

**The University of Texas M. D. Anderson Cancer Center  
Responses to Information Requested  
by the Senate Committee on Health and Human Services**

Interim Charge #11: Human Stem Cell Research  
March 10, 2010

The responses below are based on sponsored research for a majority of the human stem cell research conducted at The University of Texas M. D. Anderson Cancer Center. Un-sponsored research accounts for very little of the human stem cell research at the institution and is not included here due to the brief time allowed to collect the information.

Human clinical research to replace adult stem cells in the bone marrow accounts for most of our activity related to stem cell research. The sources for these transplants mainly includes bone marrow and cord blood. While these research projects involve the use of stem cells, there may not be any manipulation of stem cells to induce a therapeutic response. Accordingly, these protocols are not included in this response.

**1. What kind of human stem cell research is being conducted at your institution?**

In 2010, The University of Texas M. D. Anderson Cancer Center has over 45 active and funded research studies on the adult human stem cells. Some of our work addresses stem cells as they continue to reconstitute and further drive various tumors (cancer stem cells). These are the cells within the tumors that continue to survive and metastasize following cancer treatment. Cancer stem cells may remain dormant for years, and then emerge as a recurrence, and as such are important targets for effective treatment of cancer patients.

There are three types of stem cell research: cancer stem cell marker identification and elimination (our major focus); adult stem cell restoration that helps patients overcome the toxicities of treatment (a close second focus at M. D. Anderson); and collaborative studies with Baylor College of Medicine on embryonic stem cells as part of our basic biology research (only a few projects).

The marker studies use patients' tumors to identify and assess the presence of specific molecular markers, the expression of which is hypothesized to relate to disease aggressiveness. Such markers are then used for targeting therapy.

Cancer-treatment related projects use adult stem cells, which are usually derived from the patients' blood or bone marrow or sometimes normal umbilical cord blood for cancer patient therapy. The majority of these clinical projects focus on improving adult stem cell transplant into our cancer patients to improve their outcome after toxic treatments or other therapies.

The third kind of studies involve collaborative projects with Baylor Medical School, addressing the basic biology of embryonic stem cells (most of these use mouse embryonic stem cells), with the regulation of tumor suppressor genes such as p53, which are major topics of research.

**2. How many research projects involving human stem cells are currently being conducted?**

49

**3. What is the total amount spent on research projects involving human stem cells?**

\$7,990,408 sponsored projects and cord blood.

**4. How much General Revenue do you spend on all research each fiscal year?**

\$13,715,898

**5. How much General Revenue do you spend on human stem cell research projects each fiscal year?**

\$500,000 on the cord blood collection program.

**6. What factors would need to be considered to determine how much of the total cost of these human stem cell efforts is spent on actual human stem cell research, and how much of the spending comes from general revenue?**

All sponsored research funding involving human stem cell research, including general revenue funds for this purpose, are used to support human stem cell research programs. A general revenue appropriation of \$500,000 per year is provided to M. D. Anderson for the support of stem cell research derived from cord blood collection.

**7. If the state is attempting to collect data on what human stem cell research is being funded by the state, do you have recommendations on how to achieve this?**

Each institution will need to clarify research that involves embryonic vs. adult stem cells and laboratory versus clinically oriented research.