Nature did it first

A Queensland husband and wife team, with the help of QIMR scientists, have discovered a natural treatment for cancer.

According to QIMR researcher Professor Peter Parsons, the naturally occurring compound, EBC-46, extracted from the seed of a North Queensland rainforest plant, called Fontainea, may add a significant new weapon in the fight against cancer.

So far EBC-46 has been used to successfully treat cancerous tumours in nearly 200 cats, dogs and horses.

Professor Parsons’ laboratory has been involved in purifying the compound from the seed on a commercial scale, testing the efficiency of the compound against different types of tumours and understanding how it works.

“We have conducted many experiments to understand the mechanism of this compound. It seems that instead of directly killing the tumour cells, it works at least in part, by cutting off the tumour’s blood supply, starving it of nutrients,” Professor Parsons said.

“The compound is very potent and needs to be injected directly into the tumour. It causes local haemorrhage which appears like a bruise and then after several weeks the tumour dies. What is really exciting about this treatment is it does not affect other healthy cells and animal tumours that often reoccur after surgery, do not come back,” he said.

“We have discovered that the compound is a very complicated structure and it would be incredibly hard to synthesise. However, the good news is that nature has done the hard work for us and concentrated it in a seed.

“The rainforest plant can be easily grown in commercial quantities so we would not need to harvest it from existing rainforests. Because the compound is so active, only a couple of hectares of plants would be needed.”

After obtaining approval for general use, pet owners will be able to have their beloved companions treated with EBC-46.

Human trials are expected to start at the end of next year on tumours such as skin cancers, and head and neck cancers. If this goes well, there is potential for treating internal tumours where injection can be guided through imaging processes.

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From the Director

QIMR Council Chair Professor John Hay AC recently announced that Professor Frank Gannon has been appointed as the Institute’s seventh Director and CEO.

Professor Gannon is an internationally renowned expert in the field of molecular bioscience and is currently Director-General of Science Foundation Ireland (SFI).

He will re-locate to Brisbane from Dublin to commence as Director and CEO in January 2011.

Professor Gannon was selected following an extensive national and international search. He has significant experience in managing science, widespread ties with the international scientific community and a passion for scientific excellence.

Professor Gannon said he was very pleased to have the opportunity to take over the leadership of QIMR at this time. "Growth brings with it new opportunities but also the need to adhere to the qualities of research for which QIMR is renowned. The decision to leave Ireland was difficult, but the challenge of contributing to increasing the scientific reputation of Brisbane worldwide is something that I look forward to eagerly," he said.

My role as Acting Director will end soon. May I take this opportunity to wish all our friends and supporters a very happy and peaceful festive season. Your support throughout 2010 has been greatly appreciated.

Thank you to all our supporters who attended the Thank You events and research presentations that were held in October.

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The treatment is being developed by an Australian owned company called QBiotics, a subsidiary of EcoBiotics Ltd.

Oscar the beagle was one of the lucky ones to participate in the animal trial. The cancerous tumour on his nose was treated with a single injection of EBC-46. The results speak for themselves with no sign of the tumour six weeks after treatment.

Oscar pre treatment; 15 days and 6 weeks after treatment with EBC-46

Photo 1: Ken and Doreen Thompson; Photo 2: Lynette Allan, Pat Graham, Edris Solley and Beth Durham; Photo 3: Margaret Stormonth and Nick Ward; Photo 4: Mildred Crombie, Rupert McCall and Allison Thompson; Photo 5: Eileen O’Regan and Professor Emma Whitelaw.
QIMR inducted into Hall of Fame

QIMR was inducted into the Queensland Business Leaders’ Hall of Fame at the annual induction ceremony held on 14 September. Her Excellency, the Governor of Queensland Ms Penelope Wensley AO presented the award to Professor John Hay AC, Chair of QIMR Council, who accepted it on behalf of the Institute.

“Congratulations to all QIMR scientists and staff on receiving this prestigious award. We can all share the honour this award bestows upon QIMR,” said Professor Hay.

An initiative of QUT’s School of Business, the State Library of Queensland and the Queensland Library Foundation, the Hall of Fame celebrates leading businesses and business leaders who have enhanced the state’s reputation and its economy. “QIMR’s induction is in recognition of a distinguished contribution to community wellbeing through world-class medical research and commercialisation.”

In accepting the award, Professor John Hay spoke of the importance and quality of the research conducted at QIMR and acknowledged the significant contribution of philanthropists, Mr Chuck Feeney and Mr Clive Berghofer, and former Directors, Professor Lawrie Powell and Professor Michael Good.

Her Excellency, the Governor of Queensland Ms Penelope Wensley AO presents the award to Professor John Hay AC, Chair of QIMR Council

Junk DNA or a treatment for cancer?

Researchers have found a new way to kill cancer cells, paving the way for a new generation of cancer treatments.

By blocking the function of a type of genetic material called microRNA, researchers have dramatically decreased the size of cancerous tumours.

“MicroRNAs originate from part of our DNA that has long been thought of as junk DNA. Much is still unknown, but we know they can interfere with the functioning of genes and can control the production of proteins in the body,” said Dr Susan Woods of QIMR’s Oncogenomic Laboratory.

“We chose to study a particular type of cancer called neuroblastoma, which is a childhood cancer of the nervous system. We found that these cancers over-produce the microRNA that we study. This causes a reduction in the amount of protection against cancerous changes in that cell – leading to the growth of tumours,” she said. “However when we blocked the microRNA, the reverse happened. The cancer cells died and the tumours became much smaller.”

“This is the first time that anyone has blocked the growth of a primary tumour by the simple delivery of a microRNA inhibitor.” MicroRNA inhibitors have been readily available for use in the laboratory for about the last five years.

“While this finding is at an early research stage, our results indicate that this microRNA is a potential therapeutic target for future treatment of early childhood neuroblastomas and other microRNA-induced cancers.”

For more information on QIMR’s cancer research visit www.qimr.edu.au
Research into Alzheimer’s disease

With 2.45 million people suffering from dementia worldwide, QIMR scientists continue to research Alzheimer’s disease and related disorders such as other dementias, anxiety and depression.

QIMR’s Dr Corinne Lendon together with European collaborators searched through DNA from 8,000 people with and without Alzheimer’s disease to identify genetic changes that may contribute to this devastating disease. They discovered two new genes that are involved in inflammatory processes and the build-up of protein in the brain – a process researchers believe could cause Alzheimer’s.

“For some time now, there has been disappointment in the performance of the many therapies used to combat dementia. We believe this is because the degenerative changes in the brain that cause dementia may start 10-15 years before symptoms of the disease are noticed,” said Dr Lendon.

“By the time we are able to treat patients, the disease has already caused damage to the brain, so that these potentially useful drugs have little healthy material to work with,” she said.

“So what we are trying to do is identify proteins in the blood and spinal fluid that appear before the symptoms of dementia start.” Dr Lendon hopes this technology will lead to the development of a test to predict the risk of dementia, so treatments can be administered early enough to prevent disease.

“In the meantime, there is evidence that healthy diet, exercise, social and mental stimulation can all reduce the likelihood of dementia.

“This is unsurprising, because of the importance of maintaining good blood flow to our brains for mental health. These factors also go hand in hand with prevention of cardiovascular disease and stroke.”

Dr Lendon’s research is funded thanks to a donation of $100,000 from the VMO (Visiting Medical Officer) Committee via the Australian Medical Association.
Bioinformatics is a relatively new area of science that has emerged in response to the need to analyse large sets of complex biological data. Its goal is to apply techniques derived from applied mathematics, statistics and computer science to understand, organise and analyse biological data.

QIMR is deeply involved in cancer research particularly in our Divisions of Genetics and Population Health and Cancer and Cell Biology. Up until now our scientists have been solving their bioinformatics needs by collaborating outside the Institute but this was becoming increasingly difficult as demands on these outside experts increased.

QIMR recognised that in order for our scientists to continue to compete on the world stage with other Genetics/Genomics experts, we needed to provide cutting edge bioinformatics. Many laboratories at QIMR use human cohorts and to date, this has involved relatively simple datasets and traditional statisticians have provided sufficient support. However, new methods of interrogating the functional state of the genome (transcriptomics, epigenomics, etc) are being developed. These methods involve both microarray technologies and deep sequencing technologies and these are being established at QIMR. These methods tell us which parts of the genome are active and which parts are inactive in any particular tissue, in any particular individual.

This knowledge will revolutionise our understanding of human disease and will become the basis of clinical diagnosis in the future.

We are very pleased to announce that Dr Lutz Krause has recently joined QIMR to head up our new Bioinformatics Centre. He comes to us from the Nestlé Research Centre in Switzerland.

“QIMR’s excellent reputation in genetic research, particularly in the fields of human genetics, parasite research and epigenetics is well known throughout the scientific world,” said Dr Krause. “Coming from cold and rainy Northern Germany, Brisbane’s weather was also a drawcard.”

“I hope that in the long term my research will be translated into clinical practice, aid in preventing disease, and help to improve human quality of life.”

“When graduating from school I wanted to become a medical doctor, pilot, architect or professional basketball player. Owing to a series of coincidences and unplanned opportunities, I graduated with a degree in bioinformatics.”

“Then I discovered I really enjoyed research because it is challenging and allows me to work at exciting locations with wonderful colleagues. Wondering about life, questioning and exploring the world, and an enthusiasm for disassembling everything is an asset for a scientist – lucky for me I possess all those qualities.”

QIMR’s bioinformatics centre is receiving funding for the next 3 years from the William and Hilde Chenhall Research Trust. We extend our sincere thanks to the Trustees for their ongoing support of this important facility.

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Dr Lutz Krause (right) is the new head of QIMR’s Bioinformatics Centre
Ovarian and breast cancer link

An international consortium of scientists including QIMR researchers has discovered genetic changes that influence the breast and ovarian cancer risk associated with the BRCA1 gene.

According to Professor Georgia Chenevix-Trench, Head of QIMR’s Cancer Genetics Laboratory we now have more powerful genetic techniques that enable us to detect small genetics changes that impact our health.

“The ovarian cancer study compared the genes of 10,283 women with ovarian cancer to 13,185 women without the disease and identified five different stretches of DNA that contained single changes – known as single nucleotide polymorphisms (SNPs) – that were associated with ovarian cancer risk,” Professor Chenevix-Trench said.

“This is the equivalent of finding five individual spelling mistakes in over 200,000 pages of text.”

“These findings complement another study, in which we identified that one of these five DNA regions increased the risk of breast cancer in women who carry the faulty copy of the BRCA1 gene. These results strengthen the evidence that breast and ovarian cancer share a similar genetic basis,” said Professor Chenevix-Trench.

Clove oil soothes itching

QIMR researcher Dr Cielo Pasay has discovered that clove oil, which is commonly used as an aromatherapy oil and was historically used as an anaesthetic for dental procedures, may also help in the treatment of scabies.

Scabies (also called sarcoptic mange) is an itchy rash caused by the scabies mite (Sarcoptes scabiei), which burrows under the skin to lay its eggs. Scabies can be common in places where people live in close contact including aged care facilities.

“The scabies mite has become increasingly resistant to current treatments, especially in Northern Australia where scabies is common. Our research aims to identify naturally occurring compounds that can combat scabies and prevent resistance from occurring,” said Dr Pasay.

“We found clove oil killed all the mites within 15 minutes. This is comparable to an existing treatment for scabies.”

Researchers also tested nutmeg oil and ylang ylang oil on mites and will continue to investigate other natural products.
Twins help researchers to find genes for blindness

Several QIMR studies have found new genes that affect eyesight, all thanks to twins.

Dr Stuart MacGregor said twin research provides invaluable information.

“Identical twins are nature’s clones. Despite having the same genes, the environment can make them very different. Comparing identical and non-identical twins, we can determine how much of who we are is determined by our genes and how much is influenced by environment,” Dr MacGregor said.

“Using data collected from over 1,000 sets of twins, our research has uncovered a number of genes that affect eyesight. We discovered a new gene for myopia (long or short sightedness), new genes that affect glaucoma risk, and a gene that causes optic nerve hypoplasia – one of the leading causes of blindness in children.

“One of the major causes of glaucoma is decreased cornea thickness. Our research is the first to identify a gene that influences cornea thickness.

“Another risk factor for glaucoma is intraocular pressure, which is tested in regular eye exams by a puff of air onto the eye. We also identified genes that influence the pressure inside the eye.

“This type of work may lead to genetic tests that can analyse the risk of blindness, and help doctors to monitor people who may have a higher risk of conditions such as glaucoma.

“Our work addresses the question of nature versus nurture. Large-scale genetic tests like these help us to understand how small changes in genes can have large impacts on our health. This work increases our understanding of a range of diseases, and we need lots of twins to participate in these studies.

“The Queensland Twin Registry, QTwin, recruits twins, identical and non-identical for studies like this to determine disease risk and many other factors.”

If you are a twin and would like to be a part of studies like these, visit www.qtwin.org.au or freecall 1800 257 179.
Hornibrook celebrates 10 years of support

QIMR would like to congratulate the staff of Hornibrook Buslines who are celebrating their tenth anniversary of donating to QIMR.

Their support commenced in 2000 and was initiated by a couple of real champions – bus drivers Brian Henson and Kelvin Thomas.

“Our association with QIMR started one night when Kelvin was having a beer and watching TV at home. The soapie star, Belinda Emmet was telling her story about having breast cancer and looking for ways to raise money for research. Kel had one of those ‘Eureka’ moments and came to work looking for help and ideas. We had several breakfast meetings and put a lot of work into a business plan and Hornibrook agreed to support us. They then offered to match us dollar for dollar”.

Staff at Hornibrook make regular donations to QIMR via their payroll system and have raised in excess of $35,000.

Hornibrook’s General Manager Rolf Mitchell commended his staff for achieving this milestone. “Our staff clearly believe in the value of the research work QIMR performs. We are proud to have supported this very worthy cause for so many years.”

Hornibrook provides the Redcliffe Peninsula’s only public transport system and they pride themselves on the high standards of their fleet and services.

For more info on regular giving or workplace giving visit www.qimr.edu.au or call 1800 993 000.

An eternal gift

QIMR received a wonderful bequest from the Estate of Mr Kevin Joseph Hill. Mr Hill was a long term supporter of QIMR and strongly believed in the value of medical research. He had a fulfilling career as an ambulance officer and enjoyed travelling on coach trips after he retired. His beloved wife Pat died of leukaemia in 1999 and he had no other immediate family. He spent his final years in a retirement village where he enjoyed the company of close friends.

He wanted to leave a legacy that could help future generations as he believed that good health was the greatest gift of all.
One weekend. One ride. One purpose.

We are very excited to announce QIMR’s new signature fundraising event... and it's going to be big - really BIG!

The Ride to Conquer Cancer www.conquercancer.org.au is coming to Australia for the very first time and will be taking place over the weekend of 20 – 21 August 2011.

QIMR is the sole beneficiary of The Ride to Conquer Cancer with all money raised going to our cancer research.

The Ride is for anyone who wants to challenge themselves and to be part of the strength in numbers solution to cancer. Even if you haven’t ridden since you were 12 - all you need is a sense of adventure, a bike and a helmet.

Challenge yourself physically to ride 200 kilometres over two days through the picturesque countryside and you will be rewarded with a great sense of achievement. When you arrive at camp there will be a night of food, entertainment, fun and frivolity waiting for you. You can join our scientists and be part of TEAM QIMR. Don’t wait for everyone else to do it – step up to the plate now and take advantage of the training that will be available for every level of fitness. Experienced and helpful “ride coaches” are only a phone call or email away.

Call 1300 11 RIDE to register or visit www.conquercancer.org.au ■

Best idea under the sun

Wendy Grady knows firsthand the effects of sun damage. In 2002, out of necessity, she designed and produced two flattering styles of sun shirts for women that are now used for swimming, gardening, walking and boating.

Recently, Wendy branched out and is now providing long sleeved sun shirts as part of a swim kit for kids - available through Brisbane schools.

“Having experienced the threat of melanoma myself I am keen to say thanks and give something back to the scientists whose work has led to advances in treatment and prevention,” says Wendy.

Visit www.sunshirts.com.au to purchase sunshirts – 10% of sales will be donated to QIMR. ■
Run for little Sophie raises vital funds

In August this year Mark Hulme-Jones made the decision to run in the Sunday Mail Suncorp Bridge to Brisbane to raise funds for medical research in honour of his daughter Sophie who is currently battling a rare form of cancer.

Just under two years old, Sophie has been an inspiration to many. Earlier this year, her mum Allison took her to hospital with a high fever and a urinary tract infection that hadn’t responded to antibiotics. A nightmare week followed as Sophie was subjected to unpleasant tests and diagnosed with a rhabdomyosarcoma in her bladder, which is an aggressive and fast-growing form of tumour. As a result of this, Sophie was immediately put on a regime of weekly chemotherapy which still continues today.

Mark and Allison set up their very own fundraising website and in only a matter of days over 100 donations came in. They raised an amazing $10,900 which will benefit Professor Peter Parsons EBC-46 research at QIMR (featured on the front cover of this edition of Lifelab).

EBC46 is a drug that has been adapted for treating tumours like Sophie’s. This drug is showing very promising results in relation to a variety of tumours in animals when the tumours are easily accessible for direct injection with the drug. One of the challenges faced by QIMR scientists is to adapt this EBC46 therapy for use in internal tumours.

Thank you to everyone for supporting Mark and also to the fantastic team of runners and walkers in the Sunday Mail Suncorp Bridge to Brisbane who also raised funds for QIMR.

Walking on Sunshine — another successful gala dinner

August 20th was a night to remember this year for the hundreds of guests who attended the Walking on Sunshine event at the Kedron Wavell Services Club.

Organised by QIMR ambassador, Anne Stanton and her friend, Jo, this year’s event was once again an overwhelming success, raising money for medical research. Highlights of the night included 4BH’s Loretta Ryan as MC, QIMR Ambassador and special guest Rupert McCall recited his Q150 poem and a surprise live performance by musician, Pete Murray.

On behalf of QIMR, we extend our heartfelt thanks to Anne Stanton and her family and friends who generously gave up their time to ensure this night was an outstanding success. The ongoing support and friendship we receive from community fundraisers like Anne ensures that we continue to be at the forefront of medical discoveries in cancer research.

If you would like to host your own fundraising event for QIMR, contact Alicia Edwards on 07 3845 3747 or email supportus@qimr.edu.au Visit www.qimr.edu.au to download our Community Fundraising Kit which provides lots of good fundraising ideas and tips.

Australian singing sensation Pete Murray performs at the dinner to the delight of surprised guests.

Anne Stanton (left) and 4BH’s Loretta Ryan at the 2010 Walking on Sunshine dinner.
Queensland Vintage Vehicle Association

Sunday 19th September marked the date for the Queensland Vintage Vehicle Association’s eighth annual Great Gatsby picnic.

The Redcliffe foreshore was filled with beautiful pre-1945 vintage cars, and the guests certainly didn’t disappoint with their outstanding display of silverware, china and 1920s themed outfits to match.

The Queensland Vintage Vehicle Association are great supporters of QIMR and we extend a special thank you to Graham Porter and Clint Frater who have worked hard to organise this year’s event.

QIMR has enjoyed a long friendship with the Fittons who continue to show their wholehearted support of our scientists and their research. The Fitton family have raised over $200,000 for the Institute.

All British Classic Car Club

Thank you to the All British Classics Car Club for their wholehearted support of QIMR for many years. Mr Albert Budworth (below) and his Committee have raised over $55,000 for research at QIMR through their annual All British Day.

Rotary leads the way in mental health research

Australian Rotary Health provided a $35,000 research grant to QIMR’s Dr Naomi Wray for her pilot research study entitled “Mental Health of Young Australians (birth to 17 years).”

In 2000 Australian Rotary Health adopted mental illness research as its focus and since then has provided over $20 million in funding and conducted over 500 community forums to create more awareness and to help de-stigmatise mental illness.

Mr Russ O’Malley from the Rotary Club of Ashgrove/The Gap presents Dr Naomi Wray with a plaque on behalf of the Australian Rotary Health Research Grant in recognition of her research (pictured right).
Donate today

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Would you like further information?

☐ I am considering providing for QIMR in my Will –
please send me information.
☐ I would like to take a free tour of QIMR.

Please post this form (no stamp required) to:
Queensland Institute of Medical Research
Reply Paid 70885
ROYAL BRISBANE HOSPITAL QLD 4029

A receipt will be sent to you shortly.

QIMR in the community

Inspiring the scientists of tomorrow

Visitors to the show clamoured to hear QIMR scientists
who volunteered to help out at the Ekka. Our stand was
part of our commitment to educate people about the
journey of medical discovery and inspire young people to
consider a career in science.

Below: Thomas Finke discovers some crazy critters at the
QIMR stand in the Science Pavilion at the Ekka.

Why donate to QIMR?

☐ One of Australia’s largest and most
successful research institutes
☐ Dedicated to researching over 40 of the
world’s most debilitating diseases
☐ World class facilities and ethical
researchers

Thank you.

Your generosity is appreciated.