



## A/Professor Craig Harrison

### Head, Growth Factor Therapeutics Laboratory



Monash Biomedicine Discovery Institute  
Metabolic Disease and Obesity Program

#### OTHER PROGRAM AFFILIATIONS



Development and  
Stem Cells

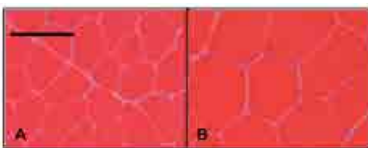
**EMAIL** craig.harrison@monash.edu

**TELEPHONE** +61 3 9905 5132

Members of the transforming growth factor- $\beta$  (TGF- $\beta$ ) protein superfamily play key roles in the regulation of cellular growth and differentiation. These proteins have documented roles in embryogenesis and reproduction, as well as wound healing, immune function, fibrosis and tumour progression. Our group has a long-term interest in understanding the mechanisms that govern the regulation of individual members of the TGF- $\beta$  family and their impact on biological activity.

#### Research Projects

1. Targeting activin to combat life-threatening cancer cachexia
2. Therapeutic potential of TGF- proteins for the diagnosis and treatment of female infertility
3. Inhibins as therapeutics for osteoporosis and sarcopenia



Muscle hypertrophy following inhibition of activin/myostatin signalling.



Model of the inhibin A heterodimer.

#### Selected significant publications:

1. Mottershead DG, Sugimura S, Al-Musawi SL, Li JJ, Richani D, White MA, Martin GA, Trotta AP, Ritter LJ, Shi J, Mueller TD, **Harrison CA** and Gilchrist RB. 2015. Cumulin, an oocyte-secreted heterodimer of the transforming growth factor- $\beta$  family, is a potent activator of granulosa cells and improves oocyte quality. *J Biol Chem* 290:24007-20
2. Chen JL, Walton KL, Al-Musawi SL, Kelly, EK, Qian H, La M, Lu L, Lovrecz G, Ziemann M, Lazarus R, El-Osta A, Gregorevic P and **Harrison CA**. 2014. Development of novel activin-targeted therapeutics. *Molecular Therapy* 23:434-444
3. Chen JL, Walton KL, Winbanks CE, Murphy KT, Thomson RE, Makanji Y, Qian H, Lynch GS, **Harrison CA\*** and Gregorevic P\*. 2014. Elevated expression of activins promotes muscle wasting and cachexia. *FASEB Journal* 28:1711-1723. (\*co-senior author)
4. Simpson CM, Stanton PG, Walton KL, Chan KL, Ritter LJ, Gilchrist RB and **Harrison CA**. 2012. Activation of latent human GDF9 by a single residue change (Gly 391Arg) in the mature domain. *Endocrinology* 153:1301-1310
5. Makanji Y, Walton KL, Chan KL, Gregorevic P, Robertson DM, **Harrison CA**. 2011. Generation of a specific activin antagonist by modification of the activin A propeptide. *Endocrinology* 152:3758-3768