

Investigating the role of BMP receptors in muscle stem cell transdifferentiation

Host School/Institute: Orthopaedic Research & Biotechnology, Kid's Research Institute (Children's Hospital at Westmead)

URL: <http://www.chw.edu.au/research/groups/orthopaedics.htm>

Project Code: CHW3

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Description of Project:

Muscle progenitor cells growth in culture can be induced to differentiate into multiple cellular lineages including adipocytes (fat cells) and osteoblasts (bone cells). For bone tissue engineering applications, we are interested in the potential transdifferentiation of muscle progenitors into osteoblasts. We have developed *in vitro* (cell culture) models of muscle and bone cell culture, as well as assays for looking at muscle and bone markers.

This summer project will focus on examining the expression of specific bone receptors on different progenitor cell types under conditions that produce bone. We have a number of candidate receptors (BMP receptors) that likely mediate the bone cell differentiation. The expression of these genes will be examined by qPCR and by western blot analysis. The student will become familiar with basic molecular and cell culture techniques. There also exists the potential for functional assays using siRNA technology.

Prospective students are strongly encouraged to contact the laboratory before applying.

For a talented applicant, this study may lead onto an honours research project.

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