

Researchers study potential vaccine to prevent head and neck cancer

Researchers in Southampton and Malaysia are set to launch a pioneering study that could lead to the development of a vaccine to prevent head and neck cancer.

Teams based at the NIHR CRUK Southampton Experimental Cancer Medicine Centre (ECMC) and Cancer Research Malaysia, aim to study precancerous lesions in the mouth which, if left untreated, can progress into head and neck cancer.

The £600,000 award, led by the Medical Research Council (MRC) and funded from the Research Councils UK £1.5 billion Global Challenges Research Fund (GCRF) allocation, will focus on testing the lesions for markers which can then be targeted by vaccination.

While head and neck cancer is the eighth most common cancer in the UK and accounts for 3% of all new cases, it is the third most common among the Malaysian population.

Following identification of the target molecules, experts at the ECMC – a partnership between the University of Southampton and University Hospital Southampton NHS Foundation Trust – and Cancer Research Malaysia will then work with biopharmaceutical company Icon Genetics, which uses green plants as production hosts for vaccines.

The collaboration will build on a grant awarded by the MRC and Academy of Sciences Malaysia to the same group earlier this summer to support the work between researchers in the UK and Malaysia.

While the team in Southampton are working on a number of novel immunotherapy vaccines to treat various types of cancers, this will be the first study aimed at creating a vaccine to prevent a form of cancer developing.

“This study grant will help us to identify targets in premalignant disease that might – if untreated - turn into head and neck cancer,” explained Professor Christian Ottensmeier, a consultant medical oncologist and professor of experimental cancer medicine in Southampton.

“This is a particularly significant development for our centre in Southampton as it will be the first in-house project to prevent cancer developing and builds on our strength in successful vaccine development over many years.”

Professor Gareth Thomas, professor of experimental pathology and a consultant in histopathology in Southampton, said: “Although this is a much bigger problem in Southeast Asia than in the UK, it is still a significant and growing problem here – so steps to tackle its incidence will have an important global impact.

“A cost-effective vaccine strategy that can target premalignancy before cancer develops would transform the management of this disease worldwide.”

Dr Natalia Savelyeva, a lecturer in cancer immunology in Southampton, added: “Our aim is to build on the work already undertaken by our colleagues Professor Sok Ching Cheong and Dr Kue Peng Lim in Malaysia, who have identified target molecules that are important for head and neck cancer. Together we will study the shared properties between precancerous and cancerous cells.

“We will then use that information to build on our previous work on plant-expressed vaccines to develop a vaccine for premalignant disease and, for the first time ever, we may be able to prevent transformation to cancer. We then plan to take this vaccine into clinical testing in collaboration with Icon Genetics.”

Professor Cheong, who leads the head and neck cancer team at Cancer Research Malaysia, said: “Up to 80% of oral cancers are preceded by a precancerous lesion. This grant will enable us to identify unique proteins from precancerous lesions that can be used to activate the immune system to prevent the development of oral cancer, which could potentially benefit a large number of patients.”

Dr Kue Peng Lim, team leader for the cancer immunotherapy programme at Cancer Research Malaysia, added: “We can achieve more by leveraging on the strengths of both the teams at the University of Southampton and Cancer Research Malaysia. Together we will be able to learn more about the biology of oral cancer and devise ways of combating the disease.”

The funding announcement is the first phase of the £1.5 billion GCRF, with £20m being allocated to 41 short-term projects across 39 UK research organisations working in partnership with different countries around the world.

Declan Mulkeen, chief of Strategy at the MRC, part of Research Councils UK, said: “The five research councils involved in the awards have been working collectively to provide new and broader approaches to meet global research challenges.

“It's encouraging to see these projects tackling the broader environmental and economic factors affecting health, as well as using new technologies to bring cost-effective treatments within reach.”

He added: “The MRC has a strong track record in Global Health research, often in partnership. Infectious disease has been the main focus and remains the largest area of funding, but as countries develop their health needs change. The Global Challenges Research Fund will enable us to tackle a broader range of health problems for local and global benefit.”

ENDS

Notes to Editors

1. The University of Southampton is a leading UK teaching and research institution with a global reputation for leading-edge research and scholarship across a wide range of subjects in engineering, science, social sciences, health

and humanities.

With over 24,000 students, over 6000 staff, and an annual turnover in excess of £500 million, the University of Southampton is acknowledged as one of the country's top institutions for engineering, computer science and medicine. We combine academic excellence with an innovative and entrepreneurial approach to research, supporting a culture that engages and challenges students and staff in their pursuit of learning.

The University is also home to a number of world-leading research centres including the Institute of Sound and Vibration Research, the Optoelectronics Research Centre, the Institute for Life Sciences, the Web Science Trust and Doctoral training Centre, the Centre for the Developmental Origins of Health and Disease, the Southampton Statistical Sciences Research Institute and is a partner of the National Oceanography Centre at the Southampton waterfront campus. www.southampton.ac.uk

2. Building on its cancer immunology research expertise and recent successes in immunotherapy trials, the University of Southampton has launched a major fundraising campaign to raise £25m to open the UK's first dedicated Centre for Cancer Immunology at Southampton General Hospital in 2017. The Centre will be the first of its kind in the UK and will bring together world-leading specialists in a unique state-of-the art centre. The aim of the new Centre is to accelerate research progress, conduct more clinical trials and save more lives from cancer. Find out more about it at www.southampton.ac.uk/youreit

For more information

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