



Welcome to the 19th edition of CITER News.

Via this publication we aim to update you on the activities of CITER's working committees and inform you about any tissue engineering and repair related stories. CITER News also gives you the opportunity to tell other people working in the tissue engineering community of events, stories, research publications, grant opportunities and awards.

EXECUTIVE BOARD NEWS

Chairman's Comments

Welcome to the 19th edition of CITER News as we prepare to celebrate 10 years as a network. CITER continues to provide an excellent facility for researchers across Cardiff University who are interested in all aspects of Tissue Engineering and Repair to meet, discuss their research – both current and aspirational, link clinical need to appropriate basic research questions and work together to disseminate development in this area. Highlights of all of these areas are covered in the Newsletter – and if you have any questions, want to find out more and/or simply join our network then please do not hesitate to get in touch.

We have held an annual conference in early September for 9 years – and the conference in September 2010 (held in Eastwood Park) was a particular highlight as it was a joint initiative with the Arthritis Research (UK) Biomechanics and Bioengineering Centre [AR(UK)BBC]. We had 2 days of presentations ranging from consultant orthopaedic surgeons to first year PhD students, and covering topics as diverse as biomechanics to dental implants with a touch of bio-chemistry, stem cells

and microbiology along the way. A more detailed report is given below.

This year – in a spirit of widening the appeal of our ASM, we will again hold the event in collaboration with AR(UK)BBC but also widen participation to those working at the Universities of Bath, Bristol and Swansea – so put the dates in your diary as this year we will be holding the ASM in Wills Hall, University of Bristol on **12th and 13th September 2011**.



Professor Price giving the welcome address at the 2010 ASM.

Staffing at CITER

Although there have been many good things about 2010-11 academic year, other things have not been so good. One of our great disappointments is that Sarah Hatch has not been able to return to her role as CITER Manager following her maternity leave: although Sarah has returned to work at Cardiff University, she has done so on a 60% wte contract which meant that it was difficult to cover her work with CITER as well as her role with Innovation and

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Engagement in the School of Medicine – and in the end, MEDIC won her heart! I know that you will want to join me in thanking her for all the hard work she put in over many years with CITER – we will all miss her winning smile and her ability to turn her hand to anything!

In addition, the success of AR(UK)BBC has meant that Jane Graves (who always had a split role across CITER and AR(UK)BBC) has moved to work full time for AR(UK)BBC. It is a sign of the success of the centre that Jane is needed full time at AR(UK)BBC – and had always been the plan. It is just unfortunate for us that the timing has worked out in such a way that we miss out on 2 exceptional people. Again, I would publicly want to thank Jane for filling in whilst Sarah was on maternity leave (talk about stepping into the breach!) – as she has worked way above the call of duty, sometimes in areas that she had not tackled before. Thank-you Jane – especially for keeping us on the straight and narrow!

We wish both of them every success in their new posts – and we are especially thankful to Vic Duance for allowing Jane to help out with the AGM, whilst we try to replace the ir-replacable!

RESEARCH COMMITTEE NEWS

Nick Allen

The research committee has continued to provide one of the most successful platforms for promoting interdisciplinary research and collaboration in the University. The established research network has allowed rapid responses to be made to calls such as the successful EPSRC Stem Cell Technologies Bid. A bid by CITER was made to become one of the three new University Research Institutes, however despite this being unsuccessful, the role and success of CITER in promoting interdisciplinary research across the University was highly commended.

A major activity of the research committee is to engage with members throughout the year by organising topic or theme-based workshops, and to raise sponsorship and organise the 2-day annual general meeting. The 2010 AGM was successfully held at Eastwood Park, Gloucestershire, and as always provided an excellent opportunity for networking with excellent science presentations.

To increase CITER's visibility and its impact both within and outside of the University we have this year taken the decision to change the ASM from being a closed meeting to being an open meeting.

To achieve this and to extend CITER's ethos of promoting research opportunities and collaboration we decided to organise a South West UK Regional Meeting together with colleagues at Bath and Bristol Universities. This positive change for the ASM will promote CITER to a wider audience and will also benefit from wider sponsorship including funding from the UK National Stem Cell Network.

The Research Committee Members:

Nick Allen (Chair, BIOSI), James Birchall (PHRMY), Sam Evans (ENGIN), Jack Ham (MEDIC), Sam Redman (RACDV), Valerie Sparkes (SOHCS), Alastair Sloan (DENTL) Neil Stephens (CESEGEN) Eric Tippmann (CHEMY) and a representative from the Postgrad@CITER group. The Committee have been joined in recent months by Julie Albon (OPTOM) and Tim Bowen (MEDIC) following the rotation off the Committee by Donald Fraser (MEDIC), Debbie Mason (BIOSI), Eduardo Torres (BIOSI) and Malgorzata Rozanowska (OPTOM).

Congratulations to CITER Research Committee member Dr Alastair Sloan on receiving the International Association for Dental Research's Young Investigator Award in San Diego, USA for his work on bone and tooth repair.

Dr Alastair Sloan's research career has focussed on the therapeutic use of bio-active molecules in the repair of the body's mineralised tissues – bones and dentine in the teeth. He has built up understanding of how the body's own stem cells repair damaged tissues naturally – and identified new materials which can do the same.

The ARTHRITIS RESEARCH UK BIOMECHANICS and BIOENGINEERING CENTRE

Vic Duance

The Arthritis Research UK Biomechanics and Bioengineering Centre is now well into its second year after its launch in the autumn of 2009. Over the first 18 months we have recruited 10 new members of staff and recruited 11 PhD students and 4 MD students. We have obtained an All Wales Ethical approval covering the disparate research within the Centre. Some of the objectives of the Centre have been slow to get started due to the delay in the recruitment of all our staff.

Apart from the ASM meeting at Eastwood Park last September, the Centre hosted its own 1 day Symposium in July to outline our programme of work and early progress to some of our International Scientific Advisory Board. This was a highly successful day. This symposium was a satellite meeting to the British Orthopaedic Society (BORS) meeting which we hosted here in Cardiff. This was acclaimed by many of the 130+ delegates as one of the most successful BORS meetings. Many thanks to all those in the Centre who contributed to the success of this meeting.

The Arthritis Research UK Biomechanics and Bioengineering Centre is of course an integral part of CITER, all our staff are members and contribute to the meetings, workshops and the teaching on the MSc course. CITER was important in laying the foundations for many of the interactions within the Centre and hopefully will continue to be a platform for fostering future collaborations.

Below is a brief summary of some of the first year major findings/achievements.

- We have established a new mechanical loading laboratory which is being used to investigate the effects of mechanical loading on cells and tissues and its contribution to the development of arthritis. Understanding the signalling processes involved offers the possibility of identifying novel drug targets which could be used to control the development of arthritis.
- We have devised a new system for loading cells in 3D culture which offers many possibilities for better understanding the effects of mechanical loading on cells. By accurately controlling the stresses and strains applied to the samples, it will be possible to investigate properly the effects of loading and the mechanisms of signalling between the cells.
- We have made progress in establishing the use of fMRI brain imaging in combination with motion analysis and joint loading to investigate the mechanisms underlying pain in arthritis.
- We are developing patient specific musculoskeletal models to investigate the influence of patients' knee morphology on kinematics and joint loading to inform deficits in limb function and thus focus rehabilitation strategies.
- We are developing motion analysis, strength and fatigue testing procedures for patients with ACL deficit and ACL reconstructed knees to assess deficits in parameters such as gait, stepping. This will inform rehabilitation of patients.
- We have devised molecular methods that can map gene expression to patient specific stress patterns which have the potential to reveal within patient changes in signals that cause pain, inflammation and pathology.
- We have developed a completely novel biomarker assays based on NMR and pattern recognition, which has the potential to be used in early diagnosis or as indicators of treatment efficacy.
- Pilot studies on animal models have implicated PKR and glutamate receptors in arthritis, revealing potential new therapeutic strategies.
- Initial work on new bone cements has already produced prototype cements which are stronger and tougher than current commercial cements. Pretreatment of the radiopacifier particles has the potential to greatly improve the strength of the cement and this area has not been widely explored. Potentially this could lead to much more durable cements which could extend the life of joint replacements.

I look forward to seeing you all at this year's ASM meeting in Bristol which, as mentioned elsewhere in this Newsletter, will involve delegates from Bristol, Bath and Swansea and therefore offer the potential to foster new collaborations.

2010 Workshops

Orthopaedics Workshop

The first workshop of 2010 was the Orthopaedics Workshop held on Friday 15th January. This workshop was organised by Debbie Mason (BIOSI) and Sam Evans (ENGIN) and was attended by over 50 delegates.

The half-day workshop was divided into two sessions with coffee and lunch kindly sponsored by Ossur. In the first session, the Arthritis Research UK Biomechanics and Bioengineering Centre Director, Prof Vic Duance, and Team Leaders (Dr Cathy Holt and Dr Debbie Mason) and key clinical collaborator (Mr Chris Wilson) gave an overview of the Centres research activities. This was followed by Dr Andrea Longman describing her role as Research

Coordinator, Dr Gemma Whatling giving an overview of her work as a new Cardiff Academic Fellow in the Centre and Joanne Li describing her PhD.

The guest speaker, Dr Mansour Youseffi (University of Bradford), kicked off the second session with a talk on “The Effect of Clearance upon Friction and Lubrication of large diameter Hip Resurfacing prostheses”. This was followed by a broad range of research talks given by Consultant Orthopaedic Surgeons (Mr Steve Jones, Mr Stuart James, Mr Rhys Thomas, Mr Alun John), Orthopaedic Registrars (Andy Metcalfe and Rahul Kotwal), a physiotherapist (Dr Kate Button) and a bio-scientist (Dr Helen Roberts).

The workshop enabled communication between the academic and clinical orthopaedics communities in Cardiff and was extremely effective at fostering orthopaedics research collaboration within the Arthritis Research UK Biomechanics and Bioengineering Centre.

Music and Medicine: From Musical Notes to Antidotes - Wednesday 21st April

Organised by Postgrad@CITER and funded by The Graduate Schools, Cardiff University.

The Graduate Schools at Cardiff University granted PostGrad@CITER £1,000 to organise an interdisciplinary seminar event in the 09/10 financial year. Following careful consultation, the theme of “Music and Medicine” was decided upon, which focussed upon some elements of performance as well as taking a look at the science behind our perception of music. Speakers included Dr Alan Watson (Biosciences), Dr. Sanchita Farruque, (British Association of Performing Arts Medicine), Judith Hills (University of Glamorgan) and Anthony P. Hall (music psychotherapist), as well as a classical recital by science Biosciences PhD student Shun Ming Yeun. The event attracted over 40 delegates and prompted a great deal of discussion from all members of the audience.

RNA Cardiff 2010 – Wednesday 28th April

Organised by CITER members Timothy Bowen and Donald Fraser, Institute of Nephrology, Cardiff University School of Medicine

RNA Cardiff 2010 was held at the Henry Wellcome Research Institute at Cardiff University School of

Medicine on Wednesday April 28th, 2010, and attracted over 70 attendees. This was the first annual meeting held outside Bristol of the Bristol RNA Club, founded in 2007 by Dr Mike Ladomery of the University of the West of England, and was co-hosted by CITER and the Wales Gene Park.

The busy morning session comprised high-quality presentations from six postdoctoral scientists from Exeter, Bristol and Cardiff Universities’ Schools of Biosciences, Chemistry and Medicine, and provoked lively discussion. After an excellent lunchtime guest lecture by Dr Mark Ashe from the University of Manchester, we reserved the afternoon session for PhD presentations. The £150 cash prize kindly sponsored by Central Biotechnology Services was hotly contested, with a very high standard maintained throughout talks by young scientists from Bristol and Swansea, as well as the Cardiff Schools of Biosciences and Medicine. In his judge’s address, Dr Ashe complimented all the afternoon’s presenters on their efforts, with particular praise for the contributions from two Biosciences students: CITER member Karen Brakspear and the eventual winner, Rebecca Salter.

Oxygen regulation in health, disease and biotechnology Symposium - Wednesday 3rd November

This full day symposium, held in Biosciences addressed the importance of Oxygen regulation in normal physiology, cell culture and biotechnology.

The symposium was organised by Nick Allen and co hosted with Ruskin Ltd, a local company with expertise in controlled environments. This proved to be an excellent joint venture with local industry that has subsequently led to industrial collaboration including a KESS studentship award. Additional sponsorship from provided by Thermo Scientific. The programme included talks from International and National speakers.

1. “Oxygen and Tissue Engineering – How much is too much, How little is too little”

Dr Nicholas Forsyth, Institute for Science & Technology in Medicine, Keele University

2. “Atomic force microscopy study of the mechanical properties of cells”

Dr Chris Wright, School of Engineering, Swansea University

3. "Developmental role of Fgf15, a hormone-like (endocrine) Fgf"
Dr Alysia Batersby, BIOSI,
4. "Signalling through trophoblast barriers"
Dr Patrick Case, Faculty of Medicine & Dentistry,
Bristol University
5. "Maintaining Blood-Brain Barrier Integrity during hypoxia: A pivotal role for astrocytes and pericytes"
Dr Lara Ogunshola, Institute of Veterinary Physiology, University of Zurich
6. "O₂ sensitive ion channels: a tale of two (or is that three?) gases".
Prof Paul Kemp, BIOSI
7. "Chondrocyte response to lowered oxygen and effects on extracellular matrix production"
Prof Tim Hardingham, Wellcome Trust Centre for Cell-Matrix Research, Manchester University
8. "The hypoxic microenvironment and gene regulation in colorectal cancer"
Dr Anne Williams, School of Cellular & Molecular Medicine, Bristol University
9. "Contextual synthetic lethality of cancer cell kill based on the tumor microenvironment"
Dr Ester Hammond, Gray Institute for Radiation Oncology & Biology, Oxford
10. "EU cell directive, apparatus and methods"
Dr Jan Villadsen, ViVoX, Denmark

Microbiology models of infection and immunity – Wednesday 8th December

The second workshop of the year to be hosted by Postgrad@CITER and funded by The Graduate Schools, Cardiff University.

The seminar focussed on the topic of model systems that have been developed at Cardiff University for use in infection and immunity research. Speakers included Prof. Simon Jones from the School of Medicine, Dr. David Williams, Dr. Sladjana Malic and Dr. Jess Roberts from the School of Dentistry, Dr. Jean-Yves Maillard from the Welsh School of Pharmacy and Joanna Rumsey from the School of Biosciences.

The event was held in the School of Biosciences and was attended by a number of staff and students from across the university, as well as students and

teachers from a local 6th form college. As well as prompting a great deal of discussion the seminar also led to possible collaborations and generated interest in the Postgrad@CITER group. Following the success of this seminar and the previous Music and Medicine seminar which was also hosted by Postgrad@CITER, further events are being planned by the new members of the group for the next academic year.

2011 Workshops

Intellectual Property Workshop

Wednesday 13th April, 2011

Organised by Alastair Sloan and Sam Redman and held in the School of Optometry and Vision Sciences

The workshop covered how to identify, protect and commercialise intellectual property arising from academic research. The first presentation from Dr Julie Fyles, a patent attorney from Symbiosis, discussed patenting the outcomes of biological research, the impact of the biotechnology directive which was implemented in 1998 and the complexities of intellectual property arising from stem cell research. This was followed by a presentation from Dr Phil Barnes and Dr Samantha Redman on the role of RACD in supporting the identification and protection of intellectual property arising from academic research, translational research funding and commercialisation via licensing. Dr Dominic Griffiths from Fusion IP then gave a presentation on the role of Fusion IP in spin-out company formation at Cardiff University and also presented a case study of Progenteq, a newly formed spin-out company based on research conducted by CITER member Prof Charlie Archer. Prof Phil Stephens concluded the afternoon's presentations with an account of his experiences of patenting research and the role of Julie Fyles, RACD and Fusion IP throughout this process.

If you have any queries regarding protecting intellectual property arising from your research please contact the technology transfer team in RACDV

Dr Phil Barnes : BarnesPA@cardiff.ac.uk
Dr Rhodri Turner: TurnerRT@cardiff.ac.uk
Dr Eryl Cox: CoxEV@cardiff.ac.uk

<http://www.cardiff.ac.uk/racdv/techtransfer/index.html>

LEARNING AND TEACHING NEWS

CITER Learning and Teaching Committee

The Learning and Teaching Committee have in place a full compliment of Committee Members: Bob Steadman (Chair, MEDIC), Vic Duance (BIOSI), Emma Lane (PHRMY), Arwyn Jones, (PHRMY), Ryan Moseley (DENTL), Val Sparkes (SOHCS), Patricia Price (SOHCS), with Chris Martin (PHRMY) and Susannah Williams (BIOSI) as the Postgrad@CITER representatives. The committee is charged with the remit of administering the CITER-hosted seminars in the School of Medicine Seminar series, Public Engagement and outreach and overseeing the MSc in Tissue Engineering.

Tissue Engineering MSc

This course is now in its 5th year. On average we have received around 30 applications each year for the last three years and there are 8 students enrolled for 2010-2011. Each year the Programme is evaluated and updated but the major changes this year are that Dr Neil Stephens (CESEGEN) has taken over as leader of Module 3 from Prof Patricia Price, and Dr Lindsay Davies, (DENTL) has replaced Dr Ryan Mosley as leader of Module 4.

The MSc has proved to be a very successful training Programme with over two thirds of those graduating going on to do PhD studies. The success of this Programme is down to the strong interdisciplinary nature of the teaching and research experience that the students receive. The support of clinical and industrial colleagues who provide placements for the students is also a major factor in its success. We are, as always, extremely grateful to all those involved in the delivery of the Programme. For more information please contact Ryan Moseley (moseleyr@cf.ac.uk), Programme Director.

CITER Seminars

CITER has two dedicated slots in the School of Medicine Science Seminar Series. These seminars are held at the Heath Park site at 1pm every Thursday. A lunch is provided from 12.30 and speakers receive a small honorarium and expenses paid up to £300. This means that individual groups or departments can invite speakers at no costs to themselves!

In the year 2009-2010 we hosted two seminars:-

"Engineering cells for clinical therapies"

Professor Alicia El-Haj, Professor of Cell Engineering and Director of the Institute of Science

& Technology in Medicine, Keele University.

"Tissue Engineering in the Clinic: the Challenges of translation"

Professor Sally Roberts, Leader of Cellular & Neural Engineering and Director of Spinal Research, Keele University and RJAH Orthopaedic Hospital, Oswestry

Both were very well attended and several people took time to sit with the speakers afterwards. The next available date is March 3rd 2011 and if you would be interested in filling this slot, please contact Bob Steadman (steadmanr@cf.ac.uk).

Public Engagement

The L&T Committee has initiated a programme of public education into what Tissue Injury, Repair and Regeneration actually involve. Bob Steadman, Arwyn Jones and Pete Griffiths (CHEMY), were successful in being awarded funding from the EPSRC for public engagement activities. The funding has enabled several models being made that can be taken to events. These include the Silver Human, the Operation Game and the Flower Pot

On March 18th, CITER was present for the first time at the Science and Health Live Open Day at the School of Medicine.



This annual event attracted more than 500 key-stage 4 students and their accompanying teachers from a variety of schools in South Wales and from further a field.

In August, Arwyn Jones, with a small band of enthusiastic helpers, hosted a major exhibition in the Science Pavillion at the National Eisteddfod in Ebbw Vale. This meant we received national publicity in the press, on radio and on television (even Eddie Butler on BBC 2 Wales!).



Dr Arwyn Jones and the CITER flower pot



The Silver Human - a bi-lingual interactive model

In September, the work of CITER members was presented in many of the posters commissioned for the launch of the Cardiff University Ageing Science and Older People Network (CaSciOPe). The Silver Human was also an exhibit at the evening event at which former First Minister of Wales, Rhodri Morgan spoke.

On 3rd November, CITER was represented at the Postgraduate Open Day held in the Students Union. Thank you to those who manned the stand, handed out our postcards and spoke about the MSc course. Also in November, Bob Steadman, together with more enthusiastic volunteers from Postgrad@CITER and the Institute of Nephrology, School of Medicine took the Operation Game and other exhibits to the "Science of Me" weekend at Techniquet. Nearly 1200 people came through the doors during the

weekend but there were only 15 "Science of Me Surgeons" who successfully operated on "Glyn" as he became known.



The Operation Game - "Glyn" in action



Two of the successful "Science of Me" surgeons with Claire Gibson, Postgrad@CITER member

On March 17th, 2011 CITER was again present at the Science in Health Live event.



The whole event involved more 150 volunteers from the Schools of Medicine, Pharmacy, Healthcare, Dentistry and Optometry. CITER was one of 12

exhibitions that the students visited and included the Operation Game funded by the EPSRC. Thanks once again to the enthusiastic volunteers from Postgrad@CITER and elsewhere that came along to meet the 520 young people from the 25 schools who visited.



CITER will again be represented at next years National Eisteddfod in Wrexham, 30th July to 6th August, 2011. If anyone would like to come along to help please let us know. Transport and a small hourly wage will be provided. Please contact Arwyn Jones (jonesat@cf.ac.uk) or Bob Steadman (steadmanr@cf.ac.uk) if you are interested.

Some School visits have taken place and more are planned. The visits provide an opportunity to emphasise the value of studying science at school and highlight areas of potential scientific careers. There is now a dedicated laptop and projector if needed, that CITER members can use for visits.

Please contact Jane Graves (gravesja@cf.ac.uk) if you would like to book them out.

POSTGRAD@CITER NEWS

Postgrad@CITER is an interdisciplinary group for all Cardiff University post-graduates and postdocs interested in the CITER remit and developing skills for a future scientific career. We have had a busy year organising and hosting two workshops (Music and Medicine and Microbiology models of infection and immunity) as well as taking part in a number of public engagement activities (Science and Health Live Open Day at the School of Medicine, the National Eisteddfod and “Science of Me” at Techniquet). As junior members of CITER we were also given the opportunity to hone our chairing skills at the AGM.

New members

On Wednesday 19th January 2011 Postgrad@CITER hosted a pizza lunch in the Students Union to attract some new members to the group. The recruitment event was a great success and there are now 12 new members of the group consisting of postgraduates and post-docs from across the University. Following the addition of new members, the co-chairs Karen Brakspear and Jessica Roberts have now been replaced with a new chair, Marisol Vazquez (BIOSI). The committee are now planning a number of exciting events and hope to build on the success of previous seminars that they have organised.

CITER MEMBERSHIP UPDATE

To date CITER are pleased to announce it has 154 members and 13 Honorary members. Members are from across the different schools within Cardiff University. This is broken down as follows:

Biosciences: 40
CESAGEN: 1
Chemistry: 6
Dentistry: 20
Department of Cardiothoracic Surgery: 1
Department of Radiology: 1
Engineering: 6
ESRC Centre for Economic & Social Aspects of Genomics: 1
Healthcare Studies: 10
Medicine: 29
Midwifery and Nursing: 1
Optometry & Vision Sciences: 21
Pharmacy: 16
Physics & Astronomy: 1
Social Science: 1

STAFF SLOT – WHAT HAS CITER MEANT TO YOU?

By: Prof Phil Stephens
Vice Dean (Research)
Professor of Cell Biology
Wound Biology Group
Cardiff Institute of Tissue Engineering and Repair
Tissue Engineering and Reparative Dentistry
School of Dentistry

Well I guess this is as good a time as any to be reflecting on this question as the Annual Scientific Meeting (ASM) this September will represent CITER's 10th anniversary. However, without wanting to spoil the party, CITER is actually a little older than this. Unbeknown to most we can trace its origins back to just before a meeting of the European Tissue Repair Society held here in Cardiff in 2001. It was in preparation for that meeting the year before that a number of us involved with the local organising committee started to consider what expertise/individuals were present in Cardiff and how that mapped to tissue repair / regeneration / engineering. It quickly became apparent that there was resident expertise in skin, eye, brain, cartilage, bone, kidney, oral tissues and wounds and that these areas crossed both clinical and non-clinical boundaries. Hence the CITER concept was 'born' – although the name took a little while to finalise or certainly the pronunciation did, well at least until Bruce Caterson started fining people for their incorrect intonation! The rest, as they say, is history with the official launch of CITER at City Hall, Cardiff and our first ASM at Gregynog Hall, Mid Wales in 2001.

So what has CITER meant to me or rather what *does* CITER mean to me as it expands across the University? Well actually much more than I realised before I sat down to write this. First and foremost has been the opportunity to become part of the rich, vibrant CITER scientific community/network. Whether this has been via the establishment of new research contacts, receiving advice on scientific/School/University issues from a diverse range of colleagues, or benefiting from the numerous CITER lectures, workshops and AGMs, this has all been facilitated through the efforts of CITER. Numerous large scale grant applications could not have been submitted and successfully secured without CITER's involvement. Key has been CITER's role in bringing the correct people together and also having the infrastructure to support these large applications during both the funding

application stage and afterwards to aid the delivery and dissemination of the research. Indeed this is widely recognised externally as funders repeatedly comment on the added value CITER brings to the research environment here at Cardiff. To this end CITER has also meant *collaboration* for me – collaboration within Cardiff and outside as other academic Institutions appreciate the credentials of CITER and the level of scientific expertise it opens their own research up to.

CITER has also meant *more* teaching for me! So at this point I can hear you say "is he mad"?! Well yes probably, but this has been focussed teaching (BSc and MSc level) with extremely bright and interested students, many of whom we have been able to take forward for PhDs within CITER-related subjects. This next tranche of researchers is crucial for the future development of tissue engineering/regenerative medicine research across the world. As they leave the University to develop their own research groups they take with them the important research ethos that CITER has always tried to promote.

CITER has also been crucial for developing a presence within the University for research from a number of areas across the Schools which may have struggled to find a voice/critical mass on their own. This has been driven by a concerted effort to develop research not only across disciplines but also across the non-clinical/clinical interface. At the heart of CITER is the drive to take research from 'bench to bedside' which can only happen when you have joined up thinking between laboratory-based researchers and committed clinical staff. Such a presence is important within any University as with REF 2014 fast approaching networks like CITER are crucial for developing not only excellent research but also as a clear, demonstrable example of a thriving inter-disciplinary research environment which has real impact for individuals/patients and the world at large. Luckily for me, my involvement with CITER has also brought me personal development as it has opened the door to a whole host of other opportunities and introduced me to a number of individuals within Cardiff University which, in concert with my CITER activities, have all contributed to my progression within the University. I have already mentioned the researchers and the clinicians and their importance for the continued development of CITER but we should not forget that CITER would not be where it is today without the tireless support and dedication of Sarah Hatch and her team over the years (Vera and Jane). Through my interaction with Sarah and her team and during

my time spent on the CITER research committee and now the Executive committee I have been fortunate to work with a number of excellent colleagues some of whom have now become really good friends too.

So what has CITER meant for me? Well obviously a lot and it could do the same for you too so why not join (it's free!). Finally for those that haven't experienced a CITER ASM then you should really try to come to the next one. Besides being an excellent, friendly scientific forum where you will make life long collaborations/friends you'll also get to experience the much anticipated annual finale which involves Bruce Caterson and lots of singing - normally much later in the evening (worth the registration fee in itself)! So get signed up and see you in the bar for some insightful scientific discussion!

9th CITER ANNUAL SCIENTIFIC MEETING – THURSDAY 16TH AND FRIDAY 17TH SEPTEMBER, 2010

Last year CITER held its ninth annual meeting in conjunction with the first annual meeting of the Arthritis Research UK Biomechanics and Bioengineering Centre at Eastwood Park, Gloucestershire.

Professor Patricia Price gave the welcoming address to the ASM delegates.

The first ASM presentation was given by the newly appointed Orthopaedic Senior Lecturer, Mr Stephen Jones, Orthopaedic Consultant, Hip Specialist. Other external invited speakers included Professor Mack, who spoke on “Mechanisms of Staphylococcus epidermidis biofilm formation in different forms of biomedical device-related infection” and Dr Dunne whose talk was on the “Assessment of factors affecting the analysis of hip, knee and ankle biomechanics during stair gait”

CITER invited Professor Bing Song, DENTL to present his guest lecture on “Controlling wound healing electrically” on the Thursday afternoon.

Arthritis Research UK Biomechanics and Bioengineering Centre invited Dr David Walsh, Director of Arthritis Research UK Pain Centre, University of Nottingham to present his guest lecture on “Arthritis pain; what's in the joint”

Professor Peter Glasner, School of Social Science, spoke on the “Social and Political Complexity in Indian Stem Cell Research”.



(l-r) Invited external speakers Dr Nicholas Dunn, Queen's University Belfast and Professor Dietrich Mack, Swansea University

There were 11 candidates eligible for the Best Podium prize. The candidates represented the Schools of Dentistry, Engineering, Medicine, Optometry & Vision Sciences and Pharmacy. The prize was awarded to Andy Metcalfe for his presentation “Biomechanics of the unaffected knee and hips in patients with knee osteoarthritis”.



Andy Metcalfe – awarded “Best Podium” Prize

There were 13 entries competing for the Best Poster prize with students from the Schools of Biosciences, Chemistry, Dentistry, Healthcare Studies, Engineering and Optometry & Vision Sciences. The judging panel awarded the prize to Karen Brakspear, BIOSI, for her poster on “Glutamate transporters function in osteoblasts to influence proliferation and activity”



The meeting was sponsored by Jencons, Thermo Scientific and Zeiss.

“Best Poster” Prize awarded to Karen Brakspear by Prof Sam Evans

Congratulations to all the students who presented their work either as an oral presentation or a poster. We look forward to this year’s ASM and hearing how your research has developed.



2010 ASM delegates



The motley crew that attended the first CITER ASM, Gregynog Hall, Mid Wales in 2001.

GRANTS SUBMITTED

In this section, I wish to highlight recent grants that have been submitted that have included the added value that CITER brings to Cardiff University:

Grant	PI	Outcome
Dr Hadwen Trust	Dr Bronwen Evans	Successful
EPSRC	Prof Phil Stephens	Successful
EPSRC Public Engagement	Dr Arwyn Jones, Dr Bob Steadman & Dr Pete Griffiths	Successful
Fight For Sight	Dr Craig Boote	Successful
MRC	Dr Alastair Sloan	Successful
MRC	Prof. Phil Stephens and Dr Lindsay Davies	Successful
Research in to Ageing	Dr Bob Steadman	Successful
Royal College of Surgeons (England)	Prof Phil Stephens and Dr Matthew Locke	Successful

DIARY DATES

WORKSHOPS

Summer Term

ECM in regeneration and repair – organised by Julie Albon and Jack Ham
Wednesday 8th June in School of Optometry and Vision Sciences

ANNUAL SCIENTIFIC MEETING

12th & 13th September 2011

Inaugural South West Regional Regenerative Medicine Meeting – (incorporating the 10th CITER Annual Meeting and the 2nd Arthritis Research UK Biomechanics and Bioengineering Centre Meeting,) Wills Hall, University of Bristol

Finally, the CITER administrative team would like to take this opportunity to thank members who took the time to contribute to the content of this CITER Newsletter.