

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the matter of:

Reexamination Control. No. 95/000,154

Art Unit: 3991

U.S. Patent No. 7,029,913

Examiner: Gary L. Kunz

Issued: April 18, 2006

Inventor: Thomson

For: PRIMATE EMBRYONIC STEM CELLS

DECLARATION OF DR. DOUGLAS A. MELTON, PH.D.

SIR:

I, Douglas A. Melton, do declare and state:

My Education and Experience Related to Human Embryonic Stem Cell Research

1. I received a B.S. in Honors Biology from the University of Illinois, Champaign-Urbana, Illinois, in 1975, a B.A. in History and Philosophy of Science from Cambridge University, Cambridge, England, in 1977, and a Ph.D. in Molecular Biology from Trinity College & MRC Laboratory of Molecular Biology, Cambridge University, Cambridge, England, in 1980.

2. I am currently the Thomas Dudley Cabot Professor of the Natural Sciences at Harvard University in Cambridge, Massachusetts, and an Investigator at Howard Hughes Medical Institute.

I am also a Co-director of the Harvard Stem Cell Institute. I have received a number of academic honors and have served as an editor for several scientific journals. A copy of my curriculum vitae is attached hereto as Exhibit 1.

3. Since receiving my Ph.D. in 1980, I have performed extensive embryonic research, including research relating to human embryonic stem cells. For example, my laboratory has significantly advanced the understanding of the genes and cells that normally make the pancreas during animal development and we are using that information to instruct embryonic stem cells to make pancreatic tissue.

Reexamination of the '913 Patent

4. I am familiar with U.S. Patent No. 7,029,913 to Thomson titled, “Primate Embryonic Stem Cells” (“the '913 patent”).

5. I am aware that the Foundation for Taxpayers and Consumer Rights, through its counsel the Public Patent Foundation, requested reexamination of the '913 patent, that the U.S. Patent and Trademark Office granted that request and issued an Office Action on March 30, 2007, and that the owner of the '913 patent submitted a Response to the Office Action on May 30, 2007. I have reviewed the '913 patent, the Office Action and the Response. I have also specifically reviewed the '913 patent's claims as amended by the Response.

6. I am aware that the initial application leading to the '913 patent was filed on January 20, 1995.

Robertson '83 and Robertson '87

7. I am familiar with Robertson, et al., “Isolation, Properties, and Karyotype Analysis of Pluripotential (EK) Cell Lines From Normal and Parthenogenetic Embryos,” *Teratocarcinoma Stem Cells*, Cold Spring Harbor Laboratory, Cold Spring Harbor, volume 10, pp. 647-663 (1983) (“Robertson '83”) and Robertson, Elizabeth J., “Embryo-Derived Stem Cell Lines,” *Teratocarcinomas and Embryonic Stem Cells; A Practical Approach*, Oxford: IRL Press, Ch. 4:71-112 (1987) (“Robertson '87”).

8. Robertson '83 and Robertson '87 each describe a method for deriving pluripotential mouse ES cells. The process detailed in Robertson '83 and Robertson '87 and the claims of the '913 patent differ only in that Robertson '83 and Robertson '87 isolated mouse ES cells while the '913 patent claims human ES cells. In January, 1995, it was obvious to me and others in the art of ES cell derivation that the process taught by Robertson '83 and Robertson '87 for isolating mouse ES cells could be used to isolate human ES cells. The motivation to do so came at least from the general understanding in the field of the applicability of mouse studies to human research. It was also common sense that methods successfully developed for deriving mouse ES cells could be expected to work to isolate human ES cells, because one of the most important reasons for performing mouse research is to apply the results of that research to humans.

Piedrahita

9. I am also familiar with Piedrahita, et al., “On The Isolation Of Embryonic Stem Cells: Comparative Behavior Of Murine, Porcine And Ovine Embryos,” *Theriogenology*, 34(5):879-901

(1990) (“Piedrahita”). I have reviewed Piedrahita and specifically its teaching regarding the isolation of ES cells for several different mammalian species.

10. Piedrahita described a way to isolate murine, porcine and ovine ES cells. Piedrahita and the claims of the '913 patent differ only in that Piedrahita isolated murine, porcine and ovine ES cells while the '913 patent claims human ES cells. However, it would have been obvious to those of skill in the art of ES cell derivation that the process taught by Piedrahita for isolating murine, porcine and ovine ES cells could be used to isolate human ES cells. Indeed, this was obvious dating back to the time in the late 1980's when murine ES cells were derived using feeder layers of fibroblasts. The motivation to do so came at least from the general understanding in the field of the applicability of mouse, pig and sheep studies to human research. It was also common sense that methods successfully developed for deriving murine, porcine and ovine ES cells could be expected to work to isolate human ES cells, because one of the most important reasons for performing murine, porcine and ovine research is to apply the results of that research to humans.

Robertson '83, Robertson '87 and Piedrahita

11. At the time the first application leading to the '913 patent was filed, one of ordinary skill in the art would have combined the teachings of Robertson '83, Robertson '87 and Piedrahita, as they each relate to the derivation of mammalian ES cells. Further, Robertson '87 was written by the same author as Robertson '83 and both Robertson '87 and Piedrahita expressly cite Robertson '83.

12. Robertson '83, Robertson '87 and Piedrahita combined teach virtually the same method

for isolating ES cells of various mammalian species, including mouse, rodent, pig and sheep. They only differ from the '913 patent claims in that they isolated mouse, murine, porcine and ovine ES cells while the '913 patent claims human ES cells. However, in January, 1995, it was obvious to me and would have been obvious to others in the art of ES cell derivation that the process taught by Robertson '83, Robertson '87 and/or Piedrahita for isolating mouse, murine, porcine and ovine ES cells could be used to isolate human ES cells. The motivation to do so came at least from the general understanding in the field of the applicability of mouse, pig and sheep studies to human research. It was also common sense that methods successfully developed for deriving mouse, murine, porcine and ovine ES cells could be expected to work to isolate human ES cells, because one of the most important reasons for performing mouse, murine, porcine and ovine research is to apply the results of that research to humans.

13. In fact, we have successfully isolated human ES cells in our lab by simply following these methods taught for deriving mouse, rat, pig and sheep ES cells. We did so without recourse to Dr. Thomson's publications or patents and we were not surprised by our ability to do so, because it has been obvious since at least the dates these methods were published that they could be used for that purpose.

In Closing

14. I very much believe that Dr. Thomson deserves the scientific and public recognition he has received. However, he deserves that recognition because he undertook the arduous and timely task of getting fresh and high quality human embryos to use as starting material in his work, and

sufficient funding for such research, not because he did anything that was inventive. It was access to those resources, which were, and to this day still are, very difficult to obtain, that enabled Dr. Thomson to achieve his accomplishment. His perseverance and commitment deserve recognition and accolades. But I believe that had any other stem cell scientist been given the same starting material and financial support, they could have made the same accomplishment, because the science required to isolate and maintain human embryonic stem cells was obvious.

15. I have not been compensated by either the Foundation for Taxpayer and Consumer Rights, the Public Patent Foundation or any other party in exchange for this declaration, nor do I have any financial interest in the outcome of the reexamination of U.S. Patent No. 7,029,913.

16. I declare that all statements made herein of my own knowledge are true and that all statements made herein on information are believed to be true. I further declare that these statements were made with knowledge that willful false statements and the like are punishable by fine or imprisonment or both under Section 1001, Title 18 of the United States Code.

June 29, 2007

Date



DOUGLAS A. MELTON, PH.D.

EXHIBIT 1

CURRICULUM VITAE