

Getting to the heart of early signs of breast cancer

Scientists at Essex are taking part in important research into the early signs of breast cancer.

Professor Elena Klenova, Dr Igor Chernukhin and Dr Dawn Farrar, from the Department of Biological Sciences, have received a £205,000 grant from Cancer Research UK to investigate the early reversible changes in the genes associated with breast cancer development. The study will first be performed in model systems in the laboratory, before using clinical tissue specimens to validate the findings.

Despite important advances in the research, treatment and early diagnosis of breast cancer, 12,500 women die every year from the disease in the UK. With over 44,000 women diagnosed with breast cancer annually in this country, continued breast cancer research, in particular, investigations into the early signs of the disease, are as important as ever.

This project at Essex is part of the larger study conducted in Professor Klenova's laboratory into the mechanisms of breast cancer development and early diagnosis of the condition and has been supported by several organisations including the Medical Research Council and the Breast Cancer Campaign.

Professor Klenova explained: "This research will be very important to understand the very early



Dr Igor Chernukhin, Dr Dawn Farrar and Professor Elena Klenova

molecular mechanisms responsible for reversible changes in genes associated with breast cancer development. Contrary to genetic alterations, the changes we will be studying are not permanent as they do not alter the genetic material, DNA, raising the possibility of developing therapeutics restoring the normal cellular status."

The three-year project is another example of some of the important research being carried out under the umbrella of the Essex Biomedical Sciences Institute (EBSI), which promotes clinically-relevant health and medical research through collaboration with NHS clinicians across the region.

Campaign for Social Science come to Essex

The Colchester Campus will be hosting a Campaign for Social Science Roadshow on June 24.

The Campaign aims to raise the profile of social science and in particular its contribution to the wellbeing of society. Speakers include Essex graduate Professor Sir Howard Newby, President of the Academy of Social Sciences and Professor Tony Crook, Chair of the Campaign for Social Sciences.

To attend or find out more: e-mail events@essex.ac.uk

Students who study abroad more likely to work abroad

Studying abroad significantly increases the likelihood of working abroad after obtaining a degree, according to new research by academics at Essex and Warwick.

The research showed that graduates who have studied abroad are about 15 per cent more likely to work abroad after graduation.

The study by Dr Matthias Parey from the Department of Economics and Fabian Waldinger from the University of Warwick investigated the effect of studying abroad on

later international labour market mobility against the backdrop of the introduction of the large-scale European student exchange programme (ERASMUS). ERASMUS was introduced by the EU in 1987 and, to date, more than two million students have participated in the programme, including about 180,000 from the UK.

The research findings, published in the *Economic Journal*, show the introduction of the ERASMUS programme significantly increased the probability of students spending some time at a foreign university.

IET competition held at Essex

Essex PhD student James Cannan won first prize in the southern heat of the Institution of Engineering and Technology (IET) student competition, held at Colchester Campus.

The IET Anglian Coastal Network Present Around the World competition has been held annually for the past 20 years. Students give a ten-minute presentation and face questions from the judges.

James picked up first prize for his presentation on 'Bionics: Human Machine Muscle Interfaces'. Second prize went to final-year BSc student Gerasimos Gialias.

Making music just by thinking



Dr Palani Ramaswamy and PhD student John Wilson

Research involving Essex scientists which offers real hope to people trapped by their severe disability made big headlines last month.

The trial, a joint project between Dr Palani Ramaswamy at Essex and computer-music specialist Eduardo Miranda of the University of Plymouth, helped by Essex PhD student John Wilson, involved using brainwaves to operate a computerised music system. Specifically designed for people who are unable to speak and are paralysed – known as locked-in syndrome – the aim is to process brain waves to give them more control in communicating with the outside world.

The ground-breaking experiment involved a woman who had been left paralysed after a stroke, and was only able to make eye, facial and slight head movements. Thanks to Dr Ramaswamy she was making music just by thinking.

Using electroencephalography (EEG), the patient wore a cap with electrodes which picked up different patterns in the brainwaves depending on what she was looking at on a screen – in this case objects flickering at different frequencies. This "frequency-following effect" was then adapted using control mechanisms so the

different frequencies related to different musical instruments which the patient operated with her eyes.

"But what made this trial so innovative," explained Dr Ramaswamy, "was that the intensity of how she was looking at the screen in terms of concentration offered even more control and, in this case, more notes for each instrument."

This trial was the first of its kind in the UK and offers real hope for people with severe disabilities to have a better quality of life as the technology could be adapted for a wide range of uses to help them communicate and control their environment.

Did you know?

You can now play the University's Phrase Detectives game on Facebook.

Devised two years ago by researchers in the School of Computer Science and Electronic Engineering, Phrase Detectives collects data about language to help computers better understand the complexities of how we speak and understand phrases. You can play the game online at: <http://apps.facebook.com/phrasedetectives>.

Fresh insights into how we communicate

A cross-disciplinary study is hoping to uncover what telephone calling behaviour says about different households.

Funded by telecommunications giant BT, the project involves looking at the incoming and outgoing telephone conversations of 400 households around the UK. All numbers are anonymous and all the households agreed to take part in the project, which is looking at three years of call data, involving over 1.7 million separate calls.

The six-month study is exploring correlations between the patterns of telephone calling and the demographics of the households. Each home agreed to fill in a survey every year as part of the project and any changes in call behaviour can be matched with the survey results.

Led by Dr Ben Anderson, from the Department of Sociology, the study also involves Dr Alexei Vernitski and student Lingyue Yang, from the Department of Mathematical Sciences, and Dr David Hunter, from the School of Computer Science and Electronic Engineering.

The study is part of on-going research at the University into how social network structures change over time and will allow academics to look at new methods of data analysis, develop new analytical tools and explore the sociological and commercial value of the results.

Westminster launch for law centre

The School of Law has launched a new virtual research centre drawing on its expertise in European and comparative law.

The Essex Centre for Comparative and European Law (EXCEL) will provide a forum for researchers and policymakers to exchange expertise. Potential funding from the European Commission will also offer the opportunity to build global collaborative partnerships with other universities.

Dr Chris Marsden, Director of EXCEL and Senior Lecturer, said: "EXCEL builds on Essex's long-standing excellence in this field of legal research."