

ARMI EXTERNAL SEMINAR SERIES 2019



10 YEARS
2009-19

Development and maintenance of cortical bone strength by SOCS3, PTHrP and EphrinB2

Professor Natalie Sims
Deputy Director, St Vincent's Institute

Abstract

Bone strength is determined largely by the size, composition and density of cortical bone, yet few signalling pathways are known that specifically control cortical strength. This talk will focus on three different proteins that control cortical strength in quite different ways discovered through the use of genetically altered mouse models. Suppressor of Cytokine Signalling 3 (SOCS3) is required for the consolidation of developing bone to form the dense outer shell. Parathyroid hormone related protein (PTHrP) acting in utero restricts bone width, but does not affect bone length. EphrinB2 (a receptor tyrosine kinase) acts in osteocytes, a cellular network within the hard bone tissue, to suppress autophagic mechanisms controlling the deposition of bone mineral into the skeleton. These three ways of controlling cortical bone development all provide new insights into how bone strength is controlled physiologically, and potentially, new therapeutic approaches for the future.

Bio

Professor Sims directs the Bone Cell Biology and Disease Unit at St. Vincent's Institute of Medical Research, and is a Professorial Fellow at The University of Melbourne. She completed her PhD at the University of Adelaide in 1995, followed by postdoctoral work at the Garvan Institute (Sydney) and Yale School of Medicine (USA). Her laboratory studies the cellular interactions responsible for development, maintenance and strength of the skeleton, and has defined the roles of a number of key pathways, including the IL-6 family of cytokines and estrogen receptor isoforms in bone through the use of genetically altered mouse models and in vitro systems. She has more than 110 original research publications as well as many review articles and book chapters. Her work has been recognised by awards from the American Society of Bone and Mineral Research Fuller Albright Award (2010) and the International Bone and Mineral Society Herbert A Fleisch Award (2013). She is an Associate Editor of the Journal of Bone and Mineral Research, an Associate Editor at Endocrine Reviews, and serves on the Editorial Board of the Journal of Biological Chemistry. She is a Fellow of the American Society of Bone and Mineral Research and President-Elect of the Australia and New Zealand Bone and Mineral Society.



EVENT DETAILS

DATE:

Tuesday, 4th June

TIME:

1:30pm

VENUE:

Seminar Room
G19, Ground Floor
15 Innovation Walk
Monash University
Clayton Campus

HOST:

Dr Alberto Rosello Diez



@ARMI_Labs



/AustralianRegenerativeMedicineInstitute



/australian-regenerative-medicine-institute



@regener8au



The Australian Regenerative Medicine Institute (ARMI) acknowledges the generous support of Monash University and the Victorian State Government.