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*Chair of the Assembly and the Academic Council
Faculty Representative to the Board of Regents
University of California
1111 Franklin Street, 12th Floor
Oakland, California 94607-5200*

January 13, 2009

**INTERIM PROVOST ROBERT GREY
UNIVERSITY OF CALIFORNIA**

Re: QB3 Five-Year Review

Dear Bob:

At its meeting on November 24, Academic Council endorsed the recommendations of the Compendium Committees (CCGA, UCORP, UCPB) regarding the five-year academic review of the California Institute for Quantitative Biosciences (QB3). The comments of the Compendium Committees are attached for your reference.

The committees were impressed by QB3's academic achievement since its inception and recommend that QB3 be provided with stable and adequate funding and that its cross-campus capabilities be enhanced. However, all three committees also found that the external review panel did not adequately address many aspects of its charge and therefore offered specific critiques.

The committees' main critiques of the external review include: 1) the report largely does not address cross-campus interaction, which was one of the rationales for establishing the institute; 2) the report fails to provide quantitative evidence that the collaborations have produced gains beyond what the individual faculty members or campuses would have produced on their own; 3) the report does not include quantitative comparative measures of the program; and 4) the lessons learned from the first Cal ISI review regarding how to assess these unique entities were not incorporated. The committees recommend that charges to future external review panels be carefully structured to ensure that reviewers focus their time and energy on the most significant questions.

The committees recommend, and Academic Council agrees, that QB3 must be provided with a stable operating budget and that issues of governance and multi-campus administration need to be resolved in order for QB3 to achieve its full potential.

Please do not hesitate to contact me if you have any questions regarding Council's comments.

Sincerely,

A handwritten signature in black ink that reads "Mary Croughan". The script is cursive and fluid, with the first name "Mary" and last name "Croughan" clearly distinguishable.

Mary Croughan, Chair
Academic Council

Copy: President Yudof
Director Kelly
Vice President Beckwith
Academic Council
Martha Winnacker, Senate Director

Encl. (3)

UNIVERSITY OF CALIFORNIA, ACADEMIC SENATE

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COORDINATING COMMITTEE ON GRADUATE AFFAIRS (CCGA)

Farid Chehab, Chair

chehabf@labmed2.ucsf.edu

ACADEMIC SENATE

University of California

1111 Franklin Street, 12th Floor

Oakland, California 94607-5200

October 29, 2008

**MARY CROUGHAN, CHAIR
ACADEMIC COUNCIL**

Re: CCGA Comments on QB3 – the California Institute for Quantitative Biosciences

Dear Mary:

At its meeting on October 7, 2008, CCGA discussed the Five-Year Academic Review of QB3 and focused its review and discussion on issues pertaining to graduate education.

CCGA shares the enthusiasm of the external reviewers for the progress made on individual campuses to increase student access to interdisciplinary graduate education. CCGA was impressed with intercampus programs such as the UCSF-UCB Bioengineering program and echoes the reviewers' call for resources to be dedicated to the development, implementation, and continuation of cross-campus interactions among students, postdoctoral scholars, and faculty. We noted that while the Chancellors' plan to relegate most of the funding decisions to the individual campuses may produce strong interdisciplinary programs on each local campus, it may also reduce opportunities for intercampus exchange.

Overall, the Committee was enthusiastic of the review and unanimously endorses it.

Sincerely,

A handwritten signature in dark ink, appearing to read "Farid Chehab", is written over a faint, circular watermark of the University of California seal.

Farid Chehab, Ph.D.

Chair, CCGA

Copy: Martha Winnacker, Executive Director



UNIVERSITY COMMITTEE ON RESEARCH POLICY (UCORP)
James Carey, Chair
jrcarey@ucdavis.edu

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October 17, 2008

**MARY CROUGHAN, CHAIR
ACADEMIC SENATE**

RE: Response to the 5-year Academic Review of the California Institute for Quantitative Biosciences (QB3)

Dear Mary,

The University Committee on Research Policy (UCORP) considered the 5-year academic review of the California Institute for Quantitative Biosciences (QB3) at its October 13, 2008, meeting. In short, the committee found that the external review panel's report did not address its charge either specifically or comprehensively enough. The committee would also like to echo previous UCORPs' calls for greater quantitative analysis and metrics in the review of the Cal ISIs. Our full response follows.

BACKGROUND

Hosted by UC Santa Cruz, UC Berkeley and UC San Francisco, QB3 is one-of-four California Institutes for Science and Innovation (Cal ISIs) launched in 2000 through a statewide initiative to support research deemed critical to the economic growth of California including biomedicine, bioengineering, nanosystems, telecommunications and information technology. The four Institutes were established to ensure that California "...maintains its role at the leading edge of technological innovation..." and "...to give rise to world-class centers for strategic innovation...". QB3 was designed to be a cooperative effort designed to harness the quantitative sciences "...to integrate understanding of biological systems at all levels of complexity. The integration concept was to allow scientists to attack problems that have been unapproachable before and thus to set the stage for new discoveries, products and health technologies. QB3 was the second Cal ISI to undergo its first Five-Year Academic Review. The external Review Panel consisting of nine members from academia, industry and one foundation completed its work in November 2007. Subsequently the Chancellor and Divisional Senates from the three UC participating campuses commented on the review.

I. REVIEW QUESTIONS FROM PROVOST (Appendix E)

The Review Panel was charged with examining QB3 in seven areas including: (1) the quality and scope of the science; (2) the quality and scope of the science educational programs; (3) state, national and international impacts; (4) industry partnerships; (5) multicampus collaborations; (6) Institute infrastructure; and (7) physical facilities and budget assessment. In reviewing each area the Review Panel was instructed to: i) note where the mission may have evolved relative to the original vision; ii) assess the value of what

QB3 has achieved thus far; iii) make suggestions to strengthen; and iv) evaluate the Institute's vision for the future and its capacity to get there.

The seven areas specified were comprehensive and important to the overall assessment with specific questions within each of these areas designed to elicit specific responses from the Review Panel (e.g. whether the quality or scope of the science has been improved by QB3; whether the research at the interface of the physical and biological sciences has been enhanced, whether the QB3's research activities impacted the California economy, and whether new cross-campus collaborations, grants and programs have been developed).

UCORP Comments. (1) In light of the short report filed by the external review committee in which many of these questions were not specifically addressed (including the examples above), we believe that the Review Panel either should have been instructed to specifically address each of the questions in their report, or the number and/or specificity of the questions should have been adjusted to the amount of time (especially writing) that an external review panel can be reasonably expected to invest in the review; and (2) the questions outlined in the review protocol should have included questions that required quantitative assessment of the program with specific sets of quantitative-comparative metrics.

II. FINAL REPORT OF THE ACADEMIC REVIEW PANEL

The final report of the 9-member review panel was filed in November 2007. It consisted of four pages summarizing their efforts via a teleconference in September 2007 and a 2-day meeting in October of that same year including site visits to the Berkeley and San Francisco campuses. The Final Report was laudatory in both its tone and content, noting that "the pace and quality of scientific discovery has been significantly strengthened and is on a positive trajectory" and that "the QB3 is starting to garner national and international visibility...".

UCORP Comments. The Report did not contain answers to many of the important questions laid out in the original charge by the Provost. In particular, it did not contain answers to a number of general questions (e.g. Is the current mission similar to the original vision?) or of specific ones (e.g. Has research at the interface of physical and biological sciences been enhanced?). A central theme in the recommendations concerned budgetary issues: it must be a priority, must be stable and sufficient for operations and equipment.

III. QB3 AND CONSOLIDATED JOINT RESPONSES TO FINAL REPORT

Three responses to the recommendations contained in the Final Report included the response from UCSF Chancellor Michael Bishop (Appendix I), from UC Berkeley CAPRA Chair John Ellwood (letter dated March 23, 2008) and Division Chair William Drummond (letter dated March 26, 2008), and from UCSC Division Chair Quentin Williams (letter dated April 28, 2008).

UCORP Comments. UCORP is in agreement with the budgetary concerns of the Review Panel that were reiterated by all of the respondents. We echo the sentiment expressed in the letter by UCSC Senate Chair Quentin Williams that QB3 may be in danger of what some have termed the "start-and-starve" philosophy of new UC enterprises. This issue is of critical importance in light of the current budgetary crisis.

IV. SPECIFIC UCORP RESPONSE TO REVIEW

UCORP members are in unanimous agreement with the Panel Review that QB3 is a bold and creative enterprise with the potential to position the University of California at the cutting edge of the quantitative biological sciences. Indeed, one of the most important overarching philosophical concepts of

QB3 is that the relationship between biology and the physical sciences is considered, not hierarchical, but reciprocal.

Although the general impression of UCORP members was that the review parameters were comprehensive and fair, the report was relatively short and with many of the questions from the review protocol given to the Review Panel were left unanswered. For example, the 25 'most significant' papers produced by QB3 faculty affiliates that are listed in Appendix IIA are extraordinary and represent contributions at the leading edge of a number of biological fields. However, the review did not consider whether these papers were, at least in part, an outcome of the creation of QB3 or simply the outcome of the process of selecting top faculty to be QB3 members. Thus the question is not whether the 180 faculty affiliates of QB3 collectively produce cutting edge science, but rather whether the resources invested in QB3 both increase the output of participating scientists and create an atmosphere where new types of scientific discoveries are made that would not be made without QB3 (i.e. are the papers the result of selection or from synergy?).

MAIN CONCERNS

UCORP members raised two main concerns:

1. The disconnect between the list of review questions (Appendix E) contained in the charge of the QB3 Academic Review Panel and the Final Report. Many of the most important questions were not answered, and the structure of the Final Report departed from the structure of the review questions. If writing a report which contains answers to all of the questions contained in the questionnaire is too much to ask of an external review panel (all of whom are extremely busy), then the questions should be reduced to the most important ones and the Review Panel instructed to answer all of them as completely as possible.
2. Many of the concerns raised in the report filed by former UCORP Chair and Vice Chair Wendy Max and Jose Wudka on the CalIT2 review were still present in the QB3 review, particularly that the questionnaire produced by the Review Panel should specifically require quantitative-comparative measures on the program. Thus the report should include quantitative as well as qualitative data. The budgetary impact of the diversion of funds to the QB3 program on traditional University programs should be described and documented.

Both the committee and I thank you for the opportunity to comment on this important program and process. Please do not hesitate to call on us in the future.

Sincerely,

James Carey, Chair
UCORP

cc: UCORP
Martha Winnacker, Executive Director, Systemwide Academic Senate



UNIVERSITY COMMITTEE ON PLANNING AND BUDGET (UCPB)

Patricia A. Conrad, Chair

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November 13, 2008

MARY CROUGHAN, CHAIR
ACADEMIC COUNCIL

Re: Five-Year Academic Review of the California Institute for Quantitative Biosciences (QB3)

Dear Mary,

The University Committee on Planning and Budget (UCPB) has completed its five year academic review of the California Institute for Quantitative Biosciences (QB3). Our report is attached.

Sincerely,

Patricia Conrad
UCPB Chair

cc: UCPB
Martha Winnacker, Senate Executive Director

University Committee on Planning and Budget
5-Year Review of the California Institute for Quantitative Biosciences (QB3)
November 13, 2008

The California Institute for Quantitative Biosciences (QB3) is the second of the four California Institutes for Science and Innovation (Cal ISI) to come up for formal review. In pursuit of the vision to join physical, biological, and engineering sciences, QB3 is dedicated to biotechnology, bioengineering, and quantitative biomedical research, conceived as a catalytic partnership between university research, government and foundation support, and the private sector. QB3 is organized as a collaboration between the San Francisco, Berkeley, and Santa Cruz campuses, with San Francisco acting as the host of its Institute headquarters.

QB3 was awarded \$100 million by the state towards construction costs for new facilities, and used them to help pay for the construction of impressive new buildings and other infrastructure that the state would not otherwise have funded, including Byers Hall at UCSF (\$95m, of which \$55m came from the award); Stanley Hall at UCB (\$164m, of which \$37.5m came from the award); and infrastructure and upgrades at UCSC (\$4.74m in award funds). The Institute sponsored a diverse array of research activity, and entered into significant industry partnerships.

UCPB appreciates the work carried out by the nine members of the Academic Review Panel, and also studied with care the responses to the panel's report from the respective campus Chancellors and divisional Academic Senate entities. That said, the report and its appendices raise a number of issues that bear closer scrutiny.

Operating Budget:

The Cal ISI concept requires matching funds from sources that include philanthropy and extramural entities. It was also anticipated, as the report notes, that the state would provide operating funds in a second phase of support; however, due to the general economic situation in California, this did not happen. QB3 has not yet attracted an endowment or a gift from a major foundation, but it has successfully secured competitive grants and industry partnerships. The Academic Review Panel report recommends that QB3 "must have a stable and sufficient budget for operations and equipment," and notes that actual operational funding falls short of the originally envisioned levels of \$10m annually. The three Chancellors who have oversight over QB3 counter in their response that the operating budget is now stable, though not at the level envisioned in the founding documents; 20% of funds allotted to QB3 go to the Director's office toward organization of cross-campus initiatives, while 80% go directly to the campuses.

QB3 relies on five main funding sources: extramural grants from foundations and federal agencies, industry partnerships, donor funds, campus support for salaries and discretionary funds, and operational support from UCOP. The Chancellors encourage the Director to pursue donor and industry sources to supplement cross-campus activities, but UCPB joins the Senate representatives from the individual campuses in supporting the Review Panel's request to honor the original commitment to a stable operating budget for each Cal ISI. Philanthropic donors and industry partners tend to assume operating or administrative overhead to be the Institute's (read: the University's) responsibility. As plentiful as QB3's federal grants, foundation funds, and industry ties may be, the founding act for this Cal ISI sought to enable synergistic success with a significant commitment to operating and administrative costs.

Multi-campus administration:

About 175 faculty members are involved with QB3. The Academic Review Panel report recommends giving the director's office "an additional source of seed funds to create even stronger interactions among the campuses," and also mentions postdoctoral and graduate student support in this context. The three Chancellors respond that the Executive Committee's idea to use a larger percentage of the annual budget for cross-campus collaborations is not feasible due to previous financial commitments. They add that "the majority of cross-campus seed funding, postdoctoral fellow and graduate student support will not have to come from budgets assigned to the campus directors" rather than the central QB3 director's office.

The Academic Review Panel report also recommends the use of distance meeting tools such as video conferencing and web interaction; the three Chancellors respond that implementation will be the responsibility of each campus. Yet as the report notes, neither Berkeley nor Santa Cruz have medical schools, thus QB3 relies on the San Francisco campus for clinical research. This is just one example of the possible advantages of enabling regular interaction between all faculty involved, not just the ISI leadership.

Faculty Research and Educational Program:

One of the greatest attractions of an Institute like QB3 is its significant role in recruitment and retention of excellent faculty. Here, this Cal ISI evidently excels, and UCPB commends the inclusion of detailed information regarding the significant and sustained success on that level. It documents an undeniable triumph for the University.

The research productivity of QB3 is staggering, and the industry partnerships listed are likewise substantial. What is hard to glean even among the detailed lists, however, is how much of this work would have been carried out by faculty, and supported by significant grants or awards, even without the existence of QB3. Surely that kind of data would aid meaningfully with legislative advocacy for Cal ISI funding from the state.

The Academic Review Panel report also recommends improving QB3's metrics to track positive impacts on the California economy – not limited to students and postdocs trained, or publications and grants, but specifically to track "novel products in development, companies started, products commercialized." However, the QB3 leadership is understandably resistant to demands for detailed metrics that require dedicated staff, since the campus directors and the QB3 director are not assured of stable operating and administrative budgets.

Research efficiency:

The Academic Review Panel report recommends an integrated grant writing infrastructure in the QB3 directorate. However, the three Chancellors respond that Berkeley and Santa Cruz already have integrated grant writing offices, and UCSF hopes to emulate their structure. UCPB notes that each campus operates with a different administrative infrastructure for QB3. At Berkeley, QB3 is set up like a fully-fledged department, not holding FTE but able to receive and administer grants and thus indirect cost recovery flow. As long as QB3 remains successful in pursuit of large-scale grants, this will benefit its grants infrastructure, but coordination with the Institute may be no less complicated for it. At UCSC, QB3 is administered as part of a Center for Biomolecular Science and Engineering, sharing staff in support of grants management. At UCSF, QB3 is neither an independent entity nor does it benefit from shared staff of a Center; contract and grant support flows through home departments. Thus, looking at QB3 as a whole, it

is unclear whether the Cal ISI model has accelerated research beyond what the University or industry could have done with conventional sponsorships and alliances.

Governance and Leadership:

The Academic Review Panel report recommends securing continued strong leadership by providing robust operating funds and administrative support. The Chancellors respond that times are not what they were when the Cal ISI idea was hatched, and add that in their view cross-campus administration is not efficient and responsive enough. They concur that succession is a major issue and concede that the Director's position may not be very attractive to candidates at present. One possible reason their response observes, aside from financial constraints, is that governance issues remain to be worked out between the QB3 Director, the three campus directors, and the Executive Committee. The Academic Review Panel report recommends expanding the Executive Committee to include the VC for Research from each campus. However, the three Chancellors point out that the committee was reduced after the review, and recommend again that QB3 governance remains to be clarified further.

Conclusions:

Both the Academic Review Panel report and the data provided by QB3 demonstrate nothing short of outstanding delivery on the promise of synergistic, multi-campus research and teaching in conjunction with private industry and grant-giving bodies. There surely is a lot to be impressed with here, but UCPB joins the report in warning that the Cal ISI idea's viability and continued success will depend primarily on the continued significant demonstrated commitment to an efficient and stable operating and administrative environment as vouchsafed by the University.

In addition, it appears that the feedback solicited by Academic Senate Chair Michael Brown from the President's Board on Science and Innovation has not yet been added to the information presented. UCPB would appreciate the chance to incorporate that feedback.

Writing as Chair of the Academic Senate at UCSC, Quentin Williams raises the useful observation that "both ownership and improved strategies" of legislative advocacy need to be developed by and on behalf of QB3, and UCPB agrees. This should be further addressed as part of the resolution of remaining QB3 governance issues between the three campus entities, the QB3 director, and UCOP.