



# Professor Matthew Watt

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Head, Biology of Lipid Metabolism Laboratory



Monash Biomedicine Discovery Institute  
Metabolic Disease and Obesity Program

## OTHER PROGRAM AFFILIATIONS



Cancer

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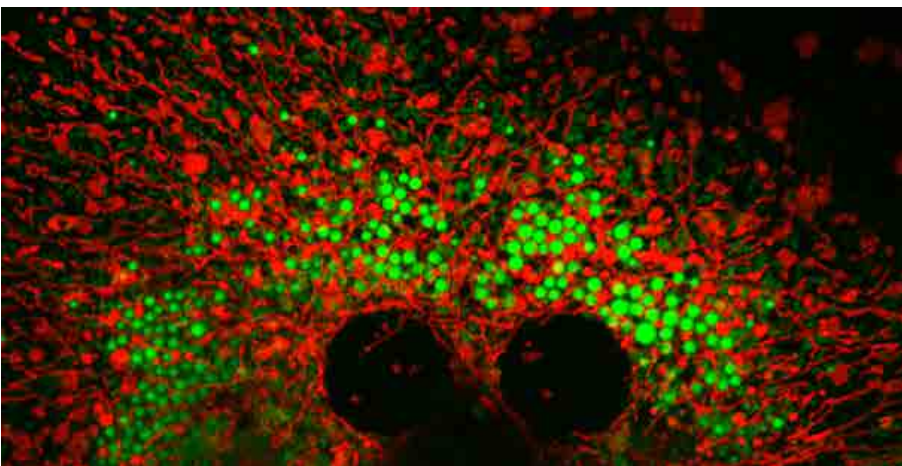
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**WEB** [med.monash.edu/physiology/research/bolm.html](http://med.monash.edu/physiology/research/bolm.html)

Our ultimate aim is to influence the development of preventative and therapeutic strategies for obesity and related disorders. We study the molecular and cellular regulation of lipid metabolism in fat, muscle, liver, prostate and the brain and how defects in lipid metabolism cause insulin resistance, a major feature of obesity and precursor to type 2 diabetes. More recently, we have focussed on the endocrine role of the liver – specifically; we are using “omics” technology to discover novel proteins and lipids that are secreted by the liver and how this influences metabolism.

## Research Projects

1. Understanding the cell autonomous role of adipocytes in metabolic disease
2. Modulating fatty acid metabolism to prevent prostate cancer progression
3. Linking fatty liver to diabetes



Lipid droplets (green) interacting with mitochondria (red) in a liver cell.

## Selected significant publications:

1. Meex RC, Hoy AJ, Morris A, Brown RD, Lo JC, Burke M, Goode RJ, Kingwell BA, Kraakman MJ, Febbraio MA, Greve JW, Rensen SS, Molloy MP, Lancaster GI, Bruce CR, **Watt MJ**. 2015. Fetuin B is a secreted hepatocyte factor linking steatosis to impaired glucose metabolism. *Cell Metabolism* 22: 1078-1089.
2. Mason RR, Mokhtar R, Matzaris M, Selathurai A, Kowalski G, Mokbel N, Meikle PJ, Bruce CR, **Watt MJ**. 2014. PLIN5 deletion remodels intracellular lipid composition and causes insulin resistance in muscle. *Molecular Metabolism* 3: 652-63.
3. Boon J, Hoy AJ, Stark R, Brown RD, Meex RC, Henstridge DC, Schenk S, Meikle PJ, Horowitz JF, Kingwell BA, Bruce CR, and **Watt MJ**. 2013. Ceramides contained in LDL are elevated in type 2 diabetes and promote inflammation and skeletal muscle insulin resistance. *Diabetes* 62: 401-10.
4. Crowe S, Wu LE, Economou C, Turpin SM, Matzaris M, Hoehn KL, Hevener AL, James DE, Duh EJ and **Watt MJ**. 2009. Pigment epithelium-derived factor contributes to insulin resistance in obesity. *Cell Metabolism*. 10: 40-47.
5. **Watt MJ**, Dzamko N, Thomas WG, Rose-John S, Ernst M, Carling D, Kemp BE, Febbraio MA, and GR Steinberg. 2006. Ciliary neurotrophic factor reverses obesity-induced insulin resistance by activating skeletal muscle AMPK. *Nature Medicine* 12: 541-548.