

MARYLAND LIFE SCIENCES ADVISORY BOARD (LSAB) MEETING MINUTES

MEETING DATE: December 6, 2016

TIME: 9:00 – 11:30 a.m.

LOCATION: Institute for Bioscience and Biotechnology Research (IBBR)
9600 Gudelsky Drive, Rockville, Maryland 20850

Welcome

Chair Abdun-Nabi welcomed attendees to the winter LSAB meeting and thanked IBBR Director Dr. Tom Fuerst for hosting the meeting. Dr. Fuerst spoke briefly about plans for the Center for BioMolecular Therapeutics, the GMP facility at IBBR, its connections to NIST and UMB, and other capabilities and research taking place at the Institute. LSAB members were invited to tour the IBBR facility at the end of the meeting.

Call to Order

Chair Abdun-Nabi convened the meeting, and welcomed members and guests. Maryland Department of Commerce Deputy Secretary Ben Wu, representing Secretary Mike Gill, explained Secretary Gill wanted to be present but had an unavoidable conflict. Secretary Wu said Commerce leadership recently had met with Governor Hogan's Chief of Staff regarding the LSAB, and that the LSAB's work on the preliminary recommendations was viewed to be important. He thanked the Working Group Co-Leaders, other LSAB members and nonmember Working Group volunteers for their time spent developing the draft recommendations and action plans.

Chair Abdun-Nabi asked for feedback on the Minutes of the October 16, 2016 LSAB meeting. Hearing none, he asked for a Motion to Approve the Minutes which was made by Mr. Bendis and seconded by Dr. Rai. The October meeting Minutes were approved unanimously.

Desired Future State

Chair Abdun-Nabi reminded the LSAB members of their decision at the October meeting to adopt the "ACCT Now" framework for organizing the Working Group recommendations to help

Maryland achieve the “Top 3 by 2023” goal and vision statement approved by the LSAB in May:

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| A | Assets | Leverage and grow current ASSET base and accelerate commercialization |
| B | Connectivity | Increase CONNECTIVITY among and awareness of Maryland’s BioHealth assets and resources |
| C | Capital | Increase availability and access to CAPITAL at each phase of the BioHealth life cycle. |
| T | Talent | Grow TALENT pool of experienced BioHealth entrepreneurs, business |

Chair Abdun-Nabi also mentioned the discussion at the prior meeting regarding the “Desired Future State” for Maryland BioHealth ecosystem and the board’s consensus regarding the need for a comprehensive plan integrating recommendations from each of the ACCT areas.

Working Group Presentations

Chair Abdun-Nabi shared with the members that the Working Group Co-Leaders had continued to meet by phone biweekly since the fall meeting. Based upon Secretary Gill’s request at the October meeting, they had prioritized the proposals which they thought might be put forth into the Governor’s FY18 budget with an agreement to further develop the remaining top ranked proposals at the beginning of 2017. The Chair stated the purpose of this meeting is to provide feedback on the FY18 proposals, and he then invited Co-Leaders to introduce the FY18 proposals by category:

Assets

Christy Wyskiel explained the FY18 ASSET Proposal “*Establish a Task Force to Develop Recommendations to Overcome Barriers to Commercializing Federal Technology.*” Its objectives are to:

- Stimulate opportunities for leveraging research and expertise at federal labs in Maryland by removing barriers and examining incentives for technology transfer, and access to expertise and resources.
- Leverage taxpayer financed expertise and resources (i.e. high-throughput screening of chemical libraries and MRI and PET equipment available at certain federal labs) by enabling them to be used by businesses developing life changing products.
- Encourage a change in culture to foster entrepreneurship and encourage intramural researchers to focus on value proposition, product development, and the path to a product for an unmet need so that the product ultimately can reach patients.
- Create an entrepreneurial sabbatical program in Federal Government labs that facilitate licensing technologies and establishing collaborations, enabling these federal entrepreneurs to spin out companies or return to the labs after gaining commercially relevant experience.

- Consider developing new granting mechanisms within the Federal labs that would allow for small, immediate proof of principle or micro-grants for academic entrepreneurs and small businesses to further de-risk technologies.

Chris Austin, Frank Winhold, Ben Wu, Rich Bends and Ms. Wyskiel participated in a discussion regarding current challenges, opportunities, and practices in other agencies regarding industry-agency collaborations on research and technology transfer. Following this discussion and a vote regarding the proposal, the Chair stated that there was unanimous approval to move forward with this Task Force recommendation.

Connectivity

Jarrold Borkat described the FY18 CONNECTIVITY proposal “*Develop Comprehensive Maryland BioHealth Asset Map and Interactive Web Site*” with the following objectives:

- Inventory and create an asset map of all key BioHealth organizations, resources and opportunities.
- Develop a user friendly, interactive web site to access, augment and promote assets included in map.
- Leverage site and map to promote business, economic development, networking, and collaboration opportunities in Maryland and to the global market.
- Use map to identify and promote sectors of strength and new areas of opportunity (i.e. convergence).
- Enable Marylanders and those outside the state to easily find BioHealth resources, contacts, and opportunities.
- Provide an easy to use, comprehensive workforce site with information regarding job and internship opportunities, training and education programs, career paths, etc.
- Use map and site as pilot and model for other key industries in Maryland.

Dr. Borkat said the development of a database of statewide biohealth assets displayed in an interactive online asset map would be a deliberate process of synthesizing community resources to build upon what’s working and address challenges. Bob Storey and Sanjay Rai both stated that enabling professionals to know who is doing what in the industry is important. Mr. Storey said the medtech industry needs the ability to easily find each other and supply chain resources. Dr. Rai said the need to promote, in one place, training resources, job and internship opportunities was the top priority of his working group. Marco Chaco said the biopharma manufacturing working group also has the same needs for network and promotion of assets.

Rich Bendis spoke of his prior experience with asset maps and the potential of finding funds for this work at the U.S. Commerce Economic Development Administration. Dr. Borkat affirmed that the suggestion and need had come from multiple working groups and suggested Commerce could issue an RFP which would encompass all of the goals for the asset map and web site from all of the groups into one project. At the end of the discussion, Chair Abdun-Nabi asked for an expression of interest and declared unanimous approval among the board for moving forward with this proposal.

Capital

Wendy Perrow shared three CAPITAL recommendations for FY18 Budget. The first, “*Ensure Existing State BioHealth Funding Programs are Adequately Capitalized,*” generated unanimous support with its objective to ensure that existing funding is not cut or reallocated if the other suggested proposals and requests for more funding for the biohealth sector are implemented:

- Maintain or increase MII funding (currently \$4.8M plus \$800K from schools/year)
- Maintain or increase MD Life Sciences Investment Fund at TEDCO (currently \$1M/year)
- Maintain or increase MIPS project funding (currently \$1.1M plus \$300K from TEDCO/year)
- Maintain or increase Biotech Investor Incentive Tax Credit (BIITC) (currently \$12M/year)

The second proposal introduced by Ms. Perrow “*Establish State Funded MD Life Sciences VC Investment Fund*” generated a lot of discussion:

- Establish a state funded MD Life Sciences Venture Capital Investment Fund, to provide promising start-up BioHealth (therapeutics, biologics, vaccines, devices, software) companies with critically needed gap funding (\$3 – 5M+/company).
- If possible, leverage SB982 legislation focused on increasing the risk capital available to early stage Maryland companies through prudent investments of Maryland State Retirement Agency funds to be a source of this gap funding.
- Use the new fund or the apportioned funds from SB982 allocation as anchor funding to be matched by private sector VC(s).

There was agreement that the SB982 legislation likely would not be able to be leveraged to support biohealth investments due the statute’s mandated risk profile for investments. The discussion then was focused on whether or not to recommend a separate VC investment fund or expansion of an existing fund at TEDCO, and what amount should be requested to launch the fund given the potential need and desired impact. The conversation included references to the amount of funds necessary to provide meaningful growth capital to companies with technologies which must go through clinical trials to get to market, and also examples of funding provided by states and others in leading bioclusters.

Ms. Perrow stated that her working group which includes venture capitalists and other finance executives, had recommended that the fund be established at \$25M or above but had lowered the suggested dollar amount in the draft preliminary recommendations to \$3M due to likely currently available budget considerations. The consensus of the board was that any near term solutions for increasing early stage funding might happen by expanding existing funds at TEDCO. However, the preferred solution would be to establish a dedicated state funded VC investment fund for life sciences investments which could be matched by private sector funds and which should be capitalized at a minimum of \$25M.

The board then discussed the proposal to leverage private funding, increase visibility and attraction incentives for the state through the “*Establishment of a Public-Private Competition to Increase Scalable Risk Capital:*”

- Create a public-private partnership to provide gap funding and resources to BioHealth companies through an annual competition enabling vetting of best technologies.

Require applicants to be from Maryland and to remain in Maryland for a minimum of two years after award and to be willing to give 5% equity stake to funders. Winners also would receive free incubator laboratory space, mentoring and other support.

- Potentially include funds for business attraction – best out of state applicant with same residency and equity requirements.)
- Enhance awareness of Maryland BioHealth technologies and resources by promoting competition.

The board recommended pursuing this competition proposal whether or not the proposed new state-funded life sciences VC investment fund was launched.

Talent

Dr. Sanjay Rai introduce the TALENT recommendation for the FY18 Budget “*Fund Commercially Relevant Experiential Learning Programs in Biomedical Engineering, Biotech and Related Disciplines*” stating the importance of expanding the workforce with commercially relevant talent at all levels was a need expressed by multiple working groups. He invited Dr. Collins Jones, Biotechnology Industry Coordinator at Montgomery College to share more information regarding the near term objectives of the FY18 proposal:

- Enable students, researchers, and other adults to receive commercially relevant experience.
- Enable companies to vet potential full time employees.
- Help students and others to consider long term career paths in BioHealth in Maryland.
- Enable Maryland to compete with other regions funding internships.
- Expand commercially relevant training capacity of community colleges, universities, and training institutes.
- Leverage existing pharma biomanufacturing infrastructure to formalize BETC resources in Maryland.
- Increase quality and regulatory training for both pharma and medtech manufacturing.
- Lay the groundwork for the development of a future medtech-focused BETC.
- Provide low cost resources to companies.

The board agreed to support this recommendation.

Next Steps

Chair Abdun-Nabi and Vice Chair Perman asked the Working Group Co-Leaders to further develop the proposals listed in the preliminary recommendations as “Due – March 15, 2017:”

ASSETS

- Recruit or co-locate a division or innovation center of a medtech pharma company.
- Provide capital support or operating support for innovation hubs.
- Support development of a regional Center of Excellence for cell therapy manufacturing.
- Incentivize developers and companies to build or expand manufacturing facilities.
- Recruit or co-locate a division or innovation center of a major pharma company. Provide financial incentives to support innovative, translationally focused faculty.

CONNECTIVITY

- Leverage existing organization(s), or create a new organization.
- Brand the BioHealth industry by characterizing a unique and differentiating.
- Ensure comprehensive plan for the sector is embraced by stakeholders.

CAPITAL

- Gain private sector (VC/angel) commitment to match new State life sciences VC fund.
- Establish SBIR/STTR matching fund as new proposal for additional early funding.
- Establish a network of high-net individuals and experienced life sciences investors.
- Expand MIPS to other universities.
- Provide SBIR assistance reimbursement to increase win rate of non-dilutive revenue.
- Provide financial incentives to support innovative/translational focused faculty.

TALENT

- Create incentive program to attract, retain, and support C-Level entrepreneurs.
- Support annual needs assessment of skills required to support innovation and relevant training and career path promotion.
- Support EIR program in the proposed Life Sciences VC investment fund to build a talent pool to lead BioHealth companies in Maryland.
- Support EIRs not only in VC fund but also in universities, federal labs and industry.
- Require in-state residence for executives of companies receiving State funds.

The Chair then asked staff to revise the Capital FY18 Recommendation to request a \$25M fund and discussed the board consensus that to get to a Top 3 by 2023 ranking all of the recommendations put forth are important—even if they can be passed in the first or second year. It was agreed that the revised preliminary recommendations would be forwarded to Secretary Gill by the Chair and Vice Chair prior to the December holiday break so that they could be shared with the Governor and his team.

Adjourn

Chair Abdun-Nabi thanked everyone for participating in the discussion and adjourned the meeting.

Board Members in Attendance:

Chair: Daniel J. Abdun-Nabi, President and CEO --Emergent BioSolutions
Vice Chair: Jay A. Perman, M.D., President – University of Maryland, Baltimore
Members: Christopher P. Austin, M.D., Director, NCATS, – U.S. National Institutes of Health
Richard A. Bendis, President and CEO – BioHealth Innovation Inc.
Jarrod Borkat, Head, External Collaborations, Biotech Hubs and Government Contracting– MedImmune
Marco A. Chacon, Ph.D., Founder and Chairman – Paragon Bioservices, Inc.
Douglas Jon Liu, SVP, Head of Global Operations – Qiagen Sciences Inc.
Theodore (Ted) J. Olsen, President and CEO – PathSensors, Inc.
Wendy Perrow, MBA, CEO – AsclepiX Therapeutics
Karen L. Proudford, Ph.D., President, William E. Proudford Sickle Cell Fund, Inc.; Associate Prof. of Mgmt. and Dir., Graves Honor Program - Morgan State University
Sanjay K. Rai, Ph.D., SVP for Academic Affairs – Montgomery College
Col. Andrea Stahl, Ph.D., Director, MRMCM CBRN Defense Medical Research Coordinating Office and JPC-Radiation Health Effects – USAMRMC Frank F. Weichold, M.D., Ph.D., Director, Critical Path and Regulatory Science Initiatives, Office of the Commissioner – U.S. FDA
Christy Wyskiel, MBA, Senior Advisor to the President and Head of Johns Hopkins Technology Ventures, Johns Hopkins University
John M. Wasilisin, President and Chief Operating Officer – TEDCO

Board Members not in Attendance:

R. Michael Gill, Secretary – Maryland Department of Commerce
David W. Smith, Ph.D., VP, Global Business Dev., Emerging Tech. – Lonza Walkersville, Inc.

Speakers and Guests in Attendance:

Virginia Crews, Business Dev. Mgr., BioHealth & Life Sciences, Maryland Dept. of Commerce
Rachel Emeruwa, Administrative Assistant – Maryland Department of Commerce
Brad E. Fackler, Senior Director, BioHealth & Life Sciences, Maryland Dept. of Commerce
Michelle Ferrone, SVP, Marketing and Operations, Tech Council of Maryland
Thomas R. Fuerst, Director, Institute for Bioscience and Biotechnology Research.
Jennifer Hammaker, Director, Maryland Innovation Initiative, TEDCO
Collins Jones, Biotechnology Industry Coordinator, Montgomery College
Nina Lamba, Business Dev. Mgr., BioHealth & Life Sciences, Maryland Dept. of Commerce
Brian Levine, Vice President, Greater Baltimore Committee
Steve Pennington, Managing Director, Business and Industry Sector Development – Maryland Department of Commerce
Martin Rosendale, Senior Executive Advisor, Tech Council of Maryland
Martha Schoonmaker, Executive Director at Pinkney Innov. Complex – Mountgomery College
Thomas Sadowski, Vice Chancellor, University System of Maryland
Bret Schreiber, Director of Education R. Innovation – Maryland Department of Commerce
Bob Storey, Principal, MVR Company
Emily Tocknell, Assistant Director of Government Affairs – Maryland Department of Commerce
Benjamin H. Wu, Deputy Secretary, Maryland Department of Commerce

LSAB Staff:

Judy Costello, Director, BioHealth and Life Sciences, Maryland Department of Commerce