

# script<sup>+</sup>

THE MAGAZINE OF THE WELSH SCHOOL OF PHARMACY



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**Insect investigators:**

**Buzz over superbug sleuths**



**+ THE CURIOUS CASE OF  
PROFESSOR CAMPBELL**

**PROTIDES TOOL KEY +  
TO DRUG DISCOVERY**

# CROESO/WELCOME

**AM delighted to welcome you to *Script*, a new magazine for alumni, students, friends and supporters of the Welsh School of Pharmacy.**

The launch signifies the School's strong desire to celebrate the achievements of staff, students and former students as widely as possible and to provide a bulletin of our news for all who support the School.

It is our intention to publish two issues of *Script* a year.

The last year has been an exciting one for me, since taking over as Head of School in August 2010. It is a great personal honour and a privilege to lead one of the UK's oldest and most illustrious schools of pharmacy.

The School is consistently ranked as one of the top schools of pharmacy in a list that is constantly growing.

I am very conscious of the responsibility entrusted to me as the seventh Head in the School's 92-year history. My predecessor, Professor Stephen Denyer, handed on the baton to me after a very successful and busy seven-year tenure, with the School on a secure footing to withstand the current external economic storm and to develop its activities in the years ahead.

Cardiff University has a vision to be one of the world's leading universities. The School's strategy is supporting this vision. Our School aims to be a world-leading institute of pharmaceutical sciences research and an international leader in pharmacy education, advancing knowledge that has impact and influence.

The School would not exist without a student body and our undergraduate students in particular continue to play a major role as ambassadors. Beyond their high academic ability, our students excel in so many ways. Every year the Welsh Pharmaceutical Students' Association is engaged in sporting, community volunteering and charitable activities.

Earlier this year, it was a privilege for me to attend the gala dinner of the Kidney Wales Foundation with a group of undergraduates who had raised money for the charity through a sponsored walk. This is just one example of the way in which our students contribute to the well-being of society but there are countless other examples of our students, individually and collectively, acting as a force for good.

We work hard to attract and select the academically most able people of their generation. But our students are far more than clever people! We are fortunate to attract responsible, compassionate, committed and well-rounded individuals, many of them set to become movers and shakers in the decades ahead.

The School's alumni include among their number many who have gone on

to become leaders in the profession, academia and society; I have every reason to believe that many of the current student body, both undergraduate and postgraduate, will go on to lead and influence the world after they graduate.

A major initiative that Stephen Denyer oversaw during his period as Head of School was establishing links with an overseas partner, Taylor's University in Kuala Lumpur, to develop pharmacy education in Malaysia ([page 4](#)).

The last academic year saw the enrolment of the inaugural cohort of students who are studying the first two years of the Cardiff MPharm programme at Taylor's University. From September 2012, some of this group will transfer to Cardiff to enter the third year of the scheme. This exciting and innovative initiative brings mutual benefits to both institutions and it has been a pleasure for staff here to interact with colleagues in Kuala Lumpur and to contribute to teaching there.

The arrival of transferring students will augment our thriving international community. Students come from across the globe to join our School, as both undergraduates and postgraduates, and this dimension is a distinguishing feature of which we are very proud.

Of course, our staff play no small role in shaping and forming the students who come to us. For me, belonging to an institution such as Cardiff University brings the thrill of constant exposure to people very much more intelligent and imaginative than oneself on a daily basis. So many of our staff inspire not only the students whom they instruct, but society more widely.

In this issue of *Script*, you will read something of the research that is making, or is well placed to make, real impact beyond the academic world.

Professor Chris McGuigan's research in medicinal chemistry is a fantastic example of how academic imagination has the potential to change the lives of millions. Drugs invented only very recently in Chris's laboratory are now poised at critical stages in human testing ([pages 8 and 9](#)).

The scale of such an achievement cannot be overstated since the hurdles against bringing a new drug from the point of synthesis to clinical trials are huge: to use a cliché, this really is rocket science!

Our staff inspire and influence beyond the University in countless other ways.

The secondment of Professor Walker to the post of Chief Pharmaceutical Officer in the Welsh Government is a great achievement for Roger and one that the School is particularly proud of ([page 5](#)).

Professor Tony Campbell who has a long association with the School and who



officially joined us from the Medical School in 2010, has recently been awarded an Inspire Wales Award for his promotion of science, particularly to young people through a number of initiatives ([page 3](#)).

In order to achieve everything that we wish to – and to do yet more – the Redwood Building, home to the School for 51 years, is undergoing an extensive programme of renovation.

The School of Optometry and Vision Sciences vacated the site in 2007 and the space released to the School of Pharmacy is being refurbished. As I write, the finishing touches are being applied to a new clinical teaching area.

This will permit us to develop aspects of pharmacy practice education in the MPharm programme very considerably.

One of the features of the teaching area is the provision of consultation rooms, which we envisage being used for clinical work bringing patients and practitioners into the School, providing an enhanced exposure to practice experience for our students in a high-quality environment.

This is key to our aim of developing the MPharm and postgraduate courses so that they continue to be among the top-ranking qualifications in the field, valued by both graduates and employers.

Other developments in the refurbishment of the Redwood Building will ensure that our laboratories are rationalised and upgraded, to support our vision of being a world-leading institute of pharmaceutical sciences research.

I will look forward to bringing you news of these developments in subsequent issues of *Script*. I hope that this first edition will provide you with a real and direct link to the School.

In choosing material for this issue we have been highly selective and there is much more we want to tell you. Nevertheless, I hope everyone will find something of interest.

For some of you the news may revive long-lost memories. Please let us have your thoughts on this new initiative: we want to know what you enjoyed, what you would like to know more about, and we want alumni to give us their news.

If you would like to contribute to future issues of *Script*, email the editor, Mrs Bernadette Corby, at [script@cardiff.ac.uk](mailto:script@cardiff.ac.uk)

Enjoy! – **Professor Gary Baxter, Head of School**

# Bright spark honoured

**C**URIOSITY is the cornerstone of discovery and one of mankind's greatest gifts, according to the winner of this year's Inspire Wales Award for Science and Technology.

Professor Tony Campbell, who was rewarded for 40 years of scientific endeavour and unwavering enthusiasm for research at a gala dinner in Cardiff this summer, credited natural inquisitiveness with his success.

Reflecting on the high-profile awards evening, run by the Institute of Welsh Affairs and the *Western Mail* to celebrate figures who encourage active citizenship in Wales and promote their communities, the esteemed Welsh School of Pharmacy lecturer said: "I had two main ambitions in life – one was to do something significant in science, to discover and invent something which is of value, and the second is to excite young people about doing what I love doing and that is science.

"It was very exciting for me to have an independent panel recognise that I have made a contribution – I was delighted."

Professor Campbell's honour recognised a career characterised by ground-breaking discoveries and a driven desire to "ask the key question".

His research throughout the 1970s and 1980s into the way in which living creatures can generate their own natural

lights led to a major breakthrough in medical and health research.

As a result of his work on the bioluminescent jelly fish Obelia, he pioneered the use of chemiluminescence (light-emitting chemical reactions) as a replacement for radioactivity in cell biology, immunoassay and DNA technology.

This invention combined with the School of Medicine's world-leading technology helped scientists to further explore biology and disease – from the process of blood clotting to screening for potential new drugs – and is now used in millions of clinical tests per year.

In addition to his field and laboratory research, Professor Campbell has worked tirelessly to engage with schools since setting up Cardiff University's Public Understanding of Science in Health group 19 years ago. In 1994, he founded The Darwin Centre for Biology and Medicine with the aim of exciting schoolchildren about science.

"An important element of the Inspire Wales Award is to show both young people and the powers-that-be that we need to give individuals the freedom to follow a good idea," Professor Campbell told *Script*.

"When I began looking at bioluminescence some people asked why I was going out on the beach looking for animals that glow in the dark when I had been brought to Cardiff to do medical research.

"It was a risk but I could see that the importance of the questions I was asking were worthy."

He added: "One of life's great puzzles is why are humans curious?"

"It is one of our greatest gifts in my view. Everyone is curious and I must have had a few sparks as a child; I started collecting shells, got curious about their shapes, their life history and I was always the one to ask questions at school.

"Curiosity is absolutely fundamental to life. People should be encouraged to be curious; whether you are a scientist, musician, artist or a writer – it is the heart of doing original work."

Professor Campbell, who has published eight books and more than 200 peer-reviewed papers, insists that his own curiosity remains unquenched.

Having transferred to the School of Pharmacy in 2010, he has put forward a revolutionary hypothesis that metabolites produced by bacteria in the gut are the cause of one of the most common ailments that affects the human population – irritable bowel syndrome.

His work in this field could also have implications for diabetes, arthritis,



**People should be encouraged to be curious; whether you are a scientist, musician, artist or a writer – it is the heart of doing original work**

**Inspire Wales Award for Science and Technology winner: Prof Tony Campbell**

heart palpitations, some cancers and brain diseases such as Alzheimer's and multiple sclerosis.

"There are still some fundamental questions that I am keen to ask," Professor Campbell said.

"One of which is about evolution because I am very keen on Darwin and hope to still make a big contribution to how his ideas can be used in the 21st century at the heart of medicine.

"I'd like to leave a legacy and one hopes that the Darwin Centre will go on. It is now running events involving all the schools in Pembrokeshire and has had a huge impact on their education system – that is a thrill and I hope it will lead for generations to come."

Professor Gary Baxter, Head of the Welsh School of Pharmacy, said: "Tony's award is a richly-deserved recognition of his lifetime passions for discovery and communication.

"One only has to be in Tony's company for a few minutes to gain a sense of his scientific originality, creativity and enthusiasm.

"It is a real pleasure to work alongside our 'curious professor'."



**Some asked why I was going out on the beach looking for animals that glow in the dark when I had been brought to Cardiff to do medical research**



Photo: Anja Ranneberg

## EISTEDDFOD EXPERIENCE

+ A TRIO of Welsh School of Pharmacy undergraduates rubbed shoulders with dance troupes, classical choirs and brass bands at this year's National Eisteddfod of Wales in Wrexham.

Helping to staff Cardiff University exhibits at the festival's Science and Technology Pavilion, students Malen Gwilym, Eleri Jones and Nia Tomos gave the next-generation of pharmacists a flavour of their field using a stem cell puzzle.

Developed for the 2011 Eisteddfod, the cell conundrum is set to become a regular fixture at Cardiff Bay's Techniquest site.

The University's prominence at the high-profile cultural showcase was a product of the public engagement bursary awarded to Dr Arwyn Jones, Dr Bob Steadman (Medic) and Dr Pete Griffiths (Chem) in 2010.

Dr Jones, Reader in membrane traffic and drug delivery, has a strong interest in public understanding of science and regularly contributes to related television and radio programmes.

## LLOYD'S LEGACY

+ THE memory of an inspirational former head of the Welsh School of Pharmacy has been permanently remembered after a lecture theatre was renamed in his honour.

Members of the Lloyd family were present as the department's current head, Professor Gary Baxter, renamed the Redwood Building's Pharmacy Lecture Theatre the Vernon Lloyd Lecture Theatre.

Vernon Lloyd took charge of the Welsh School of Pharmacy in 1930 and spent 37 years in post, overseeing huge developments including the School's transition from a technical college to a university.

He also served as Vice-Principal of the Welsh College of Advanced Technology from 1959, playing a key role in the creation of the New Building, which later became the Redwood Building.

Professor Paul Nichols, son-in-law of Vernon Lloyd and himself a former Deputy Head of the School, delivered a speech on behalf of the Lloyd family who said they "deeply appreciated" the honour.

A portrait painting and commemorative plaque were unveiled during the ceremony.

# Academic alliance

**S**TUDENTS at one of Malaysia's top universities are benefitting from the expertise of the Welsh School of Pharmacy thanks to an innovative international collaboration.

The Welsh School has "exported" its MPharm curriculum as a collaborative programme with Taylor's University in Kuala Lumpur.

Students have the choice of studying all four years in Malaysia for a Taylor's degree or of studying for two years in Malaysia before completing a second two-year period in Cardiff.

Those following the 2 + 2 route will



graduate with an MPharm qualification from Cardiff University at the end of their studies. The collaborative programme began enrolling students

in January 2011 after receiving approval from the General Pharmaceutical Council and Pharmacy Board of Malaysia.

The curriculum is fully integrated with Cardiff, with the Welsh School overseeing exams, assessment and moderation.

Set up in 1969, Taylor's University recently moved to its brand new campus in the Klana Valley.

The site is set in landscaped tropical grounds and is centred around a 5.5 acre lake.

## Denyer decoration on display

**THE outgoing Head of the Welsh School of Pharmacy has had his portrait added to a gallery of his predecessors following a ceremony in the Redwood Building.**

**Professor Stephen Denyer, the sixth Head of School, unveiled the photo portrait, which will hang in the Building's main stairwell, following a speech by his successor, Professor Gary Baxter.**



Professor Stephen Denyer

**The academic had served as Head of School for eight years since his appointment in 2003 and has moved on to take up a new appointment as Deputy Pro-Vice Chancellor for Education and Students.**

**Cardiff University colleagues marked Professor Denyer's time as leader of the School of Pharmacy**

**by presenting him with a crystal whisky decanter.**

## Farewell salute to graduates

THE latest generation of pharmacists are plying their newly-learned trade in earnest after becoming graduates of Cardiff's Welsh School of Pharmacy.

Scores of young men and women were joined by their proud relatives for the 2011 graduation ceremony, which was held in St David's Hall on Friday, July 22nd.

Before the ceremony, all of the graduates were invited to a special reception hosted by the School in a marquee outside of the University's Main Building.

Head of School Professor Gary Baxter took the opportunity to present a number of students with individual

awards, including:

- Rebecca Ross: **Welsh School of Pharmacy Prize**
- Mathew Ivory: **Royal Pharmaceutical Society Science Committee Prize**
- Mathew Ivory: **Glenys Drew Memorial Prize**
- Merna Asaad: **Innovation in Regulatory Science Prize**
- Izzati Yossaf: **Vernon Lloyd Memorial Prize**

See pages 10-11 for more alumni news

## Lead role for Walker

A CARDIFF academic plans to harness the expertise of the Welsh School of Pharmacy in his position as Wales' head of profession.

Professor Roger Walker is the new Chief Pharmaceutical Officer for Wales after taking up the post on a five-year secondment from Cardiff University earlier in 2011.

The Professor of Pharmaceutical Public Health will be responsible for supporting the work of the Welsh Government and its politicians in developing policies and practice relating to pharmacy.

He said: "It's an incredible privilege to hold the post. I have worked for the last 30 years holding a dual role between academia and practise and I am very pleased to have progressed on to this."

"Hopefully I can support the aspirations of the School in progressing its teaching, learning and research ethos and they can help me in my new position in advancing policies. I see it as mutually beneficial."

Professor Walker joined the Welsh School of Pharmacy in 1990 after starting his career as a clinical pharmacist and progressing onto a managerial role within a health authority, eventually becoming Director of Pharmaceutical Public Health at Gwent Health Authority.

He has maintained research interests despite taking on his new post and is still supervising two PhD research students.

The academic has also just published the latest version of his textbook, *Clinical Pharmacy and Therapeutics* (ISBN 9780702042935), which he edited alongside Cate Whittlesea.



**Hopefully I can support the school in progressing its teaching, learning and research ethos**

Professor Roger Walker



## Steep learning curve

**K**EEN to mark a personal milestone with more than just a celebratory drink, Dr James Birchall cycled the length of Wales ahead of his 40th birthday.

The Reader in Pharmaceutics completed the Lon Las Cymru – a 260-mile ride from Holyhead to Cardiff Bay – in four-and-a-half days, raising £2,500 for Steps, a charity supporting children and adults affected by lower limb conditions.

"I wanted a bit of a challenge in my 40th year and one that would help me get fitter," Dr Birchall told *Script*.

"Another motivating factor was that I am from Wales but had not visited many parts of the country and I wanted to see more."

"The third reason for doing something was that I have a son, Freddy (5), who had a lower limb disorder when he was born and I wanted to raise a bit of cash for the charity that supported us when he was younger."

Having ruled out a running challenge due to a bad back, Dr Birchall settled on the marathon ride after an internet search uncovered a national cycle route that takes in some of Wales' most stunning scenery.

With a mission in mind, the lecturer bought a bike through the University's cycle to work scheme and completed around 1,000 hours of training in preparation for a trek regarded as one of the UK's toughest long-distance routes.

Reflecting on

a journey that took in three mountain ranges, Dr Birchall said: "I felt pretty good at the start."

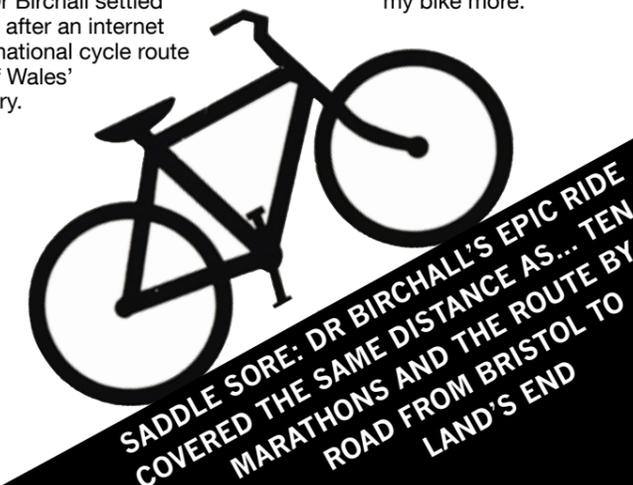
"Day one was reasonable, day two was really good but day three was simply horrific."

"I don't think any training would have prepared me for that third leg. I had no problems being on the bike, my muscles held up well and I had no sores but that day's route included two massive hills – one of which was an eight-mile continuous climb."

But memories of Lon Las's steep ascents and periods of battering winds and hail have not convinced the rider to retire his bicycle.

Dr Birchall, who was joined on the saddle by his two brothers and a friend, and supported en route by his father, said: "I'm still cycling to work, albeit not as often as I would like."

"I had something to aim for with the challenge but we're now talking about doing something next year and once that's decided I'm sure I'll be back on my bike more."



**A** never present in man's medicine cabinet for the past 5,000 years, honey could soon be employed as a decisive weapon in the battle to beat hospital superbugs.

A taskforce of researchers from the Welsh School of Pharmacy and the National Botanic Garden of Wales believe the sweet spread and its maker – the humble bee – could hold the secret to fighting MRSA [Methicillin Resistant Staphylococcus Aureus] and Clostridium difficile.

Led by Professor Les Baillie, the scientists are hoping to extend honey's healing reach beyond the treatment of burns, allergies and infections to tackle the antibiotic-resistant bacteria that caused more than 3,000 deaths in England and Wales last year.

"We're running out of ways of treating them," Professor Baillie, joint coordinator of the School's drug delivery and microbiology research discipline, said.

"We're living with the legacy of the past – the inappropriate use of antibiotics through buying them on the internet and using them in animal feed.

"Honey at its most basic is concentrated sugar but even that can do nasty things to bugs, sucking the water out of them.

"We hope to identify compounds that will also target pathogens [organisms that cause disease] in humans."

Although commonly found in cough mixtures and wound dressings, honey's use as a medicine has historically been on a "try it and see" basis, according to Cardiff's professor of microbiology.

"We've only scratched the surface of the biology," he added.

The healing habits of honey are dependant on a range of factors that include the hyperosmotic properties of sugar, the production of hydrogen peroxide, metabolic by-products such as methylglyoxal, bee-derived peptides and phytochemicals donated by the plants visited.

Spurred on by the antibacterial attributes of Manuka honey, which is produced by bees that forage on the Manuka bush in New Zealand and famed for its potency, the joint project aims to identify native British plants with similar therapeutic properties by screening honey samples collected from every corner of the UK.

"Our plan is to employ bees as private investigators and to send them out to interview every flowering plant in the country," explained PhD student Jenny Hawkins.

"During each visit they will collect a forensic material in the form of nectar containing phytochemicals – some of which may be antibacterials – and pollen which holds the DNA fingerprint

# NATURE'S MEDICAL MESSENGER

Study recruits nation's honey bees as 'private investigators' for MRSA mission

of the plant.

"The properties of honey collected from different parts of the country vary greatly depending on the time of year and the plants that are in bloom.

"Different honeys act against different microbes depending on the chemicals in the plants visited by bees."

Using laboratory-based tests developed at the University, the harvested honey will be mixed with the bacteria that have plagued hospital wards to screen the medicinal potential of the bees' food.

At the time of writing, Professor

Baillie's team had acquired more than 70 jars to analyse, mainly from Welsh beekeepers and supermarkets.

Samples that show promise and potency will be passed to the National Botanic Garden of Wales in Carmarthen and subjected to a DNA profiling process that has already barcoded the nation's 1,143 species of flowering plants. This detailed biological record enables any species to be identified from the tiniest fragment of leaf, seed or pollen grain.

The research, which is being financed by the Society for Applied Microbiology and supported by the European Social Fund and Welsh Government, aims to provide scientists with a means of creating new drugs through the plants rather than honey itself.

Professor Baillie added: "We're hoping to cut out the middle man and let the bees do a lot of the hard work, guiding us to those plants which work."

In addition to preserving human lives, researchers ultimately hope to pay back honey's tireless producers by identifying flowers that increase the natural resistance of bees to pests.

Among the targets on the team's hit list are the Varroa mite, which has ravaged the UK bee population, and American Foulbrood, an infectious disease that attacks the insects' larvae and can wipe out entire colonies.

Such is the severity of the latter that earlier this year it was reported that it could take up to five years for Jersey's bee population to recover following an outbreak in June 2010.

Key to Britain's eco-system, bees are estimated to contribute £430 million a year to the UK alone by pollinating crops and producing honey.



Professor Les Baillie

Jenny Hawkins

““”

**We're hoping to cut out the middle man and let the bees do a lot of the hard work, guiding us to those plants which work**

Professor Les Baillie



Photo: Danijel Juricev

With the prospect of discovering a "superhoney" capable of conquering both hospital superbugs and safeguarding the flying insects spearheading the research a real possibility, there is a distinct buzz about the project within the medical and botanical communities.

However, Miss Hawkins insisted that contributions to the research are not restricted to scientists and called on the UK's beekeepers to play their part.

"In preliminary studies we have identified a number of Welsh honeys with antibacterial activity and are in the process of determining their DNA profile," she said. "While the early results are promising we are still seeking additional samples from across the UK to increase our chance of finding therapeutic compounds. We are

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**The properties of honey collected from different parts of the country vary depending on the time of year and the plants in bloom**

Jenny Hawkins

therefore appealing to beekeepers from across the country to send us samples of their honey along with a list, if known, of the plants their bees feed on.

"The more samples we receive the greater our chance of isolating therapeutic drugs."

**+ Those wishing to contribute to the project should send a 200g sample to: Miss Jenny Hawkins, Welsh School of Pharmacy, Redwood Building, King Edward VII Avenue, Cardiff CF10 3NB.**



Photo: Phil Beard

**A** DRUG created by a team of Cardiff scientists could herald a major breakthrough in the treatment of infections caused by the deadly Hepatitis C virus.

Under the leadership of Professor of Medicinal Chemistry Chris McGuigan, researchers from the Welsh School of Pharmacy have spent the last four years developing a new treatment for the disease, which left untreated can lead to liver failure and death.

Their efforts in partnership with US company Inhibitex have seen their drug, INX-189, fly through two major milestone trials and enter a pivotal stage of testing that will determine whether it is likely to be approved for wider use.

Professor McGuigan explained: "Phase One trials involve a tiny dose in volunteers where we're looking for toxic reactions. Those trials happened in May 2010 and were so effective that in March 2011 we went into Phase 2A where INX-189 went into patients with Hepatitis C.

"On August 15 we went into pivotal Phase 2B which will see hundreds of patients with Hepatitis C receive the drug. That will run until about Easter next year and what happens then will be the life or death of the drug. It is ten times more effective than our competitors' drugs based on earlier data, so it looks very promising."

The development of INX-189 was only made possible thanks to the Welsh School of Pharmacy's innovative ProTides technology. Developed by Professor McGuigan and his team from 1996, the system allows medicinal chemists to apply a technique to compounds, molecules, drugs or drug candidates to boost activity by creating entirely new molecules.

ProTides' value had previously been proven when, under a research partnership with GSK, new entities "bolted" onto an anti-HIV drug made the agent 9,000 times more active. And in 2006, Cardiff linked up with colleagues from California's Roche Palo Alto to



gauge the system's effectiveness against Hepatitis C by adding a similar "bolt on" to an inactive nucleoside.

The results were positive and spurred Professor McGuigan's team on to take their research to the next level by using ProTides on a drug previously worked

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**What drives us is that there is such an enormous need. There are four times as many people infected with Hepatitis C as with HIV**

**Professor Chris McGuigan**

on by pharmaceutical company Merck. He said: "Merck developed a molecule that wasn't very active but did have some activity. However, when they put it in to patients, it failed. We applied ProTides and managed to create INX-189, which was 1,000 times more active.

"From there, the timelines have been astonishing. We signed an agreement with Inhibitex in 2007 and first made the molecule in November 2008.

"It's just a fantastic molecule – we didn't have to tune it much at all. We were also helped by the fact that we worked very closely with such a hungry company who are so passionate about getting this to market."

Since its production, INX-189 has sailed through a testing process notorious for taking most other medicines many years to navigate.

Drugs take on average 17 years to develop and only 10-15 new agents are approved each year. INX-189 progressed from first preparation in November 2008 to human trials on volunteers in May 2010 and tests on Hepatitis C sufferers in March 2011; twice as quick as the industry average.

The pivotal Phase 2B, during which hundreds of Hepatitis C sufferers are undergoing full courses of treatment, began in August this year and is due to conclude next Easter.

Professor McGuigan explained that the odds on INX-189 receiving clinical

approval will have shortened from thousands to one to the equivalent of the "toss of a coin" once the current trial concludes. He said: "You can start work on a molecule that seems to have some activity in it, but the chances of getting somewhere with it are one in 10,000. Almost all new drug candidates will fall somewhere along the line.

"Now we're approaching a situation where it's more like a one-in-two chance and I'm quietly confident."

The 15-strong team responsible for creating and developing INX-189 in Cardiff, and the 50 collaborators at Inhibitex in Atlanta, are in no doubt about the potential value of their work.

Hepatitis C affects three per cent of the world's population and the number of patients is expected to peak in 2016. With current Interferon and Ribavirin therapy only effective in one-in-three people, the Cardiff-developed drug could save a lot of lives.

Professor McGuigan added: "What drives us is that there's such an enormous need. There are four times as many people infected with Hepatitis C as with HIV.

"It's deadly if it's not treated, so the need for this kind of development is obvious. The notion is that all 180 million people are going to die from this disease unless we can intervene.

"One avenue is to stop new infections, but that's never completely successful. We need new drugs and it could be that those will cure or contribute to curing tens of millions of people."

## GWYDRHO MY CARDIFF

**Malaysian student and Lego fanatic Andrew Lim is in the fourth year of an undergraduate Pharmacy degree.**

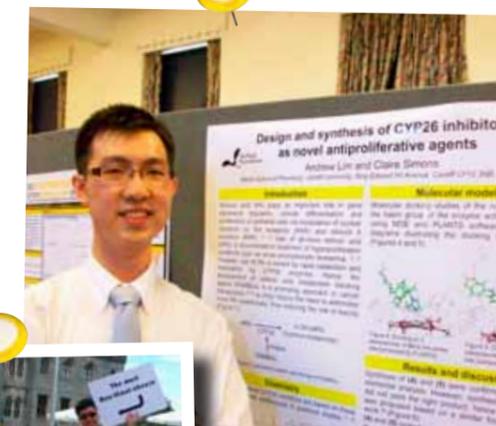
I'm quite interested in chemistry and mathematics, but I wanted to play a part in the healthcare profession. Because of that, I thought that entering into Pharmacy would be a good idea.

I was attracted to Cardiff University by the teaching and research. They have a very good reputation and I was very pleased to be able to come here to study.

I have found the course quite stimulating. There are a lot of lectures in the first and second years and you get a lot of hands-on experience through practicals. As I have progressed to the third and fourth years, I have found my feet and been given lots of opportunity for independent learning. It's quite challenging, but very interesting.

Serving on the Staff/Student Panel has helped me develop as a person. I started in my first year as the international representative and then became secretary in my second and third years. I have had to be very organised with things like the minutes and coordinating elections for new representatives. The role has also really helped my writing skills to improve and I think that being part of the interface between students and staff is an important position.

Winning awards for my poster on designing and synthesising novel compounds were proud moments for me. I won the first at the British Pharmaceutical Students Associations conference in



Portsmouth in April and then received a prize at UK PharmSci in Nottingham in August. I felt

very pleased with the result at the UK PharmSci awards because I had not expected to win.

Cardiff is a wonderful city – it's like a hybrid. I like somewhere that's not too busy and has lots of green spaces, but at the same time is quite bustling. I have found Cardiff has both sides. I love the idea of the University being integrated with the city so that it's easy to go to get groceries or see things like the Castle, the Bay or the Welsh Proms.

I'm not entirely sure what I will be doing after I graduate. I might enter my pre-registration year in Malaysia, but if I have the opportunity to pursue a PhD – possibly in Cardiff – I would be interested.

An interesting fact about myself is that I'm a big fan of Lego. The opening of the Lego store in the St David's shopping centre was one of the most exciting days of my life! I haven't been yet, but I would like to go to Legoland.

# TURNING THE TIDE

University's ProTides technology key to Hepatitis C drug discovery

# High-profile half century honoured

A CARDIFF graduate who has dedicated his career to gastroenterological research has been honoured with a Doctorate of Science award.

Dr Brian Evans received the prestigious degree during this summer's graduation ceremony in recognition of his half-century-long association with professional pharmacy.

Since completing his undergraduate studies in 1964, Dr Evans has combined a career that includes 30 years as a hospital pharmacist in Cardiff with extensive research work that has yielded no fewer than 118 publications.

He told *Script*: "Being informed of my DSc award was a momentous occasion because it was a recognition of my research work and its benefits."

"The graduation day was really something to remember – an occasion to cherish forever. I have many memories of friends and former colleagues that I met that day and, of course, photographs



**Being informed of my award was a momentous occasion because it was a recognition of my research**

**Dr Brian Evans**

and a certificate."

Dr Evans was awarded his doctorate in 1980 while serving as Chief Pharmacist at the University Hospital of Wales for his work in investigating the physical and chemical properties of carminative oils. He was appointed Chief Pharmaceutical



Officer of South Glamorgan Health Authority in 1985 and continued to serve with the health service until 1996, when he concentrated solely on his gastroenterology research.

With his own career receiving deserved recognition, Dr Evans said that the next set of professional pharmacists passing out of Cardiff are well equipped to follow in his footsteps.

He explained: "All healthcare professions' practices have changed and evolved dramatically over the years and will continue to do so."

"I come into contact with Pharmacy students in their final year at the laboratories where I work and have always been impressed with their practical scientific knowledge and expertise and also by their general awareness and confidence in the world of pharmacy in which they will soon become involved. They have been very well prepared."



**Script caught up with Dr Jenna Bowen, who completed her PhD at the Welsh School of Pharmacy this summer.**

**In the second and third years of my degree, I did lab-based research placements.** Through that, I got to find out a lot about research and I was sure even before I finished my degree that I wanted to do a PhD.

**I chose to come back to Cardiff for my PhD because of its excellent research reputation.** I knew all about its strengths from my time as an undergraduate. The School has a broad range of facilities encompassing chemical, biological, analytical and clinical areas.

**Doing a pre-registration year in between my degree and PhD definitely helped me.** Taking a break was a good way to develop myself by being responsible for my own actions and having to deal with a lot of different experiences as they arose.

**I had a couple of options for my research project within the School, but I was very pleased with the one I settled on, which was titled *Detection of lipopolysaccharide pyrogens by molecularly imprinted polymers*.** We chose it not only because it would challenge me, but because it would go somewhere. I didn't want my research to be irrelevant or for me to be sat in a lab making molecules with no end point. It might not be this year or next, but it's nice to know that there's a medical application for my research.

**The course exceeded my expectations in many respects.** My supervisors gave me support and guidance while allowing me to develop as an independent researcher. They encouraged and provided me with opportunities to get involved with a range of other projects within the lab and, as a result, I have developed a breadth of knowledge and skills.

**I was especially impressed with the strength of the School's**

**collaborations.** Because of the way we linked up with the Departments of Chemistry and Engineering, there was a real sense of crossing boundaries and working at the interface of a number of disciplines. Cardiff is all on one campus where everything is nice and close and we were encouraged to seek help from outside the School whenever we needed it. How people from different specialisms see things differs and having those alternative approaches was definitely useful.

**A PhD is hard work and it really does take over your life for the entire period, but I absolutely loved it.** I enjoy coming into work every day and being a part of such an excellent School. We are so multi-disciplinary in our approach and that is a big selling point for graduates thinking of taking on a PhD.

**+ If you are interested in studying for an MPhil or PhD at Cardiff University's Welsh School of Pharmacy please contact Mrs Wendy Davies at [davieswp@cardiff.ac.uk](mailto:davieswp@cardiff.ac.uk)**



## PAST MASTER: RAJ AGGARWAL

**Raised in Nairobi, Raj Aggarwal arrived in the United Kingdom to complete his A-Levels at boarding school in Bath and moved on to a degree at the Welsh School of Pharmacy.**

**He embarked on a hugely-successful career with Boots, becoming the chain's youngest regional manager before making his return to Wales to buy and run a pharmacy in Cardiff.**

**He has gone on to establish six stores and become a major name in the business and charitable sectors in Cardiff. He is an Officer of the Most Excellent Order of the British Empire and Deputy Lieutenant for South Glamorgan.**

**What do you remember about your time at the Welsh School of Pharmacy?**

It was wonderful. It was a world-class institution and still is and I was really very proud to have graduated from it. One of the things I remember about it was that it had a very close-knit community. The students and staff shared a lot of comradeship and there was a like-mindedness about it. It was hard work, but it was a fun place to be.

**Why did you choose to study at Cardiff?**

The reason I was attracted to Cardiff University was that it was one of the oldest schools and was extremely well regarded nationally. I specialised in Pharmacology and that particular department was known around the world for its research and mentorship. At that time, the Welsh School of Pharmacy had a lot of distinguished and accomplished professors and lecturers who were at the top of the profession. The overall leadership was good and that went right down the line. The facilities were probably the best in the country.

**Have you remained involved with the School?**

Professor Baxter keeps me in the loop with what's going on and I am always happy to hear it. I'm very impressed with the development that's going on as it is taking the School to a different level completely and the set-up is in keeping with the needs of the industry. At the end of the day, the students qualifying from the School will feel comfortable practising in the profession because of what they have done during their course.

**What words of advice do you have for new graduates?**

My main tip is to make sure that you gain experience. Once you have done so, it is important to share that with your colleagues in order to help them.

**You do a massive amount of charity work. Why is that?**

Charity is extremely important to me. Being a pharmacist I am used to serving the community, but this is something that I really enjoy doing. I feel like I'm giving something back and that is something I will always relish being

able to do. I try to help causes to do with health, but I'm involved in lots of other things that impact on human beings where I feel I can make a positive difference. My charity work has developed me as a person and made me more confident.

**Do you share your business expertise with others?**

I lecture at the University and at a couple of UK Business Schools. I think people appreciate the experiences that I can relay to them, but it is a blessing for me when I hear back from students about how I have helped them or how they have used some of my ideas.

**What is it about Cardiff that has convinced you to make it your home?**

It is obviously home to the School of Pharmacy and I attribute a lot of my success to that. It is a big piece of my background and is the place where I really developed, so I have a lot to thank the School for. On the whole, I just love the city of Cardiff. It's an exceptional place to live and work and I am very, very happy to be here.

# Top up your talent

The Welsh School of Pharmacy offers an extensive range of continuing professional development courses:

- MSc in International Pharmacoeconomics and Health Economics  
Contact Helen Harron, [harronh@cardiff.ac.uk](mailto:harronh@cardiff.ac.uk)
- Postgraduate Certificate in Non-Medical Prescribing  
Dean Routledge, [routledged1@cardiff.ac.uk](mailto:routledged1@cardiff.ac.uk)
- MSc/Diploma in Pharmacy Clinical Practice (Community & Primary Care)  
Carolyn Alexander, [alexanderc2@cardiff.ac.uk](mailto:alexanderc2@cardiff.ac.uk)
- MSc in Clinical Pharmacy  
Sukken Chan, [chansk@cardiff.ac.uk](mailto:chansk@cardiff.ac.uk)
- MSc/Diploma in Clinical Research  
Rhian John, [johnrd@cardiff.ac.uk](mailto:johnrd@cardiff.ac.uk)

For further information on these Postgraduate Taught Courses visit [www.cardiff.ac.uk/phrmy/degree/programmes/postgraduate/index.html](http://www.cardiff.ac.uk/phrmy/degree/programmes/postgraduate/index.html)

In addition, The Wales Centre for Pharmacy Professional Education provides a selection of courses and resources covering topics including:

- Therapeutics
- Clinical Skills
- Community Contract Specific courses
- Education and Training
- Enhanced Technician Role
- Leadership and Management
- Public Health

For more details visit [www.wcppe.org.uk](http://www.wcppe.org.uk)