

**MINUTES OF A REGULAR MEETING
OF THE BOARD OF DIRECTORS OF THE
MASSACHUSETTS LIFE SCIENCES CENTER**

DATE: December 16, 2008

TIME: 2:00 p.m. EST

PLACE: One Ashburton Place, Mack Conference Room
Boston, MA

DIRECTORS PRESENT: Secretary Leslie Kirwan
Jack Wilson
Marc Beer
Peter Slavin
Lydia Villa-Komaroff

DESIGNEES: Eustacia Reidy (for Josh Boger)
Undersecretary Gregory Bialecki (for Secretary Daniel O’Connell)

DIRECTOR(S) ABSENT: Secretary Daniel O’Connell
Josh Boger

OTHERS PRESENT (partial listing):
Susan Windham-Bannister
Luis Barros
Dr. Harvey Lodish
Angus McQuilken
Beth Nicklas
Andrea Rodricks
Robert Sepucha
Melissa Walsh
Greg Bialecki
Dr. Abigail Barrow
Catherine Oyler

1. Call to Order.

Secretary Kirwan presiding as Chairman of the meeting, called to order the meeting of the Board of Directors (the “Board”) of the Massachusetts Life Sciences Center (the “Center”), and announced that a quorum of directors was present. Approximately 60 guests were in attendance. Members of the Board Jack Wilson, Marc Beer and Peter Slavin were

present. Secretary Kirwan confirmed that all participants could hear each other clearly. The meeting, having been duly convened, was ready to proceed with its business. Dr. Slavin acted as Secretary of the meeting.

Approval of Board Minutes.

The Board then reviewed the minutes of the November 18, 2008 meeting. Following discussion, upon motion duly made by Jack Wilson, seconded by Marc Beer and unanimously carried, the Board adopted the following resolution:

RESOLVED, that the minutes of the meeting of the Center's Board held on November 18, 2008 be, and they hereby are, approved as presented at this meeting.

2. Chair Report.

Secretary Kirwan commented on the Center's operations and the impact of the current economic and fiscal environment on the Center's activities. She remarked that the state anticipated a \$1 million budget gap and that Fiscal Year 2010 would see a budget gap as well. Secretary Kirwan commented that she looked forward to the good news that was to happen at this Board meeting.

3. President's Report.

Board members Lydia Villa-Komaroff and Undersecretary Gregory Bialecki (designee for Secretary Daniel O'Connell) joined the meeting. Dr. Windham-Bannister thanked the Board and the visitors for attending the meeting. She remarked that there was a full agenda, that the some of the Center's staff would be presenting the proposed new programs and that that proposal represented a cooperative process. She outlined that there would be \$25 million in tax incentives available in FY 2009, and reminded the audience that the Board had already authorized two capital investments for the Town of Framingham and the Marine Biological

Laboratory. She stated that the discretionary investment fund of \$25 million had been reduced by 40% and that the Center's operating costs are included in the budget for those remaining dollars. Dr. Windham-Bannister explained that there would be a proposal to come before the Board at this meeting to approve \$12 million on programming. She commented that in these tough economic times, the Center has been forced to make tough choices in regards to picking programs and that the Center is now prepared to "go live" with these new programs. She gave thanks to MassDevelopment, Mass Office of Business Development, Mass Technology Collaborative and the Mass Biotechnology Council for their help and input as the Center assembled these new programs. She presented to the Board a review of the Center's results of operations since the November 18 Board meeting and an overview of the Center's proposed programs for 2009 and turned the meeting over to Robert Sepucha, the Center's General Counsel, to share the tax incentive presentation with the Board.

Certification Criteria and Tax Incentive Program.

Mr. Sepucha next thanked all who lent support to the process and provided the Board with an overview of the proposed criteria for certifying life sciences companies for participation in the Center's programs. Mr. Sepucha also described the Center's proposed Life Sciences Tax Incentive Program, pursuant to which the Center may award an aggregate of up to \$25 million in various tax incentives in each of the next ten taxable years to certified life sciences companies. Mr. Sepucha also provided the Board with an overview of public commentary that the Center has received regarding the certification criteria and the proposed tax program, most of which focused on labor standards and wages.

Following discussion, Secretary Leslie Kirwan asked if there was a motion to approve the certification criteria and tax incentive program. Upon motion duly made by Undersecretary Gregory Bialecki, designee for Secretary O'Connell, seconded by Jack Wilson,

and unanimously carried, the Board adopted the following resolutions:

WHEREAS, the Massachusetts General Law Chapter 23I (the “Life Sciences Statute”) provides that the Center shall establish a life sciences tax incentive program and requires that the Center adopt criteria by which it will certify life sciences companies seeking to receive certain benefits from the Center;

NOW, THEREFORE, BE IT RESOLVED, that the Life Sciences Tax Incentive Program in substantially the form as presented to the Board be, and it hereby is, adopted and approved to provide certified life sciences companies with an aggregate of up to \$25 million each of the next ten years in various tax incentives, as set forth in the Life Sciences Statute, beginning January 1, 2009;

RESOLVED FURTHER, that the certification criteria set forth in Part I of the Life Sciences Tax Incentive Program Application in substantially the form attached hereto a Exhibit A (the “Certification Criteria”) be, and they hereby are, adopted and approved for use in certifying eligible life sciences companies for participation in the Life Sciences Tax Incentive Program and any future grant, investment, loan, program or initiative that requires certification pursuant to the Life Sciences Statute; and

RESOLVED FURTHER, that the officers of the Center be, and each of them hereby is, authorized, directed and empowered to execute any applications, certificates, agreements or any other instruments or documents or amendments or supplements to such documents, or to do or to cause to be done any and all other acts and things as such officers, in their discretion, may deem necessary or advisable and appropriate to carry out the purposes of the foregoing resolutions and to put the Life Sciences Tax Incentive Program into effect.

4. Early-Stage Company Investment Programs.

Dr. Windham-Bannister asked Marc Beer to say a few words about the work of the Investment Sub-Committee of the Board and the work that it had begun. Mr. Beer applauded Sue, Melissa, Luis and Bobby for the excellent job they had done in working, along with the SAB, to respond to dozens of constituents and to listen to their concerns and to communicate the process for how investments for companies will be made at the Center. He reminded the Board that he had begun serving as the Chair of the Investment Sub-Committee with Peter Slavin and Lydia Villa-Komaroff. The group met twice last month and the Center staff brought a broader set of programs to the Sub-Committee, which it narrowed down to 2 programs. Mr. Beer

suggested that he would like to see additional programs brought before the Sub-Committee in the future. Marc turned the meeting over to Luis Barros. Mr. Barros then presented the Center's proposed early-stage company programs. First, he presented an overview of the Life Sciences Accelerator Program, which would provide matching grants, loans and other investments to early-stage companies that have demonstrated scientific and commercial promise, but that need additional funding for working capital and to reduce investor risk. By focusing on matching investments, the Accelerator Program would leverage third party funding sources such as SBIR grants, commercial loans and grants from federal and state agencies, the National Institutes of Health, disease foundations, academic institutions and other non-profit organizations. Mr. Beer, chairman of the Investment Committee, discussed the merits of the Life Sciences Accelerator Program with the Board, noting in particular the urgent need for capital to fund early-stage life sciences companies in the current economic climate. He commented on the positive feedback he has received from investment and industry leaders regarding the critical role that the Center can play in bridging the funding gap for these companies. He recommended that the Board approve the Life Sciences Accelerator Program.

Dr. Windham-Bannister informed the Board that the Investment Committee and the Center's management team recommended allocating an aggregate of \$12 million for the Life Sciences Accelerator Program, the Center's Innovation Program and the next round of Research Matching Grants and workforce development initiatives that were still being developed. A discretionary program for investments in bright ideas and promising opportunities not otherwise attached to a specific program would be funded under the portion of this \$12 million that she proposed be referred to as the Innovation Program. The Investment Committee and the Center's management team recommended the Innovation Program in order to provide the Center with the flexibility necessary to respond to unique funding opportunities and exigent circumstances that

may arise in the future.

Jack Wilson asked whether the plan was to spend all discretionary funding on this Accelerator program. Dr. Windham-Bannister answered that that was not the case and the \$12 million represented the total allowed resources for the Accelerator Program, Innovation Program, Research Matching Grants and workforce development programs. She explained that the Center's operating funds were not part of the \$12 million authorization request.

Following discussion, upon motion duly made by Lydia Villa-Komaroff, seconded by Marc Beer and unanimously carried, the Board adopted the following resolution:

WHEREAS, the Life Sciences Statute establishes the Massachusetts Life Sciences Investment Fund (the "Investment Fund") from which the Center may make loans, grants and other investments to certified life sciences companies; and

WHEREAS, the Board believes it to be in furtherance of the Center's goals as set forth in the Life Sciences Statute and in the best interest of the Commonwealth to create a variety of funding programs for early-stage life sciences companies;

NOW, THEREFORE, BE IT RESOLVED, that the Life Sciences Accelerator Program and Innovation Program in substantially the forms as presented to the Board be, and they hereby are, adopted and approved effective as of January 1, 2009;

RESOLVED FURTHER, that the Certification Criteria be, and they hereby are, adopted and approved for use in certifying eligible life sciences companies for participation in the Life Sciences Accelerator Program and Innovation Program; and

RESOLVED FURTHER, that the officers of the Center be, and each of them hereby is, authorized, directed and empowered to execute any applications, certificates, agreements or any other instruments or documents or amendments or supplements to such documents, or to do or to cause to be done any and all other acts and things as such officers, in their discretion, may deem necessary or advisable and appropriate to carry out the purposes of the foregoing resolutions and to put the Life Sciences Accelerator Program and the Innovation Program into effect.

5. Communications Update.

Angus McQuilken next provided the Board with an overview of the Center's

communication strategy, including a demonstration of the Center's website and the online application for the Life Sciences Tax Incentive Program. He explained that it was the goal of the staff that the application process be as user-friendly and green as possible, so that is why the team was committed to creating an easy-to-use online tool for the applications. Due to a lack of functioning connectivity in the Conference Room, Mr. McQuilken was not able to complete the full demonstration, but explained to the Board and the crowd that he would send out the link that was fully functioning for their review and comment. He announced that the applications would "go live" on January 2nd due to the January 1st holiday.

Programmatic Budget

Dr. Windham-Bannister reiterated that the Board would consider authorizing \$12 million for the programmatic budget, as had just been outlined, for the Center's investment portfolio, to be added to the tax incentives and capital investments that the Center would be making and drew the Board's attention to the relevant motion in the Board binders.

Secretary Kirwan asked if there was a motion to accept the programmatic budget for the Center. Upon motion duly made by Lydia Villa-Komaroff, seconded by Marc Beer and unanimously carried, the Board adopted the following resolution:

RESOLVED, that the Board, acting pursuant to the authority delegated under the Life Sciences Statute, does hereby authorize the expenditure of monies in fiscal year 2009 in an amount not to exceed \$12 million for the Life Sciences Accelerator Program, the Innovation Program and the Center's workforce development initiatives and academic and research grant programs.

6. Corporate Consortium Matching Program.

Mr. Beer then introduced a new proposed program. He began by commending the Center staff on their efficiency. There has been a strong understanding that access to capital is important and that there are lots of good places to get good information from. The staff

worked hard to sort through that and delivered a terrific proposal to the Investment Subcommittee. Mr. Beer turned the meeting over to Mr. Barros who next presented an overview of a proposed Corporate Consortium Matching Program (the “Matching Program”) pursuant to which certain corporate and investment entities would provide matching funds for the Center’s funding initiatives, including without limitation, the Life Sciences Accelerator Program and Innovation Program. Mr. Barros thanked Bobby Sepucha and the Board for its consideration of the proposal. He discussed the importance of fostering the capitalization side of our work, as well as the process and governance side. Mr. Barros then introduced Catherine “Cat” Oyler, a representative of Johnson & Johnson Services, Inc. (“J&J”), who informed the Board that J&J’s Corporate Office of Science and Technology has committed to be the charter member of the Matching Program, pursuant to which it will contribute not less than \$500,000 over two years in matching funds for the Center’s initiatives. Ms. Oyler announced her excitement for being part of a new program that is based in markets all over the world. She thanked the Center staff for their commitment to bringing the initiative together. Ms. Oyler gave an overview on Johnson & Johnson and its credo which governs all of the companies’ principals, customers and employees. J&J has enjoyed 75 years of sale increases. Ms. Oyler ran through a sampling of J&Js products. With 5 companies in the state and 200 employees, J&J has a good presence in Massachusetts. The company believes that it is very important for J&J to support its long term growth and to stimulate economic job growth and economic development. The Board reviewed and discussed the principal terms and conditions of J&J’s commitment, as set forth in a letter received in December, 2008 to Dr. Windham-Bannister from Dr. Garry Neil in substantially the form provided to the Board in the Board binders (the “Letter Agreement”). Dr. Windham-Bannister explained that J&J is not looking for a first right of refusal and that it is clear that the company believes in innovation in Massachusetts. The Center is excited about this opportunity to match

funds to create additional investments, leveraging scarce public funds. Secretary Kirwan asked for a motion to approve the Corporate Consortium Program upon motion duly made by Jack Wilson, seconded by Lydia Villa-Komaroff and approved unanimously, the Board adopted the following resolutions:

WHEREAS, J&J's Corporate Office of Science and Technology has committed to provide not less than \$500,000 in matching funds over the next two years to help fund the Center's initiatives;

WHEREAS, the Board believes that the Center's mission of solidifying Massachusetts status as a worldwide leader in the life sciences, creating jobs and supporting innovative research that will save and improve lives is best served by pursuing and promoting the sort of public-private partnerships described in the Letter Agreement;

NOW, THEREFORE, BE IT RESOLVED, that the Letter Agreement be, and it hereby is, approved, subject to such changes as may be approved by the President of the Company that are consistent with these resolutions, her signature on such document to constitute conclusive evidence of such approval; and

RESOLVED FURTHER, the Matching Program as presented to the Board be, and it hereby is, adopted and approved, and that the officers of the Center be, and they hereby are, authorized to enter into agreements with such other participants in the Matching Program as they deem necessary or advisable on terms and conditions substantially similar to those set forth in the Letter Agreement;

RESOLVED FURTHER, that the officers of the Center be, and each of them hereby is, authorized, directed and empowered to execute any applications, certificates, agreements or any other instruments or documents or amendments or supplements to such documents, or to do or to cause to be done any and all other acts and things as such officers, in their discretion, may deem necessary or advisable and appropriate to carry out the purposes of the foregoing resolutions.

7. Update on Academic, Research and Workforce Development Programs

Dr. Windham-Bannister invited Beth Nicklas to speak on the status of brainstorming initiatives for Fiscal Year 2009 – 2010. Ms. Nicklas updated the Board on the December 12th Roundtable discussion that the Center held to inform on the development of our workforce development strategy. She announced the list of attendees at that Roundtable and referenced that the full list

appeared in the Board binders. She explained that the Center's goal is to develop a solid network for sourcing, internships and cooperative programs, STEM education at elementary and secondary level. The Center is prepared to be bold on investment decisions. Internships are emerging as the most important of programs. We need to provide these for students. Large companies can often cover the costs for internships, but smaller companies need grants. We need to coordinate and assess where the Center's funds can make the biggest impact and we are actively engaged in doing so. We have also found that the Center can play a role in supporting training for specialist teachers in STEM fields – in science and math. We are developing a wonderful advisory group and look forward to coming back early next year to discuss our progress.

8. Cooperative Research Grants.

Dr. Harvey Lodish, chairman of the Center's Scientific Advisory Board, next presented the Board with an overview of the proposed cooperative research grants. The goal of the grants is to foster collaborations between scientists, academic institutions and industry that promise commercial potential in the near term and are scientifically meritorious. These are the first grants of their kind for the Center and represent the final of the three pilot Research Matching Grants. He commented that the process included a peer-review panel and at least 3 members vetting each proposal. The SAB evaluated the proposals against the criteria. We are recommending the Board fund 6 of these proposals. UMass Medical, UMass Lowell, Harvard, IDI, MGH and Brigham & Women's are all being recommended.

Dr. Lodish explained that he would like to give an overview of each proposal.

Dr. Rudolph Faust, UMass Lowell/Boston Scientific (corporate partner): Dr. Faust will work with three postdoctorals and two graduate students at the University of Massachusetts Lowell

and at Boston Scientific to collaborate on the design, precision synthesis, and nanomanufacturing of new biocompatible and functional materials for better performance in several medical devices. The researchers will design polyisobutylene-based urethane lead coatings to be used with pacemakers and defibrillators. The recommendation is to fund Dr. Faust at \$199,596 per year for three years.

Dr. Judy Lieberman, Immune Disease Institute/Epic Therapeutics (corporate partner): Dr. Lieberman will work with IDI and Epic to test PROMAXX microparticles with siRNAs for antiviral effects in formal move on the viral infections HSV-2 and HPV and verify that they do not cause unanticipated toxicity. The results could be extended to prevent the sexual transmission of HSV-2, the most important risk factor for the sexual transmission of HIV to women and newborns. The recommendation is to fund Dr. Lieberman at \$250,000 per year for three years.

Dr. David Weitz, Harvard University School of Engineering and Applied Sciences/Raindance Technologies (corporate partner): Will demonstrate the use of a new form of fluorescence activated cell sorter used to collect biochemical information about individual cells. The researchers hope to explore new applications of FACS that have not yet been feasible, from basic biology and medical studies to drug development. The recommendation is to fund Dr. Weitz at \$250,000 per year for three years.

Dr. Andrew Luster, MGH/Idera Pharmaceuticals (corporate partner): Research seeks to determine how effectively Idera's oligonucleotide-based TLR7 and TLR9 antagonist molecules inhibit human immune cell activation. The research is directed toward new therapy development for autoimmune diseases such as Lupus. The recommendation is to fund Dr. Luster at \$63,100 per year for three years.

Drs. Richard Lee and Parth Patwari, Brigham and Women's Hospital / Biomeasure Inc. (corporate partner): Research on invivo pre-clinical tests of their heparin-binding protein invention. The new protein may enhance cartilage regeneration after traumatic injury and provide therapy for osteoarthritis. The recommendation is to fund Drs. Lee and Patwari at \$250,000 per year for three years.

Drs. Michael Czech and Gary Ostroff, UMass Medical School/RXi Pharmaceuticals (corporate partner): Research to reveal how RNAi may be harnessed as an orally available medicine. Their previous results show that effective gene silencing can be achieved in mice by oral delivery of siRNA that is encapsulated. This technology specifically directs the siRNA to dendritic cells and macrophages, cell types which promote pathogenic inflammation in such diseases as arthritis and colitis. The recommendation is to fund Drs. Czech and Ostroff at \$249,593 per year for three years.

Marc Beer asked Dr Lodish if the process was working. Dr. Lodish answered that the process was very much working and that there were 27 applications that were perfectly reviewed through a 2-tier process. Dr. Slavin asked if there was a drop off after which the SAB would have liked to fund another one or two grants but couldn't because of resources. Dr. Lodish explained that this was not the case and that the applications that were not recommended would not have been even if there were more dollars to award. Undersecretary Bialecki asked what the amounts were of the grants. Dr. Lodish reminded the Board that the grant applications could ask for as much as \$250,000 per year for three years but that some chose to ask for less. Following discussion, upon motion duly made by Lydia Villa-Komaroff, seconded by Jack Wilson and approved unanimously, the Board adopted the following resolutions, with Secretary Kirwan calling each individually so that the appropriate Board members could recuse themselves

as necessary (Peter Slavin recused himself and stepped out of the room during deliberation and voting for the Harvard University, MGH and BWH applications. Jack Wilson recused himself and stepped out of the room during deliberation and voting for the UMass Lowell and University of Massachusetts Medical School applications):

WHEREAS, one of the Center’s primary goals is the advancements of academic life sciences research;

WHEREAS, the Center’s Scientific Advisory Board has reviewed the proposed cooperative research grants and has recommended them for funding based on their scientific merit;

NOW, THEREFORE, BE IT RESOLVED, that following cooperative research grants be, and they hereby are, approved:

<u>Recipient</u>	<u>Institution</u>	<u>Grant Amount</u>
Dr. Judy Lieberman	Immune Disease Institute/Epic Therapeutics	\$250,000 per year for three years
Dr. David Weitz	Harvard University School of Engineering and Applied Sciences/Raindance Technologies	\$250,000 per year for three years
Dr. Andrew Luster	MGH/Idera Pharmaceuticals	\$63,100 per year for three years
Drs. Richard Lee and Parth Patwari	Brigham& Women’s Hospital / Biomeasure Inc.	\$250,000 per year for three years
Drs. Michael Czech and Gary Ostroff	UMass Medical School/RXi Pharmaceuticals	\$249,593 per year for three years
Dr. Rudolph Faust	UMass Lowell/Boston Scientific	\$199,596 per year for three years

RESOLVED FURTHER, that the officers of the Center be, and each of them hereby is, authorized, directed and empowered to execute any applications, certificates, agreements or any other instruments or documents or amendments or supplements to such documents, or to do or to cause to be done any and all other acts and things as such officers, in their discretion, may deem necessary or

advisable and appropriate to carry out the purposes of the foregoing resolutions, including without limitation, execution of applicable grant agreements.

Dr. Windham-Bannister described the process for notifying grantees. Each applicant would be receiving an email from the Center in real time notifying them of whether or not their grant application was successful. She thanked Dr. Lodish and the SAB for another stellar process and spoke of her excitement that the Board approved grants for both small and large companies. She concluded her remarks by stating that the Center would be moving to Waltham and that she thought this was a fiscally responsible decision, and that Waltham is located near access to all facets of the Center's marketplace.

Secretary Kirwan asked if there was any further business and, hearing none, adjourned the meeting at 3:45 p.m., wishing everyone Happy Holidays.

[Remainder of Page Intentionally Left Blank]

9. Adjournment.

There being no further business to come before the meeting, upon motion duly made, seconded and unanimously carried, the meeting was adjourned.

Dr. Peter Slavin
Secretary of the Meeting