

Media release

Friday 1 May 2020

FECRI researcher identify immune mechanism in Langerhans Cell Histiocytosis

- *Researchers at the Fiona Elsey Cancer Research Institute have identified a mechanism of how immune cells may be involved in the development of Langerhans Cell Histiocytosis (LCH) lesions.*
- LCH is a rare cancer like condition, mostly found in children, but can also appear in adults.
- *“ Foxp3+ Tregs from Langerhans cell histiocytosis lesions co-express CD56 and have a definitively regulatory capacity”*

Jenée Mitchell, Jason Kelly, Egle Kvedaraitė, Tatiana von Bahr Greenwood, Jan-Inge Henter, Daniel Pellicci, Stuart Berzins and George Kannourakis

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Researchers at the Fiona Elsey Cancer Research Institute have made progress in understanding how a specific type of immune cell is involved in the development of lesions associated with Langerhans Cell Histiocytosis (LCH) lesions.

This research has been recently recognised and published in international medical journal, *Clinical Immunology*. It is hoped that these findings will lead to a better way to treat patients with LCH

LCH is a rare type of cancer, mostly found in children. It results in lesions forming in any organ, which can lead to organ dysfunction and permanent damage. The lesions, which are often found in the bone and skin, contain mutated immune cells called ‘LCH cells’ along with a range of other immune cells, which create an inflammatory environment and tissue damage.

Professor George Kannourakis, Honorary Director at FECRI, and an Oncologist and Haematologist with years of experience in treating and monitoring patients with LCH, has worked with researchers and clinicians around the world on this condition. The immunology-based research led by Professor Kannourakis at the Ballarat based Institute, has advanced the understanding of LCH and created promising leads on how we can target the immune system to combat this.

This published research undertaken by Dr Jenée Mitchell, has highlighted a new mechanism of how a specific immune cell, called Tregs, may be involved in the development and progression of lesions in the condition. It is hoped that these findings will lead to better way to treat patients with LCH, and maybe useful to treat other cancers and inflammatory conditions that result in tissue damage. Professor Kannourakis said that “ This research has identified immune cells ‘Treg lymphocytes’ within LCH lesions as the producers of a potent inflammatory response, called TGFbeta, which is thought to contribute to the intense tissue damage seen in this disorder, and targeting this offers potential options for treatment “.

Dr Jenée Mitchell is from Western Victoria and completed her PhD studies in 2019 focusing on LCH. She has recently been appointed as a Postdoctoral Research Fellow at the Institute to continue her

work on the condition. Dr Mitchell is now an expert in this niche field, and it is wonderful to retain her talent in regional Victoria.

“This publication is a great example of the ground-breaking work that the team here at the Institute is doing into the immunology of cancer. Dr Mitchell is a great example of a young person and women pursuing an international career from a regional base. Our program is building great momentum and will continue to produce outcomes.” stated Professor Kannourakis.

Other researchers, recognised in this publication are Professor Stuart Berzins, Jason Kelly, and FECRI collaborations with Professor Jan-Inge Henter from the Karolinska Institute in Sweden and Dr Daniel Pellicci, Murdoch Children’s Research Institute.

FECRI currently has 8 PhD students from Federation University and 13 senior scientific staff. The program is community funded and the only cancer research Institute in regional Australia. Other key projects being conducted at the Institute are:

- Ovarian cancer
- Breast cancer
- Immunology
- Chronic Lymphocytic Leukaemia
- Renal cancer

Professor George Kannourakis and Dr Jenee Mitchell will available on Friday 1 May for interviews and further information regarding this work.

File photos are available from the Institute on request of Professor George Kannourakis and Dr Jenee Mitchell.

Microscope images of LCH are available at

<https://www.dropbox.com/s/n5sc5u36uk3dyfa/LCH%20images.pptx?dl=0>

and must be credited with the Fiona Elsey Cancer Research Institute.

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