

Churack Chair of Chronic Pain Education and Research

MARCH 2018



Edition #5

Mr Geoff Churack recognised in Australia Day Honours



Mr Geoff Churack AM

Photo supplied by WestPix, taken by Michael Wilson.

The University of Notre Dame Australia congratulates Mr Geoff Churack on being made a Member (AM) in the General Division of the Order of Australia earlier this year.

Mr Churack was recognised “for significant service to the community through philanthropic support for medical research, education and sporting groups, and to the retail automotive sector.”

To read more about Mr Churack’s contribution and service please visit [the official website of the Governor-General of the Commonwealth of Australia](http://www.governor-general.gov.au).

Churack Chair Update

It is with great pleasure that we provide this Newsletter to our donors and supporters.

The Churack Chair of Chronic Pain Education and Research continues to make an impact in both research and education at Notre Dame and in our community.

Dr Natalie Morellini, our first post-doctoral fellow in pain medicine continues to work under the direction of the Churack Chair, Professor Eric Visser, with Professors Peter Drummond and Philip Finch at Murdoch University.

Dr Morellini is researching the immune and sympathetic nervous systems in producing chronic nerve pain. It is cutting edge research and she is one of Notre Dame’s few post-doctoral science researchers.

This Churack Chair update features an outline of Dr Morellini’s research activities for your interest and information.

We thank you for your continued support of Notre Dame and specifically the Churack Chair of Chronic Pain Education and Research.

With kind regards,

Fiona Whittles
Director
Office of University Relations

Shelley Mason
Fundraising & Donor Relations
Office of University Relations

Churack Chair Website: <http://churackchair.nd.edu.au/>

Basic Sciences Research at the School of Medicine, Fremantle, The University of Notre Dame Australia

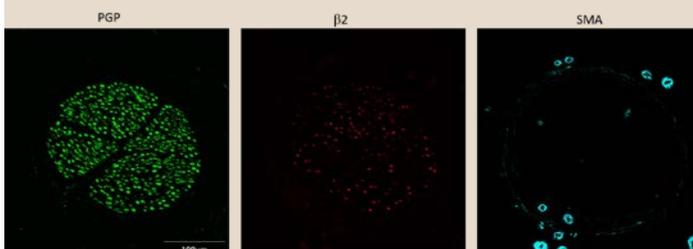
Acute and chronic pain affects 20% of the population and has significant healthcare, psychosocial and economic impacts in our community. Many chronic pain disorders such as nerve pain (e.g. shingles), low back pain (sciatica), complex regional pain syndrome and migraine are (at least in part) associated with sympathetic nervous system and immune cell changes in the skin of painful areas of the body, involving *mast (immune) cells*, *adrenaline (adreno) receptors* and nerve-covering membranes called *myelin*.

The aim of Dr Natalie Morellini and Professor Peter Drummond's research is to identify underlying nerve and immune changes in the skin and other tissues of patients with chronic pain and eventually develop new pain treatments, such as adrenaline or mast cell blocking creams.

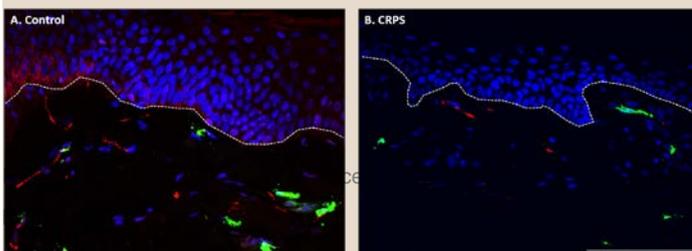
Through Dr Morellini's Fellowship, the School of Medicine at Notre Dame is developing its translational research programme, and will provide medical students with the opportunity to learn about basic neurosciences research in health and disease.



Churack Chair post-doctoral fellow Dr Natalie Morellini



Images (above and below) - photographs of nerve and immune cells lighting up in skin samples of patient with chronic pain.



Summary of Research Projects

In Dr Morellini's own words -

There are seven research projects in various stages of development, the focus of which is to examine the links between adrenaline receptors and immune cells in the skin of patients with nerve pain as the basis of future treatments.

In our first project, we used a rat model of *complex regional pain syndrome* (CRPS) (a severe nerve pain condition) to investigate the production of a molecule called the *noradrenaline transporter* (NAT) in the skin surrounding an injured nerve, and we have almost completed this study. If NAT molecules are found to increase around damaged nerves, we may be able to develop a drug to block this process as a potential pain treatment.

The remaining projects are looking at skin samples collected over the past five years from patients with chronic nerve pain. We have collected skin biopsies from more than 90 CRPS patients from Australia and Europe, as well as 19 with sciatica, 6 with post-herpetic neuralgia (shingles) and 16 with other types of nerve damage pain. In addition, we have over 50 healthy skin control samples.

We are using *immunohistochemistry* (a light-sensitive dye which binds to the molecules and cells we are studying), *confocal microscopy* (a powerful microscope which allows us to see the dye 'light-up' in tissues) to examine *mast cells* (cells that produce an allergic reaction like eczema), and *adrenaline receptor molecules* in skin samples of patients with nerve pain. We are examining the proximity of mast cells to pain nerves (project 2) and the expression of different adrenaline receptors (projects 3 & 4) in the nerves, blood vessels and cells of our skin samples. We have nearly completed projects 2 and 3 and are in the process of collecting data for project 4. In project 5 we will examine the production of a chemical called *nerve growth factor* in the skin which is linked to nerve pain.

In addition to the CRPS skin samples we received from our collaborators in Denmark, we have also received biopsies from patients with diabetic nerve pain who were treated with *topical capsaicin (capsaicin)*, to examine the effects of this pain-relieving cream on adrenaline receptors in the skin (project 6). This study is in the early stages of planning.

Seven News media story

CHRONIC PAIN

If you suffer nerve pain, back pain or migraines – researchers at two of WA's biggest universities want to help.

Featured 17 March 2018

[Watch the video](#)