Collaborative University Biomedical Education Network (CUBENET)

**Description of discipline network**

As we move into the new century, the National Committee for Biomedical Sciences has identified an urgent need for greater coordination and communication across teaching and learning in this area. This could be achieved through formation of a collaborative leadership network which could provide a communication platform to (i) provide the critical mass needed to identify, address and solve the central challenges that face us in delivering a forward looking and sustainable curriculum and (ii) to maximize the efficiency of development, dissemination and adoption of innovative curriculum. *In a complex tertiary environment, such a network is critical to aggregate, filter and connect ideas and information with the appropriate teams of people to achieve effective, transferrable and sustainable solutions.* To this effect the Committee has already commissioned a National Forum to be held in December 2010 (see Attachment 1).

The overall aim is to generate a critical mass of active tertiary biomedical academics at the national level to provide a sustainable framework for a program-wide approach to the biomedical curriculum that can harvest expertise across the university science sector.

**Name of the applicant and eligible higher education institution and list of other discipline bodies or networks represented by the applicant**

The application is from the National Committee for Biomedical Sciences of the Australian Academy of Sciences with RMIT University acting as the eligible higher education institution partner on behalf of the other participating universities. The proposal represents the interests of the 13 national societies that make up the National Committee on Biomedical Sciences and XX Universities. In addition, the proposal has the support of the Quantitative Skills in Science network, the biotechnology sector and the Biologies collaborative network.

**Proposal aim, its significance to the discipline nationally and dissemination outcomes**

Biomedical sciences underpin our understanding of health and disease. Together with biology and biotechnology, these disciplines cover the life sciences, with each providing a unique focus. Importantly these three “disciplines” share much in common in the initial years of tertiary education and draw heavily on the enabling sciences (maths, physics and chemistry). Innovations in one area of the life sciences will be useful and transferrable to others.

New directions for the life sciences curricula into the 21C are well articulated in a recent report “Vision and Change in Undergraduate Biology Education: a Call to Action” from the American Association for the Advancement of Science. Four action items were identified as the agenda for change: (1) integrate core concepts and competencies throughout the curriculum (2) focus on student-centered learning (3) promote a commitment to change (4) engage the biology community in the implementation of change (ref). This is echoed in the report from the Australian Council of Deans of Science which more specifically identified the need for new approaches for teaching generic skills and the delivery of laboratory classes and that this required leadership at the national level (ref). Similarly, a report on learning and teaching of biotechnology in Australia identified two themes contributing to success (i) recognition that biotechnology is interdisciplinary and (ii) the need for strong leadership in design, development and administration of programs, given the rapidly changing technological environment facing the field (ref). These reports clearly emphasize the need to convene a discipline-based yet outwardly looking collaborative network for learning and teaching in the biomedical sciences.

The need for a unity of purpose and outcomes in learning and teaching in the biomedical sciences has been recognized by the National Committee for Biomedical Sciences. Despite the numerous excellent initiatives from societies, institutions and other groups, teaching and learning in biomedical sciences remains somewhat fragmented and lacking in integration and cooperation at the program level. Currently much biomedical science teaching is constrained within disciplinary silos. This situation is partly historical, partly administration/funding driven and partly due to the compartmentalization of the curriculum (often reinforced by “service teaching” requirements). A program-wide approach to the development and delivery of an integrated and flexible biomedical curriculum is critical to ensure the
success of our students. To achieve this requires **first** that there is some unity of purpose within the "discipline" itself and **second** that enablers are put in place to allow productive exchange with other groups who can enrich the "discipline". The aim of this proposal is to establish a collaborative network driven by those academics who are directly involved in the learning and teaching of biomedical sciences and to provide a framework that facilitates ready interaction between the biomedical sciences and other national networks involved in science education.

To achieve this aim, it will be essential to facilitate links across disciplinary and departmental silos. It is widely accepted that change is initiated by those individuals who can transgress the silo-walls (the "boundary-crossers") to establish new links. These links will include others outside the traditional walls of the biomedical fortress (eg chemistry/physics/maths). The structure of the collaborative network proposed here is key to its success. It is driven from the "top" by that National Committee that sits across the biomedical societies and outside conventional intra- and inter-institutional boundaries. But the network is also just as powerfully driven from "bottom", the learning and teaching coalface because it is populated by academics actively involved in teaching and who are also members of the relevant societies. This ensures that the agenda is driven by the needs of those at the coalface and ensures maximum efficiency of development, exposure and dissemination of the new learning and teaching strategies that will be central to improving the curriculum. In addition, it is intended that the Collaborative University Biomedical Education Network will, by virtue of its constituents, associations and outputs, be in a position to contribute to policy formulation at the government level. This is critical in ensuring appropriate resources are leveraged to grow the quality of tertiary education in the biomedical sciences.

The most prominent dissemination tools will be the website and newsletter but the Network will also run workshops and the National Forum. The website will be updated on a weekly basis and feature social network tools such as Twitter, Facebook. It will be a “one-stop-shop” for current activities in learning and teaching in biomedical sciences, featuring progress updates from the themed working parties, a “10 must read papers” listing, “hot off the press reports” a “what's on” as well as providing the central point for organizing lecture tours by visiting academics and strategic funding opportunities, jobs etc. Through our exiting collaboration with the UQ Centre for Educational Innovation and Technology we will innovative on-line tools to allow efficient dialogue and sharing between the leaders and working parties. The website will also have direct links to the individual societies, participating institutions and collaborating networks from other disciplines thereby ensuring maximum visibility to the broader sector. The monthly newsletter will distill the highlights from the website as well as featuring invited articles from both inside and outside the network. Standard metrics around website usage, visits, downloads will collected for evaluation.

In order to maximize dissemination and to inform activities into the following year, we propose that the Collaborative University Biomedical Education Network hold a joint national forum with the Biology Network and the Quantitative Skills in Life Sciences group who are already planning symposia to present the findings of their ALTC project in Dec 2012. This will be a 3 day session that will feature discipline-based and collaborative presentations and activities to investigate joint strategic priorities into 2013.

**Key implementation phases, with deliverables and timeline**

**Phase 1** (Dec 2011- Feb 2012)
- National Biomedical Education Forum in Canberra (see attachment 1).
- Conference report and proceedings (distributed to members, societies, Academy)

**Phase 2** (Mar-Nov 2012)
- Establishment of website
- Working parties to plan workshop around strategic priorities identified at Forum
- Workshop and interim report on priorities (July)
- Leadership retreat to develop leadership capacity and develop links

**Phase 3** (Dec 2012)
- Joint Forum/Symposia to summarise progress, plan activities in 2013 as well as exploring collaborative options with other network groups, proceedings published.
Phase 4 (Jan–Nov 2013) Workshop as per Phase 2 with new priorities
Phase 5 (Dec 2013) National Forum to assess project and plan ongoing phase

Outline of the management of the project, including oversight, processes and structures
The network will act as a collective representing the interests and needs of institutions at the individual, state and national levels. The project managers will be Ian Dawes and Philip Poronnik acting in conjunction with a small leadership group, based on the current organizing committee for the National Forum. The leadership group will provide vision and strategy and help to resource the working parties. The working parties, identified from the Forum, will address key strategic issues by assessing examples of effective practice already available, both locally and internationally. To achieve these goals, the working parties will co-opt expertise from other collaborative networks such as the new Biology Collaborative Network, the quantitative skills in life sciences (QS+) group, the Australian Network of Science Educators etc. It is also the intention that the national network will act to catalyse and energise local networks/communities at the state and institutional levels (eg BUNSE in Qld).

PP will directly supervise the project administrator, whose main tasks will include maintaining the website (including contact with academics to solicit content), producing the newsletter and providing support for workshop organization. The planning group (ID, PP, SH, JM, YH) will have regular monthly meetings online/phone or in person, and will draw in other academics with relevant expertise for particular aspects of the project.

Qualifications and experience of applicants and proposed allocation of roles
Planning group: Philip Poronnik, Ian Dawes, Susan Howitt, Janet Macaulay – all of whom currently have significant leadership roles in biomedical education at institutional, society, national and international levels.

Professor Ian Dawes (FAA) Chair of the National Committee for Biomedical Sciences, Scientia Professor, School of Biotechnology and Biomolecular Sciences UNSW, President-elect, Australian Society for Biochemistry and Molecular Biology (2008).

Professor Philip Poronnik Co-opted Member of the National Committee for Biomedical Sciences, Deputy Head of School Learning and Teaching, School of Medical Sciences RMIT, ALTC Associate Fellow, Honorary Secretary Australian and New Zealand Association for the Advancement of Science (ANZAAS), Research Professor, Centre for Educational Technology and Innovation UQ, Member of the Education Commission for International Union of Physiological Sciences, Education Special Interest Group member Australian Physiological Society

A/Prof Susan Howitt Deputy Head, Biology Teaching and Learning, ANU; Former chair of ASBMB Education Group

Dr Janet Macaulay Senior Lecturer (Education focused) Dept Biochemistry and Molecular Biology, School of Biomedical Sciences, Monash University Current chair of ASBMB Education Group.

Dr Yvonne Hodgson Senior Lecturer (Education focused) Manager of Academic Programs & Quality. Convenor of Bachelor of Biomedical Science, Dept of Physiology, Monash University

Evidence of institutional support
We have very strong institutional support for this project across the sector. This includes the Australian Academy of Sciences who will provide ongoing strategic administrative assistance (eg hosting the website; help with Forum organization). RMIT University will act as the host institution. Funding has already been secured for the 2011 Forum through the Academy and partner Institutions and Societies. Letters of Institutional support have been obtained from 13 universities as well as other disciplinary networks including the biology, biotechnology and QS networks (see Attachments).

Funding amount requested (excluding GST) and budget (e.g., personnel and activities)

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<tr>
<th>Description</th>
<th>Amount</th>
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<tr>
<td>Project administrator, 0.1FTE @ RMIT Officer, level 5</td>
<td>$15,000</td>
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<tr>
<td>Support towards Forum costs (2012, 2013)</td>
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<td>Support for QS symposium at 2012 Forum</td>
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<td>Publication and web development costs</td>
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<td>Workshops (subsidized travel, accom, catering as necessary)</td>
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<td>Leadership retreat (subsidized travel, catering, accom as necessary)</td>
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