



2015 For Women In Science Award Winners Announced

24th June 2015

The winners of the highly contested 2015 [L'Oréal-UNESCO UK & Ireland For Women In Science Fellowships \(FWIS\)](#) were announced last night at a ceremony at London's Royal Society.

17 years ago, L'Oréal joined forces with UNESCO to form a programme to encourage greater participation of women in the field of science. As well as the International Laureate programme there are now 46 National fellowship programmes running all over the world.

These fellowships promote and reward outstanding female postdoctoral researchers, offering flexible financial help. Each worth £15,000, the fellowship can be spent on whatever they need to help drive their research forward, a unique feature of these awards. This year, the five winners will be using their prize money for a range of support such as buying equipment, carrying out field trips, attending conferences, getting help in their labs, as well as covering childcare costs.

The fellows will also benefit from a raft of career and life enhancing experiences such as media training, personal impact coaching, speaking opportunities, networking events and access to senior mentors and role models.

The competition was extremely tough this year with a record 350 candidates applying for the five fellowships. Those candidates that made the shortlist, but were not awarded one of the fellowships were recognised as Highly Commended and presented with a £1,000 bursary.

The five winners were selected by a jury of eminent scientists, chaired by Professor Pratibha Gai who was L'Oréal's International Laureate in 2013. The Jury made up of Professor Dame Anne Glover, *Vice Principal External Affairs & Dean for Europe, University of Aberdeen*, Dr Beth Taylor, *Vice-Chair, UK National Commission for UNESCO*, Professor Gwyneth Stallard, *Professor of Mathematics, Open University*, Professor Helen Atkinson, *Head of Mechanics of Materials Research Group, University of Leicester & VP RAE*, Professor John O'Halloran, *Chair of Zoology & Vice President, University of Cork*, Professor Sir John Pethica FRS, *Professor of Physics, Trinity College Dublin & Chief Scientific Advisor, National Physical Laboratory*, Katriona Methven, *Director of Scientific and Technical-Regulatory Affairs, L'Oréal UK & Ireland*, and Professor Sue Black, *Honorary Senior Research Associate, University College London*.

The 2015 winners are:



Dr Paola Crippa, 'Modelling particulate matter pollution from vegetation fires in South-East Asia', University of Newcastle

"According to the World Health Organization 3.7 million people prematurely die each year due to the exposure to atmospheric air pollutants. Most of these deaths occur in developing countries where larger amounts of harmful chemical compounds such as toxic gases and particulate matter are released in the atmosphere. The United Nations recently raised concerns regarding the health and climatic impacts of particles emitted by vegetation fires in regions subject to land use changes and human driven deforestation such as South-East Asia, where they are responsible for 10,800 premature deaths per year. In the proposed research I aim to understand how particulate matter from vegetation fires is transported over South-East Asia and contributes to regional air pollution phenomena. This project makes use for the first time of high resolution simulations from a state-of-the-art regional atmospheric chemistry model to capture both urban and regional scale air pollution features. I will integrate model results with satellite data to more accurately predict population exposure to harmful concentrations of particulate matter. Results from my research will help to plan for strategies to mitigate impacts on human health in densely populated areas affected by vegetation fires".



Dr Joanne Durgan, 'Cell Cannibalism in Cancer: exploring the control and impact of entosis in tumours', Babraham Institute, Cambridge

"The objective of my research is to investigate the role of 'cellular cannibalism' in human cancer, a major cause of death and disease that claims millions of lives each year. Cellular cannibalism is a fascinating process through which one cell in the body is engulfed, killed and digested by another. Cannibalism occurs frequently in tumours, where it is termed 'entosis'. Pathologists have observed this phenomenon for over a century, but its importance and potential therapeutic value have not been well studied. Emerging research now seeks to 1) unravel the mechanisms that drive entosis, 2) determine the effects of entosis on the tumour and 3) assess whether entosis can be harnessed as a novel means of controlling tumour growth. In this study, I propose to investigate the effects of cancer-linked genetic mutations on entosis, and to test if cancer cell cannibalism promotes or restricts tumour growth. Furthermore, I will investigate how frequently cannibalism occurs in tumours of different types, grades (severities) and genetic backgrounds, to gain new insight into how entosis relates to disease. Through this work, I aim to achieve a comprehensive analysis of the relationship between cell cannibalism and cancer, which may open new avenues for cancer research."



Dr Aarti Jagannath, 'Setting the body clock', University of Oxford

"All organisms display 24h rhythms in physiology and behaviour, as exemplified by the sleep-wake cycle, but also including rhythms in blood pressure, body temperature and even cognitive ability. These rhythms are driven by a circadian clock (body clock) that is a molecular pacemaker occurring in most cells throughout the body. Whilst we do understand the molecular mechanisms that generate circadian clocks, we have very little idea of how this clock is set to the correct time. I propose to use cellular models of the clock to identify the signalling pathways relay environmental information to the clock. I will do this by testing a range of drugs and biological molecules for their ability to modify the clock and follow through with studies to identify the mechanism by which these molecules have their effect. Sleep and circadian rhythm disruption is endemic to our 24/7 societies and we are now discovering that disruption of

the clock can lead to obesity, diabetes and even mental health disorders such as bipolar disease. As a result, there is to be much gained from understanding how the molecular clock is regulated, and by extension, how we may be able to modulate its function when disrupted."



Dr Triona Ní Chonghaile, 'The development of a novel HDAC6 inhibitor that can kill chemoresistant breast cancers', University College Dublin

"A subtype of breast cancer, called triple negative breast cancer, has a poor response to treatment. The mainstay of treatment is chemotherapy for these patients. Initially, the patients respond to treatment but all too often the patients relapse and then they become resistant to treatment. Therefore, there is a need to identify new therapies that can treat triple negative breast cancer that is resistant to chemotherapy. Following screening 30,000 small molecules, we identified a molecule that could kill chemoresistant breast cancer cells more readily than the normal non-cancerous cells. We are now trying to understand exactly how this small molecule works. How does it kill cancer cells selectively? We hope to improve the structure of the small molecule so that it can go from a

molecule in the laboratory to potentially being a drug used in the clinic that has an impact on patient care."



Dr Rita Tojeiro, 'From Bright Stars to Dark Energy', University of St Andrews

"The 1998 discovery that the expansion of the Universe is accelerating stands as one of the most surprising discoveries in Cosmology. This phenomenon, dubbed Dark Energy, remains entirely unexplained and the quest for answers motivates much of modern-day Cosmology. What new physics drives the acceleration of the Universe? Or perhaps it's an illusion, stemming from an incomplete theory of gravity? The answer will revolutionise our fundamental laws of Physics. Astronomers can use three-dimensional maps of mass in the Universe to study Dark Energy, but most of the mass in the Universe is in a form that is difficult to observe. So Astronomers map the positions of galaxies instead:

collections of billions of stars, gas and dust that can be seen to vast distances due to their brightness. Traditionally, galaxies are used simply as light-houses: beacons in a dark Universe that tell us where most of the mass lies. However galaxies are complex and evolving objects in themselves - a potential complication in traditional approaches. By studying certain aspects of the past lives of galaxies, I hope to use their complexity to our advantage and vastly improve the way we use these three-dimensional maps to study Dark Energy."

Chair of the judges Pratibha Gai, Professor of Chemistry and Physics, Founding Professor of Electron Microscopy and co-director of the York Nanocentre at the University of York commented,

"I am so proud to be involved in the For Women In Science programme in so many ways, particularly in helping to bring worthy women such as these to the attention of the scientific community. We need to do everything we can to support female scientists in this country, and in turn inspire young girls to consider STEM careers."