A Response to Commentators on “Towards a Global Human Embryonic Stem Cell Bank”

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We would like to thank all the commentators for their thoughtful and constructive criticisms which will undoubtedly advance debate on this topic.

We share the skepticism of some of the commentators about establishing a global hESC bank now or in the near future. We agree that there are remaining uncertainties about the immunological status of such cells as well as substantial, ongoing limitations in developing solid organs for transplantation (Ecker and O’Rourke 2007; Master and Williams-Jones 2007). Whether human leukocyte antigen (HLA)-matching, cross-reactive epitope group (CREG)-matching, or another immunocompatibility standard is ultimately adopted, we nevertheless think it is important to embed this empirical reality of hESC science into ethical reasoning regarding the concept of a global hESC bank. We have attempted, in part, to provide an immunologically-driven blueprint for the creation of such a bank. As with all plans, however, the particulars may change, but we hope the architectural principles will endure.

We also recognize that there are no clinically relevant stem cell-based therapies available now (Ecker and O’Rourke 2007). We entirely agree with Master and Williams-Jones (2007) that before a global hESC bank is established, “there must first be clear scientific evidence demonstrating the feasibility of and likelihood that the proposed benefits (i.e., immune tailored transplantable tissues and organs) will ensue” (45). We are not suggesting that a global hESC bank should be established immediately but rather when therapies become reality. That Master and Williams-Jones contend that “altering research ethics norms based on unsubstantiated or unjustified scientific evidence is simply morally irresponsible” (45) suggests a myopic view of the bioethical enterprise, which is charged as much with anticipating and understanding future scientific and clinical developments as it is dealing with current controversies (Lott 2005).

We think it is worthwhile to recall the sentiments of Dr. Robert Edwards, the father of in vitro fertilization (IVF), who noted that for years before IVF became a practical reality, he was seeking to have a discussion of the ethical issues associated with creating life in a test tube, but no one was interested (at least initially) in engaging in substantial, open debate because the endeavor was thought, at the time, to be far-fetched if not impossible (Edwards 2005). When IVF was finally developed, it was too late to have a balanced discussion; IVF was simply introduced to the public, “take it or leave it.” With this anecdote in mind, we believe there are several reasons to discuss the establishment of a global hESC bank for therapeutic purposes in advance of such therapies coming to fruition.

First, we believe that the potential of such a bank to address the shortage of organs and tissues for transplantation provides an argument for devoting resources and energy to hESC research. Unfortunately, as Green (2007) points out, many countries like Canada have legislation that may severely hinder this research. Unlike Green, however, who favors working within the confines of existing state legislation to reach hESC-related goals, we believe instead that the laws should adapt to therapeutic priorities. To put the point more strongly, we believe restrictive legislation of the sort Green describes is immoral.

Consider, for example, a scientist who discovers a treatment which could cure a disease that kills 100,000 people per annum. However, the scientist does not release the drug for one year. Perhaps he is fighting over patent issues, or over authorship on the publication, or over marketing strategies. Absent some good reason—some very good reason—we would claim that this scientist is morally responsible and blameworthy for the foreseeable and avoidable deaths of the 100,000 people who die during the year when the drug could have been made available. In life-saving research, lost time equals lost lives. Restrictive legislation such as that found

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in Canada and several other countries delays research and may well account for the deaths of many people who could have otherwise been saved. The appropriate answer, then, is not changing the science to conform to the law but changing the law to allow for the science. We believe there is a positive moral obligation to pursue hESC research, and laws which retard or delay its progress are—absent some very good reason—immoral (Savulescu 2000).

This principle applies to any policy or law, such as that preventing therapeutic cloning (Devolder and Savulescu 2006) or payment of tissue donors, which results in foreseeable and avoidable death and misery. There can be good reasons to allow people to die prematurely or suffer—but they need to be very good reasons, not merely community disquiet, “disrespect [of] voices” (Kimmelman 2007), “cultural perceptions of IVF” (Green 2007), discordant legislative models (Outomuro 2007), offence to public morality, or religious objections. People should not have to die for another’s ideologic or moralistic reasoning, but this indeed may be what is happening, hidden from our view by failure of thorough ethical analysis. Though removing such obstacles may not always be politically feasible, we should nevertheless still recognize that they can contribute to unethical behavior.

Outomuro (2007) argues that the “ontological and axiological status” of human embryos provides justification for a “compromise position that accords respect to the embryo as a form of human life.” But how many people should die so that human embryos are accorded some status in the area of health care and research, even if this respect is “not the same as the Kantian respect for persons?” (Outomuro 2007). From the modest standpoint of consistency alone, it would seem as if the answer should be “none,” since the embryo is accorded no moral status in reproduction given that abortion is available on demand and that certain forms of birth control, such as intrauterine devices, destroy early human embryos (Devolder and Savulescu 2006; Savulescu 2000). There may be other good reasons not to create a global hESC bank, even if it were feasible, based on risks of harm to donors (Outomuro 2007) or on the difficulty of adequately testing donors (Ecker and O’Rourke 2007), but those arguments deserve a closer examination beyond the focus of our paper. Nuanced objections aside, we have tried to shift the burden of proof onto those who would oppose such a bank given its enormous potential benefits.

Second, a standard objection to regenerative medicine and hESC research is that it is expensive, elitist medicine that will address the diseases of the rich in the richest countries and, in the process, contribute to global health inequities. Kimmelman (2007), for example, claims, “If hES transplantation follows the pattern of other medical innovations, it will aggravate budgetary pressures on healthcare systems as applications are extended to new indications or used to prolong the lives of persons with other morbidities” (52). His scenario is possible, but unlike other cutting edge technologies, a global hESC bank could very well be used to directly reduce global health inequalities. Because embryonic stem cells are immortal and tissues created from them would putatively be available in inexhaustible supply, hESC therapy is fundamentally different from other sources of medical interventions such as transplantable organs (which are in limited supply) or drugs/devices (which have associated production costs per unit). The biology of cell division may result in relatively lower marginal costs of treatment compared other medical therapies. This point has not been appreciated and gives a reason why a global hESC bank could realistically address the world’s needs, including those of less well developed country, at lower cost to developed countries than many conventional medicines and organ/tissue sources. A global hESC bank could be like the world’s farm to grow tissues and perhaps organs to feed the world’s sick and needy.

Globally banked hESC lines could be accessed by people from all around the world—not merely from the country of derivation—and, for first time, we could develop and grow a truly universal health care resource. Accordingly, we are less inclined to believe that medically related injustices involving racial and ethnic minorities would be changed little by our proposal (Outomuro 2007) or that it could “worsen an already unfair imbalance in which tissues are transferred from low-income donors to higher income recipients” (Kimmelman 2007, 52). As we have argued, a properly constructed hESC bank could provide remarkable therapeutic benefits for both minorities and economically disadvantaged individuals who typically remain marginalized by current transplant practices.

Third, we recognize that many of the issues and details of establishing a global hESC bank require careful thought and argumentation, as the commentaries highlight. Such discussion is needed in advance of actualized therapies because once a clinical intervention becomes available there is great pressure to use it immediately, without thought to regulation or control. Many of the pertinent and controversial issues surrounding global hESC banking, such as incentives or payment of donors and the use of cloning, are best discussed now in a calmer, less hurried environment.

Fourth, the discussion we have hoped to provoke is valuable as an exercise in practical ethical reflection. Philosophers often use imaginary or hypothetical cases to stimulate ethical reflection. Clinicians and bioethicists often analyze real life cases as the basis for ethical discussion. Establishing a global hESC bank is midway between these—it is hypothetical at present but based on plausible (though of course uncertain) scientific trajectories. We have proposed a number of desirable characteristics of a global hESC bank, but the exact, best set of characteristics deserves more input from more stakeholders and is yet to be determined (Master and Williams-Jones 2007). Even if a global stem cell bank never becomes a feasible option, discussion of the issues now will likely be relevant to some other possibility that will itself become a reality. We do well to regularly train our ethical muscles in as many different exercise regimes as possible.

Finally, Outomuro (2007) raises the possibility of an opt-out system of organ retrieval. We acknowledge this and the many other alternatives of addressing the organ shortage
problem, including expanded criteria donors, xenotransplantation, utilization of organs from aborted or cloned fetuses, (Savulescu 1999) increased incentives for live and cadaveric donation, etc.

Now, however, there is another serious option on the table: the possibility of creating a global hESC bank.

REFERENCES


