

**MEDICAL RESEARCH SAVES LIVES
THE ASMR IS SHOWCASING THE BEST AND BRIGHTEST NSW HEALTH AND MEDICAL
RESEARCHERS**

Out with the old and in with the new - Biosynthetic polymers to replace damaged body parts

Australian researchers are leading the world in the race to develop and test new biomaterials for use in medicine. Biomaterials have enormous potential for use in tissue regeneration following injury, or for replacing degenerative human organs.

Heart Research Institute researchers Elysse Filipe and Richard Tan working under the supervision of Steven Wise and Martin Ng, are developing these technologies and pushing the boundaries of medical science.

The bioengineered silk natural polymers Elysse has designed are versatile and extremely well tolerated when implanted into the body of mice. Indeed, Richard has tested these technologies using a high-throughput screening model to determine the ability of stem cells to heal wounds layered in these candidate biomaterials.

These exciting results give realistic hope for the use of these biomaterials in a clinical setting, and in doing so have advanced the fields of biomaterial development and stem cell biology.

Thinking outside the box to improve treatment of schizophrenia

Neuroscientist Ashleigh Osborne from the Illawarra Health and Medical Research Institute is developing new drugs to improve the treatment of schizophrenia. Working with cannabidiol the main non-psychoactive components of cannabis, she has discovered that it can improve cognition and social behaviour in a rodent model of schizophrenia.

Prenatal infection during pregnancy is a risk factor for schizophrenia and may be linked to the cognitive deficits experienced by schizophrenia sufferers. Prenatal infection in rodents can be used to replicate the cognitive dysfunction experienced by schizophrenia sufferers.

Cannabidiols have already shown promise in disorders such as dementia, but its potential to enhance cognition in schizophrenia has not been explored. These findings provide initial evidence that cannabidiol may be a therapeutic agent that can improve cognition and social behaviour in schizophrenia.

The hidden killer - sleepy breast cancer cells hiding in our bones

Treatments for most types of breast cancers have improved the survival rate for patients remarkably over the last decade. Significant financial investment into breast cancer research has seen an explosion of ground breaking treatments and detection methods to help us tackle breast cancer. Long term survival for some subtypes of breast cancer is almost 90%, however, for some subtypes of breast cancer the survival rate is significantly lower at just one survivor for every two diagnoses.

One contributing factor to this poor survival rate is the observation that breast cancer cells can hide in the bones of patients in a dormant state. Following successful chemotherapy, these dormant cancer cells can re-awaken and once again drive tumour growth, for which there is no cure.

Nancy Mourad is a researcher from The Garvan Institute of Medical Research working under the guidance of

Professor Peter Croucher. Using sophisticated models and imaging techniques, Nancy has identified and examined dormant breast cancer cells from the bones of mice that are used to study breast cancer. These breast cancer cells remained in the bone for prolonged periods of time, however had the potential to be reactivated to form new tumours.

Nancy has said that these findings will help us to advance our understanding of dormant cancer cells which is crucial for disease prevention, progression and, importantly, recurrence. Moreover, her research will help to identify new targeted approaches to eradicate dormant cancer cells.

Interview and photo opportunities

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