



The Elixir

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See also: www.tcd.ie/pharmacy/

Welcome Statement by the Chair

Dear Friends,

Welcome to the fall edition of Elixir!

Beyond any doubt the highlight of this summer was the launch in our School of the Boots Practice of Pharmacy Teaching and Development Unit by Minister for Health and Children, Mary Harney. Thanks to a very generous support of Boots and Helix Health and personal input of Mary Rose Burke and Howard Beggs, respectively, our students will now enjoy the most advanced Practice of Pharmacy facility in the country. The staff of our School has greatly contributed to the success of this project and I am grateful to Cicely Roche, Anne Marie Healy, Martin Henman, Sheila Ryder, Catriona Bradley, Karen Sheridan, Betty Daly, Therese Moloney and Ray Keaveny for their commitment and superb work.

A recent congress of the International Pharmacy Federation (FIP) with a satellite Deans' of Pharmacy Forum has showcased a substantial world-wide investment in both pharmaceutical drug development and pharmacy education. The Dutch Top Pharma Institute is an example of joint industry and academia venture to bridge the two words and streamline the efforts in drug development.

(cont. overleaf)



FACULTY

Head of School & Chair in Pharmacology
Prof. Marek Radomski

Dr. Catriona Bradley, Lecturer
Dr. Deirdre D'Arcy, Lecturer
Dr. Carsten Ehrhardt, Senior Lecturer
Dr. Neil Frankish, Lecturer
Dr. John Gilmer, Lecturer
Dr. Tamasine Grimes, Senior Lecturer
Dr. Andrew Harkin, Senior Lecturer
Dr. Anne Marie Healy, Senior Lecturer
Dr. Martin Henman, Senior Lecturer
Dr. Mariusz Kamionka, Research Lecturer (Merrion Pharmaceuticals, Ltd.)
Dr. Carlos Medina, Lecturer
Prof. Mary Meegan, Assoc. Professor
Dr. Lorraine O'Driscoll, Lecturer
Dr. John Quigley, Lecturer
Ms. Cicely Roche, Senior Lecturer
Ms. Sheila Ryder, Lecturer
Dr. Astrid Sasse, Lecturer
Dr. Helen Sheridan, Lecturer
Ms. Karen Sheridan, Boots Teacher Practitioner
Dr. Fabio de Sousa Menezes, Lecturer
Dr. Lidia Tajber, Lecturer
Dr. John Walsh, Lecturer

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Welcome Statement by the Chair (cont. from p1)

Novel virtual approaches to pharmacy education such as Pharmatopia project underlie the attractiveness of innovative web-based approaches to the undergraduate and postgraduate pharmacy education.

On our local arena, the Pharmaceutical Society of Ireland (PSI) has now completed the Pharmacy Education and Accreditation Reviews (PEARS) and Continuing Professional Development (CPD) reviews and the forthcoming commencement of implementation of PEARS and CPD recommendations is likely to pose new logistic and financial challenges to the academic pharmacy education in Ireland. So let's brace ourselves for a very busy fall and 2011....

I would like to extend a warm welcome to Tamasine Grimes who has joined our School as one of the Senior Lecturers in Practice of Pharmacy. Last, but not least, many congratulations to Maria Jose Santos-Martínez; we wish her lots of successes in a new role as New-Blood ussher Lecturer in Nanopharmaceutical Drug Discovery.

Best wishes,
Marek

Prof. Marek W. Radomski, MD, FTCD, DHC
Chair of Pharmacology (1979) and Head of School

Additional Faculty Information (cont. from p1)

<u>Directors</u>	<u>Coordinators</u>	<u>Postgraduate Course Coordinators</u>
Director of Teaching & Learning (Undergraduate)	Junior Freshman Dr. John Walsh	M.Sc. in Hospital Pharmacy
Dr. Anne Marie Healy	Senior Freshman Dr. John Quigley	Ms. Niamh McMahon
Director of Teaching & Learning (Postgraduate)	Junior Sophister Dr. John Quigley	Diploma/M.Sc. Pharmaceutical Analysis
Dr. Andrew Harkin	Senior Sophister Dr. Deirdre D'Arcy	Dr. John Gilmer
Director of Research	<u>School & College Tutors</u>	Diploma/M.Sc. Pharmaceutical Technology
Dr. Carsten Ehrhardt	Dr. Andrew Harkin	Dr. Lidia Tajber
<hr/> Disability Liaison Officer	Dr. John Quigley	Diploma/M.Sc. Community Pharmacy
Dr. Helen Sheridan	Dr. Deirdre D'Arcy	Ms. Sheila Ryder
Trinity Access Programmes Contact	Dr. John Walsh	Diploma/M.Sc. in Pharmaceutical Manufacturing Technology
Dr. John Walsh	Dr. Lorraine O'Driscoll	Ms. Lorna Loughrey
<u>Undergraduate Year</u>	<u>Undergraduate Research Liaison Officer</u>	
	Dr. Carlos Medina	

Launch of Boots Practice of Pharmacy Teaching & Development Unit by Minister of Health and Children, Mary Harney, on 14th June

For the past thirty years our School has been at the forefront of research and teaching in pharmacy both in Ireland and internationally. We have graduated 1591 pharmacists to date; conferring both Bachelor and Masters Degree in Pharmacy. Many of our graduates have subsequently assumed leadership positions in various international organizations. We are proud to educate pharmacists through research, as testified by our growing research income and publication record. We work very closely with the pharmaceutical industry. In fact, in 2009 our School held the highest number of research contracts of all School's in TCD.

Following the introduction of Pharmacy Act 2007, it became clear that Practice of Pharmacy and clinical pharmacy education is crucial for anchoring pharmacy as a major partner in multi-disciplinary health service teams. Furthermore, we feel that there is wealth of untapped talent in pharmacy graduates that can be utilized for the welfare of patients today. In our School we are very committed to this concept. We have decided, therefore, to convert some of our existing research laboratories into a state-of-the-art Practice of Pharmacy Teaching and Development Unit. As our School is also a part of TCD's PRTL 5-supported flagship Biosciences Development on Pearse Street, we will re-locate some of our research laboratories there in summer 2011.

By Prof. Marek Radomski

After a tour of the new state-of-the-art Practice of Pharmacy Unit, the national and international importance of this facility was highlighted -to the press, colleagues and friend who came to share in celebrating this great event- by the Minister, Mary Harney; TCD's Provost, Prof. John Hegarty; and by our Head of School, Prof. Marek Radomski



Sincere thanks to Boots and Helix Health and especially to Mary Rose Burke and Howard Beggs

Breaking News!

New Blood Lecturer position in Nanomedicine

Congratulations to **Dr. Maria Jose Santos Martinez** who, this week, secured the position of New Blood Lecturer (Nanomedicine). This post will be jointly held between our School and the School of Medicine.

Maria Jose completed her PhD earlier this year, under the supervision of Prof. Marek Radomski—so there is lots for Maria Jose to celebrate.

Congratulations Maria Jose on all of your recent achievements !

Welcome to our new Senior Lecturer in Practice of Pharmacy

We extend a warm welcome to **Dr. Tamasine Grimes**, our new Senior Lecturer in Practice of Pharmacy.

In 1998, Tamasine graduated with a BSc(Pharm.) from our School. In 1999 she registered as a Member of the PSI after completing her pre-reg. training in St James' Hospital/TCD. In 2000, Tamasine took up a post in the Adelaide and Meath Hospital, inc. the National Childrens' Hospital (AMNCH), Tallaght, where she worked as a clinical pharmacist, delivering general medical and surgical services and specialist services in care of older persons, nephrology and rheumatology. In 2002, Tamasine graduated from TCD with an MSc in Hospital Pharmacy. In 2003, Tamasine moved to the community pharmacy sector and also worked part-time as a lecturer in the School of Pharmacy, Royal College of Surgeons in Ireland (RCSI). In 2005, Tamasine returned to AMNCH and registered as a PhD student in RCSI, which she completed in 2009.

Tamasine is passionate about patient safety, medication safety and the development of pharmacists and pharmacy services. In September 2010, Tamasine took up a post as Senior Lecturer in Practice of Pharmacy (part-time) in our School and she continues to hold a part-time position as Pharmacist in AMNCH. Tamasine will contribute to the Practice of Pharmacy modules in our School's undergraduate course, in particular pharmaceutical care & therapeutics; dispensing & patient care and evidence-based pharmacy. She will also teach research methodology for the MSc in Hospital Pharmacy.

Welcome to our new Postgraduate Research Students & visiting Researchers

A warm welcome is also due to a number of students who have secured positions to study for a PhD in our School.

These include **Shane O'Sullivan** BSc(Pharm), who will join Dr. Carlos Medina's group and will be co-supervised by Dr. John Gilmer.

Dr. Hanan Eishelmani, MB BCh. B.Sc. of Medicine and Surgery and Specialist SHO in Ophthalmology and **Mr. Keith O'Brien** B.Sc.(Hons) Biotechnology who also formerly worked at Bristol-Myers Squibb will join Dr. Lorraine O'Driscoll's group; Keith being co-supervised by Prof. Marek Radomski.

A sincere welcome also to our visiting researchers including **Ms. Eva Jansen** from the University of Utrecht; **Ms. Simona Etzbach** from Saarland University; and **Ms. Solmaz Dehghan** from Mashhad University of Medical Sciences who are currently visiting members of Dr. Carsten Ehrhardt's research group.

Finally welcome in advance to **Ms. Eva Lippke** from the University of Frankfurt who will undertake part of her Pharmacy pre-reg. year, under the supervision of Dr. Astrid Sasse, from November 2010-April 2011.

The Pharmaceutical Analysis Laboratory hosts an Eclectic mix of Research Projects

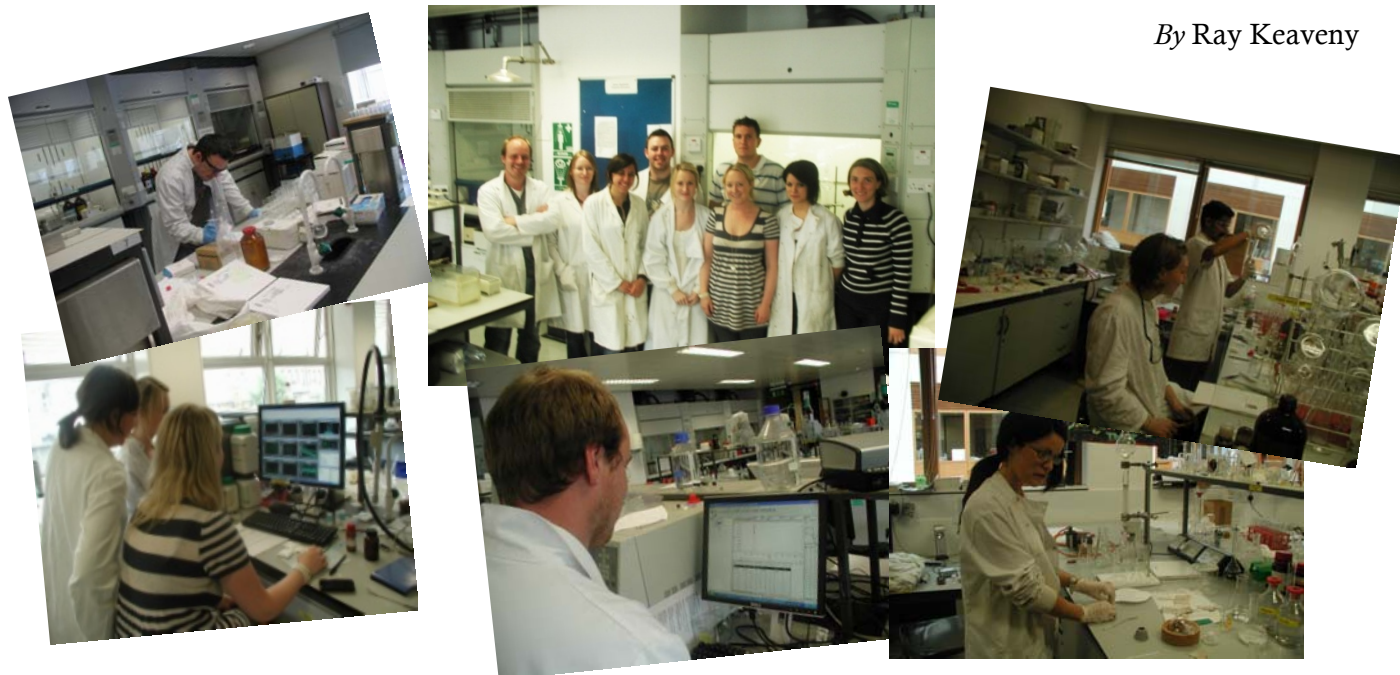
During this year's Trinity Term (Summer term) a diverse mix of students successfully completed research and masters projects hosted by the Pharmaceutical Chemistry Analysis Laboratory, under the supervision of Prof Meegan (MJM), Drs. Clancy (JC), Gilmer (JG), Sasse (AS) and Walsh (JW) and many Technical Officers. The MSc students in Pharmaceutical Analysis, visiting students from France, and Junior Sophister students were also assisted by Post-Doctoral researchers and Postgraduate students. Almost all Instrumentation and Techniques available in the Pharmaceutical Analysis Laboratory were utilised, including advanced organic synthesis techniques *e.g.* microwave-assisted synthesis, HPLC- UV and Fluorescence detection, UV Spectrophotometry and UV Kinetics, IR, Near-IR, GLC and LCMS. Proton/Carbon NMR and ESI-MS were carried out in the School of Chemistry, TCD.

From the MSc in Pharmaceutical Analysis class, Nikhil (from India) and Sylvia (from Italy) worked on methods of preparing new cardiovascular drugs (JG). Joey investigated the content of Creatine in commercial products designed for athletes (JC). Laura worked on developing NIR methods for the identification of carbohydrates and monitoring drug stability, and Karen's project involved the synthesis and HPLC validation of the main metabolite of JNJ777120, a highly potent and selective histamine H₄ receptor antagonist (AS). Conor investigated the antioxidant activity and physicochemical properties of some novel heterocycles which inhibit P-glycoprotein multidrug resistance and Kathy carried out her MSc project studying the stability of a number of prodrugs that have been developed as new anti tumour agents (MJM). Brian, who was based in the Pharmacognosy laboratory, established suitable chromatographic methods for the isolation of some of nature's Phytoestrogens from soybean and clover (JW). Of the two Junior Sophister students, Helen was involved in a synthesis-based project on histamine H₄ receptor ligands (AS). Claire researched new bile-acid based anticancer agents on a HRB-funded collaboration with St James's (JG).

A number of visiting students also attended the Summer School! Coralie (Erasmus student from Lyon, France) and Christophe (Faculty of Pharmacy in Montpellier, France) worked on the synthesis of novel histamine H₄ receptor agonists (AS). Clementine (Faculty of Pharmacy in Montpellier, France) worked on microwave-assisted heterocycle synthesis (MJM). Although the projects were carried out individually, a great deal of cooperation, advice and mentoring allowed for a very useful, interesting, productive 3 months.

*The Technical Officers managing the laboratory got to know everyone very well,
and wish these young scientists every success in their future careers.*

By Ray Keaveny



Postgraduate Teaching and Learning News: Reports on Recent Events....

As always, there has been a lot happening in the area of Postgraduate Teaching and Learning in our School over the past few months, as exemplified below

New Pharmaceutical Research & Development Awards

In a new initiative to support and foster research activity in the School of Pharmacy and Pharmaceutical Sciences, four bursaries to support PhD research in Pharmaceutical Research and Development were recently created.

These 4 awards consist of student stipend, fees, and a consumable budget over a period of 4 years; with a collective value of €256,000. The awards are available to new entrant PhD students on a competitive basis taking into consideration project alignment with the Schools strategic research objectives as well as the academic track record and past experience of the student applicant. In order to foster collaboration and/or interdisciplinary research within the School, preference will be given to projects of a collaborative nature. For further details about research opportunities in the School check out our webpage on www.pharmacy.tcd.ie/postgraduate.

Congratulations to our recent PhD graduates

Our congratulations go to our newly conferred PhD graduates:



Dr. Johannah McCarthy and **Dr. Aneta Radziwon**
from the Radomski laboratory

and **Dr. Natacha Vanattou Saifoudine** and
Dr. Lorna Gleeson from the Harkin laboratory

By Dr. Andrew Harkin
Director of Postgraduate Teaching & Learning

Joint School of Pharmacy Research Seminar 2010 29-30 March, Queen's University Belfast

The Joint School of Pharmacy Research Seminar is an annual event that gathers Academics and Students from the all Schools of Pharmacy within Ireland.

Traditionally it had been attended by delegates from Trinity College Dublin, University College Cork, Queen's University Belfast (QUB) and Royal College of Surgeons Ireland (RCSI), but this year, in its 32nd year, it also included participants from the School of Pharmacy, University of Ulster Jordanstown. This meeting is a great opportunity for postgraduate students to observe the broad spectrum of research activity within the Pharmaceutical Sciences nationally and to showcase their work in poster presentations and oral communications. 32 postgraduate students from the School in TCD attended the conference. Talks and posters were of the highest standard and special congratulations are due to the collaborative group comprising contributors from the Drug Treatment Board in Dublin, Department of Pharmacology and Therapeutics, TCD and Sheila Ryder from the School of Pharmacy & Pharmaceutical Sciences in TCD that won the best poster (Science area) prize, with a study on the chemical profiles of 'bath salts' and 'plant food' available from Dublin "head shops". In the evening delegates enjoyed a lovely dinner at the restaurant "Villa Italia" which was the perfect occasion to get to know those coming from the other Universities in a pleasant and friendly atmosphere. Next year this meeting will be hosted by the RCSI. Our thanks to the organisers in QUB for hosting a very successful meeting. Credit is also due to our local organisers in the School in TCD, the Post Graduate Student Committee, Catherine Coffey and Liesa Eckhardt for co-ordinating and assisting with logistics - posters, travel and accommodation. Thanks also to our sponsors, the Irish Pharmacy Union.

By Valentina Gigliucci

Postgraduate Teaching and Learning News: Reports on Recent Events (*cont.*)

Queen's University Belfast: Joint School of Pharmacy Research Seminar



A rainy day at Queen's University Belfast where this year's Joint School of Pharmacy Research Seminar was held

....its always good to get away to experience something new !

Those attending the seminar dinner at Queen's University Belfast ...

(far right to left): Prof. Mary Meegan, Niamh O'Boyle, Ferenc Majer, Roisin O'Keeffe, Kevin Eccles, Richard O'Connor, Siddig Albaga, Tadhg Cotter, Billy Egan, Yvonne McNamara, Ciaran Muldowney



(below): Valentina Gigliucci and Aine Daly



(above): Cathal Cadogan and Gary Stack

Postgraduate Teaching and Learning News: Reports on Recent Events (*cont.*)

Dr. Natacha Vanattou-Saifoudine bids farewell

Natacha Vanattou commenced her PhD project, under Dr. Harkin's supervision, in our School in 2006 following completion of a Masters thesis in Neuroscience research in Victor Segalen University Bordeaux, France. Natacha recently completed her PhD and now reports to The Elixir on her HRB-funded doctoral research work which enabled her secure her current postdoctoral position.



My PhD thesis was mainly focused on trying to elucidate how caffeine is able to exacerbate the acute toxicity of MDMA. My research showed that the administration of caffeine with MDMA constitutes a unique and potentially lethal drug interaction. This interaction is characterised by behavioural, thermoregulatory and cardiovascular toxicity. In addition I found evidence to support a significant role for dopamine D₁ receptors in this drug interaction. We recently published our findings in the British Journal of Pharmacology and the journal Psychopharmacology.

During my PhD studies I gained extensive experience in new cutting-edge laboratory techniques and I established biotelemetry, a methodology which enables continuous recording of behavioural and physiological recording in freely behaving subjects and tissue slice superfusion. This allowed me to measure neurotransmitter release from brain tissue slices.

The valuable experience that I gained as part of my research activities provided me with an excellent platform to look for postdoctoral openings elsewhere and to secure my current research position in Cambridge University. In my present position I am engaged in a multidisciplinary project investigating molecular markers and potential therapeutic targets for schizophrenia and bipolar affective disorder. I have great memories of my time in the School and the Institute of Neuroscience in TCD and hope that I will be able to foster close research links in the future.

By Dr. Natacha Vanattou-Saifoudine

Johannah McCarthy's PhD journey

Dr. Johannah McCarthy recently completed her PhD in our School, under the supervision of Prof. Marek Radomski. Below Johannah recalls experiences and describes her career path to date.

After completing my bachelor's degree in Genetics at University College Cork I was one of 11 Irish graduates who was awarded a full research Internship by the Fás Science Challenge program to carry out a 6 month research project at the Dept. of Pharmacology and Integrative Cell Biology, University of Texas, Houston under the supervision of Dr Ferid Murad (1998 Nobel Laureate in Medicine & Physiology). My research involved working on 2 simultaneous projects, to phenotypically characterise a conditional soluble guanylyl cyclase knock out mouse (NSBRI-NASA Johnson Space Centre collaboration) and secondly to investigate the effects of pro-inflammatory cytokines on soluble guanylyl cyclase expression at gene and protein level in neuroblastoma cells. I had a fantastic time in Houston and -as chance would have it- this was where I first met my then future Ph.D supervisor, Prof Radomski. On my return to Ireland I was offered a job as an R&D scientist with Trinity Biotech plc., Bray, Co. Wicklow. I therefore relocated to Dublin from my home in Newmarket Co. Cork. While working for Trinity Biotech I developed a procedural control prototype for the company's leading Uni-Gold™ Recombigen HIV Test (FDA approved product) and was part of a small team of scientists that implemented the up-scale and transfer, from R&D to manufacturing, of the Uni-Gold™ LUA dipstick urine test for *Legionella pneumophila* detection.

Nonetheless, I still had ambitions of going back to university to obtain a Ph.D qualification. Therefore, on the advice of Dr Ferid Murad, I contacted Prof. Radomski and we decided on a Ph.D research project where I would investigate the pharmacological and toxicological effects of nanoparticle composites on human airway epithelial cells. During my Ph.D studies I spent 6 months at the University of Alberta, Edmonton, Canada in cell monolayers by measuring short-circuit current the laboratory of my Ph.D co-supervisor Prof Marek

Postgraduate Teaching and Learning News: Reports on Recent Events (*cont.*)

Duszyk, where I examined the actions of nanoparticles directly on ion channel function in (Ussing chamber) and on single CFTR Cl⁻ channels (patch clamp). While at the University of Alberta I was an invited speaker to the Membrane Protein Research Group and I also presented a poster at the American Thoracic Society conference in San Diego, CA.

On the 29th of June this year I successfully defended my Ph.D thesis and I intend to graduate this Autumn. I recently submitted a research article for peer-review publication and my future plans involve securing a post-doctoral position here in Dublin.

By Dr. Johannah McCarthy



Johannah (Centre, 5th from the left) in the company of fellow postgraduates and postdoctoral researchers toasting her PhD success in a recent celebration in the School

The National Pharmacy Internship Programme: A Student's Perspective

Mary-Claire Kennedy Bsc.(Pharm) graduated from the School of Pharmacy & Pharmaceutical Sciences, Trinity College Dublin in 2009. Mary-Claire has completed 6 months of her internship training period within this School and so has kindly taken the time to explain her view of the National Pharmacy Internship Programme, as outlined below...

We are now at the end of the first year of the National Pharmacy Internship programme, the practical training programme which must be completed by all pharmacy students who wish to practice as a pharmacist in Ireland.

Traditionally, the pre-registration year was operated by the Pharmaceutical Society of Ireland (PSI), with a syllabus consisting primarily of the law and ethics associated with professional pharmacy practice. The new programme, which will be provided by the RCSI for 2009-2012, leads to an MPharm (Level 9) degree qualification.

Some aspects of the training year remain unchanged; students must undertake a minimum of 6 months practical training in a community or hospital pharmacy environment. A student may elect to undertake the remaining 6 months, as I have done, in a location approved by the PSI.

While the pre-registration year continues to seek to develop the professional practice standards of trainee pharmacists, the Masters programme has introduced a strong academic focus to the year, a feature not previously associated with the pre-registration period.

The Masters programme is divided into 7 modules delivered through the Virtual Learning Environment (VLE) of the RCSI website. The year is divided into 3 semesters; each of 4 months duration. The sequence in which the modules are undertaken is dependent on the intern placement. The modules focus on a different aspect of professional practice and include:

Module 1: Patient-care safe dispensing: a series of online lectures relating to community pharmacy reimbursement schemes and important legislation such as the Misuse of Drugs Act and Medicinal Products Regulations;

Module 2: Inter-professional Prescribing: emphasis on clinical pharmacy; several subjects are reviewed

The National Pharmacy Internship Programme: A Student's Perspective (*cont*)

including prescribing renal and hepatic impairment, anticoagulation, antibiotic regimens in a variety of conditions, acute and chronic pain management. Module 3a: Community Pharmacy; Module 3b: Hospital Pharmacy: students are assigned to either (a) or (b) depending on the location of practical training. The community pharmacy module is delivered through the Case Interact online teaching resource, which is introduced during undergraduate study in all pharmacy schools. Meanwhile hospital pharmacy interns must complete worksheets on particulars such as aseptic compounding and parenteral formulations.

Module 4: Professional Practice: the module is composed of 18 lectures on a variety of subjects relating to ethics, legal and administrative aspects of pharmacy practice;

Module 5: Patient Safety and Risk Management: learning for this module is centred on the critical review of a case study relating to medical negligence;

Module 6: Health and Medicine Information: seeks to address the development of research and investigation skills through assessment on critical evaluation of scientific articles;

Module 7a: Organisational development;
Module 7b: Clinical Audit research study.

The pharmacy intern is assessed by RCSI during the year using a variety of methods. An online MCQ quiz constitutes assessment of Module 2 and 3a. Modules 1, 4 & 6 require the submission of a variety of essays and case studies. Some assignments require students to work as a group over a 7 day period, problem solving and reaching a consensus on the topic under discussion. This is facilitated through a discussion forum on the VLE website. Teamwork can, at the best of times be challenging, the experience made all the more difficult in the virtual world. The final aspect of the programme is the completion of a research project (in keeping with the requirements of most Masters level courses).

I have elected to partake in the clinical audit project (Module 7b) which seeks to understand the role of the community pharmacy in identifying patients potentially undertreated for thromboembolic complications of atrial fibrillation.

The internship programme will culminate in the pre-registration exam with a very different format to previous years. Objective Structured Clinical Examinations (OSCEs) will be the primary method of assessment of prospective pharmacists, together with MCQs examining pharmaceutical calculations and legislation. In addition, the pharmacy tutor must evaluate the intern in terms of pre-defined professional competency standards at regular intervals throughout the year.

The course is not without its problems, the chief of which being the substantial workload it places upon interns in addition to an 8 hour working day. Also, technical faults with the VLE website can mean hours of frustration when completing assignments. Tutors who supervise interns must also dedicate a portion of time to reviewing and approving assignments, an activity not always conducive to a busy dispensary. This, however, is the inaugural year of the programme and undoubtedly some of these issues will be addressed in the years to come.

The new internship training programme, I feel, has contributed significantly to my experience for working life as a pharmacist. The modules have urged me to reflect on aspects of my knowledge that were lacking while the taught module on research skills, I expect, will be of enormous benefit in my future career. Perhaps, most importantly, the programme has instilled in me a taste for continued professional learning and development which I hope will stay with me for years to come.

By Mary-Claire Kennedy

Congratulations on CRANN Innovations Award

Congratulations is due to Prof. Marek Radomski, Dr. Maria Jose Santos Martinez, Dr. Carlos Medina and Dr. Despina Bazou on receiving a CRANN Innovations award.

Sincere congratulations to all concerned!

Natural Product Drug Discovery Group facilitates training for University of Nairobi, Kenya

The Natural Product Drug Discovery Group was happy to facilitate the training of Mr. John Muvaura Kariuki from the University of Nairobi, Kenya, in the area of advanced laboratory skills associated with drug discovery. John was awarded a **Combat Diseases of Poverty Consortium (CDPC)** short-term research training position in Ireland. The CDPC represents a unique cluster of scientific, academic and NGO professional expertise, along with partners in the private sector, working together to build educational capacities for combating diseases of poverty, with the initial focus on east Africa. The purpose of the training is to provide applicants with advanced skills and knowledge that can be applied to their research and contribute to their own teaching and training programmes in the applicant's home country. John's award was based in N.U.I. Maynooth under the direction of Dr. Martina Schroeder. John's main research interest is the evaluation of the ethnopharmacological use of African Sandalwood oil in the treatment for AIDS. He was trained by our technical staff Joe Reilly, Ray Keaveney and Brian Talbot. The SOPPS, which is also actively involved with the Trinity International Development Initiative (TIDI) is happy to be working in partnership with Dr. Schroeder and the Anthropology Department in N.U.I. Maynooth.



By Dr. Helen Sheridan

(from left) Mr. Joe Reilly, Mr. Ray Keaveney, Mr. John Muvaura Kariuki, Mr. Brian Talbot, Dr. Neil Frankish

SFI led Strategic link for TCD Cancer Researchers with Dana-Farber Cancer Institute, Harvard University

On the invitation of the Dana-Farber Cancer Institute, Harvard University, Science Foundation Ireland (SFI) recently selected 10 of its funded P.I.s to partake in a visit to the US to present Irish-funded cancer research and to learn about Harvard's cancer research programme, in an effort to establish strategic research links to expedite the advancement of international translational cancer research. The group from Ireland included Prof. John Crown (Consultant Oncologist, St. Vincent's University Hospital/UCD), Prof. Arnie Hill (Consultant Surgeon, Beaumont Hospital/RCSI), Prof. Rosemary O'Connor (UCC), Dr. Leonie Young and Dr. Judy Harmey (RCSI), Dr. Robert O'Connor (DCU), Prof. William Gallagher (UCD), Prof. Corrado Santocanale (NUIG) Prof. John O'Leary (Consultant Pathologist, St. James's Hospital/TCD) and **Dr. Lorraine O'Driscoll**, from our School.

Based on the success of this, the returned visit from Harvard University P.I.s to Ireland is planned for later this year.

AAPS Student Chapter hosts visit by eminent Scientist, Dr. Michael J. Pikal

On September 15th, the TCD AAPS Student Chapter of Trinity College Dublin hosted a visit by Dr. Michael J. Pikal.

Dr. Pikal is currently Professor and Pfizer's Distinguished Chair in Pharmaceutical Technology at the University of Connecticut. He received his Ph.D. in physical chemistry (1966) from Iowa State University and was Postdoctoral Research Fellow with the Lawrence Livermore Laboratory (1966-1967). He held the post of Assistant Professor of Chemistry at the University of Tennessee (1967-1972) before joining Lilly Research Laboratories as a Senior Research Scientist (1972-1996).

Dr. Pikal's current research activities include the solid state chemistry of pharmaceuticals, particularly the stability of amorphous materials and the science and technology of freeze drying; with a focus on optimization of formulation and process for labile proteins. He was recipient of the Ebert Prize (1977) and the PDA's "best paper of the year" award (1989). Dr. Pikal received the Eli Lilly & Co. "Presidents Award" in 1996. He was named the Busse Lecturer (University of Wisconsin (1983) and the Enz Lecturer (University of Kansas, 1998).

Dr. Pikal is a Fellow of the AAPS, and received the AAPS Research Achievement Award in Pharma-

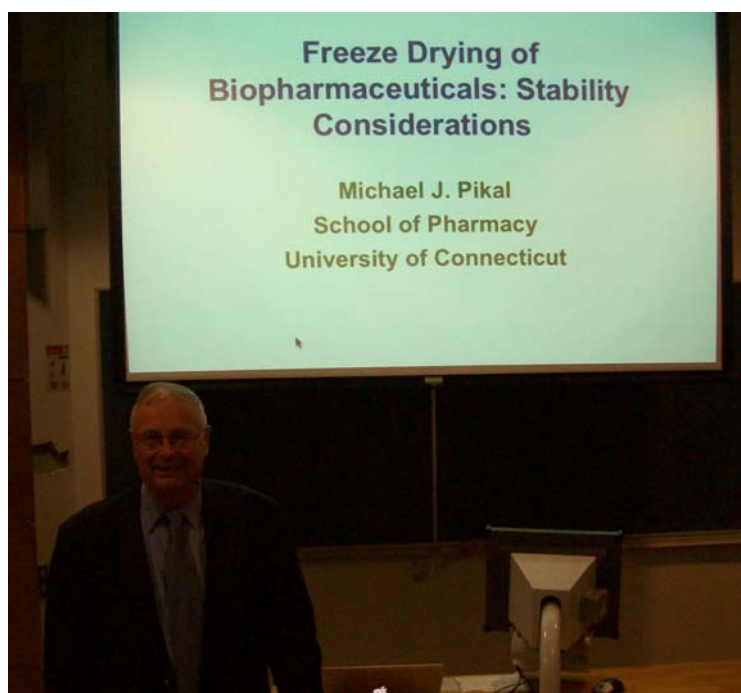
ceutical Technologies in 2001 and the Crioforma award in Freeze Drying in 2006. He was also the 2009 recipient of the AAPS Distinguished Scientist Award. The Journal of Pharmaceutical Sciences dedicated a special issue to him in September 2009 (Vol 98, Issue 9).

On the morning of his visit to TCD, Dr. Pikal delivered a very interesting and inspiring talk entitled "Freeze Drying of Biopharmaceuticals: Stability Considerations". This talk began with a brief review of the engineering of the freeze drying process and then focused on storage stability in amorphous pharmaceutical systems, including both chemical decomposition and aggregation in proteins. It was well received by students and staff alike. After his talk, Dr. Pikal took part in a tour of our School.

In the afternoon, a roundtable discussion took place between Dr. Pikal and the AAPS chapter members. All AAPs members found this to be a very enjoyable and interactive exchange of views on many areas of science. Additionally Dr. Pikal offered career advice (both in academia and in private companies) to the AAPS chapter members.

By Dr. Vincent Caron, Chair-Elect

Dr. Michael J. Pikal engages his audience with his fascinating talk on freeze drying....



AAPS Student Chapter hosts visit by eminent Scientist, Dr. Pikal (*cont.*)



left to right: Bo Liu, Stefano Bianco, Christine Grossjohann, Joanne Crean, Ines Amaro, Dr. Pikal, Stephen Buckley (Chair), Elena Schwagerus

below; left to right: Vincent Curtin, Krzysztof Paluch, Stephen Buckley, Ines Amaro, Dr. Pikal



above, left to right: Ines Amaro, Krzysztof Paluch, Dr. Pikal



left to right: Dr. Vincent Caron (Chair Elect), Emma-Rose Tewes (Future Scientist?), Dr. Frederic Tewes (Vice Chair), Stephen Buckley (Chair), Dr. Anne Marie Healy, Dr. Pikal

AAPS Student Chapter hosts visit by Dr. John Patton

In May, the TCD AAPS Student Chapter had the pleasure of hosting Dr John Patton.

Dr Patton is currently CEO and President of Dance Pharmaceuticals Inc. based in San Francisco. Previously, Dr. Patton co-founded Nektar Therapeutics (formerly Inhale Therapeutic Systems) where he served as Chief Scientific Officer from November 2001, and as a director from 1990 to 2008. He is an expert in the delivery of peptides and proteins. Before co-founding Nektar Therapeutics, Dr. Patton led a drug delivery group at Genentech, Inc., where he demonstrated the feasibility of systemic delivery of large molecules through the lungs. In particular, he is a pioneer for the delivery of inhalable insulin and indeed was the driving force behind the development of Exubera. He is an acknowledged leader within the Pharma and Biotech industry, and a notably successful entrepreneur within this field.

After a guided tour of the School, Dr. Patton delivered a well-received talk entitled "Inhaled medicines for systemic action with an emphasis on proteins, peptides and insulin". Here, Dr Patton discussed the successes and failures in the development of systemic acting inhalable medicines, and offered his views as to how this mode of therapy will develop in the coming years.

Following an open lunch in the School's Atrium, Dr Patton chaired a "Roundtable Discussion" session in which he answered the questions of Student Chapter members, providing his thoughts and advice on careers in both academia and the pharmaceutical industry.

The Executive Committee would like to thank all those who attended the talk and participated in the Roundtable Discussion. We are grateful for assistance from Dr Carsten Ehrhardt in helping to arranging Dr Patton's visit and thanks is also due to Liesa Eckhardt for her help in booking the venues and organising the catering.

By Stephen, Vincent, Evelyn and Fred
Trinity College AAPS Student Chapter Executive Committee



(roundtable discussion—from left; clockwise): Maria Dul, Edyta Paszko, Sibylle Endter, Leonie Baginski, Dr Patton, Dr. Carsten Ehrhardt (TCD AAPS Advisor), Dr .Vincent Caron (Chair Elect), Stephen Buckley, (Chair), Elena Schwagerus, Janani Swaminathan, Dr. Frederic Tewes (Vice Chair), Bo Lium, Vincent Curtin



(lunch Reception, from left): Sibylle Endter, Christine Grossjohann, Elena Schwagerus, Stephen Buckley, Dr John Patton

Many congratulations to Dr. Oliviero Gobbo

In addition to his journal publications (see page 16), over the past few months Dr. Oliviero Gobbo has

- ♦ published a book entitled "Models of Neurodegeneration in the Hippocampus: Molecular & Behavioural Factors promoting Neuroprotection and Neuropathology; Oliviero L. Gobbo (author); Lambert Academic Publishing, 2010
(to purchase see: http://www.amazon.co.uk/s/ref=nb_sb_noss?url=search-alias%3Dstripbooks&field-keywords=oliviero+gobbo&x=0&y=0)



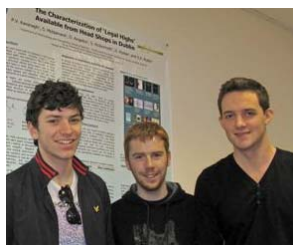
- ♦ been granted an Innovation Bursary Award (2010) from the TCD-UCD Innovation Alliance to contribute to his development of efficient drug delivery to the lung using Magnetic Resonance Ventilation Imaging Technology, and
- ♦ been selected to receive a travel award from the European Federation for Pharmaceutical Sciences (EUFEPS), to attend the 2010 FIP PSWC/AAPS Annual Meeting and Exposition in New Orleans

Oli is now working as a Post-Doctoral Fellow in Dr. Carsten Ehrhardt's research group.

...and to Ms. Sheila Ryder's research group

Recently Eileen Relihan was awarded the Patient Safety Initiative Award at the Aramark Healthcare Innovation Awards 2010, for work undertaken as part of her PhD research under the supervision of Sheila Ryder.

(left to right): Joan O'Shaughnessy (CEO, Aramark), Emma Hayes (Clinical Support Nurse, St James's Hospital/TCD), Eileen Relihan (PhD student), Aine Brady TD (Minister of State for Older People and Health Promotion).



Also, three medical undergraduates, jointly supervised by Sheila and Dr Pierce Kavanagh (School of Medicine), won the prize for 'best poster' for their work on the characterization of 'legal highs' available from headshops in Dublin, at the launch of the Trinity Student Medical Journal.

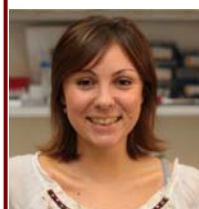
(left to right): Daniel Angelov, Sean McDermott, Daniel Mullan

... and to Dr. Deirdre D'Arcy

At the SOTAX Congress held in Basel in September, Dr. Deirdre D'Arcy received the Dissolution Innovation award for her work in flow-through cell technology.

Congratulations Deirdre on this achievement !

... and also to Dr. Serena Germano



Congratulations is also due to Dr. Serena Germano whose work on breast cancer, while based in our School, resulted in Breast Cancer Campaign selection for Post-Doctoral Prize at its international conference which was held in London .

Serena who, at the time, was working in Dr. Lorraine O'Driscoll's research group, on a project funded by Health Research Board, has recently taken us a research post at Université Pierre et Marie Curie Tenon Hospital in Paris.



2010 Pharmacy International Federation Meeting

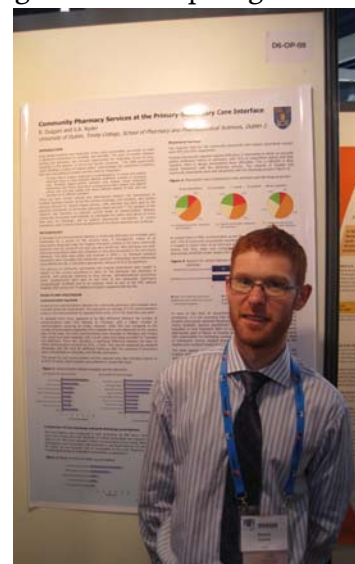
Dr. Martin Henman and **Ms. Cicely Roche** recently attended FIP 2010 - The International Pharmacy Federation meeting, which was held in Lisbon.

During the course of this meeting in Lisbon, **Bernard Duggan**, a former under-graduate and post-graduate student from our School presented some of his MSc work.



(above) Dr. Martin Henman, Noeleen Harvey, President PSI and Paul Fahey, Vice-President

(below) Dr. Martin Henman, Ms. Cicely Roche



(above) Mr. Bernard Duggan

Catherine Coffey's daughter wins trip-of-a-lifetime on Cultural Exchange Programme to Vermont, US

Catherine Coffey, one of our hardworking EOs also has reason to celebrate!

This summer, Catherine's 16 year old daughter, Vanessa, won a prestigious travel award to visit Vermont, US. Vanessa spent two weeks in the renowned Governors Institute debating Youth Activism issues with young people from all over the United States. The fully-funded award was sponsored by Cork-based EIL Intercultural Learning, which organises cultural and educational travel programmes worldwide.

Vanessa, from Loreto Secondary School, Bray, travelled to Vermont with four other Irish winners. The selection was based on a written application, participation in a group workshop and an interview.



Vanessa with her EIL Award

The programme challenges young people to find answers to difficult questions by exploring different sides of issues and political perspectives. EIL is an Irish not-for-profit organisation which is recognised as a "Peace Messenger" by the United Nations. Many of us here in the School will have met Vanessa when she spent some time here during her transition year.

We wish Vanessa and Catherine our warmest congratulations.

PUBLICATIONS FROM OUR SCHOOL

(May 2010-August 2010)

- **Dunleavy M, Shinoda S, Schindler C, Ewart C, Dolan R, Gobbo OL, Kerskens CM, Henshall DC.** Experimental neonatal status epilepticus and the development of temporal lobe epilepsy with unilateral hippocampal sclerosis. *Am J Pathol.* 176(1):330-42, 2010
- **Hennessy E, Clynes M, Jeppesen PB, O'Driscoll L.** Identification of microRNAs with a role in glucose stimulated insulin secretion by expression profiling of MIN6 cells. *Biochem Biophys Res Commun* 396(2):457-62, 2010
- **Rani S, Mehta JP, Barron N, Doolan P, Jeppesen PB, Clynes M, O'Driscoll L.** Decreasing Txnip mRNA and protein levels in pancreatic MIN6 cells reduces reactive oxygen species and restores glucose regulated insulin secretion. *Cell Physiol Biochem* 25(6):667-74, 2010
- **Barrett I, Carr M, O'Boyle N, Greene LM, Knox AJ, Lloyd DG, Zisterer DM, Meegan MJ.** Lead identification of conformationally restricted benzoxepin type combretastatin analogs: synthesis, antiproliferative activity, and tubulin effects. *J Enzyme Inhib Med Chem* 25(2):180-94, 2010
- **Cloonan SM, Keating JJ, Corrigan D, O'Brien JE, Kavanagh PV, Williams DC, Meegan MJ.** Synthesis and *in vitro* toxicity of 4-MTA, its characteristic clandestine synthesis byproducts and related sulfur substituted alpha-alkylthioamphetamines. *Bioorg Med Chem* 18(11):4009-31, 2010
- **Tewes F, Tajber L, Corrigan OI, Ehrhardt C, Healy AM.** Development and characterisation of soluble polymeric particles for pulmonary peptide delivery. *Eur J Pharm Sci* 41(2):337-352, 2010
- **O'Byrne PM, Williams R, Walsh JJ, Gilmer JF.** The aqueous stability of bupropion. *J Pharm Biomed Anal* 53(3):376-81, 2010
- **Kelly ME, Blau CW, Griffin KM, Gobbo OL, Jones JF, Kerskens CM.** Quantitative functional magnetic resonance imaging of brain activity using bolus-tracking arterial spin labeling. *J Cereb Blood Flow Metab.* 30(5):913-22, 2010
- **Vanattou-Saïfoudine N, McNamara R, Harkin A.** Mechanisms mediating the ability of caffeine to influence MDMA ('Ecstasy')-induced hyperthermia in rats. *Br J Pharmacol* 160(4):860-77, 160
- **Vanattou-Saïfoudine N, McNamara R, Harkin A.** Caffeine promotes dopamine D1 receptor-mediated body temperature, heart rate and behavioural responses to MDMA ('ecstasy'). *Psychopharmacology (Berl)* 211(1):15-25, 2010
- **McNamee EN, Griffin EW, Ryan KM, Ryan KJ, Heffernan S, Harkin A, Connor TJ.** Noradrenaline acting at beta-adrenoceptors induces expression of IL-1beta and its negative regulators IL-1ra and IL-1RII, and drives an overall anti-inflammatory phenotype in rat cortex. *Neuropharmacology* 59(1-2):37-48, 2010
- **Hughes CM, Hawwa AF, Scullin C, Anderson C, Bernsten CB, Björnsdóttir I, Cordina MA, da Costa FA, De Wulf I, Eichenberger P, Foulon V, Henman MC, Hersberger KE, Schaefer MA, Søndergaard B, Tully MP, Westerlund T, McElnay JC.** Provision of pharmaceutical care by community pharmacists: a comparison across Europe. *Pharm World Sci* 32(4):472-87, 2010
- **Colgan NC, Cronin MM, Gobbo OL, O'Mara SM, O'Connor WT, Gilchrist MD.** Quantitative MRI analysis of brain volume changes due to controlled cortical impact. *J Neurotrauma.* 27(7):1265-74, 2010
- **Friel AM, Corcoran C, Crown J, O'Driscoll L.** Relevance of circulating tumor cells, extracellular nucleic acids, and exosomes in breast cancer. *Breast Cancer Res Treat* DOI: 10.1007/s10549-010-0980-2 [Epub ahead of print]
- **Sharma R, Majer F, Peta VK, Wang J, Keaveney R, Kelleher D, Long A, Gilmer JF.** Bile acid toxicity structure-activity relationships: Correlations between cell viability and lipophilicity in a panel of new and known bile acids using an oesophageal cell line (HET-1A). *Bioorg Med Chem* DOI: 10.1016/j.bmc.2010.07.030 [Epub ahead of print]
- **Gleeson LC, Ryan KJ, Griffin EW, Connor TJ, Harkin A.** The beta(2)-adrenoceptor agonist clenbuterol elicits neuroprotective, anti-inflammatory and neurotrophic actions in the kainic acid model of excitotoxicity. *Brain Behav Immun* DOI: 10.1016/j.bbi.2010.06.015 [Epub ahead of print]
- **Greene LM, Nathwani SM, Bright SA, Fayne D, Croke A, Gargliardi M, Mc Elligott AM, O'Connor L, Carr M, Keely NO, O'Boyle NM, Carroll P, Sarkadi B, Conneally E, Lloyd DG, Lawler M, Meegan MJ, Zisterer DM.** The vascular targeting agent Combretastatin-A4 and a novel cis-restricted {beta}-lactam analogue CA-432 induce apoptosis in human chronic myeloid leukemia cells and in ex vivo patient samples including those displaying multidrug resistance. *J Pharmacol Exp Ther* DOI: 10.1124/jpet.110.170415 [Epub ahead of print]

And now for the Social & Personal



Welcome Baby Liam

Sincerest congratulations to **Dr. Catriona Bradley** and her husband Geoff on the birth of their son Liam.

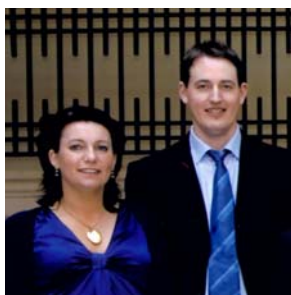
Like his parents, Liam is a “sociable kinda guy” and has already attended social events in The Atrium !

*Congratulations Catriona and Geoff
and very best wishes to the three of you for a happy & healthy life together*



Liam & his proud parents

Welcome also to Baby Gaffney



Warmest congratulations are due also to **Dr. Alan Gaffney** and his wife, Derrelle, on the arrival of their baby son.

All the very best to the Gaffney family for continued future happiness

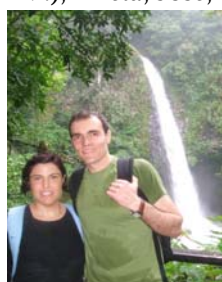
Congratulations on recent wedding of Dr. Juan Jose Corbalan Penas

On Saturday February 27th, **Juan Jose** and Isabelle were married in Lorca (Murcia), Spain.

Juan Jose was a PhD student with Prof. Radomski (until last week when he successfully defended his PhD thesis!).

As shown here- it was “lights-off” in the Radomski laboratory, as any of Juan Jose’s colleagues who was able to attend on the big day certainly had no intentions of missing it....

(left to right): Derrelle and Alan, Maciej (Aneta's husband...see page 19!), Aneta, Jose, Isabella, Joanna, and David (Joanna's fiancé).



Juan Jose & Isabella then honeymooned in Central America.

(Picture on left): La Fortuna Waterfall (Arenal Volcano Region, Alajuela Province, Costa Rica).

Very best wishes Juan Jose & Isabella for the years to come



.... And even more happy events to celebrate

Sincere congratulations is also due **Dr. Helen Gallagher**, now a Senior Sophister student, who married Jarleth Heneghan on July 17th in University Church, St Stephen's Green.

Helen, Jarleth, their families & fiends held their reception at the Radisson St Helen's Hotel, Stillorgan Rd.

For honeymoon Helen and Jarleth enjoyed a cultural trip to Prague (courtesy of The Irish Times) and then went on to the Amalfi coast. Jarleth is a partner in William Fry Solicitors.



Helen and Jarleth enjoying their wedding day (left & above) and with Helen's sister & 5 adoring



Congratulations Helen & Jarleth

.... Last but by absolutely no means least, congratulations to Dr. Aneta Radziwon

One week after her successful PhD *viva voce*, which was held on the 23rd July, **Dr. Aneta Radziwon** and Maciej were married in Gdansk, Poland.



Yet, again, this was an opportunity for the Radomski laboratory & many others to celebrate. An excellent time was had by all.

Aneta will depart TCD next week, to take up a Post-Doctoral position which she has been offered in Canada. (We'll miss you Aneta).

Aneta & Maciej on their wedding day (left); the radiant bride (right)



*All the very best Aneta and Maciej for a great future together
& sincerest congratulations on the PhD, wedding and Post-Doc. position in Edmonton !*

I hope you have enjoyed reading this issue of The Elixir.

A special word of thanks is due to the **many contributors** of articles for inclusion in this issue and also to those who contributed suggestions along the way.

As always, if you have any suggestions of what you would like to see included, class photographs taken over the years, *etc.*, please do let me know by sending your comments/articles/photographs by post or e-mail to the editor, **Lorraine O'Driscoll (lodrisc@tcd.ie)**.

Thank you !