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HUNTER MEDICAL RESEARCH INSTITUTE

REGIONAL HEALTH AND MEDICAL RESEARCH - ADDRESSING GLOBAL HEALTH CONCERNS

Hold your breath, new therapies to treat steroid-resistant asthma

Not only does the Hunter hold the unenviable statistic of having the highest incidence of Asthma in NSW, but 71 per cent of our adults are also overweight or obese in some suburbs. This is a major health concern, as research from the Priority Research Centre for Healthy Lungs at the Hunter Medical Research Institute and University of Newcastle shows that high fat diets and or obesity, increases the likelihood of developing steroid-resistance in asthma sufferers.

Asthma causes prolonged periods of shortness of breath, coughing, wheezing and tightness of the chest and currently, there are very few treatment options for patients that develop steroid-resistant asthma.

PhD student James Pinkerton and his colleagues have discovered an inflammatory factor that is increased in the lungs during obesity. They also show that a new chemical that blocks this factor is able to relieve the features of asthma, that are steroid-resistant, in obesity associated- and other forms of severe asthma. These exciting discoveries have the potential of becoming new treatment options for poorly-controlled, severe asthmatics.

R&R best practice for recovery from stroke

Dr Lin Ong from the Hunter Medical Research Institute at the University of Newcastle and is taking a microscopic look at the factors that influence the recovery from stroke.

"Follow stroke patients find it difficult to do basic thinking, adding up is difficult, they loss recall memory and can't solve life's daily problems. This is due changes that occur to the brain during stroke", Dr Ong said.

Dr Ong and his colleagues have shown that certain environmental experiences, such as chronic stress, greatly obstruct the recovery process. "*We can evaluate stress in patients by measuring stress hormones in patient's hair". "We are also working on a number of potential treatments for brain recovery after stroke. While in their early phases, these interventions appear to significantly promote recovery and reduce post-stroke cognitive decline".*

Single cell sequencing the next frontier in precision anti-cancer medicine

Dr Heather Lee is a Newcastle Cancer Researcher that has recently returned home after spending the last 5 years researching at Cambridge University in the UK.

Heather is developing ground-breaking experimental methods that allow us to see how our genetic information can be misinterpreted in individual cancer cells.

"Individual cancer cells can differ from one another in important ways", Heather said. *"For example, some cells may have special properties allowing them to travel through a patient's blood and cause the spread of cancer to other organs. We have developed powerful new experimental techniques to study cancer at a single cell level"*.

By revealing the true complexity of cell types in cancer, Heather's research aims to find new diagnostic tests and treatments to improve patient outcomes.

Media and Photo opportunities.

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