

**University College Cork  
National University of Ireland, Cork**

**Quality Improvement/Quality Assurance**

**Peer Review Group Report**

**Department of Biochemistry**

**Academic Year 2004/05**

**Confidential**

**3<sup>rd</sup> May 2005**

## **MEMBERS OF THE PEER REVIEW GROUP:**

Professor Jeremy Glennon, Department of Chemistry, UCC (Chair)

Professor Tom Cross, Department of Zoology, Ecology & Plant Sciences, UCC

Professor David Croke, Department of Biochemistry, Royal College of Surgeons,  
Dublin, Ireland

Professor John Coggins, Dean of Faculty of Biomedical & Life Sciences, University  
of Glasgow, Scotland

## **PEER REVIEW**

### **Timetable of the site visit**

The timetable is attached as Appendix A.

The review group found the timetable to be adequate and comprehensive, including meetings with the staff and students of the Department of Biochemistry, with representatives of postdoctoral researchers and consultations with a range of central administration staff relevant to departmental activities and with Officers of the University. During the visit the Peer Review Group (PRG) held a conference call with the Vice-President for Planning, Communications & Development. The Dean of the Faculty of Medicine & Health, Professor Michael Murphy, was unavailable to meet with the PRG during the site visit due to his unavoidable absence from UCC on University business. Professor Murphy met with Professors Glennon and Cross subsequent to the review. There was adequate time for preparation of the exit presentation and the first draft of the report.

### **Methodology**

The PRG operated as a single group throughout the review visit. Interviews and visits were conducted as in the attached timetable.

### **Site Visit**

The facilities at both locations were visited. Two 30 min tours were conducted and this was adequate to see the facilities. The Site visits were facilitated by provision of a room from the department where all meetings were held. As part of the site visit the reviewers also visited the undergraduate laboratories.

## **Peer Review Group Report**

Sections of the PRG Report were drafted by individual members and the drafts were edited by the group to achieve consensus. A complete draft was prepared during the site visit and the final draft was agreed via email communications.

## **OVERALL ANALYSIS**

### **Self-Assessment Report**

The reviewers were impressed by the documents presented by the Department, complimenting, in particular, the Self-Assessment Report (SAR) and would like to thank the members of the department for their efforts both in preparation for and during the review. The documentation presented was very comprehensive, thoroughly prepared and included a detailed SWOT analysis and benchmarking statement.

### **Overall Analysis**

It was immediately obvious that the department has an excellent research ethos and is particularly strong in its publication record. Everything the PRG found and observed was consistent with the maintenance of international world-class research by the department as per the Forfás report on research in Ireland in areas of Biotechnology and Information and Communication Technologies<sup>1</sup>.

The reviewers were of the opinion that the research of this department is top class with a ranking in the international scale. The reviewers were of the opinion that the department, if ranked in the UK RAE system, would merit a 5/5\* ranking. This excellence has been achieved under difficult circumstances in some cases with relatively poor infrastructure and inadequate laboratory facilities. A significant amount of the activities of the dept is conducted in poor quality space (laboratories and offices).

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<sup>1</sup> *Baseline Assessment of the Public Research System in Ireland in the areas of Biotechnology and Information and Communication Technologies* conducted by Technopolis on behalf of Forfás and published in 2003.

The reviewers were very impressed with the postdoctoral researchers, considering them to be internationally competitive and very dedicated/committed. The PRG were also impressed with the enthusiasm and quality of both the biochemistry undergraduate and post-graduate students.

The standards maintained in teaching, including practical teaching, of science undergraduates were very high.

The teaching was generally highly rated by the undergraduates with just a few minor criticisms with respect to organisation. The person responsible for the organization of the undergraduate labs was outstanding.

### **SWOT Analysis**

The PRG broadly agreed with the SWOT analysis presented by the Department in the SAR and highlighted here:

#### ***Strengths***

1. The Department is a world-class research Department as evidenced by the high level of grant support, the excellent record of publication in leading international journals and the Technopolis Report (2003).
2. The quality of teaching in science is very high and the students, especially the biochemistry students, are enthusiastic about all aspects of teaching..
3. Student demand for the wide range of courses offered by the Biochemistry Department is very high.
4. The staff are dedicated, hardworking and efficient.
5. The Department continually strives for excellence in research and teaching.

#### ***Weaknesses***

1. The recent lack of unity and cohesion which has arisen from the physical two-site-location and the lack of sufficient high quality research space to accommodate all the research groups in the Department.
2. The poor and limited teaching space due to the increasing pressure of high and ever increasing student numbers.

3. Insufficient collegiality among the active and highly focussed researchers who need to offer more direct support to the Head of Department by undertaking a greater share of the administrative load and assisting him in developing a coherent strategic plan for the Department, and presenting this with clarity to Faculty and University Management. This was particularly true of some of the staff located within the BSI.
4. The staff student ratio is very high leading, in many cases, to excessive individual workloads. The willingness of the Department staff to extend themselves, while laudable, and effective up to now, is not sustainable and thus does not constitute a long-term strength.

In addition the PRG noted the following:

The Department has not positioned itself to form synergies across the university or to forge more extensive research linkages across Departments and Faculties (Science and Medicine and Health).

There was no strategic plan for future research and teaching developments. In particular, the reviewers were of the opinion that the Department should identify high profile and emerging areas of Biochemistry where future academic appointments and infrastructure investment would be desirable so that UCC Biochemistry can retain its position at the forefront of Irish national programmes in the biomedical and biomolecular sciences.

### ***Opportunities***

1. Biochemistry is a growth area particularly with the new second level Biology syllabus.
2. The subject now underpins all aspects of Biological Sciences
3. Funding opportunities both internationally and nationally, particularly via SFI, are at unprecedented levels, and can be maximised through cross-disciplinary collaboration and partnership both within and outside the University.

### ***Threats***

1. The potential loss of space in Lee Maltings and the absence of a definite plan to relocate the Department's Head Quarters, Teaching Laboratories and research space for the staff still located in Lee Maltings
2. The fact that senior officials in the university have not been made fully aware of the merits of the Department and of its specific needs for space on the Western Campus adjacent to the BSI so that the unity of the Department can be restored as soon as possible.
3. The failure of the Department to engage with the Dean of Science and University Management to develop a strategic plan for the Department that resonates with and reinforces the University's long term plans.

### **Benchmarking**

The PRG commended the Department for the benchmarking exercise, which was both comprehensive and thorough. The PRG considered that comparable local, national and international examples of institutions were well chosen.

## **FINDINGS OF THE PEER REVIEW GROUP**

### **Department Details**

The Department of Biochemistry is a vibrant teaching and research entity, a core discipline of biological and medical sciences. Its main location is in the off-campus Lee Maltings, housing the administrative centre and undergraduate teaching laboratories and some research facilities. Half of the academic researchers are located in newer laboratories in the BSI building. Teaching and research quality is excellent as indicated by the Technopolis report (2003). The staff are dedicated loyal, talented and enthusiastic at all levels of their activities. The excellent teaching quality is evidenced from response to student questionnaires but more so in the attitude and enthusiasm of students from 1<sup>st</sup> year to postdoctoral levels.

Good micromanagement of the Department by the current Head of Department ably supported by academic, technical and administrative staff is clearly a strength of the current organisation. All the staff are fully engaged in their appropriate teaching and research activities despite a poor staff to student ratio and outdated/limited physical facilities in their Lee Maltings home. More than half the research staff have facilities

located in the BSI building which greatly enhances the quality of the working space but results in a physical separation of about 1 – 2 km between the two Departmental locations. This separation combined with the possible future redeployment of Lee Maltings space for the new Tyndall Institute is leading to uncertainty and low morale in the Department. This situation must be resolved quickly with a solution being the relocation of the administrative headquarters, the teaching laboratories and research space at Lee Maltings to the main campus preferably in space near to the BSI Building.

The PRG recognised and acknowledged the poor facilities in the Lee Maltings and the safety concerns of operations in the Lee Maltings site.

### **Department Organisation & Planning**

Existing management structure entails a BASC and DOMG. The latter has representatives of all categories of staff including researchers and is responsible for Departmental operations. The HOD is the major decision maker for the Department consulting through the BASC with his academic team. The HOD role is made more difficult by the lack of senior management and technical staff to whom delegation of actions could be made and by the bilocation of his department. The Department is heavily committed to a number of important degree programmes: Biochemistry, Biomedical Sciences, Genetics, Medicine, Dentistry, Pharmacy, Nursing, taught MSc in Biotechnology. All of these are organised and delivered at the highest level. Day to day planning is effective but there is an urgent need for a strategic plan mainly with respect to relocation and future research partnerships and courses.

### **Teaching & Learning**

The Department teaches a wide portfolio of courses extending from specialist courses for honours biochemists to service courses for first and second year science students and medical, dental and health science students. The teaching given to science students is extremely well received and the enthusiasm of the third and fourth year students of biochemistry for their course was especially noteworthy. It emerged that the science teaching is considered by the students to be highly relevant and that the vast majority of the lectures and practical teaching are delivered to a very high standard. Although the teaching laboratory accommodation is rather old fashioned it

was very clear that the practical teaching is given a very high priority by the Department and that the Undergraduate Laboratory Coordinator and the technicians ensure that the laboratory classes are run with great efficiency.

There was some student criticism of the modules presented to the medical students particularly in terms of the “relevance” to medicine and the perception by some of the students that the staff involved in teaching them regarded this service teaching as a relatively low priority; however the PRG was not presented with sufficient evidence to determine how widely these views were held. Interestingly when the PRG visited one of the medical practical classes the experiment in progress was a modern human biochemical genetics practical of direct current medical relevance.

The staff student ratio in the Department is very high especially for a Department that has a heavy practical teaching load. It was therefore very encouraging to learn that the Department manages to deliver a challenging and wide ranging portfolio of final year projects even though each staff member has to supervise 4 or 5 projects each. The PRG received very positive comments from the Final Year students on their experience with their projects.

The PRG also met with a group of PhD students and it was impressed with the quality of the students. The students had some concerns about the time to complete a PhD, which was typically at least four years and sometimes longer, and their view was that stipend funding should be available for up to four years. There was also a lack of clarity in what was expected of PhD students in terms of annual reports and the roles of second supervisors. Generally the students were very happy with the funding and equipment available to them for their project work. Most of them had also had the opportunity to attend at least one international meeting.

### **Research & Scholarly Activity**

The Peer Review Group have examined the information contained in the SAR and the annexes regarding the research profile of the Department. The Department’s reputation for internationally competitive research of the highest quality is borne out by what was seen. The academic staff, postdoctoral fellows and graduate students in the Department are to be complimented for their sustained and significant efforts. The PRG feels that the university should more clearly recognise the value of the



Department's research, its contribution to the University's scholarly reputation and, through research funds gained, to the University's infrastructure. The PRG agrees with the major strengths identified in the SAR, particularly the level of commitment and the productivity of the research staff. The Group further endorses the major weaknesses identified, particularly the difficulties posed by the situation of academic staff on two separate sites. Examining the recommendations made in the SAR, the PRG supports the call for clarity on the question of provision of new space and/or future location for the Department. The current situation has a corrosive effect on staff morale and must be addressed urgently. The PRG urges the Department to attempt to identify creative solutions to the space problem for presentation to the University. The PRG further supports the recommendation that the Department improve its approach and communication with the BSI, in order to take greater advantage of the opportunities presented. The PRG recognises the difficulties for research posed by the unfavourable staff:student ratio; it recommends that, while planning for additional appointments on tenure track, the Department should develop a strategy for developing and enhancing its research capabilities and UCC collaborations through the appointment of additional SFI investigators.

### **Staff Development**

The staff of the department are committed to and fully engaged in the Department's research and teaching activities. For the most part, few overt gaps in staff development were identified to the PRG other than perhaps deficient promotional opportunities. A number of academic staff members pointed out that there have been no promotions beyond the rank of senior lecturer in the Biochemistry Department in recent years, despite the fact that the majority of staff are actively publishing research papers of the highest quality; this is in contrast to a number of cognate departments where such promotions have been granted. The annexes to the SAR furnished some evidence that support staff of the department have similar views. For the administrative staff, the flat reporting structure minimises promotional opportunities and the absence of a departmental administrator position precludes promotion to higher administrative grades within the university. A number of the technical staff expressed their wish for opportunities to up-skill and to broaden their responsibilities. The PRG suggests that, in developing a revised strategic plan, the department should put in place a mentoring system to assist academic staff wishing to apply for

promotion. It should also undertake a training needs analysis for the technical staff and should engage in discussions as to how their roles might be enhanced. As part of this process, the Department should engage in negotiations with the University to secure the creation of Senior and Chief Technician grades to provide meaningful promotional opportunities for its existing technical staff. The appointment of a Departmental Administrator, as recommended in the SAR, will help address the needs of administrative staff for promotion opportunities and considerably assist the HOD and thereby allow him to devote more time to his own personal research.

### **External Relations**

The Biochemistry Department collaborates in its research and teaching with units and departments within the university and outside. It plays a key role in offering undergraduate and postgraduate (MSc) degree courses in conjunction with other UCC academic departments and with the Cork Institute of Technology. The PRG commends this collaborative approach which facilitates innovation and allows the University to offer a spectrum of degree courses relevant to current employment trends. In research members of academic staff collaborate with other UCC departments (for example, Microbiology) and with Universities and research institutes in Europe and the US. The success of this strategy is reflected in the wide authorship of publications from the Department. To ensure the future success of the Department and to maximise the possibility of winning increasing levels of funding support for the University, the PRG suggests that the Department should consider mechanisms by which it can forge more extensive research linkages across Departments and Faculties within UCC. Given the fundamental role of biochemistry in modern biological and biomedical research, there are undoubtedly many opportunities for the Department to form synergies across the university and, through its research excellence, to leverage significant enhancement in research standards and output across the Faculties of Science and Medicine and Health. One such mechanism is the creation of joint “clinician-scientist” appointments between Biochemistry and cognate clinical departments, perhaps funded by SFI investigator programme grants. Such an individual could assume a key role in the development of the teaching of medical and dental and health students.

## **Support Services**

The Biochemistry Department is well served by its support staff, both technical and administrative. As noted previously, the teaching load of the Department is high and includes a significant proportion of practical classes. That these classes work efficiently and are highly rated by students is testament to the role played by the academic and technical staff. The administrative workload is similarly high and is carried efficiently by a small staff. In parallel with these strengths the PRG agrees with the weaknesses identified in the SAR, specifically the flat management structure of the department and the two-site location of staff. The PRG endorses the recommendation that the post of Departmental Manager be created. Such a post would facilitate the coordination of teaching programmes and would allow the Head of Department to delegate many of the action points arising from meetings of departmental committees. Again the PRG would encourage the Department to attempt to identify solutions to its current space problems; sustaining teaching and research activities on the BSI and Lee Maltings sites unnecessarily complicates departmental administration and technical support functions.

## **Departmental Co-ordinating Committee & Methodology employed in the preparation of the Self-Assessment Report**

The Committee worked effectively to produce a comprehensive and useful Self-Assessment Report.

## **RECOMMENDATIONS FOR IMPROVEMENT**

### **Recommendations for improvement made by the Department**

1. Relocation of the activities currently being carried on at the Lee Maltings site to Western part of campus in close proximity to other science departments is of the highest priority.
2. Changes in management structure and leadership style would overcome some of the weaknesses identified by PRG.
3. A new member of staff with a specific role for the co-ordination and management of teaching would help to address the poor staff:student ratio.

4. The appointment of a Departmental Manager would greatly assist the Head of Department and ensure the smooth running of the department; it would also allow the Head of Department to devote more time to research and make the task of the next Head of Department more bearable.
5. Hiring new technical and support staff to underpin research and especially research infrastructure would enormously benefit research in the Department.
6. The long-awaited review of the technical career structure in the university should be finalised.
7. The PRG supports the Department's recommendation that the existing RAM should be based on a transparent model.

#### **Recommendations for improvement made by the Peer Review Group**

1. The department should develop a strategic plan for the next five to ten years.
2. The split site and the uncertainties on how this can be resolved should be addressed urgently by both the Department and University Management.
3. Efforts should be made to improve the poor staff:student ratio, for example by the appointment of a full-time member of staff focussed on teaching. The lack of appropriate technical support for research activities should be addressed.
4. The Department must consider how it can improve its effective representation on university committees so that its needs are properly communicated to the Faculties, BSI and University Management to ensure that the above issues are properly addressed.

**Timetable for conduct of Peer Review Visit**

**Department of Biochemistry**

***Monday 14<sup>th</sup> March 2005***

- 17.30 Meeting of members of the Peer Review Group  
Briefing by Director of Quality Promotion Unit, Dr. N. Ryan.  
Group agrees final work schedule and assignment of tasks for the following 2 days.  
Views are exchanged and areas to be clarified or explored are identified.
- 19.30 Dinner for members of the Peer Review Group and Head of Department and Departmental Co-ordinating Committee.

***Tuesday 15<sup>th</sup> March 2005***

- 08.00 Convening of Peer Review Group in Room 3.11, Biosciences Institute  
All meetings in Room 3.11 unless otherwise indicated
- 08.30 Professor Fergus Shanahan, Director, Biosciences Institute.
- Consideration of Self-Assessment Report
- 09.00 Professor Tommie McCarthy, Head of Department
- 09.30 Meeting with all members of the Department  
Venue: Room 1.13, BioSciences Institute
- 10.30 Tea/Coffee
- 10.45 Meetings with members of staff.
- 10.45 Dr. Charlie Spillane  
11.00 Dr. Tom Moore  
11.15 Mrs. Labouré Kelleher  
11.30 Dr. Dave Sheehan  
11.45 Dr. Dmitri Papkovsky  
12.00 Ms. Mary Murphy  
12.15 Mr. Pat Allen  
12.30 Dr. Mary McCaffrey  
12.45 Ms. Hattie O'Sullivan
- 13.00 Working private lunch for members of Peer Review Group
- 14.00 Visit to core facilities of Department in BioSciences Institute escorted by Dr. Tom Moore

Meetings with representative selections of students

- 14.30 1<sup>st</sup>/2<sup>nd</sup> Year Undergraduate students  
 Heather Skinner, 1<sup>st</sup> Science (Nutrition)  
 Una Casey, 2<sup>nd</sup> Science  
 Yvonne Blackburn, 2<sup>nd</sup> Pharmacy
- 15.00 3<sup>rd</sup>/4<sup>th</sup> Year Undergraduate students  
 Owen Grey Parks, 3<sup>rd</sup> Biochemistry  
 Eoin O'Shea, 3<sup>rd</sup> Biomedical Science  
 Martin O'Neill, 4<sup>th</sup> Biochemistry  
 Maeve McGrath, 4<sup>th</sup> Biomedical Science
- 15.30 Postgraduate students  
 Declan McKernan - 1<sup>st</sup> year MSc  
 Nollaig Healy - PhD student  
 Ray Tyther- PhD student  
 Suzy Floyd - PhD student  
 Violetta Gomez - PhD student  
 Conor Horgan
- 16.00 Postdoctoral researchers  
 Dr. Paul O'Sullivan, Photobiochemistry  
 Dr. Melanie Ball, Developmental Genetics  
 Dr. Maryanne Donovan, Tumour Biology  
 Dr. Andy McLellan, Developmental Genetics  
 Dr. Pat Kiely, Cell Biology  
 Dr. Oliver Garnier, works with Dr. Charlie Spillane  
 Dr. Alexander Zhdanov
- 16.30 Consideration of issues by PRG
- 17.00 Meetings with representative selections of recent graduates, employers and other stakeholders as appropriate  
 Venue: Staff Common Room  
 Mr. Richard Dring, Technical Manager, Quest International Ireland  
 Dr. Finbarr Murphy, Eirx Therapeutics Ltd.  
 Mr. Michael Owens, Environmental Protection Agency
- 19.00 Meeting of Peer Review Group to identify remaining aspects to be clarified and to finalise tasks for the following day followed by a working private dinner for members for the Peer Review Group.  
 Venue: Suite 1, Business Centre, Kingsley Hotel, Cork

***Wednesday 16<sup>th</sup> March 2005***

- 08.30 Convening of Peer Review Group in Conference Room, Lee Maltings
- 09.00 Professor Áine Hyland, Vice-President, Acting Vice-President for Academic Affairs and Acting Vice-President for Research Policy & Support

- 09.30 Ms. Una Ni Chonghaile, Subject Librarian
- 10.00 Tour of facilities in Lee Maltings escorted by Professor Tommie McCarthy
- 10.30 Professor Tom Cotter, Professor of Biochemistry
- 11.00 Tea/coffee
- 11.15 Ms. Carmel Cotter, Finance Office
- 11.30 Professor Paul Giller, Dean of Science Faculty
- 12.00 Mr. Michael O’Sullivan, Vice-President for Planning, Communications & Development
- Conference call. Venue: Dr. Papkovsky’s office, Lee Maltings
- 12.30 Professor Tommie McCarthy, Head of Department
- 13.00 Working private lunch for members of the Peer Review Group
- 14.00 Preparation of first draft of final report
- 15.00 Visit to undergraduate laboratories escorted by Ms. Labouré Kelleher
- 15.15 Continuation of preparation of first draft of final report
- 17.00 Exit presentation made to all staff of the Unit by Professor J. Coggins, summarising the principal findings of the Peer Review Group.
- The presentation is not for discussion at this time.
- Venue: Lee Maltings 1
- 19.00 Working private dinner for members of the Peer Review Group to complete drafting of report and finalisation of arrangements for speedy completion and submission of final report.

***Thursday 17<sup>th</sup> March 2005***

Externs depart

***Tuesday 22<sup>nd</sup> March 2005***

- 13.15 Meeting between Professor Glennon, Professor Cross and Professor Michael Murphy, Dean of Faculty of Medicine & Health

Venue: Dean’s Office, Faculty of Medicine & Health, 4 Elderwood, College Road.

*This meeting has been provisionally scheduled in the event that there are questions to be asked of the Dean of Medicine & Health. The Dean is away on University business for the week of the review visit.*