

Ethical Dilemma in Stem Cell Research ?

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THE RISK-REWARD PRINCIPLE: WHAT KIND OF DILEMMA?

From time to time, scientific breakthroughs cause discontent, even scare or angst in those cultural, moral, and political settings which - rightly or wrongly - feel threatened by new knowledge and new capabilities. 'Stem cell research' is the new battle cry in moral and political discourse; proponents and opponents argue with 'best case' and 'worst case' scenarios. Some call it 'mass murder of babies' or 'the beginning of the end' (which end?), others hail its potential as a cure for every disease and for enhancing quality and span of life. Moral and religious communities and national and international bodies have expressed different opinions and attitudes. Instead of summarizing religious and national positions, which are in rapid flux and in detail available on the internet [3], I present a bird's-eye view on risk features for individuals, communities, countries and humankind associated with new technology in general and with stem cell research in particular. In doing so, I will use six principles, some of them well known in bioethics such as the *principles of risk-reward, dignity, precision, and solidarity*. Others, such as the *basket principle* in evaluating moral options and the *minimax principle* in regulatory decision making are de facto widely used but rarely addressed as such. Having been asked to talk about 'ethical dilemmas in stem cell research', I take the liberty to question whether or not there is such a dilemma; therefore I a question mark behind the topic and title.

Dilemma, an ancient Greek term, describes 'a situation where each of two alternative courses (or of all the feasible course) is eminently undesirable' [Webster's Dictionary]. A dilemma can be of technical, of moral, cultural, political, regulatory, or interpersonal nature. When a machine is not functioning well and we continue to use it, then it might totally break down; on the other hand, not using the machine at this time would result in a very unwanted result or harm. Do I want to tell my friend a truth which he or she probably is not ready to understand or should I lie; both options are 'eminently undesirable'. Passing new laws or regulations to protect citizens better against harm from

terrorists might cause harm to the liberty or privacy of even those citizens, an unwelcome, but probably unavoidable choice. If possible, we should avoid situations producing dilemmata of one kind or the other. If dilemmata are unavoidable, common sense and prudence need to prevail and the least unwelcome road be taken, if a decision has to be made and cannot be avoided or postponed. However, what is 'least unwelcome'? Choosing between two unwarranted outcomes depends on priorities in principles and values which we some, but not all of us might share, also on the personal rating or prioritization of those values [14].

What would potential dilemmata in stem cell research be: technical, moral, cultural, political or regulatory? This type of research includes research on pre-embryo and embryonic cells, somatic cells, haploid oocytes and the re-programming of cells including nuclear transfer and hybridization. Research on human cells might have the potential to result in new forms of human reproduction or multiplication, in hybridization, and in developing various kinds of products for clinical treatment of disorders or diseases or for enhancement. Therefore quite a number of issues of risk and uncertainty need to be addressed as far as they may lead to two or more 'equally unwelcome choices' in stem cell research: technical risk, uncertainty or hazard in moral risk. *(1) We need to differentiate between medical risk, moral risk, cultural risk, regulatory and political risk. (2) We also need to ask: risk to whom: citizens, oocytes, zygotes, pre-embryo, fetuses, humankind, embryoids or embryonic constructs, parthenotes or other manmade products? (3) Who is or should be the prime moral agent to take care of the risk, to accept responsibility, to inform about risk, the citizen, the regulator or politician, the expert?; who should be the prime moral agent to evaluate dilemmata in stem cell research and the possible future medical use, if safe and efficacious products or procedures can be developed?*

The elimination or reduction of technological risk falls primarily into the domain of the expert and might result in better construction, safer procedures, and norms for quality control and safety; resulting risk and uncertainties need to be communicated to customers and consumers, making them a partner in risk reduction and in the handling of uncertainty [14]. Moral and cultural risk is related to moral and cultural need, utility, harm or possible use for unwarranted goals. In culturally closed societies moral harm and utility of new technology is determined by authorities holding power over interpreting Divine commands, natural laws or human rights. In open societies, rich in different values and allowing for different visions of good and moral life defined by individuals and moral communities, the evaluation of moral harm is more complicated. But healing people from suffering disease and suffering, protecting health never has been called immoral. On the contrary, all cultures put high emphasis to help the sick and the poor and

experts in healing and those who advance the healing sciences have always been given high credit and respect [14;17]. And, in all cultures the healing profession traditionally was primarily guided by their own quality standards in professionalism and ethics on one side and trust-based success-oriented service to their clients, i.e. patients.

However, individuals and moral or religious communities have different positions in regard to the intensity of intervention, limits in manipulating or fighting nature and natural developments, also in regard to the use of products or procedures 'forbidden' for religious reasons. Strict Taoists might not want intensive care medicine or organ transplants, Jehovah's Witnesses no blood transfusions, Muslims no remedies based on pig pancreas, Hindi no remedies based on cow tissue or any other animal source. But, whatever these difference in prioritizing values or selecting certain unwelcome or forbidden products or procedures are, all civilized individuals and all respected moral or religious worldviews agree that the 'golden rule' of caring for a fellow human in need is a prime indication of culture, commitment, and morality: *'Do not do to others what you would not desire for yourself'* (Confucius); *'Love God by loving your neighbor'* (Jesus); *'Do not use fellow humans as means only as you would do with horses'* (Mohist); *'Do not do to others what you would not to be done to you'* Kant). Buddhist reasoning and life centers around reducing suffering; Jewish, Muslim and Christian call is the service to the poor and sick [17;6;8]. 'One needs not to be a Christian to be concerned with the poor, with health, with the food problems, and justice and rights. But if one is a Christian and is not so concerned, something is wrong with that Christianity. It has been ceased to be Christian because it has ceased to be what his founder was – human'[6:172], this insight by McCormick a Jesuit priest and bioethicist probably can be generalized to all religions and their true authorities.

THE SOLIDARITY PRINCIPLE: IS ETHICS ANTHROPOCENTRIC?

Based on the principles of no-harm and solidarity, there is one easy scenario in the stem cell debate: reprogramming or cloning cell including stem cells for use in human reproduction. This scenario does not pose a dilemma, rather, as it stands today, a totally unacceptable technical risk [1;2;7]. Cloning and reprogramming techniques, being in its infancy and still rarely successful, all the time are full of flaws in regard to quality standards of those embryoid products; they do not meet the high standards required in medically or technically assisted human reproduction and infertility treatment. *No professional oversight body would or should certify these techniques for human reproduction simply based on features of proven medical risk and of high degrees of uncertainty and proven harm. At this stage of scientific knowledge, no cultural or moral argument is needed to outlaw these procedures or products for human reproduction.*

Professional quality standards can not yet be written nor are the features known to be addressed in such a standard yet be formulated. Civil and criminal law already are in place everywhere in the civilized world does not allow this developing technology for use in human reproduction [17]. The loosely worded vote by the United Nation's General Assembly with less than 50% of nations taking a stand against stem cell research of any kind was vague and seems to be totally unnecessary and ineffective [20].

However, it is most appropriate to have religious, moral, and cultural debates of various kinds on the issue already today. In due time humankind will have made her mind whether or not in rare cases cell reprogramming resulting in the production of embryoids could or should be used in human reproduction. Embryonic constructs are not embryos in the traditional sense as they are not derived from the merging of two nuclei of haploid genetic property as is the case in all medically assisted forms of reproduction. As cloning and cell reprogramming is different from reproduction, one should use a new term such as 'multiplication' in order not to confuse apples with oranges, i.e. reproduction by use of fertilization, either in vitro or in vivo, with asexual multiplication of the same or, depending on the process, slightly modified genetic code [2;7;12]. It seems that cultural evolutions is a continuation of natural evolution and that cultural evolution so far has in general brought more positive than negative results as far as civilization, culture, ethics and politics are concerned. I would not exclude that further improvements and benefits might occur in machine-integrated human bodies or in humoids. But that needs to be discussed. *A contemporary discourse on the moral status and legal recognition of embryoids or hybrids is not only useful, but warranted for self-understanding and self-evaluation of individuals, communities, cultures for a time, when technical risk can be excluded or reduced so far that individual or collective values or visions can create factual moral, cultural or regulatory options and dilemmata.*

There would be two ways to go: (a) support cell reprogramming research towards an end which will technically exclude to use cell constructs or embryoids for human multiplication, or (b) improve technical features and reduce technical risk to morally acceptable levels if humankind in general is prepared to confer full rights of solidarity to humoids, developed from cell reprogramming. Humoids are chimeras, they are not humans as they are constructed technically, either by hybridization or parthenogenesis or nucleus transfer. Different kind of humoid products share different kind of genetic information with humans, such as transgenic animals do. The ongoing global and national patenting debates go right to the core of ethical controversies. According to the Washington Post [Febr 15, 2005] 495 man-altered animals with unique traits already have been patented, quite a number of those being transgenic, i.e. having human DNA as their own. Recently, the US Patent and Trademark Office rejected the patenting of a chimera

as it might be too close to a human; patenting therefore would violate privacy rights and the 13th constitutional amendment against slavery; the office also noted, that those chimeras might not be imported from abroad [Washington Post, Febr 13, 2005]. But as far as cloning is involved, methods as well products have been patented: United States patent number 6,200,806 issued March 13, 2001 patented pluripotent hESC stem cell lines; US patent number 6,781,030 issued August 2004 patents 'methods for cloning mammals using telophase oocytes(egg cells)', not excluding human oocytes. In December 2002 the Canadian Supreme Court excluded higher forms of life from patent protection, except when specifically authorized by Parliament. The European Patent Convention in article 53a reserves the right not to issue a patent in a loosely worded and diplomatic language, if such a patent would be 'contrary to "ordre public" or morality, provided that the exploitation shall not be deemed to be so contrary merely because it is prohibited by law or regulation in some or all of the Contracting States'. The European Biotechnology Directive of 1998, which only has indirect influence on patenting in article 6 suggests that 'processes for cloning humans', 'modifying the germ line identity of human beings', 'uses of human embryos for industrial or commercial purposes', and 'modifying genetic properties of animals which are likely to cause them suffering without substantial medical benefit to man or animal .. should not be patentable'.

The patenting debate reflects the metaphysical and religious question of solidarity: what does it mean to share some, a few, many or most genetic properties with other species for our self-understanding and our moral recognition of those products. Prima facie and based on the vision and principle of human dignity and equal civil rights, humoids and humans, irrespectively of whether resulting from asexual multiplication or from fertilization of different kind, need to be treated equally; this would be the least exclusive approach. But, when is a humoid so close to a human, while a transgenic animal carrying one or two specific human disease-related genetic properties is not? Some moral communities might not want for themselves the production of humoid by cloning and the bringing to term of those products, but all moral communities need to accept born and living humoids as equals whether they approve the way they came to life or not. The full cross-cultural acceptance of humoids as equal to humans would need to be similar to our full acceptance of each and every human person, irrespectively of race, age, health status or social status. *It has taken humankind a long time, to recognize that all humans are equal, irrespectively of race, gender, age, social status or health; it will be much more difficult to come to terms with giving humoids similarly equal right and moral recognition. If we are not ready for that, we should not bring them to term.*

Some have argued that some people, particular in traditional Asian culture favoring male offspring, would somatic cell nuclear transfer techniques to produce

babies, if originally developed for therapeutic purposes. However, such a suggestion underestimates cultural family quality standards of potential users of re-programming technology, expecting a 'dream child' or at least 'any normal child' and not a product resulting from an embryonic construct of unknown and questionable genetic mix-up and disorder. Idiots might in the future exploit existing stem cell technologies as they do with other technologies for crazy activities; criminals might use these and other technologies, as Cain slaughtered his brother Abel with a stick; sadists use electricity for torturing their victims. But rarely have cultures and legal systems deterred and fought idiots and criminals making instruments and methods of potential multiple purpose use illegal.

THE BASKET PRINCIPLE: DIGNIFYING MORAL CHOICE

Most cultures, in particular open and free societies based on respect for human dignity and human and civil rights, have well established baskets of moral attitudes, rules and understandings of right and wrong, of what is favored, required, legally permissible or tolerated. New moral options made possible by progress in science and technology needs to be put into perspective and evaluated against what is or has already been accepted or tolerated. In order to understand the challenge to individuals and communities caused by new opportunities of directly manipulating life on the cell-level via reprogramming and nuclear transfer, it is helpful to look into comparable scenarios in which people and moral communities formed moral judgment and routine, and in which regulators and judges have supported, accepted, or not challenged those individual moral choices.

There is basket full of options for choices to be made by adult citizens in regard to dealing with early human life: using contraceptives or antinidatives, performing abortions, not protecting oocytes, storing human sperm and fertilized eggs, discarding frozen sperm and fertilized eggs, using various forms of medically assisted reproduction in vitro and in vivo [17]. Of course, there are certain moral or religious communities who do not support one or the other of these techniques. On the other hand, 'pro life' moral communities opposing abortion and antinidatives have not yet called for the funding of scientific projects to study the high natural abortion rate in humans in order to 'save life'; this makes their claim somewhat less authentic and persuasive.

(1) Civilized communities and governments, respecting the dignity of moral choice made by their citizens, will not enforce abortion or the use of condoms on those whose moral intuitions tell them, that it is wrong to terminate early unborn human life or to have recreative sex by separating lovemaking from procreation. Not everything beyond basic human solidarity needs to be arranged uniformly, in particular if personal visions and values differ and respect and compassion for the dignity of other people's beliefs,

principles, virtues and visions would be hurt rather than supported by uniform solutions and rules. The Buddhist concept of personal dharma and the Confucian understanding of different obligations in different interpersonal roles are quite close to the Christian principle of subsidiarity, requesting that moral and other issues be solved on the lowest possible, i.e. family, community, first and that only if that fails higher authorities need to step in [16]. Because of technical possibilities in producing chimeric constructs, the existence and continuing research on transgenic animals belongs in this basket as well. If and when chimeric constructs will be available such as tissue of organs for transplantation, patients need to be informed and will have to decide for themselves whether or not they might want to accept a chimeric pig-human kidney replacement organ. Cloning sheep, rats, or humans pose similar or comparable technical problems and risk, but moral risk in genetically manipulating human life versus animal life rightly is perceived to be higher and quite different to most individuals and worldviews [18].

Confucius, Buddha, Jesus, Moses and Mohamed did not think about the moral status of stem cells nor did they have any reason to do so. But their teachings have influenced traditions and attitudes of individuals and moral communities, also regulators and politicians, and their guidance has found different interpretation over time, within denominations and between them. Basic moral intuitions such as the golden rule and the respect for other people's conscience, protection from bodily harm by means of torture, rape, or starvation, and the command to serve the sick and the poor can be found in all traditions and have formed the conscience of moral people. But they disagree about eating raw beef or beef or pork or any animal meat at all, or accepting blood from other people. They also disagree about the moral status of early human life, of living humans diagnosed as having no functioning neocortex or entire brain. Some have hailed the availability of reliable hormonal contraceptives as a contribution to women's emancipation and equality of men and women more important than centuries of philosophical argumentation or religious instruction; others have condemned contraceptives as unnatural and harmful to marriage and intimacy. As far as others, i.e. other fellow citizens, are not hurt by these and other different and often contrarian convictions and attitudes, prudent and enlightened regulators and truly moral communities have accepted and supported, that people follow their individual moral intuitions, which might more or less be based on teachings of moral communities they wish to be associated with or are born into.

(2) *It should not be assumed that people share precisely the position voiced by leaders of religious or other communities they belong to. On the contrary, different visions and attitudes are as common within moral or religious communities as they are between them. Individuals of different moral communities might share the same vision*

and attitude while their respective communities disagree with each other. Sometimes positions taken by religious leaders are a part of a moral problem not of a moral solution. People in open and free societies hold different opinions on the moral status of unborn human life, on lovemaking and sex, on in-vitro-fertilization, on storing pre-embryo or their own sperm. Therefore, the basket of options in how to evaluate early human life is impressively full. Would stem cell research including research on embryonic stem cells, the production of embryoids, cloning, and subsequently the use of products or procedures coming out of such a research belong into this basket or not? Given the broad spectrum of moral intuitions and attitudes already accepted and protected, stem cell research belongs into this basket, from which competent, educated, and informed adults may choose or not choose. It is not the obligation of a philosopher to tell what is right or wrong as long as he or she finds a broad spectrum of different arguments and attitudes presented by other reasonable and responsible people. The vision of common morality holds, in the words of Veatch, 'that at a pre-theoretical level all human beings (or all rational human beings or all human beings who were ideal observers) would have moral intuitions about a range of behaviors that are not incompatible even they are expressed in different languages and using different concepts' [24:49]. If Veatch is true, and I and a majority of classical and contemporary scholars support his concept of 'logos spermaticos' (Plotin), i.e. that reason and conviction comes in different shapes, then a philosopher's obligation is to analyze arguments and to support open discourse, information and education, and the moral choice of fellow humans based on their conscience and ready to accept responsibility for their choices, some of them they might regret later. I call this the principle of humaneness.

(3) Whenever and as long as philosophers, theologians, politicians and pressure groups of different kind and background fight over theories, principles, that would be an indication that reasonable and responsible people can have different convictions and attitudes. The morally preferred solution is to make the individual citizen closest to the moral challenge the prime moral agent following her or his own conscience and calling. Moral communities, public discourse and government should provide information and support to make responsible and educated decisions. Only the most radical and fundamentalist ideational positions, who are part of the problem rather than the solution of humane ethics and the care of our fellow humans would disagree with devoted Jewish rabbi and enlightened philosopher Moses Mendelsohn: 'Brethren, if you want rue peacefulness in God (Gottesseligkeit), let us not lie about consensus when plurality seems to have been the plan and the goal of providence. No one among us reasons and feels precisely the same way the fellow-human does. Why do we hide from each other in masquerades in the most important issues of our lives, as God not without reason has given each of us his/her own image and face' [8:201].

THE MINIMAX PRINCIPLE: REDUCING REGULATORY DILEMMATA

While the basket principle helps to differentiate between required, acceptable or tolerable moral behavior in bioethics, the minimax principle allows for differentiation in biopolitics. *The minimax principle requires the balancing of minimal paternalism over individual decision making with a maximum of respect for human dignity expressed in the dignity of the individual conscience, minimal regulatory or legal tutelage of personal beliefs and deeds combined with a maximum of legal protection of individual choice, and a decent minimal of providing support for life and wellbeing with a maximum of providing education and allowing individuals, professional groups and moral communities to care for their fellow citizens, to provide for regulation and laws and procedures with minimal restriction to individual and collective conviction and lifestyle, and a maximum of non-interference with established modes of belief and life.*

As far as stem cell research in form of reprogramming cells, cloning, and hybridization is concerned, the minimax principle requires that regulators and legislators to explain the need for regulating or legislation and why stem cell research and research on early forms of human life needs to be addressed differently than contraceptives, antinidatives, abortion, in vitro fertilization in infertility treatment, storing or discarding of frozen embryos, producing and experimenting with transgenic animals. As long as they allow for individual choice to use or not to use those and other procedures in the basket of existing options in personally, morally, and culturally deal with early forms of human life, they need to come up with strong arguments why they want to regulate embryoids, parthenotes, hybrids, and embryonic stem cells more strictly than frozen embryos, commodified and threatened to be thrown away, or nonnidated embryos threatened to be killed by antinidatives?

(1) *In regard to stem cell research, the minimax principle suggests that probands be informed about procedure and goals of the research, also about religious and moral positions and debate as part of the informed consent procedure. As is the case in other morally and medically complicated scenarios, such as abortion or organ donation, a special information and consultation session might be warranted and could be required by regulatory oversight bodies in order to provide a maximum of information, consultation and free choice. Government is required to provide a maximum of protection for those who are pressured or forced to take part in such a research against their will. Of course, as the mild paternalistic principle of informed consent has run its useful course, it should be replaced by an informed contract model, spelling out in detail some rights and obligations of sponsors, researchers and probands and their families [15].*

(2) *The minimax principle also recommends proceeding with research that would most likely produce a lesser challenge to traditional assumptions and attitudes than others. Reprogramming somatic stem cells up to pluripotency would have less orientational impact than reprogramming all the way towards totipotency. Using existing 'surplus' embryos, whose fate would be destruction otherwise, rather than producing embryos for research purposes, satisfies the minimax principle as well.* Also, performing research only up to 14 days after production mirrors the 14 days post conception during which period the natural abortion rate is very high and human medical intervention via contranidatives and intrauterine devices has not been outlawed and is accepted by many for reasons of convenience or risk reduction, if pregnancy and carrying to term is perceived to be a risk based on personal risk assessment. This potentially 'least offensive approach' includes to favor 'animal over human material, adult versus embryonic stem cells, affected or at risk embryos versus healthy embryos and supernumerary versus research embryos' [8:1060]. While one may argue about the validity of an argument to favor affected embryos over healthy ones, nevertheless priority lists, such as this one, may be helpful for a prudent approach in culturally sensible new endeavors. Another use of the minimax principle would be to selectively prohibit one or two procedures considered most extreme such as the 'Act to prohibit the placing of a human embryo clone in the body of a human or an animal' issued by the Parliament of Singapore for a period of three years [11].

Similarly, if and when safe and efficacious therapy might be available based on stem cell research, the minimax principle would allow patients to choose or to reject all or some remedies based on cell reprogramming, including cloning, hybridization, embryonic cells or embryoid cells and tissue. As there is no direct harm to others if some fellow human reject donated blood or organs or remedies based on products they do not consider to be allowed by their religious belief, rejecting remedies based on stem cell research or containing human or humoid tissue or cells should be in the sole discretion and responsibility of the patient; no patient should ever be forced to accept treatment or medicine she or he does not want for whatever her or his reason might be.

The minimax principle of least offensive moral action by political and orientational authorities and maximum respect and support for the dignity of personal choice is also expressed in a rule of the 'Veritatis splendor' Vatican encyclical: 'Like the natural law itself and all practical knowledge, the judgment of conscience also has an imperative character: man must act in accordance with it. If man acts against this judgment or, in a case where he lacks certainty about the rightness and goodness of a determined act, he stands condemned by his own conscience, the proximate norm of personal morality'[22: art.60]. Of course, the Vatican holds, that the conscience of true

believers need to be guided by the authorities of that church, but such a doctrine would only apply to those who have for themselves decided such subordination of their conscience.

(3) The minimax principle constitutes two other rules: the quest for 'sunset clauses' and for 'conscience clauses'. *Sunset clauses in laws or regulations require that these rules be reviewed after a certain time of if certain events occur or that they simply cease to exist. Conscience clauses allow the individual dissenting on grounds of personal conviction and vision to follow in single cases or specific scenarios her or his conscience. Laws and regulations on ethically controversial issues routinely should provide for conscience clauses and allow dissenting individuals to follow their conscience; regulatory agencies need to set up procedures for granting reasonable dispense while prohibiting abuse.*

The recent 'Guidelines for Human Embryonic Stem Cell Research' of the US National Academies display the prudent application of the minimax principle in most aspects mentioned: (1) the guidelines are issued as a model of self-regulation and self-governance by research institutions, thus they might make government regulation unnecessary and avoid the continuation of partisan politics on the political level and in the President Bioethics Council; (2) the guidelines require the approval of stem cell research by an Embryonic Stem Cell Research Oversight [ESCRO] committee on the local level; the guidelines are not written in stone and may be reviewed depending on future progress in research and future public and moral approval or disapproval; (3) given actual research goals and public moral uncertainty, the guidelines name a small number of research areas which 'should not be permitted at this time: (i) Research involving in vitro culture of any intact human embryo, regardless of derivation method, for longer than 14 days or until formation of the primitive streak begins, whichever occurs first; (ii) Research in which hES cells are introduced into nonhuman primate blastocysts or in which any embryonic stem cells are introduced into human blastocysts; (iii) No animal into which hES cells have been introduced at any stage of development should be allowed to be breed.' [22:6f].

The guidelines at this time exclude issues of particular moral concern, such as the production of humoids or chimeras, in particular in experiments with nonhuman primates and with neuronal stem cells. Some of these concerns might be too strong and might become obsolete as research provides more scientific certainty and as moral debates have become precise and experienced. It is a similar situation to the one, when the first astronaut came back from the moon and were quarantined for fear of microbe infection, which turned out to be not the case but nevertheless required by prudent risk assessment using the 'worst case scenario' for risk reduction. The guidelines also require that

providers of oocytes or embryos not be compensated, while everyone else involved receives compensation; but this feature, again, is supported by the minimax principle as the situation is similar with those who provide organs or blood. Other than the microbe infection risk from moon, stem cell research contains technical and moral risk. But moral risk cannot yet precisely be quantified, it still is mostly moral uncertainty. By entangling the net of yet unsolved problems, such as the moral standing of humoids or chimeras, the role of human neurological DNA in the brain of nonhuman primates, the fate and moral standing of chimeras and human clones at later stages of gestation, a clear-cut strategy for limiting research and research material down to a limited number of research activities for the prospective good of the patient, 'at this time'.

THE PRECISION PRINCIPLE: FIGHT UNPROFESSIONAL MORAL VAGUENESS

In science and engineering as well as in value analysis terminological vagueness is dangerous, unprofessional and immoral as it causes risk, uncertainty, and unnecessary conflict. *Science requires precise and clear terminology and language; we have to do the same in moral and cultural argumentation. Ethics is about making differences in planning and judging moral actions. Respect for life is a prime moral intuition supported by many cultures and religions, a maxim and a vision, which needs to be tailored to the situation for the protection of human rights as civil rights.* There is a difference between breaking off a flower and throwing it away and breaking off a flower and giving it to a person one loves, and there are only a few among us who would not flowers to loved ones in respect for life. Killing flying insect just for fun, is not an expression of respecting life, but killing a mosquito on my skin and biting protects me from nuisance and pain, sometimes even from the transmission of infection. Killing large numbers of mosquito by insecticides in order to prevent the transmission of malaria or west Nile virus infection has become a modern standard in hygiene and public health. Some worldviews hold that killing animals for protein intake is disrespectful of life, and that enough non-animal protein is available for morally sensitive and cultivated people. Sources in Jewish Rabbinic tradition hold that killing a mosquito on Shabbat is a larger sin than aborting a fetus. Killing animals is extremely immoral in Hindu and other cultures as well. Killing a mosquito is not immoral in general, but depending on the situation ambiguous and arguments pro and contra might be controversial. 'Killing' an embryonic construct cannot even be compared to the abortion of an embryo, and probably should not even be compared morally to the killing of a mosquito in most cultural traditions.

Ethics is about making distinctions and basing moral intuition and interpretation on differentiated analysis and evaluation of facts and scenarios. New scenarios require

particularly careful assessment of scientific facts and medical evidence without jumping to early conclusions. Longitudinal studies of humans born using in-vitro fertilization techniques confirm that genetic as well as environmental factors seem to influence genomic development and the formation of active polymorphisms in individual DNA codes; thus in-vitro fertilization has definite and certain shortcomings and contains health risks not associated with the natural way of 'making babies'; more 'natural ways' of assisted reproduction such in-vivo insemination (GIFT and other methods) include less risk as the fallopian tube environment is more 'natural' than in vitro, probably also more healthy. Animal studies have confirmed that DNA 'is both inherited and environmentally responsive. Behavior is orchestrated by an interplay between inherited and environmental influences acting on the same substrate, the genome' [7;12:397]. Taoists and some Western natural law philosophies selective reject the more severe forms of modifying or manipulating nature. On the other hand, Western and Eastern positions recognize cruelty, immorality and inhumanity of untamed natural forces [16].

Opponents of embryonic stem cell research for therapy arguing that genetic code defines individuality and character, use an outdated model of individuality as recent scientific evidence provides insight into an 'interplay of hereditary and environmental influences on genomic activity and individual behavior' already during very early stages of development and gestation [12:398;7]. They do not take into account the different environments of test tubes, fallopian tubes and the uterus, nor do they recognize the constructional shortcomings of cloning techniques. There are still scientific uncertainties in a number of insufficiently known facts about normal embryogenesis and early pattern formation. We know much less about the formational properties of embryonic stem cells insulated in different types of nutrition medium in vitro: 'Colonies of embryonic stem cells forming in vitro must be expected to lack, as a rule, the simple but ordered asymmetries of the embryonic disc of normal embryos that are derived from the asymmetries of the egg and the zygote system' [1:16]; but limited knowledge today cannot exclude that an early stage of further embryonic formation 'can start spontaneously as a rare event even in standard cultures in human embryonic stem cells' [1:18], comparable to yet not well known developmental pattern resulting in twins or Siamese twins. Embryonic constructs, also called 'embryoid bodies' and 'coined for the mouse system and refers to the fact that when mouse teratocarcinoma / embryonal carcinoma cells (EC) or ESC's (embryonic stem cells) are kept in mouse ascites or in vitro'; they can develop into further developmental stages, but 'are lacking other extra-embryonic cells which play important roles in embryo implantation and yolk sac formation' [1:4]. Given these and other results from animal studies, one may safely argue that embryonic constructs or embryoid bodies or isolates embryonic stem cells derived

from human blastocysts or blastocyst constructs in vitro are different from embryos in utero; ethicists need to clarify their terminology and to differentiate their arguments accordingly.

When Del. Anne Healy recently during a debate in the Maryland State Parliament criticized stem cell research by calling it ‘treating young human beings as raw material to be destroyed in the name of science’ [25], in using such a loose and imprecise terminology she incites emotions rather than discussing the problem within the framework of other moral options we accept in the described basket; others call pre-embryo ‘unborn babies’ or just ‘babies’ or ‘persons’. Similar loose and inciting language was used by Cardinal Geraldo Majella, President of the Brazilian Bishops Conference, when in criticizing the approval of the Brazilian parliament of limited stem cell research he said ‘It’s a sad day, not only for the church, but for mankind. Today we open the door to kill embryos. What will we do tomorrow’ [18]. The Cardinal has not had a look into the basket of other options, how to deal with early forms of human life, legally available in Brazil, some of those opposed by his church, some not. Otherwise he would have made a more differentiated statement and would have also taken the protesting citizens in wheelchairs cheering on the members of parliament to ‘legalize stem cell research using human embryos offering hope of one day finding treatments for ailment such as diabetes, Parkinson’s disease and spinal cord injuries’[18] . In March 2005 Jan Wilmüt received the prestigious 100,000 Euro Paul Ehrlich Prize in Germany for his groundbreaking cloning research, 43% of this amount came from the German government which strongly had supported the ban on all forms of cloning in the United Nations debate; just a month earlier Wilmüt had received clearance in Britain to create human embryos for research purposes.

It is particularly frustrating to see people using natural law arguments not making distinctions and differentiations. The basic factual difference between embryos and embryoids is that the former are conceived by means of fertilization. Embryoids were constructed in vitro for further manipulation into tissue or other remedies; they never will be aborted, i.e. by interventional means separated from a womb, from a mother. They never had been in received in a womb nor did they ever have a mother or a father in the traditional biological and moral sense. They were constructed by transferring a somatic cell nucleus into the denucleid cytoplasm of a human oocyte in an artificial medium outside the womb for medical purposes and for healing, not for implantation and reproduction. Embryonic constructs therefore are not embryos, neither in the biological nor in the moral sense. They are pseudo-embryos at most. As they have no mother or father in the traditional sense, biologically by merging two haploid oocytes, morally by having genetic properties from two persons. Moral theology and philosophical arguments

using natural law theory are cutting conceptual and analytical corners as they do not recognize different biological and associated moral properties of embryonic constructs as pseudo embryos when compared to embryos derived with or without medical assistance, in vivo or in vitro, from two haploid sets of human DNA. Existing technologies are only good enough for harvesting pseudo-embryonic and other stem cells for further scientific modification targeted at the development of certain cell lines or tissue for therapeutic purposes. Of ethical importance in in-vitro cloning is the construction method of pseudo-embryos, the developmental environment and the purpose, they are grown for.

Here is a suggestion for precision and a more exact terminology, as already used in science but not in ethics and politics yet: *'Stem Cells' are undifferentiated cells that can proliferate; they may be totipotent, pluripotent or multipotent; progenitor cells may only differentiate into one type of cells; when re-programmed stem cells may change their properties. 'Cloning' is a method by which a somatic cell nucleus is transferred into a denucleid ovum and then caused to multiply. 'Partenotes' result from ova, stimulated to begin division without fertilization or nuclear transfer. 'Embryos' are created by sexual reproduction with or without medical assistance, in vivo or in vitro. 'Embyoids' are constructs derived from cloning or cell reprogramming techniques. 'Humoids' are constructs derived from cross-fertilization of human and non-human oocytes. 'Chimeras' are products combined from human and non-human DNA of different percentage. 'Transgenic Animals' contain small amounts of human DNA, mostly related to specific diseases, metabolism or immunological properties. 'Apples are apples, not oranges; 'oranges' are oranges, not apples.*

It is unscientific and irresponsible to just apply Newtonian laws of physics to specific issues in modern physics; it is similarly unprofessional and logical and moral malpractice to apply fundamental moral laws to each and every situation without specification, differentiation, and evaluation, to simply use the same arguments in evaluating the moral recognition of pseudo embryonic constructs in vitro and of embryos in vivo. Similarly, it is improper and unprofessional to confer the term 'embryo' on constructs created by somatic cell nuclear transfer or call constructs derived from parthenogenesis totipotent. Apples are not oranges; embryos are not embryoid; humans are not humoids; parthenotes are neither babies, nor embryos, nor zygotes.

THE DIGNITY PRINCIPLE

The basket of already existing moral options to deal with early forms of human life and its manipulation as well as the minimax principle suggest that the legal situation in civilized countries already criminalizes the reprogramming of cells for human multiplication and that medical oversight bodies defining quality standards for

intervention and treatment in foreseeable future will not certify or tolerate human multiplication; therefore no new law or regulation is necessary.

In stem cell research for therapeutic purposes as in many areas of medical research and treatment, existing models of informed consent need to be replaced by true models of informed contract. [15] Additionally, if embryonic stem cell research and the production of embryoids or humoids pose such a great challenge to minority or majority moral and religious communities or cultural traditions, then mandatory counseling for probands and patients prior to participation or therapy could be considered. But most countries already have features and procedures in place to protect probands and patients. *Probands and patients have to be given the right to decide for themselves what they want to get involved with based on their personal vision and belief and their own priorities in life.*

There are a few national regulations in place based on a moral priority of supporting the improvement of medicine and the treatment of suffering, sick or dying fellow humans while at the same time follow the basket principle and the minimax principle. Regulations of the United Kingdom were the first and influenced others such as the stem cell regulation issued by the Chinese Ministries of Health and of Science and Technology [10]: (1) no research on embryos obtained from IVF, human somatic cell nuclear transfer, parthenogenesis or other any other kind of manipulation beyond 14 days after fertilization or nuclear transfer, (2) no implantation of manipulated embryos or other products into a human or animal womb, (3) no hybridization of human and nonhuman oocytes. These seem to be prudent safeguards giving a number of new techniques a chance to demonstrate their usefulness in improving medical knowledge and eventually develop medical remedies by providing a threshold against culturally more controversial experiments. The rejection of hybridization and reproductive experimentation satisfies the minimax principle in as far as it does not approve methods which can be considered too challenging to some or all citizens as long as other methods have not been employed.

The dignity principle, together with the minimax principle, requires that laws and regulations be reviewed routinely in the light of cultural adaptation to new technical options and opportunities; the Singapore Act against experimenting with reproductive cloning has a 'sunset clause' of three years [11]. The British House of Commons Science and Technology Committee suggested that the United Kingdom should revisit her rules governing embryo and stem cell research, the least restrictive rules in Europe, lifting the ban on genetic modification of embryos and on the creation of chimeric human-animal embryos, also re-open at least the debate on reproductive cloning [21]. As new technologies such as stem cell research pose new moral and cultural challenges, it is

understandable that regulators intending to protect citizens overreact by using 'worst case scenarios' or perceived moral risk arguments to outlaw these new technologies. When the first humans came back from the moon, they were put into quarantine for fear of moon microbes; this was an overly protective measure for risk under uncertainty. It is understandable that governments acted in a techno phobic mood, i.e. erred on what they perceived to be the morally 'safe side'; therefore we have a majority of rejectionist legislations and a loosely worded UN declaration [26;20]. But after some years of experience in the laboratories of science and politics, we now should have more educated public and ethical dialogues on stem cell research and usage together with a grown experience in dealing with the basket of moral options in dealing with early forms of human life, its commodification and with hybridization. Therefore selective regulation of stem cell research which is asymmetrical to the treatment of other moral options in the basket requires ever stronger arguments.

Switzerland, a country with a century old tradition of democracy on the grass root level, from time to time puts controversial issues to a plebiscite referendum [Volksabstimmung]. *In such a plebiscite referendum tradition political parties, religious institutions, professional organizations as well as ad-hoc pressure groups voice different opinions and suggestions for voting.* A recent plebiscite on stem cell gained a 2/3 support for legislation allowing highly regulated research on 'surplus embryos' [19]. Such a procedure, which is common also in Denmark, gives citizens a better involvement in political decision making, balancing decisions by governmental or legislative authorities which might be influenced by ideational or commercial pressure groups. Together with a shift in concern about medical research on the cutting edge leaving certain jurisdictions, there seems to be a weakening of overregulation arguments and a more humane understanding of the benefits of medical research [3].

The prudent and morally authentic response in political ethics would be the recognition that globalization of research, reasoning, services and production suggest that national legislation will be less and less efficacious and that coordinated transnational legislation intertwined with legislative and cultural initiatives in protecting individual choice, vision, values and wishes of citizens (as long as they do not hurt other citizens) would be the politically and morally right thing to do. Elastic laws, at least allowing for conscience clauses for individuals or small moral communities to choose for themselves alternative moral and medical options, within the limits of human and civil rights not to be harmed by others, would be the most appropriate way to legislate controversial issues among citizens, who are different in their visions and values not because one side is 'bad' or 'morally inferior' and the other side is 'good' or 'morally superior', but because they

have and are entitled to have different moral intuitions and follow different religious or moral teachings [13;17]

Whenever and as long as philosophers, theologians, politicians and pressure groups fight over principles, theories and rules for action, the preferred course of biopolitical action should be to refrain from legislative action by majority vote and make sure that the primary moral agent, i.e. the person closest to the moral challenge, be given the right to follow her or his conscience and calling, and that individuals, families, neighborhoods and moral communities be given access to information and advice for making those responsible and well reasoned choices of their own. It is a challenge to the Zen masters, priests of all denominations, philosophers of any kind of reasoning, above all: a challenge to every one of us to come to terms with what is a zygote, what is an embryo, what is a humoid or embryoid in ethical terms? What moral recognition do I owe them as compared to living fellow humans, some of them sick or poor and in need of solidarity, help and support? It is not a prerogative of political leaders to answer that question for us and to dominate our conscience; but it is their obligation to help us via information, precise terminology, and a cultural environment of open discourse to form our own opinion and follow our conscience as good as we can. *The price of freedom is responsibility. Sometimes we might regret what we have chosen or others might disagree with our choice; but been not allowed to choose is worse, uncivilized, inhumane. You own your stem cells as your real property and you may do with those, whatever you want as long as you do not hurt me directly similarly, I own my own stem cells and reserve the same right for me. We make laws and regulations, we form customs and attitudes, but what counts is the free space we and our fellow humans need to breathe, to prosper and to serve. Once the Tao said 'We make doors and windows for a room, but it is these empty spaces that make the room livable' [no. 11].*

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