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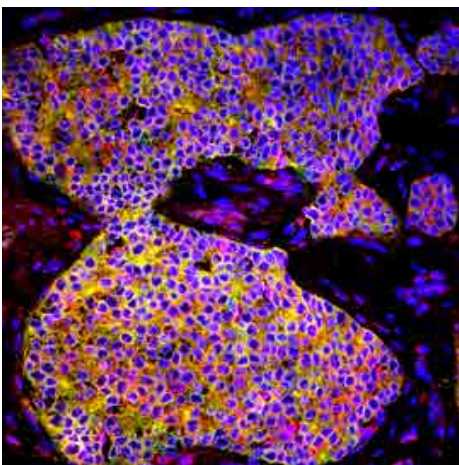
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WEB med.monash.edu/biochem/research/projects/intracellular.html

The phosphoinositide 3-kinase (PI3K) signalling pathway is involved in a number of cellular processes such as cell growth, survival, migration and differentiation. PI3K is a proto-oncogene in up to 30% of all human cancers. In addition, deregulation of the PI3K pathway occurs in many other human diseases including diabetes and neurodegenerative diseases, as well as developmental disorders.

Research Projects

1. Role of PI3K regulatory proteins in breast and brain cancer
2. Role of a PI3K regulatory enzyme in embryonic development, angiogenesis and disease
3. Skeletal muscle disease; identification of causes and novel therapies



Human Breast Cancer

Selected significant publications:

1. Ooms LM, Binge LC, Davies EM, Rahman P, Conway JR, Gurung R, Ferguson DT, Papa A, Fedele CG, Vieuxseux JL, Chai RC, Koentgen F, Price JT, Tiganis T, Timpson P, McLean CA and **Mitchell CA**. 2015. The inositol polyphosphate 5-phosphatase PIPP regulates AKT1-dependent breast cancer growth and metastasis. *Cancer Cell* 28(2):155-169.
2. McGrath MJ, Binge LC, Sriratana A, Wang H, Robinson PA, Pook D, Fedele CG, Brown S, Dyson JM, Cottle DL, Cowling BS, Niranjana B, Risbridger GP, **Mitchell CA**. 2013. Regulation of the transcriptional coactivator FHL2 licenses activation of the androgen receptor in castrate-resistant prostate cancer. *Cancer Research* 73(16):5066-5079.
3. Fedele CG, Ooms LM, Ho M, Vieuxseux J, O'Toole SA, Millar EK, Lopez-Knowles E, Sriratana A, Gurung R, Baglietto L, Giles GG, Bailey CG, Rasko JE, Shields BJ, Price JT, Majerus PW, Sutherland RL, Tiganis T, McLean CA, **Mitchell CA**. 2010. Inositol polyphosphate 4-phosphatase II regulates PI3K/Akt signaling and is lost in human basal-like breast cancers. *Proc. Nat. Acad. Sci. USA* 107(51): 22231-36.
4. Nandurkar HH, Layton M, Laporte J, Selan C, Corcoran L, Caldwell KK, Mochizuki Y, Majerus PW and **Mitchell CA**. 2003. Identification of myotubulin as the lipid phosphatase catalytic subunit associated with the 3-phosphatase adapter protein, 3-PAP. *Proc Natl Acad Sci U S A*. 100: 8660-8665.
5. Nandurkar HH, Caldwell KK, Whisstock JC, Layton M, Gaudet EC, Norris FA, Majerus PW and **Mitchell CA**. 2001. Characterization of an adapter subunit to a PtdIns 3-P 3-phosphatase. *Proc Natl Acad Sci U S A*. 98: 9499-9504.