

UNIVERSITY OF MASSACHUSETTS

AMHERST•BOSTON•DARTMOUTH•LOWELL•WORCESTER

**MINUTES OF THE MEETING OF THE
COMMITTEE ON SCIENCE, TECHNOLOGY AND RESEARCH**

Thursday, September 17, 2009; 8:00 a.m.

Amherst Room

225 Franklin Street – 33rd Floor

Boston, Massachusetts

Committee Members Present: Chair Pearl; Vice Chair Johnston, Trustees Hoyt, Lawton, Osterhaus-Houle, Thomas and Young

Committee Member Absent: Trustees King-Shaw, Reville and Tocco; Chairman Manning

University Administration: President Wilson; General Counsel Heatwole; Senior Vice President Williams; Vice President Chmura; Associate Vice Presidents Brancato and Harrington; Chancellors Holub, Motley, MacCormack and Meehan; Executive Deputy Chancellor Flotte; Provosts Staros, Langley, Garro and Abdelal; Vice Chancellor for Research and Engagement Malone, UMass Amherst; Vice Provost for Research Xia, UMass Boston; Vice Chancellor Petrovic, UMass Dartmouth; Interim Vice Chancellor for Research Chen, UMass Lowell; Interim Director, UMass Center for Stem Cell Biology Stein; Director, International Stem Cell Biology Smith; Co-Director, International Stem Cell Registry Luong; Director, Stem Cell Bank Education and Training Borowski

Faculty Representatives: Professor May, UMass Amherst; Professor Carter, UMass Lowell; Ms. Gibbs, UMass Dartmouth, Dr. Weinstein, UMass Worcester

Chair Pearl convened the meeting at 8:06 a.m. and welcomed two new members to the Committee – Matthew Hoyt of UMass Dartmouth and James Young of UMass Worcester. Matthew is an engineering student and James is an MD/PhD student with a background in venture capital. Each of them introduced themselves and stated their interests to the Committee.

Chair Pearl also welcomed three new campus research officers to the Committee. These included: Mike Malone, Vice Chancellor for Research and Engagement at UMass Amherst; Zong-Guo Xia Vice Provost for Research at UMass Boston; and Julie Chen, Interim Vice Provost for Research at UMass Lowell. Professor Chen presented to us at our last Committee meeting, and the committee looks forward to working with all the new research officers in the months ahead.

Chair Pearl indicated that the committee is committed to continuing the process of engaging with campus leadership on their respective research strategies. The Boston, Dartmouth and Lowell campuses have already presented. The Worcester campus was scheduled for today, but an unavoidable conflict prevented Chancellor Collins from being with us today. Worcester will

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now present at our next meeting in November, and Amherst will present at the meeting in February 2010.

Chancellor Collins has arranged for an exciting presentation today by Dr. Gary Stein and his team from the Stem Cell Bank and Registry at UMASS Medical School. This initiative represents one of the strategic research thrusts at the Medical School and is one of the key projects of the Governor's Life Sciences Initiative.

Chair Pearl then provided an overview of the agenda which includes remarks from President Wilson, a presentation by Dr. Gary Stein and his team, an update on the 2008 Annual Research and Development Report, and an update on Campus Research and Development Proposals for Federal Recovery Act Funds.

Under the **President's Report**, President Wilson joined Chair Pearl in welcoming the new members of this Committee and the new Chief Research Officers.

President Wilson then provided a strategic overview of developments at the University since we last met. In spite of serious fiscal challenges, the University's research and associated technology commercialization efforts are continuing to thrive. It's important to understand the changing environment for R&D – with the challenges and opportunities it brings to the University.

The President reported that the State's fiscal situation has resulted in constraints in support for the University, both in terms of our state appropriation and for capital projects. Moreover, it has also resulted in serious reductions in financing for relatively new Science & Technology programs in which our campuses have been actively participating (e.g., life sciences).

On the other hand, the federal stimulus bill enacted earlier this year has provided a significant boost in R&D spending and it appears that there are good prospects for R&D growth at select federal agencies. Our faculty have been smartly positioning themselves for both current and future opportunities.

There are also growing opportunities for collaboration which can enhance our success – not just among UMass campuses, but with other universities and private industry. The recent renewal of a \$12 M NSF grant to Lowell, Northeastern and UNH in nanotechnology is an excellent example of the value of such collaboration. The planning currently underway by UMass, MIT, Harvard, BU, Cisco and EMC for a proposed state-wide High Performance Computing Center is another promising example.

The Governor's \$1 billion Life Sciences Initiative has been the most significant Science & Technology initiative in the state's history. Unfortunately, the Massachusetts Life Sciences Center (MLSC) has seen a reduction in its operating funds from \$25M to zero in FY2010, and a reduction in capital funds from \$150M to \$90M for FY2010-2012.

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Fortunately, the MLSC Investment Committee approved \$90M capital funds for Worcester at their September 11 meeting and Board approval is expected on September 23rd. Other good news include the second year funding for the Stem Cell Registry for \$750,000, “Young Investigator” grant to UMass Worcester for \$200,000, and a System-wide grant of \$125,000 from Sloan Foundation to meet the need for “professional sciences masters” degrees identified by MLSC.

The other major state S&T initiative is in clean energy. That center has also suffered budget cuts, although not to the same degree as the life sciences initiative. The Clean Energy Center saw a reduction in budget from \$43M in FY2009 to \$33 M in FY2010. Recent clean energy activity includes a planning grant of \$125,000 to UMass Dartmouth and clean energy companies regarding “green energy industrial park”, carbon sequestration initiative of \$125,000 to UMass Amherst, green jobs training grant of \$175,000 to UMass Boston, and R&D matching grant of \$300,000 to UMass Amherst for \$12M wind energy proposal to the Department of Energy.

UMass is also engaged with the state, other research universities and leading IT companies in developing the concept of a Green High Performance Computing Center for the Commonwealth. The Governor, Presidents of MIT, UMass and BU, and CEOs of Cisco, EMC and Accenture signed an agreement in June setting forth a 120-day planning/feasibility study for such a Center. If successful, the center would be located in Holyoke – to capitalize on low-cost/clean energy and robust fiber links. The parties are now engaged in the collaborative process of defining organizational model, technology infrastructure, R&D/education agenda and financing plan. The are plans to announce the results of the study in mid-late October. The President was hopeful and excited about the prospects for the future of this initiative.

Lastly, the President reported on record-breaking earnings from the University's technology commercialization efforts, managed by the Office of Commercial Ventures and Intellectual Property (CVIP). Thanks in large part to the success at the Medical School, most notably a blockbuster agreement with Merck, the University earned over \$70 M in license income in FY 09. This far exceeded our previous record of \$41 M and is likely to place us among the top 10 research universities in the nation in terms of license income.

Chair Pearl then asked for a motion to **Consider the Minutes of the Previous Meeting.**

It was moved, seconded and

VOTED: To approve the minutes of the May 27, 2009 meeting of the Committee.

Chair Pearl introduced the first item for **Discussion** the **Massachusetts Human Stem Cell Bank and International Stem Cell Registry, UMass Worcester.** This informational item, presented by Professor Gary Stein, chair of the department of cell biology and interim director of the Center of Stem Cell Biology and Regenerative Medicine at UMass Worcester, provided an

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update and progress report on the Center's Massachusetts Human Stem Cell Bank, the International Stem Cell Registry, and associated education and training programs.

In 2006, the Trustee Task Force on Science and Technology, the predecessor to this Trustee Committee, encouraged exploration of a collaborative agenda for stem cell research. Professor Stein was a key member of the system-wide working group.

Professor Stein began by introducing other members of the stem cell team -- Kelly Smith, Director, International Stem Cell Biology; Mai Luong, Co-Director, International Stem Cell Registry; and Maria Borowski, Director, Stem Cell Bank Education and Training.

The Center for Stem Cell Biology and Regenerative Medicine, the RNA Therapeutics Institute, and the Center for Gene Therapy are programs that comprise the Advanced Therapeutics Cluster. These programs are developing state-of-the-art technology and applications. Elements of the Center for Stem Cell Biology and Regenerative Medicine include the Stem Cell Registry, Stem Cell Bank/Core, education and training, and a research component.

The Stem Cell Center is a key component of Massachusetts Life Sciences Initiative. It was established with funding from the MLSC to provide resources to the Commonwealth; and provides infrastructure for the support of clinical and translational research as well as education and training at the regional, national and international levels.

To develop the program and ensure appropriate guidance, direction and feedback a campus advisory group was established. Additional Oversight Committees include an Educational Advisory Board, Stem Cell Bank Working Group, International Stem Cell Registry Working Group, MLSC Scientific Advisory Board, UMass Embryonic Stem Cell Research Oversight (ESCRO) Committee, and Harvard ESCRO Committees.

Mai Luong, Co-Director, International Stem Cell Registry provided an update on the development of the Stem Cell Registry. The Registry and Bank are resources for comprehensive access to the properties and applications of human embryonic stem cells. It is a global inventory and provides comprehensive information for human embryonic stem cells derived through public and private funding, both human embryonic stem cell lines and reprogrammed cell lines.

The Registry is an online database that is publicly accessible and searchable and continuously updated; is dedicated to acquiring, configuring and disseminating information between researchers, educators and the broader scientific community; is designed to maximally advance stem cell research, education and training in academia as well as in biotechnology and pharmaceutical industries; and includes cell lines that have been developed by the international research community.

Initiatives include literature highlights, review of NIH guidelines, and registry applications and utilization through a registry tutorial in the lab manual. The Registry enhances the scope,

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effectiveness and operational capabilities; continues collaboration with the international stem cell communities through partnerships; and informs and engages scientists and the public in stem cell discussions.

Kelly Smith, Director, International Stem Cell Biology provided an overview on the development of the Massachusetts Human Stem Cell Bank. The Stem Cell Bank is a repository for human embryonic stem cells (hESC) lines that are derived in research laboratories throughout the Commonwealth and beyond. The lines will serve as a resource for investigators working with hESC cells; they may request cell lines for their own research and receive training in the correct handling of hESCs. The Bank is equipped and staffed for growth, characterization, cryopreservation and distribution of hESC lines. The development of the Bank is a very in-depth process with various projects underway.

Maria Borowski, Director, Stem Cell Bank Education and Training reported that the objective of the Education and Training division is to provide technical training within the stem cell community, and other targeted audiences. The Center has a fully equipped laboratory dedicated to hands-on lab experience for both students and teachers.

Committed to education and outreach, the Stem Cell Bank has a full-time staff to develop curricula on procedures and protocols for stem cell growth and development. Additionally, the Bank is establishing a number of programs to educate the community on the biology and applications of stem cell therapeutics. Stem cell research is a rapidly evolving field, and one of the goals of the education and outreach group is to be a resource for public and private schools and the community at large. To that end, a number of educational programs targeted at K-12 students and science educators are in development for the months to come.

The International Stem Cell Registry (ISCR) hosted a Registry Collaboration Workshop this summer that brought together a number of organizations dedicated to the advancement of stem cell science. The workshop included a review of registry development programs being conducted by participant organizations and discussion of optimal approaches to that development.

At the conclusion of the stem cell presentation, Chair Pearl, Vice Chair Johnston, President Wilson and other members of the committee praised the efforts of the Medical School for establishing UMass as a national and world leader in stem cell R&D.

The next item was **Annual Research and Development Report**. Associate Vice President for Economic Development Jeff Brancato provided an update of the University's research and development portfolio. Background data used to develop this presentation is compiled annually by the Office of Institutional Research can be found in the attached *FY 2008 Annual Research and Development Expenditures (Expanded Version)*. The most important message was that the University R&D enterprise has continued to grow, hitting \$435 M in FY 08 and continuing to outpace the annual rate of growth of higher education as a whole.

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The final item was **Campus Research and Development Proposals for Federal Recovery Act Funds**. Associate Vice President Brancato provided an update of campus efforts in pursuit of funding from federal science agencies through the American Recovery and Reinvestment Act of 2009. The Recovery Act, also known as ARRA, provided roughly \$18 billion to agencies, for activities related to scientific research. This includes funding for new and ongoing programs at agencies such as the NIH, NSF, NASA, and the DOE. A significant portion of these funds will be distributed to academic institutions through competitive grant mechanisms.

Nearly 400 proposals have been submitted by UMass faculty in response to AARA solicitations. To date, nearly 65 awards totaling some \$40 M have been made to UMASS. These include both new projects and supplements to existing grants. In addition to ARRA solicitations, it also includes ARRA funds that were applied to proposals submitted prior to ARRA. Final results from all ARRA solicitations are expected later this Fall.

The meeting adjourned at 9:48 a.m.

Zunilka Barrett
Assistant Secretary to the Board