

Science + Technology

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NIH Appropriations Hearing Presages Stem Cell Debate

A Senate appropriations hearing held on May 23rd provided a glimpse into the upcoming debate over National Institutes of Health (NIH) funding for research using embryonic stem cells. Although the hearing was held to discuss NIH's plans for the fiscal year 2002 budget request, then Labor-HHS Subcommittee Chairman Arlen Specter (R-PA) seized the chance to put the stem cell question to some of the 26 institute heads in attendance. The hearing also addressed the late delivery and editing of stem cell-related letters which Sen. Specter requested from each of the NIH representatives.

Human embryonic stem cells, also known as pluripotent stem cells, are able to differentiate into most cells of the body. However, acquisition of the cells requires the destruction of a human embryo and opponents feel that this is tantamount to taking a human life and negates the potential benefits of the research. They argue that adult stem cells, which do not require the destruction of an embryo, should be used instead. Proponents of embryonic stem cell research agree that adult stem cells are promising, however, they point out that adult stem cells are unable to differentiate or replicate as effectively as their embryonic counterparts. This, they say, greatly limits the scope of possible research.

"We need unvarnished information," said Sen. Specter, a long time supporter of stem cell research. Focusing on such devastating diseases as Parkinson's, Alzheimer's, diabetes, stroke, and heart disease, he asked four institute directors to provide brief comments on the potential impacts of embryonic stem cell research within their fields of study. Drs. Claude Lenfant, Audrey Penn, Allen Spiegel and Stephen Katz each ultimately attested to the therapeutic potential of embryonic stem cells on human

disease. However, in more than one instance Sen. Specter was forced to engage in a game of cat-and-mouse with the circumspect scientists.

When asked what he thought about federal funding for embryonic stem cell research, Dr. Lenfant was careful to include the word "adult" in his endorsements. "Why did you feel it necessary to say 'adult,'" asked Sen. Specter? "Embryonic cells offer better opportunity for differentiation do

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NBAC Proposes Human Subject Reforms

On May 18th, the National Bioethics Advisory Commission (NBAC) issued recommendations to improve the protection of human research subjects that participate in both publicly and privately sponsored clinical trials. In the wake of the death of a teenager who participated in a gene therapy trial and the revelation that institutions had failed to notify the National Institutes of Health (NIH) of the occurrence of adverse events, the guidelines were developed as a first step to improving oversight of research utilizing humans.

A key recommendation by the Commission is that the federal oversight system should protect human subjects in both public- and private- sector research, and that "legislation should be enacted to provide such protection."

The current system of protecting human research subjects is regulated by what is known as the "Common Rule," a set of requirements agreed to by 17 federal agencies. It provides guidelines for obtaining informed consent, establishing Institutional Review Boards, and assuring compliance with federal standards. The Common Rule, however, applies only to federally sponsored research. NIH, for example, monitors all clinical research that is funded through its institutes utilizing both the Common Rule and its own guidelines. The Food

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"There is a battle brewing that will be decided in this Congress ... we expect scientists to give us the scientific facts."

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Bush Economic Advisor Addresses AAAS

What follows is an excerpt of a speech given by Larry Lindsey, Assistant to the President for Economic Policy, at the AAAS Science and Technology Policy Colloquium on May 3, 2001. The full text of his remarks can be found at www.aaas.org/spp/dspp/rd/colloqu.htm.

Monday marked the hundredth-day of a new administration, one I've been very proud to be a part of. The President is committed to changing the way things are done here in Washington. Fundamental to this effort is our commitment to be candid with the American people about our national challenges. We have such major national challenges in dealing with our economy, our national energy situation and in pro-

We all know that scientific research lies behind our nation's long-term economic success. As I will make clear this morning, good science is also the key to both defining and addressing many of the great policy challenges facing our country.

tecting our environment. They are inter-related, and success will require creativity and a willingness to confront facts and avoid ideologies and preconceptions.

I cannot imagine a more appropriate

group than the American Association for the Advancement of Science to discuss the thinking of the Administration on these matters, and why we are proceeding as we are. We all know that scientific research lies behind our nation's long-term economic success. As I will make clear this morning, good science is also the key to both defining and addressing many of the great policy challenges facing our country. That is why I am here today to talk to you candidly about energy and global climate change. Ultimately it will be your work—in laying the foundation for new technologies and increasing our understanding of the world around us—that will enable our nation to address these important policy challenges. ...

One cannot stress enough the interdisciplinary nature of determining appropriate public policy regarding energy and the environment. Obviously, economics and engineering are all involved in the process. But, so too are physics, biology, chemistry and environmental science, and since we are talking about public policy, both law and political science are invaluable.

To some the task of providing energy and economic growth is incompatible with the preservation of a clean environment. But the data suggest that science, technology, and sound economic and public policy do make both possible. Since 1973, the U.S. economy has grown four times faster than our energy use. If had we continued to use energy as intensively as we did in 1970, last year we would have consumed over 168 quadrillion BTUs, compared to the 94 qua-

drillion actually consumed. That 74 quadrillion BTUs difference is the equivalent of 1,350 (1,000 megawatts) power plants. ...

Historically, U.S. [carbon dioxide (CO₂)] emissions have grown at less than half the rate of GDP. In recent years, however, very robust growth in the nation's GDP has been accompanied by a slowdown in the growth of greenhouse gas emissions. In both 1998 and 1999, U.S. GDP grew by more than 4 percent each year while CO₂ emissions grew by less than 0.15 percent per year and was 1.3 percent in 1999. In addition, the overall carbon intensity of the U.S.

The great majority of scientific and technological advances and their applications take place in the private sector.

economy, the amount of CO₂ emitted per unit of GDP, declined by 15 percent over the course of the 1990s.

Our success in reducing other, more immediately health-threatening emissions has been even greater. Since 1970, for example, the economy has grown nearly 125 percent. But our emission of sulphur oxides is down 36 percent, and we have 98 percent less lead in our air. We have cut nitrous oxide emissions almost in half per unit of GDP.

These successes are due to major improvements in technology. For example, technology has already lead to significant reductions in pollution from coal-fired plants. Today, emission scrubbers can reduce the amount of sulphur dioxide emitted by over 90 percent. Coal currently provides half of all the fuel for electricity generation in this country and will, of necessity, play an important role for decades to come.

But, further progress is still possible. Two thirds of the energy used in a conventional coal fired power plant is wasted in the production of electricity. These losses can be minimized through a number of innovations, including the installation of high-efficiency steam turbines, reducing steam leaks and using software to optimize com-

>>> *Continued on page 6*

AAAS NOTES

- **AAAS REPORT XXVI: RESEARCH AND DEVELOPMENT FY 2002**
This annual report on R&D in the federal budget is now available online. The full text of the 274-page report, including nearly 40 tables, is available in HTML and PDF formats at: www.aaas.org/spp/dspp/rd/fy02.htm
- **SCIENCE AND TECHNOLOGY IN THE NEW ADMINISTRATION**
Texts of presentations given at the AAAS Colloquium on Science and Technology Policy, May 2001, are now available at: www.aaas.org/spp/dspp/rd/colloqu.htm
- **DIALOGUE ON SCIENCE, ETHICS, AND RELIGION — PUBLIC LECTURE SERIES**
This series of evening seminars and receptions will highlight significant work in the field of science and religion. Seminars are open to the public. For further information, please go to: www.aaas.org/spp/dser/seminar

House Considers Bill to Strengthen Science at EPA

In an effort to improve science at the Environmental Protection Agency (EPA), a House Science Committee panel is proposing the creation of a new deputy administrator who would coordinate science across the entire agency. The position would wield much greater influence than that of EPA's current highest ranking scientist.

"Many people believe that the EPA does not always base its regulatory decisions on strong scientific evidence," said Rep. Vernon J. Ehlers (R-MI), the chairman of the Science Committee's Environment, Technology, and Standards Subcommittee, who has authored H.R. 64 to establish the new position. "I believe [H.R. 64] will help change this perception and ensure that science informs and infuses the regulatory work of the EPA."

Currently, the EPA administrator has one deputy administrator, and nine assistant administrators. One of the assistant administrators heads the Office of Research and Development (ORD) and is typically the agency's highest ranking scientist. However, many of EPA's other offices also carry out scientific research, so the head of ORD does not have over-arching authority over science at EPA, and does not necessarily participate in regulatory decision-making.

"Many people believe that the EPA does not always base its regulatory decisions on strong scientific evidence."

By establishing a new deputy administrator with authority over all aspects of science at the agency, Rep. Ehlers hopes to both raise the profile of scientific considerations in the agency's regulatory decisions, and improve the quality of the agency's scientific research. In support of the latter goal, his bill would also make the head of ORD a non-political appointee with a five-year term and the additional title of chief scientist of the agency. The Environment Subcommittee passed H.R. 64 by voice vote on May 17.

The creation of a new deputy administrator was the first recommendation of a National Research Council (NRC) report released in June 2000 on strengthening science at EPA. Dr. Raymond C. Loehr, who chairs the committee that produced the report, elaborated on its conclusions in testimony before the subcommittee on March 29: "Throughout EPA's history, no official below the level of administrator has had overall responsibility or authority for the scientific and technical foundations of agency decisions, and administrators of EPA have typically been trained in law, not science. ... In the committee's unanimous judgment, the lack of a top science official is a formula for weak scientific performance in the agency and poor scientific credibility outside the agency."

"The importance of science in EPA decision-making should be no less than that afforded to legal considerations," Dr. Loehr continued. "Just as the advice of the agency's general counsel is relied upon by the administrator to determine whether a proposed action is 'legal,' an appropriately qualified and adequately empowered science official is needed to attest to the administrator and the nation that the proposed action is 'scientific' – that is consistent, or at least not inconsistent, with available scientific knowledge."

Also testifying in support of the proposal was Dr. William H. Glaze, the chair of the EPA Science Advisory Board's executive committee. "In my opinion," he testified, "the bill would send a strong signal that the Congress and this administration plan to make science a stronger and more integral part of the way EPA conducts its business."

A third witness, however, was not as supportive. Rick Blum, of the nonprofit group OMB Watch, refused to endorse H.R. 64 "at this time," citing questions about how the proposal "would actually work" and how it would relate to the EPA's existing Office of Environmental Information. "The establishment of a Deputy Administrator for Science and Technology," he said, "may send unintended signals that scientifically-drawn conclusions should be given prime weight in any decision to establish

environmental safeguards, that the lack of scientific certainty requires inaction."

Several outside organizations have expressed support for the proposals in H.R. 64. The Business Roundtable endorsed the idea of a new deputy administrator in "Blueprint 2001," a report on environmen-

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tal policymaking. The American Chemical Society endorsed the proposal as well in a statement that also called for giving ORD more prominence within EPA and increased funding.

H.R. 64 has received support from the Environment Subcommittee's ranking member, Rep. James Barcia (D-MI), and Rep. Ehlers hopes the full Science Committee will consider the bill within the next month.

FOR MORE INFORMATION:

Environment Subcommittee hearings:
www.house.gov/science/ets/etshearings.htm

Strengthening Science at the U.S. EPA, National Research Council:
www.nap.edu/catalog/9882.html

"Blueprint 2001," The Business Roundtable:
www.brtable.org/issue.cfm/4

"The Status of EPA Science," American Chemical Society:
www.chemistry.org/government

Human Research Subjects

Continued from page 1

and Drug Administration (FDA), on the other hand, has oversight of both public and private research, but only in instances where a potential commercial product—such as a drug, medical device, biological product, or food item—is being developed. This creates a structure that is unbalanced in the eyes of NBAC, and which ultimately

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led to failure to protect human participants.

According to NBAC members, a thorough and expansive oversight program needs to be implemented. This includes enacting a comprehensive federal policy that would apply to all types of research as well as establishing a single, independent office within the federal government to develop and enforce policies. The report also recommends that the office extend guidelines for reviewing research throughout a given clinical trial to some previously exempt fields. This last issue is a thorny subject that is worthy of its own separate analysis.

In the majority of cases, Institutional Review Boards (IRBs) monitor research involving human research subjects throughout a trial's period of performance and ensure that it is conducted in an ethical manner. IRBs are essentially made up of volunteers, and these "oversight committees" have reached maximum capacity. While the Commission acknowledged that IRBs are currently overloaded by the number of research projects they oversee, NBAC recommended that some degree of review

by IRBs be expanded to include other areas of research (e.g., psychology). To help ease the burden of additional caseload work, the report outlines ways to limit review, for example, cases where the research is expected to pose minimal risk to the participants.

NBAC also attempted to address the controversial issue of conflict of interest. The death of a teenager during a gene therapy trial brought to light the fact that some investigators conduct federally sponsored research through the auspices of institutions that stand to gain commercially from a positive outcome. Many academic institutions defended these relationships and took exception to any blanket assumption that all scientists are somehow compromised. Though ethical conduct is considered to be the utmost ambition of all research—regardless of the funding sponsor or the affiliation of the scientist/investigator—the public's perception was forever tainted. As such the NBAC report recom-

mends instituting educational programs on the subject of research ethics as well as mechanisms for defining and managing conflict of interest.

The final NBAC report, *Ethical and Policy Issues in Research Involving Human Participants*, will discuss in full the panel's findings and recommendations and is expected to be released later this summer. In addition, the Senate Public Health Subcommittee plans to conduct a hearing on the subject (one was originally planned for May 23, but was cancelled). ●●●

FOR ADDITIONAL INFORMATION:

National Bioethics Advisory Commission:
www.bioethics.gov

"Human Subjects Research: HHS Takes Steps to Strengthen Protections, But Concerns Remain,"

General Accounting Office:
www.gao.gov/cgi-bin/getrpt?gao-01-775T

AAAS NOTES

A WEALTH OF ONLINE BIOETHICS RESOURCES FROM AAAS ...

- **Your Genes, Your Choices**
Exploring the Issues Raised by Genetics Research
ehrweb.aaas.org/ehr/books/index.html
- **Human Inheritable Genetic Modifications**
Assessing Scientific, Ethical, Religious and Policy Issues
www.aaas.org/spp/dspp/sfrr/germline/main.htm
- **Stem Cell Research and Applications**
Scientific, Ethical, and Policy Issues:
www.aaas.org/spp/dspp/sfrr/projects/stem/main.htm

CONGRESSIONAL RESEARCH SERVICE

Copies of CRS reports for congressional use are available by calling 202/707-7132.

- **Research and Development Funding: Fiscal Year 2002 (IB10083)**
This report provides a summary of research and development (R&D) funding levels in the fiscal year (FY) 2002 presidential budget. The report provides detailed accounts of funding levels for each federal agency involved in both basic and applied R&D. Also included is a summary of proposed funding allocation within each agency. In addition, the report addresses the issue of a funding imbalance within the budget favoring the biomedical and health sciences. Most notably, the report identifies the National Institutes of Health as receiving the lion's share of civilian R&D this year. Finally, the report examines bills introduced with the aim of increasing funding for the physical and environmental sciences.
- **Department of Energy Research and Development Budget for FY2002: Description and Analysis (RL30941)**
This report details the FY 2002 budget request of the Department of Energy (DOE). Included is a breakdown of requests from each of DOE's research and development (R&D) programs including Energy Resources, Science, and National Security and Environmental Management. The report also contains a section on key issues that will result from the current DOE budget request. Examples include the shift in focus of energy resource R&D and the large reductions in conservation, renewable energy, and nuclear energy R&D. The report also has four summary tables explaining the proposed allocation of civilian R&D funding within DOE.
- **Air Quality and Emissions Trading: A Primer (RS20891)**
This report provides a brief introduction to the market-based trading of emissions credits and addresses the effectiveness of the system. Specifically, it examines the types of pollution most susceptible to control using the trading of emissions credits. The report concludes that although the trading is functional for control of dispersed air pollutants, it is far less successful in managing concentrated pollution production.

GENERAL ACCOUNTING OFFICE

Copies of GAO Publications are available online at www.gao.gov or by calling 202/512-6000.

- **Space Station Propulsion Module (GAO-01-576R)**
This report examines NASA's decision to develop a propulsion module for the International Space Station independently of Russia. More specifically, the report details the reasoning behind NASA's decision to non-competitively bid the development of the module by adding it onto an existing contract with the Boeing Corporation.

- **Weapons of Mass Destruction: State Department Oversight of Science Centers Program (GAO-01-582)**
This report reviews the current state of the State Department's Science Center Program, a program responsible for funding advanced scientific research in Russia. The report discusses whether the program is fulfilling its objective of occupying the former Soviet Union's top level nuclear scientists in order to deter the transfer of nuclear scientists from Russia to rogue states.
- **Research and Development Funding: Reported Gap Between Data From Federal Agencies and Their R&D Performers Results From Non-Comparable Data (GAO-01-512R)**
This report examines the sources of an identified \$5 billion gap between federal obligation data and data gathered from R&D performers to whom that funding was given. The findings suggest that the gap results from the comparison of non-comparable data caused by the varying allocation, reporting and expenditure protocols of the federal and private sectors. The report concludes that federal obligations and actual expenditures of federally supported R&D are data sets that cannot be directly compared.

THE NATIONAL ACADEMIES

Government offices may obtain single complimentary copies by calling the Office of Congressional and Government Affairs at 202/334-1513. Others may order copies from the National Academy Press (800/624-6242, www.nap.edu).

- **Science and the National Education Standards: A Guide for Teaching and Learning (ISBN: 0-309-07032-5)**
This book argues convincingly that it's in everyone's interests for science and technology to be presented in America's classrooms. It highlights the importance of technological literacy to our future, and identifies important themes relating to technological design and the scientific method upon which teachers can build classroom experiences. Designed for the elementary, middle and high school levels, it also suggests various activities and resources to be used in the instruction of science and technology.
- **Classroom Assessment and the National Science Education Standards (ISBN: 0-309-6998-X)**
This volume is designed to accompany the National Science Education Standards and focuses on a particular type of assessment: in-class assessment performed by teachers. Focusing on the teacher as the primary player in assessment, the book offers assessment guidelines and explores how they can be adapted to the individual classroom. The book also features examples, definitions, illustrative vignettes, and practical suggestions regarding in-class evaluation and curriculum tailoring processes.

scientific definitions

1. The act of making clear and distinct.
2. the act of stating a precise meaning or significance.

RENEWABLES Energy sources which are derived from the sun or other natural processes. They are also easily replenished by those sources over relatively short time periods. They include sunlight, wind, falling water, sustainable biomass, wave motion, tides, and geothermal energy. They do not include coal, oil, natural gas or nuclear power.

FOSSIL FUELS A general term for buried combustible geologic deposits of organic materials, formed from decayed plants and animals that have been converted to crude oil, coal, natural gas, or heavy oils by exposure to heat and pressure in the earth's crust over hundreds of millions of years.

BIOMASS Includes wood waste, agricultural wastes, methane gases from landfills, and crops grown specifically for energy production. Corn is an example of biomass as it is converted to ethanol.

GASIFICATION The process where biomass fuel is reacted with specific quantities of air and oxygen usually under high pressure and temperature along with moisture to produce gas which contains hydrogen, methane, carbon monoxide, nitrogen, water and carbon dioxide. The gas can be burned directly in a boiler, or scrubbed and combusted in an engine-generator to produce electricity. Gasification is also the production of synthetic gas from coal.

PHOTOVOLTAICS Photovoltaics (PV's) are solid-state cells, typically made from silicon, that directly convert sunlight into electricity.

GREENHOUSE EFFECT The effect produced as greenhouse gases allow incoming solar radiation to pass through the Earth's atmosphere, but prevent part of the outgoing infrared radiation from the Earth's surface and lower atmosphere from escaping into outer space. This process occurs naturally and has kept the Earth's temperature about 59 degrees fahrenheit warmer than it would otherwise be. Current life on Earth could not be sustained without the natural greenhouse effect.

GREENHOUSE GAS Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), halogenated fluorocarbons (HCFCs), ozone (O₃), perfluorinated carbons (PFCs), and hydrofluorocarbons (HFCs).

CARBON SEQUESTRATION The removal of carbon dioxide, either directly from the exhaust gases of industrial or utility plants or from the atmosphere, and disposing of them either permanently or for geologically significant periods.

CARBON SINKS Carbon reservoirs and conditions that take-in and store more carbon (i.e., carbon sequestration) than they release. Carbon sinks can serve to partially offset greenhouse gas emissions. Forests and oceans are large carbon sinks.

SOURCES: www.epa.gov/globalwarming/glossary.html, www.ecs.umass.edu/mie, www.greenliving.org, www.fetc.doe.gov

Lindsey Address

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bustion efficiency. ...

Technology also allows us to make efficient improvements in our use of energy on the demand side. For example, advanced sensors and controls enable buildings and factories to be operated more efficiently and allow equipment and lights to be turned off or dimmed when not in use. These technologies are already being offered in the marketplace. Energy management companies now offer their services to reduce demand for energy by final users and tie their profits to the fees being charged. ...

The list of potential gains from technology goes on and on. No doubt, some yet-to-be-developed technology will provide us with an even cleaner environment. The key point is not the individual technologies involved, but the fact that science and technology play a key role in making our lives better and our environment cleaner.

Let me add to that an economic fact of life: science and technology, as well as the environment, prosper in a growing economy. Prosperity allows us to commit ever-increasing resources to cleaning up our environment and to developing the science and technology which will lead to future economic growth and to future environmental improvements. This is not principally the case for larger commitments of public sector resources made possible by larger tax collections from a bigger economy. In fact, the great majority of scientific and technological advances and their applications take place in the private sector. ...

To speak exclusively of conservation, of environmental protection or of increased energy production, is really to duck responsibility for all the consequences of what one proposes. Sound, comprehensive energy, economic and climate change policies require that we focus on multiple objectives. Happily, if we make the right decisions today and establish an environment where innovation can flourish, these objectives are achievable—and mutually reinforcing. America's energy and environmental challenges are serious, but not insurmountable. Most important: it is impossible to understate the role that science and technology will play in solving these problems. ... ●●●

Stem Cells

Continued from page 1

they not?" After some hesitation, Dr. Lenfant responded, "In my scientific opinion, that is true."

Sen. Specter also took issue with Dr. Spiegel of the National Institute of Diabetes and Digestive Kidney Diseases, after the scientist indicated that the administration would have to settle the issue of embryonic stem cell research. Sen. Specter, visibly perturbed, asked what the administration had to do with the ques-

Sen. Specter expressed his concern that the nation's top scientists were confusing science and politics. "There is a battle brewing that will be decided in this Congress," he told the directors, "...we expect scientists to give us the scientific facts...there is no place for politics in your unit."

tion since he was hoping for an expert scientific opinion. Ultimately, he rephrased the question so as to remove any ambiguity, "Would you like to have the availability of embryonic stem cells?" he asked. "Yes, I would," said Dr. Spiegel.

After his exchange with Dr. Spiegel, Sen. Specter expressed his concern that the nation's top scientists were confusing science and politics. "There is a battle brewing that will be decided in this Congress," he told the directors, "...we expect scientists to give us the scientific facts...there is no place for politics in your unit."

The late delivery and editing of a batch of letters that Sen. Specter requested from each of the NIH institute heads was an-

other issue brought up at the hearing which showcased the potential conflicts between politics and science in the stem cell debate.

According to NIH Press Officer Donald Ralbusky, Sen. Specter requested the letters in order to gather the opinions of the institute directors regarding the therapeutic potential of embryonic stem cells within their units. Although the request was delivered in early May, the final drafts were not delivered to the subcommittee until the day before the hearing.

Sen. Specter also questioned the motive behind a request by Department of Health and Human Services (DHHS) administrators that some of the letters be edited before submission to the subcommittee. Scott Whitaker, DHHS assistant secretary for legislative affairs, assured the subcommittee that the agency did not seek "to withhold information or control information." He explained that only a general request was issued asking NIH officials to focus on the scientific merits of embryonic stem cell research, and not "nonscientific speculation." Sen. Specter responded by saying, "I find it hard to believe that these scientists engaged in 'non-scientific speculation.'" He then requested that copies of the original letters be delivered to the committee for review. "I'm going to get to the bottom of this," he said, "Maybe somebody just didn't like the answers...I expect a transmission without editing and alteration."

Sen. Tom Harkin (D-IA)—the panel's ranking Democrat, who has since taken over as chairman—voiced his support for Sen. Specter's stem cell agenda, saying "I have as much support for stem cell research as my chairman does." Sen. Harkin also told Sen. Specter that should a subpoena be necessary to obtain the original letters, "you have my name."

The debate over human embryonic stem cell research escalated in August of last

year when the NIH issued guidelines for the use of the cells in federally funded research. The guidelines outlined proper research practice once the cells had been acquired,

"I'm going to get to the bottom of this. ... I expect a transmission without editing and alteration."

and placed the burden of deriving the cells—which entails the destruction of an embryo—in the private sector. Opponents claim the NIH rules go against a federal ban on research involving human embryos. Proponents on the other hand, point out the fact that the embryos are taken from excess supplies at fertility clinics, and are already slated for destruction. Hence, it would be a mistake to restrict researchers from using them to perform potentially life saving research. The Bush Administration is currently reviewing the issue, and is expected to determine within the next few months if the research should proceed.

Sen. Specter has fought hard for NIH funding of embryonic stem cell research and has used his subcommittee chairmanship to convene a series of hearings on the issue. He and Sen. Harkin have co-authored a bill (S. 723) together to allow for the use of the cells. ●●●

FOR MORE INFORMATION:

AAAS stem cell report: www.aaas.org/spp/dspp/sfrl/projects/stem/main.htm

NIH stem cell primer: www.nih.gov/news/stemcell/primer.htm

Specter/Harkin legislation:
www.senate.gov/~specter/010405.html

New Scientist stem cell archive:
www.newscientist.com/nsplus/insight/clone/stem/stem.html

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Return Service Requested

Heard off the Hill

Dirty Money • A recent study by the U.S. Air Force found that U.S. dollars are home to dozens of potentially dangerous bacteria.

Peter Ender, chief of infectious diseases at Wright-Patterson Medical Center, and his colleagues used regularly circulating dollar bills for the experiment and identified over 93 species of bacteria. Included were strains of *Klebsiella pneumoniae*, which causes pneumonia, and *Staphylococcus aureus*, which can cause food poisoning. Despite the results of their study, the researchers don't see paper money as being unsafe for society. Even so, perhaps we should all launder our money before use.

---> *New Scientist*, May 24, 2001

Mascot Maladies • A recent study conducted by the Johns Hopkins University School of Medicine suggests that professional mascots may be more susceptible to work-related injury than their superstar counterparts. Although the most commonly reported malady was heat sickness, the 48 professional mascots polled reported high rates of knee, ankle and wrist injury. Researchers say that most of the injuries could be avoided if mascot suits were made lighter and with more mobility in the legs. Despite the injury-prone nature of their occupations the average mascot career still lasts eight years, says the study.

---> *Johns Hopkins Medical Institute*, May 30, 2001

AIDS and the Genome • A group of evolutionary biologists at the University of California at Berkeley have found that the AIDS epidemic in Africa is so great that it is literally changing the genetic composition of the human species. According to Dr. Montgomery Slatkin, a mathematical biologist at the university, a five year study has shown that certain genes which confer greater resistance to the virus are being over expressed in the population, while genes that confer greater susceptibility to the virus are markedly decreasing. According to the researchers, the last time that such a disease-related alteration of the human genome occurred was when malaria caused the over expression of sickle cell red blood cells – also on the continent of Africa.

---> *EurekAlert*, May 30, 2001

Face the Facts • Researchers in Sweden have determined that women are far better than men at recognizing faces. Josef Bigun and his colleagues at Halmsted University tested over 1800 people using an online facial recognition program and found that not only are women better at recognizing faces, but they are also less susceptible to distracting factors such as changes in hairstyle. Participants were asked to view eight faces and determine the number of identical faces shown. According to Bigun, "...the best female skills were far better than the best male skills." Although many of the men scored well on the online tests, the research seems to prove that women were simply better at saving face.

---> *New Scientist*, May 23, 2001