

# **The toll of knowing you are sick: implications for pain and addiction**



## **Prof Mark Hutchinson**

ARC Centre of Excellence for Nanoscale BioPhotonics, University of Adelaide, Australia  
mark.hutchinson@adelaide.edu.au

### **Abstract**

The aetiology of persistent pain in humans is comprised of a complex, twisted and multi factorial journey that culminates in a "cancer of the soul". Recent advances in the basic science underpinning our mechanistic understanding of persistent pain have embraced "the other brain" as an integrator of multiple life stimuli. This complex integration of life experiences, which are translated into neurokinin signals cause the neuroimmune cells of the central nervous system to adapt and change the environment in which the neuronal system operates. If these adaptations present in the somatosensory neuroanatomical locations then this can present as hypernociception and eventual persistent pain. Our appreciation for this neuroimmune signalling and its contributions to the health and disease of the brain has its origins in the study of the illness response. It is now apparent that these specialised brain-immune processes are engaged in a range of other disparate responses, including the rewarding properties of drugs of abuse. This presentation will summarise recent studies in this field and equip the attendees with further insights of the complexity and power that viewing the brain as a neuroimmune organ brings to understanding persistent pain and drug responses. Additionally, the implications that advances in nanoscale biophotonics will have for moving this whole field forward will be introduced.

### **Biography**

Professor Hutchinson is an ARC Australian Research Fellow and is the Director of the ARC Centre of Excellence for Nanoscale BioPhotonics (CNBP). He is also a Professor within the School of Medical Sciences at the University of Adelaide and the leader of the Neuroimmunopharmacology research laboratory. Mark's research has implicated the brain immune-like cells in the action of drugs of dependence and the negative side effects of pain treatments. His work has enabled the translation of compounds at the lab bench to clinical agents used at the bedside. Owing to the translational nature of his work he works extensively with pharmaceutical companies on drug development programs. Mark has published over 100 papers in journals and refereed conference proceedings and has attracted in excess of \$50M in research funding.