

Research Directions

Office of Research Services

Understanding Bone Pain

Dr David Mahns from the School of Medicine has been awarded a three year NHMRC Grant to explore the underlying mechanisms the body uses to transmit pain-related information from bone to brain.

‘Pain associated with bone cancer, fractures, osteoporosis, osteoarthritis and bone infections often presents the clinician with a difficult problem of treatment, as pain can be debilitating and intractable’ says Dr Mahns. ‘In such cases, effective pain relief often demands the use of pain relief in doses that are incapacitating or life-threatening. Also, most treatments for bone pain are based on the assumption that all pain, regardless of whether it comes from bone, skin, muscle or viscera, is all communicated to the brain by the same mechanism. This results in bone pain being targeted with similar therapies to other sources of pain even though it is sometimes not effective and there has been limited research to support the assumption.’



This project shall test a series of specific hypotheses to explain why bone pain is often poorly controlled by standard pharmacological or surgical approaches, using a novel preparation developed by Dr Mahns. This preparation will allow Dr Mahns to isolate and selectively activate a single bone-associated nerve fibre in individuals. By recording both the fibre and the central neurone – in the brain – the research team will be able to examine the nerve fibre transmitting the activity of the bone contributing to the pain separately from any contribution from surrounding fibres or tissue.

It is expected that this study will reveal the neural mechanisms responsible for relaying sensory information, in particular, that regarding painful stimuli from bone to brain. It will lead to a better understanding of the mechanisms operating in the perception of bone pain, and thus form a template for safer and more effective drug or surgical interventions for patients with bone pain-related diseases and conditions.

Project Title: Neural Mechanisms of Bone Pain

Funding has been set at: \$276,750

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