National Centre for Neuroimmunology and Emerging Diseases

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In this issue:-

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Our Mission

The National Centre for Neuroimmunology and Emerging Diseases (NCNED) is a research team located at Griffith University on the Gold Coast. Led by Professor Sonya Marshall-Gradisnik, the team has a focus on Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) and long COVID.

Our mission is to translate research findings into preventative medicine, social and clinical care and public health outcomes. By collaborating with local, national and international research institutes, we aim to create sustained improvements in health and health care for not only those affected by ME/CFS and long COVID but also other immune disorders.

NCNED GULF WAR RESEARCH FEATURED NATIONALLY ON ABC NEWS

National news article titled "*Griffith University researchers believe cellular door dysfunction is the cause of long-misunderstood Gulf War Illness*" was published via ABC News on the 14th of July 2024 achieving national and international exposure. The groundbreaking article detailed the significance of NCNED's findings in the fight to uncover the causation in Gulf War Illness.

Article summation:-

- Up to a third of veterans who served in the Gulf War are estimated to suffer from the illness, which has never been specifically recognised in Australia.
- NCNED Researchers found crucial dysfunction in specific ion channels on the veterans' cells, or cellular doors, that in healthy people allow calcium to enter which may explain key symptoms of Gulf War Illness, such as fatigue, headaches, rashes, memory problems, joint and muscle pain, poor sleep, respiratory and gut issues.
- The researchers say the findings may open up the possibility of treatments, similar to the trial of drugs to treat long COVID-19. The novel findings journal article relevant to this media release is featured in the publications section following.

Full media article can be viewed here:-

https://www.abc.net.au/news/2024-07-14/qld-gulf-war-illness-griffith-university-research/104076706?

Director of NCNED, Professor Sonya Marshall-Gradisnik with Australian Gulf War Veterans' Association President Ian Allwood.

APPRECIATION AND ACKNOWLEDGEMENT OF GRANTING ORGANISATIONS, AGENCIES, BENEFACTORS AND FUNDRAISERS

Thank you to the Stafford Fox Medical Research Foundation, McCusker Charitable Foundation, the Mason Foundation, Ian and Talei Stewart, the Alison Hunter Memorial Foundation, the Blake Beckett Foundation, Mr Adrian Flack, the Buxton Foundation, the Henty Community, Change for ME Charity, ME/CFS/FM Support Association QLD Inc., the ACT ME/CFS Society, ME/CFS and Lyme Association of WA Inc., MERUK, Dr John Hamwood and the National Health and Medical Research Council.

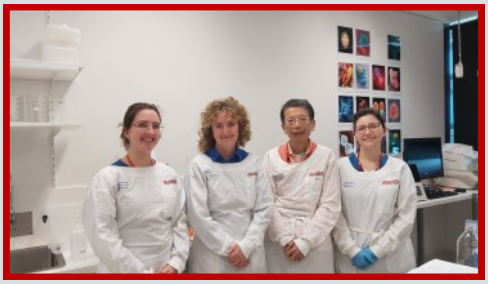
Griffith UNIVERSITY Queensland, Australia

MENZIES HEALTH INSTITUTE QUEENSLAND

PUBLICATIONS

- Featured (right) are Professor Sonya Marshall-Gradisnik and Ms Etianne Martini Sasso, PhD student, whom, along with NCNED researchers and collaborators, have recently published the article "***Novel characterization of endogenous transient receptor potential melastatin 3 ion channels from Gulf War Illness participants***" in the prestigious journal PLOS ONE. The results from this study have identified a significant reduction in TRPM3 ion channel function in immune cells from veterans diagnosed with Gulf War Illness. This condition affects up to one-third of veterans who engaged in the Gulf War combat three decades ago. The complete article can be downloaded via: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0305704

- Ms Breanna Weigel (left) and NCNED researchers have recently published a novel study in Quality of Life Research titled: "***Illness presentation and quality of life in Myalgic Encephalomyelitis/Chronic Fatigue Syndrome and Post COVID-19 Condition: A pilot Australian cross-sectional study***". For the first time in an Australian cohort, this study reports on the considerable overlap in the symptoms experienced by people with ME/CFS and people with long COVID. Importantly, people with long COVID experienced key ME/CFS symptoms, including post-exertional malaise.



- Ms Etianne Martini Sasso and NCNED researchers and collaborators (*pictured left to right Dr Natalie Eaton-Fitch, Professor Sonya Marshall-Gradisnik, Professor Katsuhiko Muraki –Aichi-Gakuin University Japan, and Ms Etianne Martini Sasso)* have just published the article "***Investigation into the restoration of TRPM3 ion channel activity in post COVID-19 condition: a potential pharmacotherapeutic target***" in the prestigious journal Frontiers in Immunology. This NCNED investigation provides novel evidence of Naltrexone as a potential therapeutic intervention and TRPM3 as a treatment biomarker for long COVID.

NCNED SUPPORTS INTERNATIONAL ME/CFS AWARENESS DAY—MAY 12

At NCNED, our foremost commitment is to those suffering from ME/CFS, and you, the patients, will always remain our top priority.

In 2024, NCNED continued its unwavering support for ME/CFS patients by actively participating in and promoting **International ME/CFS Awareness Day**. For over a decade, we have proudly illuminated our research centre and prominent landmarks at Griffith University with blue lights, distinguishing ourselves as the first and only Australian Medical and Clinical Research Centre to engage in this globally significant initiative.

As the national clinical and research centre for ME/CFS, this year NCNED has extended its support by adorning Griffith University's Gold Coast Campus with a large banner and illuminating several buildings in blue.

We express our heartfelt gratitude for your steadfast support of our groundbreaking research endeavours. Our pledge remains committed in delivering the most effective outcomes for ME/CFS patients, thereby positively impacting your lives.

We are immensely grateful for the substantial funding received from The Stafford Fox Medical Research Foundation, enabling the commencement of a Clinical Trial. As the sole research team to elucidate the cellular mechanism for pharmacotherapeutic effect in ME/CFS, this trial marks a pivotal step in advancing our novel scientific discoveries concerning the pathology of ME/CFS, while also exploring potential correlations with long COVID.

We extend our deepest appreciation to The National Health and Medical Research Council, The McCusker Charitable Foundation, The Buxton Foundation, Mr. Ian and Mrs. Talei Stewart and the Henty Community for their invaluable contributions. These generous donations have empowered us to disseminate seminal scientific findings in the hope to benefit you.

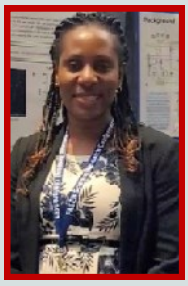
CONFERENCES

NCNED researchers Associate Professor Leighton Barnden, Dr Kiran Thapaliya, and Miss Maira Inderyas presented their novel research findings at The International Society for Magnetic Resonance in Medicine (ISMRM) and The International Society for Magnetic Resonance in Medicine (ISMRT) Annual Meeting and Exhibition in Singapore 4-9 May.

Associate Professor Barnden presented his findings on long COVID using 7 Tesla MRI where he showed significant brain impairment in long COVID patients compared with healthy controls using Independent Component Analysis (ICA).

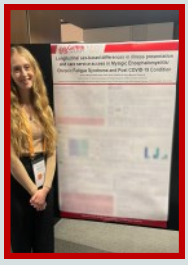
Dr Thapaliya presented his research findings reporting overlap and differences in the hippocampal subfield volumes in the brain using 7 Tesla MRI among people with ME/CFS and long COVID.

Miss Inderyas, PhD student, presented her research that reported weaker functional connectivity between brainstem and cerebellum regions in ME/CFS patients compared with healthy controls using 7 Tesla MRI.



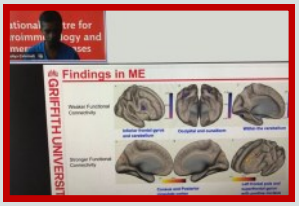
♦ NCNED's Chandi Magawa *(left) p*resented preliminary data reporting impairment of ion **channels** and calcium flux in cell organelles in ME/CFS patients at the prestigious **FASEB (Federation of American Societies of Experimental Biology) Conference** "Channels and Transporters in Immunity" held in Minnesota, USA from the 16th - 24th of June.

♦ NCNED researcher, Ms Etianne Sasso *(right),* was invited to present at the prestigious **Gordon Research Conference Series in Lucca, Italy,** 30th June—5th July with the conference theme being Calcium Signaling. We were thrilled that Etianne was invited as a speaker to this prestigious conference for a *Discussion Leaders Workshop* on ion channels and calcium signaling.



♦ PhD candidate, Breanna Weigel *(left)*, presented research findings from the NCNED's Longitudinal Quality of Health study at the **Queensland Women's Health Forum 2024** in Brisbane from 11-12 July. Breanna's poster shared preliminary, unpublished data on the differences in illness patterns over time among males and females who live with ME/CFS or long COVID.

MEGA WEBINAR



On May 11th, NCNED post-doctoral research fellow, Dr Kiran Thapaliya, and PhD candidates, Etianne Martini Sasso and Breanna Weigel, provided updates on their current research projects at the first **ME Group Australia (MEGA)** webinar for International ME/CFS Awareness Day.

These presentations are now available to be watched online and can be accessed via the link below: https://youtube.com/playlist...

- Kiran presented recently published research findings documenting similarities in brain changes among people with ME/CFS and people with Long COVID. The full journal article can be accessed via: https://doi.org/10.1016/j.amjmed.2024.04.007
- Etianne shared novel results demonstrating improved TRPM3 functioning with Naltrexone in the Natural Killer cells of ME/CFS and Long COVID patients in vitro. https://www.frontiersin.org/.../fimmu.2024.1264702/full
- Breanna discussed the role of patient experiences in guiding health policies as highlighted in her collaboration with the Deeble Institute for Health Policy Research published last year: https://doi.org/10.25916/b246-r560

INTERNATIONAL INDEPENDENT REVIEW RECOGNISES THE ROLE OF TRPM3 ION CHANNEL DYSFUNCTION IN THE PATHOMECHANISM OF ME/CFS AND LONG COVID

NCNED is the only international research and clinical centre to pioneer electrophysiology in ion channels in ME/CFS and long COVID.

These NCNED investigations have been painstaking work and years in the making where we are the first to identify ion channel dysfunction, particularly TRPM3, in ME/CFS and long COVID. NCNED's TRPM3 research findings have long been suggested to be the underpinning of these illnesses.

We are heartened to report a recent publication by Matthias Lohn and Klaus Josef Wirth that was independently undertaken to assess the role of dysfunctional TRPM3 and potential therapeutic effect of low dose naltrexone in ME/CFS and long COVID. This independent review was guided by NCNED research. Please find the link below:
https://translational-medicine.biomedcentral.com/.../s129...

NCNED has previously reported in their research papers the significance of TRPM3 channels, which are involved in a plethora of biological processes including inflammation and pain. Moreover, NCNED has recognised that TRPM3 channels are widely expressed in multiple regions including the brain, spinal cord, muscle and skeletal cells, kidneys, immune cells, and more. The expression and function of TRPM3 correspond to many of the symptoms people with ME/CFS and long COVID report.

At NCNED our focus is all about patients. NCNED continues to strive to make a difference for people with ME/CFS and long COVID by thinking creatively and pushing the envelope with innovative technology to provide much-needed answers for all of you.