

Associate Professor Chris Barclay- List of publications

1. **Barclay, C. J.**, Woledge, R. C. & Curtin, N. A. (2007) Energy turnover for Ca^{2+} cycling in skeletal muscle. *Journal of Muscle Research and Cell Motility* 28, 259-274.
2. **Barclay, C. J.** & Lichtwark, G. A. (2007). The mechanics of mouse skeletal muscle when shortening during relaxation. *Journal of Biomechanics* 40, 3121-3129.
3. **Barclay, C. J.** & Loiselle, D. S. (2007). Can activation account for 80% of skeletal muscle energy use during isometric contraction? *American Journal of Physiology Cell Physiology* 292, C612.
4. Widén, C. & **Barclay, C. J.** (2006). ATP-splitting by half the cross-bridges can explain the twitch energetics of mouse papillary muscle. *Journal of Physiology* 573, 5-15.
5. Smith, N. P., **Barclay, C. J.** & Loiselle, D. S. (2005). The efficiency of muscle contraction. *Progress in Biophysics and Molecular Biology* 88,1-58.
6. **Barclay, C. J.** (2005). Modelling diffusive O₂ supply to isolated preparations of mammalian skeletal and cardiac muscle. *Journal of Muscle Research and Cell Motility* 26, 225-235.
7. **Barclay, C. J.** (2005). The maximum contractile filament movement per ATP split in muscle is 1.3 nm not 13 nm. *International Journal of Biological Macromolecules*. 37, 154-155.
8. Widén, C. & **Barclay, C. J.** (2005). Resting metabolism of mouse papillary muscle. *Pflügers Archiv* 450, 209-216.
9. **Barclay, C. J.** & Weber, C. L. (2004). Slow skeletal muscles of the mouse have greater initial efficiency than fast muscles but the same net efficiency. *Journal of Physiology* 559, 517-531.
10. **Barclay, C. J.** (2003). Models in which many cross-bridges attach simultaneously can explain the filament movement per ATP split during muscle contraction. *International Journal of Biological Macromolecules* 32, 139-147.
11. **Barclay, C. J.**, Widén, C. & Mellors, L. J. (2003). Initial mechanical efficiency of isolated cardiac muscle. *Journal of Experimental Biology* 206, 2725-273
12. **Barclay, C. J.** (2002). Back to the future: cross-bridge working stroke in muscle fibres measured using force steps. *Journal of Physiology* 545, 1.
13. Curtin, N. A., Clapham, J. C. & **Barclay, C. J.** (2002). Excess recovery heat production by isolated muscles from mice overexpressing uncoupling protein-3. *Journal of Physiology* 542, 231-235.
14. Mellors, L. J. & **Barclay, C. J.** (2001). The energetics of rat papillary muscles undergoing realistic strain patterns. *Journal of Experimental Biology* 204, 3765-3777.
15. Mellors, L. J. Gibbs, C. L. & **Barclay, C. J.** (2001). Comparison of the efficiency of rat papillary muscles during afterloaded isotonic contractions and contractions with sinusoidal length changes. *Journal of Experimental Biology* 204, 1765-1774.
16. Baxi, J., **Barclay, C. J.** & Gibbs, C. L. (2000). Energetics of rat papillary muscles during contractions with sinusoidal length changes. *American Journal of Physiology* 278, H1545-H1554.

17. **Barclay, C. J.** (1999). A weakly coupled version of the Huxley cross-bridge model can simulate energetics of amphibian and mammalian skeletal muscle. *Journal of Muscle Research and Cell Motility*, 20, 163-176.
18. West, J. M., **Barclay, C. J.**, Luff, A. R. & Walker, D. W. (1999) Developmental changes in the activation properties and ultrastructure of fast- and slow-twitch muscles from fetal sheep. *Journal of Muscle Research and Cell Motility* 20, 249-264.
19. **Barclay, C. J.** (1998). Estimation of cross-bridge stiffness from maximum thermodynamic efficiency. *Journal of Muscle Research and Cell Motility* 19, 855-864.
20. Gibbs, C. L. & **Barclay, C. J.** (1998). Efficiency of skeletal and cardiac muscle. *Advances in Experimental Medicine & Biology* 453, 527-535.
21. **Barclay, C. J.** (1997). Initial mechanical efficiency in cyclic contractions of mouse skeletal muscle. *Journal of Applied Biomechanics* 13, 419-423.
22. Constable, J. K., **Barclay, C. J.** & Gibbs, C. L. (1997). Energetics of lengthening in mouse and toad skeletal muscle. *Journal of Physiology* 505, 205-215.
23. **Barclay, C. J.** (1996). Mechanical efficiency and fatigue of fast and slow muscles of the mouse. *Journal of Physiology* 497, 781-794.
24. **Barclay, C. J.**, Arnold, P. D. & Gibbs, C. L. (1995). Heat production and fatigue during repeated contractions of mouse skeletal muscle. *Journal of Physiology* 488, 741-752.
25. Gibbs, C. L. & **Barclay, C. J.** (1995). Cardiac efficiency. *Cardiovascular Research* 30, 627-634.
26. **Barclay, C. J.** (1994). Efficiency of mouse fast- and slow-twitch muscle during cyclic contractions. *Journal of Experimental Biology* 193, 65-78.
27. **Barclay, C. J.**, Constable, J. K. & Gibbs, C. L. (1993). Energetics of mouse fast- and slow-twitch muscle. *Journal of Physiology* 472, 61-80.
28. **Barclay, C. J.**, Curtin, N. A. & Woledge, R. C. (1993). Changes in crossbridge and non-crossbridge heat during mild fatigue of single frog muscle fibres. *Journal of Physiology* 468, 543-555.
29. **Barclay, C. J.** (1992). Effect of fatigue on rate of isometric force development in mouse fast- and slow-twitch muscle. *American Journal of Physiology* 263, C1065-C1072.
30. **Barclay, C. J.** & Loiselle, D. S. (1992). The dependence of muscle fatigue on stimulation protocol: effect of hypocaloric diet. *Journal of Applied Physiology* 72, 2278-2284.