme Court decision can be clearly interpreted in this sense as it is strongly pointed out that any intervention endangering embryos which is not in its own interests shall be prohibited.</p>	<p>Case law N°2000-02306 by the Supreme Court invalidating Decree n°24029-S on "In Vitro Fertilization and Human embryos transfer" of 3 February 1995</p>	<p>By this decision, Costa Rica's Supreme Court declared in vitro fertilization to be unconstitutional, considering it an offence to the human right to life which understands embryos as human beings from the day of their conception. This decree was censured for both legal and technical reasons as this is not a matter that can be ruled by the executive body and because of the technical aspects which endanger embryo life. It appears that all embryo manipulation shall be prohibited.</p>
<p>Czech Republic*</p>	<p>Act on Human Embryonic Stem Cell Research Law n° 227/2006 of 26 April 2006</p>	<p><u>Section 3:</u> (3) Such manipulations (stem cells research) with human embryonic stem cells must be prevented within the research which could lead to creation of a new human individual (reproductive cloning).</p> <p><u>Section 20: Penal code amendments</u> (1) Who: [...] f) Manipulates the human embryonic stem cells during their research in a way leading to creation of a new human individual (reproductive cloning), shall be punished by imprisonment up to three years or ban on activity.</p>	<p><i>IDEM</i></p>	<p><u>Section 3:</u> (1) Research on human embryonic stem cells may be conducted only on the basis of a permission issued by the Ministry of Education, Youth and Sport [...]</p> <p><u>Section 20 9 b: Penal code amendments</u> (1) Who a) performs interventions leading to creation of a human embryo for purposes other than implantation into a woman's body, [...] shall be punished by imprisonment up to three years or ban on activity.</p>

		<p>Comment: The penalty can be extended to 8 years in certain conditions (ex: international organized operation, etc.).</p>		<p>Comment: Research cloning is thus not allowed.</p>
<p>Denmark</p>	<p>Act n°460 on medically assisted procreation in connection with medical treatment, diagnosis and research of 10 June 1997, amended by Act n°427 of 10 June 2003 and Act n°923 of 4 September 2006</p> <p>Act n°503 on the scientific ethics committee system and the examination of biomedical research projects</p>	<p><u>Section 15:</u> The following experiments shall be prohibited: 1. Experiments whose purpose is to enable the production of genetically identical human beings [...]</p>	<p><i>IDEM</i> (Considering amendment Act n°427 of 10 June 2003 and Act n°923 of 4 September 2006)</p>	<p>Act n°427 lists the possible purposes of biomedical research on embryos created for fertilization purposes: - improving the techniques to bring about pregnancy - improving techniques for genetic diagnosis on embryos - obtain new knowledge that could improve the possibilities of treating diseases in human beings.</p> <p>Embryo creation for research purposes is not allowed.</p>
<p>Ecuador**</p>	<p>New Politic Constitution of the Republic of Ecuador of 5 June 1998</p>	<p><u>Article 49:</u> Children and adolescents will benefit from the common rights of human beings, in addition with their specific rights. The State will ensure and guarantee the Right to life, from the conception; to physic and psychic integrity; to identity, name and citizenship; to integral health and nutrition [...].</p> <p>Comment: As stated by the Constitution, the right to life is guaranteed from the conception. It prohibits therefore any endangering of embryos life and prohibits therefore human cloning.</p>	<p><i>IDEM</i></p> <p>Penal Code of Ecuador</p>	<p>Research cloning is prohibited in the same way.</p> <p>The penal code sanctions abortion by a 6 month to 16 years imprisonment penalty depending on the circumstances (articles 441 to 447).</p> <p>Comment: Sanctions for research cloning may correspond to those for abortion practices.</p>
<p>Egypt**</p>	<p>Resolution (Ministerial decree) of the Minister of Health and Population n°238/2003 of 5 September 2003</p>	<p><u>Article 60:</u> They are also prohibited from carrying out or participating in medical research which aim at cloning the human being.</p> <p>Sanction: Chapter 5, page 19, of the Laws of Medical Syndicates, 3rd edition, 2005 states that the Disciplinary Council, which is a professional board ruling in medicine's field, may transfer the case to Criminal Investigation Authority as well as taking disciplinary sanctions against lawbreakers like the retirement of the professional license.</p>	<p><i>IDEM</i></p>	<p>The text doesn't specify what kind of cloning is prohibited. Research cloning having for purpose the creation of a human being is prohibited; hence, reproductive cloning is prohibited. As for therapeutic cloning and research cloning, no provision states whether it is or not possible. Nonetheless, research on cloning a human being is forbidden and, as the technique is the same whatever the final purpose, this issue remains unclear.</p>

<p>El Salvador**</p>	<p>Politic Constitution of El Salvador of 15 December 1983 as amended in 2003</p> <p>Penal Code of El Salvador entered in force on 20 April 1998</p>	<p><u>Article 1:</u> El Salvador recognizes human persons as the origin and the end of States activities [...]. It recognizes as Human persons all Human beings from the day of their conception [...]</p> <p>Comment: The recognition of human beings as human person from their conception results from a constitutional amendment operated by law nº 541 of 3 February 1999.</p> <p><u>Article 140:</u> [...] The same penalty (3 to 6 years of prison) will be applied to a person who experiment or manipulate cloning with human cells in view of reproducing human beings.</p>	<p><i>IDEM</i></p> <p><i>IDEM</i></p>	<p><u>Article 137:</u> Those who guiltily will provoke an abortion will be liable to 6 months to 2 years imprisonment penalty.</p> <p>Comment: Human beings are considered constitutionally as human persons from their conception. Research cloning and therapeutic cloning, as provoking the death of the embryo, could be also considered as a voluntary abortion.</p>
<p>Estonia*</p>	<p>Penal code §130 (adopted on 6 June 2001)</p>	<p><u>§ 130 - Prohibited acts with embryo:</u> Human cloning or creating a human hybrid or human chimera is punishable by a pecuniary punishment or up to 3 years' imprisonment.</p>	<p>Penal code §131 (adopted on 6 June 2001)</p>	<p><u>§ 131 - Abuse of human embryo or foetus</u> A person who creates a human embryo or foetus <i>in vitro</i> without the intention to transfer the embryo or foetus to a woman, or outside an institution duly authorised by law [...] shall be punished by a pecuniary punishment.”</p> <p>Comment: Embryo creation for research cloning purpose is explicitly prohibited but there is no provision on the use of existing <i>in vitro</i> embryo for research.</p>
<p>Finland*</p>	<p>Act on Medical Research, nº 488/1999 of 1 November 1999 as amended by law nº 295 of 29 April 2004 and entered in force on 1 May 2004</p>	<p><u>Section 13:</u> [...] Embryos that have been used for research may not be implanted in a human body.</p> <p><u>Section 26</u> Any person who undertakes research with the aim of : cloning human beings [...] Shall be fined or imprisoned for a period not exceeding two years for unlawful intervention on the genome.</p>	<p><i>IDEM</i></p>	<p><u>Section 11:</u> Research on embryos outside a woman's body may be carried out only by agencies that have been granted the appropriate licence by the National Authority for Medicolegal Affairs [...] Medical research shall be permitted on embryos only if no more than 14 days have passed from their formation.</p> <p><u>Section 13:</u> The production of embryos exclusively for the purpose of research shall be forbidden. [...]</p> <p><u>Section 25:</u> Any person who conducts research on embryos without the licence referred to in section 11 or in contravention of the restrictions laid down in sections 11 and 13 [...] shall be fined or imprisoned for a period not exceeding a year for <i>unlawful research on embryos and gametes.</i>”</p>

France*	"Bioethics" law of 8 July 2004 amending law of 29 July 1994, included in Civil, Penal and public health codes	<p><u>Civil code article 16-4:</u> Any attempt to give birth to a person genetically identical to another person, dead or alive, shall be forbidden.</p> <p><u>Penal code article 214-2:</u> Human reproductive cloning is qualified as a "crime against the human species". It is punished by a 7.500.000 Euros fine and a 30 years imprisonment penalty.</p>	IDEM	<p><u>Article L2151-5 of public health code:</u> By principle, research on human embryos is forbidden. Nonetheless, during a period of five years (2004-2009), research on embryos and on embryonic stemcells is allowed under strict conditions. It is controlled by the Biomedicine agency which delivers authorizations for intending such research and importing stemcells lines.</p> <p>The law only allows for research on embryonic stem cell lines derived from human embryos conceived in the context of medically assisted procreation.</p>
Georgia	Law on Healthcare of 10 December 1997	<p><u>Section 142 1):</u> Human cloning through the use of genetic engineering shall be prohibited.</p>	IDEM	The ban set in force by section 142 1) of the Georgian Law on Healthcare prohibits research on human therapeutic cloning in so far the law doesn't differentiate the different cloning purposes.
Germany*	The Embryo Protection Act of 13 December 1990	<p><u>Section 6:</u> (1) Anyone who causes artificially a human embryo to develop with the same genetic information as another embryo, foetus, human being or deceased person will be punished with imprisonment up to five years or a fine.</p>	<p>IDEM</p> <p>"Stemcells Act" of 28 June 2002 amended on 11 April 2008</p> <p>The Stemcells Act contains regulation on research to which the cloning ban pursuant to Section 6 of the Embryo Protection Act applies.</p>	<p><u>Section 6:</u> (1) Anyone who causes artificially a human embryo to develop with the same genetic information as another embryo, foetus, human being or deceased person will be punished with imprisonment up to five years or a fine (2) Likewise anyone will be punished who transfers into a woman an embryo designated in paragraph 1. (3) Any attempt is punishable.</p> <p><u>Section 7:</u> It is prohibited 1) to unite embryos with different genetic material to a cell conglomerate using at least one human embryo or 2) to join a human embryo with a cell that contains genetic information different from the embryo cells and induces them further to develop, or [...] Any violation will be punished with imprisonment up to five years or a fine.</p> <p><u>Section 4:</u> (1) The importation and utilization of embryonic stem cells shall be prohibited (2) Notwithstanding paragraph 1, the importation and utilization of embryonic stem cells for research purposes shall be permissible under the conditions stipulated in section 6 if: [...] a) The embryonic stem cells were derived before 1 May 2007.</p> <p>Comment: As exposed in Section 3 of the Act, embryonic stem cells only refers to all pluripotent stem cells derived</p>

				from embryos which have been produced in vitro and have not been used to induce pregnancy or which have been taken from a woman before completion of nidation. Embryos obtained by somatic cell nuclear transfer cannot be used for stem cells research.
Greece	Law n°3089 on medically assisted reproduction of 23 December 2002 Law 3305/2005 for the Implementation of medically assisted reproduction	<u>Article 1455:</u> Human reproduction with the methods of cloning is prohibited. <u>Article 2.3</u> (same provisions than above)	<i>IDEM</i> Law 3305/2005 for the Implementation of medically assisted reproduction	<u>Article 1459:</u> Persons resorting to assisted reproduction should decide in common [...] whether any cryo-preserved reproductive material that is not going to be used for their own treatment (surplus): [...] b) should be used for research or therapeutic purposes <u>Article 11 and 12</u> (same provisions than above)
Hungary*	Criminal Code, No. IV of 1978 as amended Law n° 154 on public health of 15 December 1997	<u>Section 173/G:</u> (1) Any person who creates genetically equivalent human species during experimental research or during a medical procedure commits a felony offense and shall be punishable with imprisonment between five to ten years. [...] <u>Section 162:</u> Genetic research cannot be conducted if the research [...] aims to create a new human being. <u>Section 180:</u> Embryo cannot be used for the purposes of creating more embryos or for the purposes of changing the characteristics formed with the conception, nor is allowed to create genetically identical beings.	<i>IDEM</i>	<u>Section 173/E:</u> (1) Any person who performs a medical experiment on human embryo or gamete without, or in deviation of the license prescribed in the Act on Health Care, or creates a human embryo for scientific purposes, commits a felony offense and shall be punishable with imprisonment of up to five years. <u>Section 180</u> (3) Embryos shall not be brought into existence for research purposes; research shall be conducted only on embryos brought about for reproductive purposes when this is authorized by the persons authorized to decide upon its disposal, or when the embryo is damaged. <u>Section 182</u> (3) It is forbidden to separate the cells of the embryo unless it is necessary to determine the illness of the child to be born. Comment: Legislation on stemcells research is contradictory: Research on embryos is allowed even though stemcells research seems to be forbidden by the prohibition of separating cells from the embryos.
Iceland*	Artificial Fertilization Act, n°55, of 29 May 1996	<u>Article 12:</u> It is prohibited to: [...] d) perform cloning. <u>Article 14:</u> Violation of the provisions of this Act or of rules based on it entails fines or imprisonment of up to three months under the terms of this Act.	<i>IDEM</i>	<u>Article 11:</u> All research, experiments and operations on embryos is prohibited. Nevertheless, it is permitted to carry out research on embryos: a) if it is part of an <i>in vitro</i> fertilization treatment, b) if the intention is to diagnose hereditary diseases in the embryos themselves, c) if the purpose is to advance the treatment of infertility, or d) if the purpose is to improve understanding of the

				<p>causes of congenital diseases and miscarriages.</p> <p><u>Article 12:</u> It is prohibited to:</p> <p>a) cultivate or produce embryos solely for research purposes, b) cultivate embryos for more than 14 days outside the body or once the primitive streak has appeared, c) transplant human embryos into animals [...]</p> <p>Comment: Amendments to the original law provide opportunities, tough with limitations, for research on excess embryos from IVF procedures, including stem cells research and nuclear transfer for research purposes.</p>
Ireland**	Constitution of Ireland enacted on 1 July 1937 (Article 40 3° has been incorporated in the constitution in 1983)	<p><u>Article 40 3):</u> 3° The State acknowledges the right to life of the unborn and, with due regard to the equal right to life of the mother, guarantees in its laws to respect, and, as far as practicable, by its laws to defend and vindicate that right.</p> <p>Comment: There is no specific regulation on reproductive cloning in Ireland. Nonetheless, the illegality of this practice is not contradicted.</p>	<i>IDEM</i>	<p>Comments:</p> <p>1° There is an actual controversy on the legality of stem cells research in Ireland. Some lawyers interpret the Constitution as prohibiting it while others interpret the word "unborn" as not including supernumerary embryos (out of a womb). A judgment of the High Court, <i>M.R. v T.R. & Ors</i>, 15 November 2006, stated that the term "unborn" is not applicable to frozen embryos. This judgment is currently on Appeal process to the Supreme Court.</p> <p>2° Stem cells research is currently processed in Ireland.</p> <p>3° There is a chronic debate on the embryo statute as abortion is prohibited considering that a human embryo shall be considered as a person according to the constitution.</p>
Israel*	The Prohibition of Genetic Intervention Law, 5759-1999, of 29 December 1998	<p><u>Section 1:</u> The purpose of this Law is to determine a prescribed period of five years [<i>until 2009 according to a five years extension decided by the Knesset assembly in March 2004</i>] during which no kind of genetic intervention shall be performed on human beings [...]</p> <p><u>Section 3:</u> [...] throughout the period during which the Law is in force, no person is to perform any act of intervention in the cells of any person for the purpose of human cloning.</p> <p><u>Section 6:</u> Any offence against this regulation is subject to imprisonment.</p>		<p>Comment: No provision forbids research on therapeutic cloning. Furthermore, Israel is involved in stem cells research and these researches are partially financed by the government.</p>
Italy*	Law n° 40/2004 on medically assisted reproduction entered in force on 24 February 2004	<p><u>Article 13. 3):</u> Are forbidden: [...] c) Cloning interventions [...] for reproduction or research</p>	<i>IDEM</i>	<p><u>Article 13.1):</u> Any experiment on human embryo is prohibited. <u>Article 13. 2):</u> Clinical experimentation on human embryo is only</p>

		<p>purpose.</p> <p><u>Article 13. 4):</u> A violation of the 1° is liable to a 2 to 6 years imprisonment penalty and a 50.000 to 150.000 Euros fine. A violation of 3° shall be more severe.</p>		<p>possible for a therapeutic or a diagnostic purpose concerning the embryo's health itself.</p> <p>Comment: However, the law allows importing and working on embryonic stem cell lines produced before July 2001.</p> <p>A referendum occurred on 12 June 2005 asking whether limitations to research on embryos and provisions on human embryo status had to be abrogated. The referendum failed because of an insufficient vote number.</p>
Japan*	Law regulating the technique of human cloning and other similar techniques of 30 November 2000	<p><u>Article 3:</u> No person shall transfer a human somatic clone embryo, a human-animal amphimictic embryo, a human-animal hybrid embryo or a human-animal chimeric embryo into a uterus of a human or an animal.</p> <p><u>Article 16:</u> A person who has violated the provisions under Article 3 shall be punished with imprisonment for not more than ten years or a fine of not more than ten million yen, or with both of these penalties cumulatively.</p> <p>Comment: Article 1 defines the purpose of the law as well as some technical expressions employed. In this article, amphimictic is an individual which cannot be clearly assimilated to a human being or an animal.</p>	<i>IDEM</i>	<p><u>Article 1:</u> Based upon these understandings, the purpose of this law is [...] to regulate artificial creation of individuals similar to such individuals set forth herein [...] by means of taking other necessary measures to secure appropriate handling of such embryos.</p> <p>Comment: The law states about "specified embryos" which are embryos complying with the guidelines set by the minister of sciences and technologies in order to ensure the respect of ethics principles upon research on embryos. Example: Any Specified Embryo shall be handled in accordance with the Guidelines (article 5). Research cloning is therefore permitted.</p>
Kosovo*	Law n°2004 / 4 Kosovo Health Act of 20 August 2004	<p><u>Section 111:</u> Human cloning is forbidden.</p> <p>Comment: No specific penalty on human reproductive cloning has been set however it should be considered as a violation of ethical principles punishable by a 500 to 1000 Euros fine (section 119.3 d).</p>	<i>IDEM</i>	<p>Comment: No legal frame on research cloning and therapeutic cloning is set up by this law. Nonetheless, <u>section 106</u> states that: "Issues related to research on humans shall be defined with a special law".</p>
Latvia	Law on Sexual and Reproductive Health of January 2002	<p>Section 16 of this law prohibits human reproductive cloning.</p>	<i>IDEM</i>	<p>Section 16 of this law also prohibits the creation of embryo for both research and therapeutic purposes.</p> <p>Comment: If the creation of embryos for research or therapeutic purposes is forbidden, no provision sets any prohibition upon the use of supernumerary embryos for such purposes.</p>
Lebanon			Draft Law in relation to Assisted Human Reproductive techniques	<p><u>Article 8:</u> It is prohibited to use embryos for commercial or research purposes or to carry out genetic</p>

				manipulations to the embryo. <u>Article 12:</u> Any person who violates article 7, 8 or 10 of the present law shall be penalized by imprisonment [...] and by payment of a fine [...].
Lithuania	Law n° VIII-1679 on ethics of biomedical research dated on 11 May 2000	<u>Section 3.3:</u> Cloning of human being shall be prohibited. <u>Section 18:</u> Persons in breach of the requirements of this law shall be held liable in the manner provided by the law.	<i>IDEM</i>	<u>Article 3.2:</u> Human embryos may be subjected only to clinical observations (non-invasive investigations). Other clinical investigations involving human embryos and their creation for purposes of biomedical research shall be prohibited. Human embryos may be subjected to such biomedical risks if they are not disproportionate to the potential benefit. Comment: Stemcells research is therefore prohibited.
Mexico*	Mexico's Federal District Penal Code (local legislation).	<u>Section 154:</u> Is liable to a 2 to 6 years imprisonment sentence and a ban on public employment any person who: [...] iii) Creates human beings by cloning or performs genetic engineering with illicit purposes Comment: This is a local regulation only concerning Mexico's district. Nonetheless, some federal regulations are interpreted by Mexican lawyers as banning human reproductive cloning such as the General Health Law (1984) and its regulation on the sanitary control of organs, tissues and human cadavers (1986) as well as its regulation on scientific research (1987).	National Institutes of Health Amendment Act dated of 20 July 2004	This Act created the National Institute of Genomic Medicine (INMEGEN) which has been authorized by lawmakers to undertake research on stemcells. This is an implicit recognition of research cloning.
Netherlands*	The Embryos Act entered in force on 1 September 2002.	<u>Section 24:</u> The following procedures are prohibited: [...] f. performing procedures with gametes or embryos with a view to the birth of a genetically identical human individuals; <u>Section 28:</u> 1. Any person who acts in contravention of a prohibition contained in Section [...24...] whether intentionally or unintentionally, shall be liable to a prison sentence not exceeding one year or a fourth-category fine.	<i>IDEM</i>	<u>Section 24:</u> The following procedures are prohibited: a. creating an embryo specifically for research purposes or for purposes other than the induction of a pregnancy and using such an embryo in research or for purposes other than the induction of a pregnancy; [...] BUT: <u>Section 33</u> indicates that <u>Section 24 (a)</u> shall lapse on a date to be determined by Royal Decree and that on the determined date, <u>Section 11</u> shall enter into force. <u>Section 11:</u> Carrying out research with embryos created specifically for this purpose is prohibited. This prohibition shall not apply to research which is reasonably likely to lead to new insights in the fields of infertility, artificial

				<p>reproduction techniques, hereditary or congenital diseases or transplant medicine, and which can only be performed by making use of embryos as referred to in the first sentence.</p> <p>Comment: The moratorium under Section 24(a) was supposed to expire, after 5 years, in 2007. However, a proposal was presented to renew the prohibition for 5 years by amending the Act.</p>
New Zealand*	<p>The Human Assisted Reproductive Technology Act (N°92/2004) of 10 November 2004 as amended by the Human Assisted Reproductive Technology Amendment Act (n°63/2007) of 19 September 2007</p>	<p><u>Schedule 1: FIRST Prohibited actions</u> 1) Artificially form, for reproductive purposes, a cloned embryo [...]. 3) Implant into a human being a cloned embryo. [...] 9) Implant into a human being gametes derived from a foetus, or an embryo that has been formed from a gamete or gametes derived from a foetus.</p> <p><u>Section 8:</u> (1) Every person commits an offence who takes an action described in Schedule 1. [...] (4) A person who commits an offence against this section is liable on conviction on indictment to imprisonment for a term not exceeding 5 years or a fine not exceeding \$200,000, or both.</p>	<i>IDEM</i>	<p>Research on stemcells is not prohibited by the law which gives the authority to advisory boards in cooperation with the Ministry of Health to edit guidelines on this issue. These guidelines have been adopted in September 2006 by the Ministry of Health authorizing the use of established stemcells for research even if the use of IVF (in vitro fertilized) embryos is prohibited.</p> <p>Comment: The law sets some restrictions as the prohibition to develop an in vitro embryo after 14 days or the storage of such embryos for more than 10 years. It also sets conditions on the acquisition of embryos from donors or import. Any violation shall be liable to imprisonment penalties and/or fines.</p>
Norway*	<p>Act of 5 December 2003 N° 100 on the application of biotechnology in human medicine as amended by law n°31 of 15 June 2007</p>	<p><u>Paragraph 3-5: Ban on the creation of human embryos through the use of cloning techniques</u> It is forbidden: a) to create human embryos the use of cloning</p> <p><u>Paragraph 7-5. Penal provisions</u> Whoever wilfully contravenes to this Act or provisions laid down pursuant thereto is liable to fines or to a term of imprisonment not exceeding three months. An accomplice is liable to the same penalties.</p>	<i>IDEM</i>	<p><u>Paragraph 3-1: Use of supernumerary fertilized eggs for research</u> Supernumerary eggs and cells originating from supernumerary fertilized eggs can only be used in research when the purpose is: [...] 3. to develop new knowledge for the purpose of future treatment of serious diseases in humans.</p>
Panama*	<p>Penal code, introduced by law n°14 of 18 May 2007 and its modifications introduced by Law 26 of 2008)</p> <p>Law n°3 prohibiting all forms of cloning and stating other</p>	<p><u>Article 145</u> Anyone who fecundates human ovums with a distinct aim than procreation will be sanctioned from six to ten years of prison. This sanction can increase up to half of the maximum punishment for using genetic manipulation to create identical human being by means of cloning or any other procedure.</p> <p><u>Article 1:</u> All kind of promotion, financing or donation as well as the</p>	<p>Familial code article 489 issued by law n°3 of 17 May 1994</p> <p><i>IDEM</i></p>	<p><u>Article 489:</u> Every minor has the right to: 1. His prenatal protection.</p> <p>Comment: An embryo is interpreted as a human beings</p> <p><u>Article 2:</u> Without prejudice to the previous article, it is allowed to</p>

	provisions of 15 January 2004	use of public or private funds to experiments, investigate and perform any form of cloning a human beings, meaning the creation of an embryo being the biological duplication of a human beings based on his DNA structure, is forbidden. <u>Article 3:</u> Whoever violate the provisions of this law will be sanctioned to a 1.000.000 Balboas fine (1000\$).		reproduce tissues to repair organs in a therapeutic view, for prevention and to cure diseases, by using umbilical cord of birth babies or by any mean or method that could be developed, only in his favour, in his family's favour or in a third party's benefit.[...] Tissues reproduction is allowed as long as it doesn't imply to create a human beings and it is out of lucrative interests for the person who grant his consent.
Peru*	Children and Adolescents Rights Code General Health Law n°26842 of 9 July 1997 Criminal Code of Peru as amended by law n° 27636 published on 16 January 2002	<u>Article 1:</u> Is considered as a child any human beings from its conception to 12 years old [...]. The State protects those conceived (children) for everything that is benefitting to them [...]. <u>Article 7:</u> [...] The fertilization of human oocytes for purposes other than procreation shall be prohibited, as shall the cloning of human beings. <u>Article 324:</u> Any person using any genetic manipulation technique to clone human beings shall be liable to a 6 to 8 years imprisonment penalty and an incapacitation [...] (Incorporated by 16 January 2002 Amendment law).	<i>IDEM</i>	Considering the Constitution and the definition of the children as human beings until their conception and the general prohibition on human cloning, research and therapeutic cloning should also be considered illegal.
Poland			Act n°17 of 7 January 1993 on family planning, protection of the human foetus and admissible conditions for an abortion + Medical professions Act of 5 December 1996	According to article 1 of the Family Planning Act, the right to life is accorded to every human being including at the prenatal stage. Furthermore, in accordance with the Medical Professions Act, an unborn child cannot be part of a scientific experiment. Article 21 of this law, specifies that research on stem cells cannot be qualified as therapeutic research as it has no direct benefit for the subject of the experiment. Hence, research on embryos is prohibited even if no specific legislation has been set in force on this issue. Comment: There is no definition of embryonic stages in the Polish legislation even if penalties are heavier when the foetus has become capable of living outside the pregnant mother's body. Therefore any attempt to produce stem cell lines will be considered as an illegal abortion, as the embryo is destroyed, which is liable to 3 years of prison.
Portugal*	Law n°32/2006 on medically assisted procreation (MAP) of 26 July 2006	<u>Article 7:</u> 1. Reproductive cloning is prohibited as it tends to create human beings genetically identical to another one. <u>Article 36:</u> 1. The transfer in a womb of an embryo created by nuclear transfer, unless if this technique is used for MAP applications, is punished by 1 to 5 years of prison.	<i>IDEM</i>	<u>Article 9:</u> 1. It is prohibited to create embryos by MAP in the deliberate view of its use in research. 2. Scientific research on embryos is nonetheless legal if performed with the purpose of prevention, diagnostic or embryo therapy, of improving MAP's techniques, constituting Stemcells banks for transplants or for any other therapeutic purpose.[...]

		2. The same penalty is required for those who proceed to embryo transfer obtained by embryo splitting.		Comment: Research cloning is only allowed on supernumerary or abnormal embryos from MAPs and genetic diagnostics. Any research attempt violating the legal provisions set by this law is punished by 1 to 5 years in prison (art. 40).
Republic of Korea*	The Bioethics and Safety Law n°7150 entered in force on 1 January 2005 as revised on 16 March 2008	<p><u>Article 1:</u></p> <p>1. No one shall implant a somatic cell embryo clone into a uterus, maintain a cloned embryo within a uterus, or give birth when the pregnancy results from the act of implanting a somatic cell embryo clone into a uterus.</p> <p>2. No one shall induce or assist in the activities defined in Article 11-1.</p> <p><u>Article 49:</u></p> <p>1. Anyone who, in violation of Article 1-1 implants a somatic cell embryo clone into a uterus, maintains a cloned embryo within a uterus, or gives birth when the pregnancy results from the act of implanting a somatic cell embryo clone into a uterus shall be sentenced to up to 10 years of imprisonment.</p>	<i>IDEM</i>	<p><u>Article 17:</u></p> <p>Remaining Embryos that have passed the storage period outlined in Article 16 may be utilized for the following purposes, but only until the embryological primitive streaks appear in their developmental process:</p> <p>1. To conduct research aimed at developing contraception and infertility treatments;</p> <p>2. To conduct research aimed at curing rare or incurable diseases, as decreed by the President.</p> <p>3. To conduct other research approved by the President after being reviewed by the Committee. However, in order to utilize a remaining embryo that has been stored for less than 5 years, a new consent, for this new purpose, is required from the Consenters.</p> <p>Comment: Research on stemcells was banned on 2005 because of fraudulent claims from Korean scientists. The National Bioethics Committee removed this ban on March 2007.</p>
Russian Federation (outdated moratorium)	Federal Law on a temporary Ban on Human Cloning of April 2002	The law was prohibiting reproductive cloning as well as import/export of clone through a 5 years moratorium that expired in 2007. So far, this legislation has not been extended or renewed.		
Saudi Arabia**	Recommendation n°4/14/23 of the National Committee of Bio & Medical Ethics (NCBE)	Human cloning (reproductive and therapeutic) and any other unacceptable downstream practices associated with reproductive technology and for other purposes are strictly prohibited.	<i>IDEM</i>	Human cloning (reproductive and therapeutic) and any other unacceptable downstream practices associated with reproductive technology and for other purposes are strictly prohibited.
Singapore*	Human cloning and Other Prohibited Practices Act n°34 of 1 October 2004	<p><u>Section 5:</u></p> <p>No person shall place any human embryo clone in the body of a human or the body of an animal.</p> <p><u>Section 18:</u></p> <p>Any person who contravenes section 5, 7, 8, 9, 10, 11, 12 or 13 shall be guilty of an offence and shall be liable on conviction to a fine not exceeding \$100,000 or to imprisonment for a term not exceeding 10 years or to both.</p>	<i>IDEM</i>	<p><u>Section 7:</u></p> <p>No person shall develop any human embryo that is created by a process other than the fertilization of a human egg by human sperm, for a period of more than 14 days excluding any period when the development of the embryo is suspended.</p> <p>Comment: Research cloning is allowed with embryos that are not "prohibited embryos" in accordance with this law and under the conditions set up by the Ethical Guidelines on Gene Technology.</p>

Slovakia*	Law n°277/1994 on Healthcare + Act n°576/2004 of 22 September 2004 on healthcare, healthcare-related services and on the amendment and supplementing of certain laws	<u>Paragraph 46a:</u> Any intervention seeking to create a human being genetically identical to another human being, whether living or dead is prohibited. Comment: The wording of the additional Protocol on the Prohibition of Cloning Human Beings of the European Convention on Biomedicine and Human Rights has been reproduced. This wording has been also reused in Act n°576/2004 of 22 September 2004.	<i>IDEM</i>	<u>Paragraph 26:</u> (10) It is not allowed to perform the research without medical indication on (a) a living foetus or an embryo,
	Penal code (Law N°140/1961 , as later amended by law n°300/2005)	<u>Penal code paragraph 246 a):</u> Any intervention aiming to create a human being in any stage of its formation, which is genetically identical to another human being whether living or dead is punished by imprisonment for 3 to 8 years, a financial penalty and the injunction of professional activities.		Comment: No specific regulation exist on therapeutic cloning even if the above mentioned provision forbids research cloning as it is not a research performed on medical indication for the embryo.
Slovenia**	Law on Biomedically assisted reproduction n°70/2000 of 8 August 2000	Section 33 of this law prohibits human reproductive cloning within the terms of Protocol n°1 to the European Convention on Biomedicine and Human Rights which has been ratified by this country.	<i>IDEM</i>	<u>Article 38:</u> Scientific research on [...] early embryos, created for the purposes of biomedically assisted fertilization is allowed exclusively for the purposes of protecting and improving human health and only when the research cannot be performed, with comparable effectiveness, on animal embryos or by other methods, [...] Comment: No regulation prohibits research cloning but therapeutic cloning which implies the creation of an embryo genetically identical to another is prohibited because of article 33 of this law.
South Africa*	National Health Act n°61 of 23 July 2004.	<u>Paragraph 57:</u> (1) A person may not: (a) manipulate any genetic material, including genetic material of human gametes, zygotes or embryos: or (b) engage in any activity, including nuclear transfer or embryo splitting, [...] (5) Any person who contravenes a provision of this section or who fails to comply therewith is guilty of an offence and is liable on conviction to a fine or to imprisonment for a period not exceeding five years or to both a fine and such imprisonment.	<i>IDEM</i>	<u>Paragraph 57:</u> (2)The Minister may under such conditions as maybe prescribed, permit therapeutic cloning utilising adult or umbilical cord stem cells. (3) No person may import or export human zygotes or embryos without the prior written approval of the Minister. (4) The Minister may permit research on stem cells and zygotes which are not more than 14 day olds on a written application and if- (a) the applicant undertakes to document the research for record purposes: and (b) prior consent is obtained from the donor of such stem cells or zygotes.
Spain*	Law n°14 on assisted reproductive techniques of 23 May 2006	<u>Article 26: Infractions</u> c. Very serious infractions [...] 9. The practice of nuclear transfer within a reproductive purpose.	<i>IDEM</i>	Research cloning on supernumerary embryos is allowed under the terms of articles 15 and 16 on the use of pre-embryos for investigations and conservation and use of pre-embryos for investigations respectively.

	Penal code, provision introduced by organic law n°15/2003 of 23 November 2003	<p><u>Article 160:</u> 2. Whoever fertilizes a human egg for another purpose than human procreation will be punished by a penalty of 1 to 5 years imprisonment and a special incapacity for public or office employment for 6 to 10 years. 3. The same penalties are applied for the creation of identical human beings by cloning or other procedures directed at racial selection</p> <p>Comment: Originally, law n°35/1988 on assisted Human Reproduction prohibited human reproductive cloning in its article 20 paragraph 2B k) until organic law n°10/1 995 suppressed this provision. Then, organic law n°15/2 003 replaced this prohibition on Spanish penal code as above mentioned. These changes are the result of a Constitutional Court decision n°116/1999 of 16 June 1999. Finally, law n°35/1988 has been abrogated and replaced by law n°14/2006.</p>	Law N° 14/2007 on biomedical research of 3 July 2007	<p><u>Article 33: Procurement of embryonic cells</u> (1) The creation of human pre-embryos and embryos solely for experimental purposes shall be prohibited. (2) The use of any technique for obtaining human stem cells for therapeutic or research purposes, including the activation of oocytes through nuclear transfer, shall be permitted under the terms laid down in this Law, provided that it does not entail the creation of a pre-embryo or embryo solely for this purpose.</p> <p>Comment: Research cloning is allowed.</p>
Sweden**	Law n° 115 on measures for the purposes of research or treatment in connection with fertilized human oocytes of 14 March 1991 as revised on 1 April 2005 (text not found in English)	Human reproductive cloning is explicitly prohibited in the 2005 version of the law.	<i>IDEM</i>	The law on 1 April 2005 authorized research on fertilized eggs for purposes other than IVF treatment and research on therapeutic cloning.
Switzerland *	Federal Law on Embryonic Stemcells Research of 19 December 2003 entered into force on 1 March 2005	<p><u>Article 3:</u> It is forbidden: [...] c. To create a clone, a chimera or a hybrid (Article 36, al.1, law of 18 December 1998 on medically assisted procreation), to produce embryonic stemcells from a clone, a chimera or a hybrid, or to use their cells. [...] Is also forbidden; [...] d. To implant into a woman a supernumerary embryo used to produce stemcells. [...]</p> <p><u>Article 24:</u> Is liable to an imprisonment penalty whoever intentionally ; [...] b. Uses supernumerary embryos for a purpose other than the producing of stemcells.</p>	<i>IDEM</i>	<p><u>Article 3:</u> It is forbidden: [...] c. To create a clone [...], to produce embryonic stemcells from a clone [...].</p> <p><u>Article 12: Scientific and ethical requirements for research projects</u> A research project within embryonic stemcells are to be used can only be managed if: a. The project aims to acquire essential knowledge: 1. Aiming to diagnostic, to treat or to prevent serious human diseases, or [...] b. Equal value knowledge cannot be obtained by other means c. The project complies with scientific quality requirements; d. The project is acceptable in view with the ethical grounds</p> <p>Comment: This law deals as well with patent law, stemcells international exchanges, etc.</p>

Tunisia*	Law n°2001-93 relative to the medicine of reproduction of 7 August 2001	<p><u>Section 8:</u> Reproductive medicine by the mean of cloning techniques shall be strictly prohibited.</p> <p>Sanction: 5 years imprisonment and 10.000 dinars fine.</p>	IDEM	<p><u>Section 9:</u> The in vitro conception or by other means of human embryos, for studies, research or experiment purposes is forbidden.</p> <p><u>Section 11:</u> The freezing of gametes or embryos is allowed only for therapeutic purposes in view of assisting two members of a couple to procreate [...] gametes can be conserved for a maximum period of 5 years [...]. At this delay expiry [...] these gametes shall be destroyed and the embryos freezing shall be interrupted.</p> <p><u>Section 13:</u> A human embryo shall only be conceived in vitro or by other techniques in the frame reproductive medicine.</p> <p>Comment: These 3 provisions implicitly prohibit therapeutic cloning as mentioned by recommendation n°5 of the National Medical Ethics Committee.</p>
Turkey**	Regulation on Centres for medically assisted procreation (<i>The Official Gazette</i> , 8 July 2005, n°25869)	Reproductive cloning is forbidden.		
Ukraine*	Law prohibiting human cloning for reproductive purposes of 14 December 2004	<p><u>Section 1</u> Human cloning for reproductive purposes is prohibited.</p> <p><u>Section 4</u> Persons who violate this Law are liable to civil, administrative, or penal sanctions.</p>		
United Kingdom**	Human Embryology & Fertilization Act of 1 November 1990 as amended by the Human Fertilization and Embryology Act 2008 (c.22)	<p><u>Section 3: Prohibitions in connection with embryos</u></p> <p>(2) No person shall place in a woman</p> <p>(a) an embryo other than a permitted embryo (as defined by section 3ZA), or</p> <p>(b) any gametes other than permitted eggs or permitted sperm (as so defined)."</p> <p>Comment: Section 3ZA further defines what is meant by "permitted eggs", "permitted sperm" and "permitted embryos". It can be deduced from the dispositions that human reproductive cloning is not allowed in the United Kingdom.</p>	IDEM	<p>Schedule 2: ACTIVITIES FOR WHICH LICENCES MAY BE GRANTED</p> <p><u>Paragraphe 3 :</u> <i>Licences for research</i> 3 (1) A licence under this paragraph may authorise any of the following— (a) bringing about the creation of embryos <i>in vitro</i>, and (b) keeping or using embryos, for the purposes of a project of research specified in the licence. [...]</p> <p>PURPOSES FOR WHICH ACTIVITIES MAY BE LICENSED UNDER PARAGRAPH 3</p> <p>3A [...] (2) The principal purposes are—</p>

				<p>(a) increasing knowledge about serious disease or other serious medical conditions,</p> <p>(b) developing treatments for serious disease or other serious medical conditions [...]</p> <p>Comment: Research cloning is allowed in the United Kingdom.</p>
United Arab Emirates**	Draft law on accreditation of fertilization centres (prepared in July 2007)	The draft law implicitly prohibits all forms of human cloning, because it prohibits the marketing of human oocytes, zygotes and sperm for research purposes. It also prohibits research on embryos even if they are no longer subject to a parental project.		The draft law implicitly prohibits all forms of human cloning, because it prohibits the marketing of human oocytes, zygotes and sperm for research purposes. It also prohibits research on embryos even if they are no longer subject to a parental project.
United States of America	FEDERAL LEGISLATION		<p>Public Law n°104-99 ("Dickey Amendment") of 1996</p> <p>Executive Order n°13505 Removing Barriers to Responsible Scientific Research Involving Human Stem Cells</p>	<p>Dickey amendment, passed under Clinton's presidency and renewed under Bush's presidency, prohibits the allowance of federal funding for:</p> <p>(1) the creation of a human embryo or embryos for research purposes; or</p> <p>(2) research in which a human embryo or embryos are destroyed, discarded, or knowingly subjected to risk of injury or death greater than that allowed for research on fetuses in utero [...].</p> <p><u>Section 2: Research</u> The Secretary of Health and Human Services (Secretary), through the Director of NIH, may support and conduct responsible, scientifically worthy human stem cell research, including human embryonic stem cell research, to the extent permitted by law.</p> <p>Comment: This executive order revokes the presidential statement of August 9, 2001 that limited federal financing for stemcells research on 22 lines existing before 2001 and also set aside Executive order n°13435.</p>
	STATES LEGISLATION	Regulations on reproductive cloning have only been issued by state governments. So far, the following 13 states have banned reproductive cloning explicitly: California, Arkansas, Connecticut, Indiana, Iowa, Maryland, Massachusetts, Michigan, Rhode Island, New Jersey, North Dakota, South Dakota, and Virginia.		<p><u>States banning therapeutic cloning and research destroying embryos:</u> Louisiana, Michigan, Minnesota, Arkansas, Indiana, Iowa, Michigan, North Dakota, South Dakota, and Virginia (because 'human being' was left undefined in the legislation).</p> <p><u>States without cloning legislation:</u> Alabama, Alaska, Colorado, Delaware, Florida, Georgia, Hawaii, Idaho, Kansas, Kentucky, Maine, Minnesota, Mississippi, Montana, Nevada, New Mexico, New York, North Carolina, Oregon, South Carolina, Tennessee, Texas, Utah, Vermont, Washington, West Virginia, Wisconsin, and Wyoming</p> <p><u>States funding Stemcells research:</u> California (California Institute for Regenerative</p>

	<u>Rhode Island</u> : §23-16.4-1 to 4-4 <u>New Jersey</u> : §2C:11A-1, §26:2Z-2 <u>North Dakota</u> : §12.1-39 <u>South Dakota</u> : §34-14-27 <u>Virginia</u> : §32.1-162.32-2			Medicine), Connecticut (Connecticut Stem Cell Research Grants Program), Illinois (Illinois Regenerative Medicine Institute), Maryland (Maryland Stem Cell Research Fund), and New Jersey (The Stem Cell Institute of New Jersey and the New Jersey Stem Cell Research Grants Program).
Vietnam**	Government Decree banning human cloning and surrogacy of 12 February 2003	This ordinance prohibits human reproductive cloning.		

COMMENT:

Croatia, Moldova and Romania don't appear in Table 1 even though these States signed and ratified protocol N°1 of Oviedo's convention on human reproductive cloning prohibition. They should be therefore considered as countries having a legislation banning it.

Table 2: International Conventions

	OVIEDO CONVENTION[♦]	ADDITIONAL PROTOCOL TO THE OVIEDO CONVENTION[‡]	PACT OF SAN JOSE, COSTA RICA[▲]
Source	Council of Europe, Convention open to signature on 4 April 1997 at Oviedo, Spain, and entered into force on 1 December 1999, CETS No. 164.	Council of Europe, Additional Protocol open to signature at Paris on 12 January 1998, and entered into force 1 March 2001, CETS No. 168.	Inter-American Specialized Conference on Human Rights of 22 November 1969, entered in force on 18 July 1978
Short title	Convention on Human Rights and Biomedicine	Protocol n°1 to the Convention on Human Rights and Biomedicine	American Convention on Human Rights
Long Title	Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine	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	<i>IDEM</i>
Relevant provisions	<p><u>Article 18 - Research on embryos in vitro</u> [...]</p> <p>2. The creation of human embryos for research purposes is prohibited.</p>	<p><u>Article 1:</u> 1. Any intervention seeking to create a human being genetically identical to another human being, whether living or dead is prohibited. 2. For the purpose of this article, the term human being "genetically identical" to another human being means a human being sharing with another the same nuclear gene set.</p>	<p><u>Article 1:</u> 2. For the purposes of this Convention, "person" means every human being</p> <p><u>Article 2:</u> Where the exercise of any of the rights or freedoms referred to in Article 1 is not already ensured by legislative or other provisions, the States Parties undertake to adopt, in accordance with their constitutional processes and the provisions of this Convention, such legislative or other measures as may be necessary to give effect to those rights or freedoms.</p> <p><u>Article 4.1:</u> 1. Every person has the right to have his life respected. This right shall be protected by law and, in general, from the moment of conception. No one shall be arbitrarily deprived of his life. This Convention sets as a principle (using the term "in general") the right to life from the conception. Therefore, countries which ratified it should be considered as banning research destructing embryos as well as therapeutic cloning. Nonetheless, the term "in general" can be interpreted otherwise as Mexico did to allow therapeutic cloning research.</p>
Comment		Croatia, Moldova and Romania don't appear in Table 1 even though these States signed and ratified protocol N°1 of Oviedo's convention on human reproductive cloning prohibition. They should be therefore considered as countries having a legislation banning it.	

♦ Countries having ratified the Convention: Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia Georgia Greece, Hungary, Iceland, Lithuania, Moldova, Norway, Portugal, Romania, San Marino, Slovakia, Slovenia, Spain, Switzerland, Turkey

‡ Countries having ratified the Protocol: Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Georgia, Greece, Hungary, Iceland, Lithuania, Moldova, Portugal, Romania, Slovakia, Slovenia, Spain, Switzerland

▲ Countries having ratified the Pact: Argentina, Barbados, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominica, Ecuador, El Salvador, Grenada, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Dominican Republic, Suriname, Trinidad and Tobago, Uruguay, Venezuela

Main sources

- WHO - International Digest Of Health Legislation: - <http://www.who.int/idhl-rils/frame.cfm?language=english>
- HumGen International – Database – <http://www.humgen.umontreal.ca>
- Center for Genetics and Society - <http://www.geneticsandsociety.org/index.php>
- Global Lawyers and Physician - <http://www.glphr.org/>
- Oxford Journals - <http://humrep.oxfordjournals.org/>
- World Law Bulletin - <http://www.fas.org/sqp/othergov/wlb/index.html>
- European Commission – National Ethics Committees - http://ec.europa.eu/research/biosociety/bioethics/bioethics_ethics_en.htm
- Stem Cell policy - <http://www.mbbnet.umn.edu/scmap.html>
- Bionetonline - http://www.bionetonline.org/english/Content/sc_leq2.htm
- Connexions - <http://cnx.org/content/m14836/latest/>
- The Hinxton Group - http://www.hinxtongroup.org/wp_am_exc.html
- DNAPolicy - <http://www.dnapolicy.org/>
- WHO –Ethics and Health (Bioethics committees) - <http://www.dnapolicy.org/>
- Lexadin - <http://www.lexadin.nl/>
- Regulacion Juridicas de las Biotecnologias - <http://www.biotech.bioetica.org/>
- Eureth.net - <http://eurethnet.kib.ki.se/Inline/links.htm>
- Americans to ban cloning - <http://www.cloninginformation.org/>
- UK Department of Health - <http://www.advisorybodies.doh.gov.uk/>
- The Human Future - <http://www.thehumanfuture.org/>
- Pew Forum Stem Cells - <http://pewforum.org/docs/?DocID=318>
- Baltic countries Stem Cells - <http://www.scanbalt.org/>
- Legislationline - <http://www.legislationline.org>
- National legislation sites, National parliament sites, National Health Departments sites, Ethics committees sites, Council of Europe, Organisation of American States, etc.