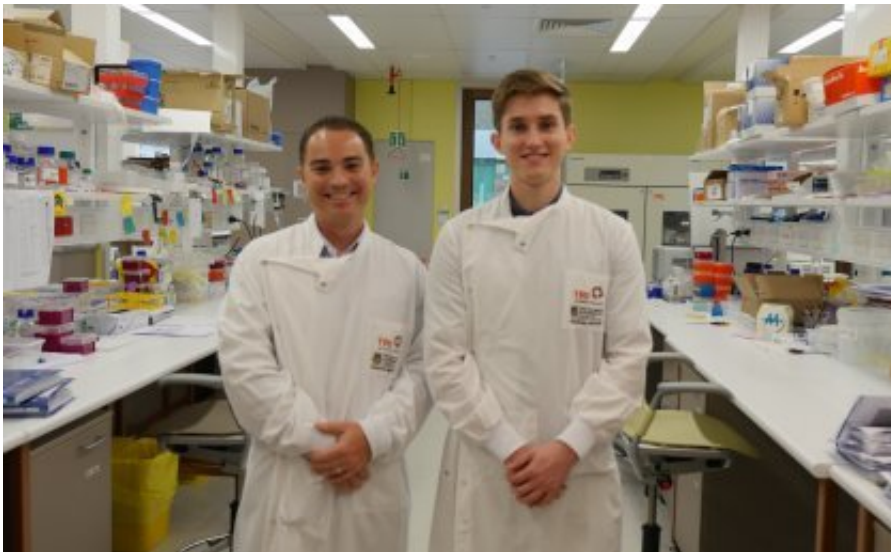


Researchers show stress suppresses response to cancer treatments

November 22 2017



Dr Stephen Mattarollo and PhD candidate Michael Nissen. Credit: University of Queensland

New research shows that chronic stress suppresses the immune system's response to cancer, reducing the effectiveness of immunotherapy treatments.

University of Queensland scientists say they are investigating dual therapies for [patients](#) to reduce [stress](#) signalling and improve their response to treatments.

UQ Diamantina Institute researcher Dr Stephen Mattarollo said lymphoma progressed more rapidly in mouse models when stress pathways were induced to reflect chronic psychological stress.

"When we used immunotherapies on these mice they were not able to respond as effectively as those which had not been stressed," Dr Mattarollo said.

"This is because the stress led to poor function against the [cancer](#) by T-cells, which are very important in the immune system's control and surveillance of tumours and are a major target in many immunotherapy treatments."

Dr Mattarollo said increased anxiety was natural with a cancer diagnosis, and it should be managed to ensure the best possible outcome for patients.

"Absolutely there is now pre-clinical evidence to suggest that treatments and lifestyle interventions to manage or reduce stress levels will improve the chances of these patients responding to therapies," he said.

"This applies particularly to immunotherapies, but many conventional therapies such as chemotherapy also rely on components of the immune system for their effectiveness.

"It is quite possible that by increasing the [immune function](#) in patients they will also respond better to some other therapies."

PhD candidate Michael Nissen said as immunotherapies became more widely available, it was important to build on the knowledge of factors which influence their effectiveness.

"The more we know, the better chance we have of designing them

effectively and efficiently to work in cancer patients," Mr Nissen said.

Dr Mattarollo said the lab was hoping to combine immunotherapy treatments with commonly used [blood pressure drugs](#) that block the effects of stress hormones.

"We hope this will reduce the stress-induced neural signalling and improve immune function," Dr Mattarollo said.

"We are about to test this combination in animal models."

Dr Mattarollo said psychoneuroimmunology – or the interaction between the mind, the nervous system and the immune system – is a rapidly growing discipline and is becoming an increasing focus of the lab's cancer research.

The research is published in *Cancer Immunology Research*.

More information: Michael D Nissen et al. Beta-adrenergic signaling impairs anti-tumor CD8+ T cell responses to B cell lymphoma immunotherapy, *Cancer Immunology Research* (2017). [DOI: 10.1158/2326-6066.CIR-17-0401](#)

Provided by University of Queensland

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