Supplemental data to Table 1 of 2019 Biophysics Meeting poster, “Thick filament regulation of the simple harmonic motion of tropomyosin and active tension in cardiac and skeletal muscle”. Experimental values for Table 1 references, mean (s.e.m.). A one-sided paired t-test was used for comparisons for which a P values were not reported.

7. Patel, J.R., et al., *Magnitude of length-dependent changes in contractile properties varies with titin isoform in rat ventricles*. Am J Physiol Heart Circ Physiol, 2012. 302(3): p. H697-708. The magnitude of the difference with stretched from 2.0 um to 2.35 um of rat trabeculae from homozygous (Ho) titin mutant vs. wild type (Wt) hearts. Po (nN/mm2): Wt, 9.30 (1.07) increased vs. Ho, 5.85 (0.86), P < 0.05; Ca-sen (pCa50): Wt, 0.12 (0.01) increased vs. Ho, 0.05 (0.01), P < 0.05; nH: Wt, - 0.40 (0.07) was decreased vs. Ho, -0.14 (0.06), P < 0.05. Differences within each group (Wt and Ho) were also significant, P < 0.05.

12. Stelzer, J.E., J.R. Patel, and R.L. Moss, *Acceleration of stretch activation in murine myocardium due to phosphorylation of myosin regulatory light chain*. J Gen Physiol, 2006. 128(3): p. 261-72. Dephosphorylated vs re-phosphorylated. Po, (Fmax, mN/mm2): Increased 15.5 (0.8) to 21.7 (1.3), P < 0.05; Ca-sen, (pCa50): Increased 5.71 (.01) to 5.83 (.01), P < 0.05; nH: Decreased 3.79 (.23) to 3.22 (.26), P < 0.05.

13. Szczesna, D., et al., *Phosphorylation of the regulatory light chains of myosin affects Ca2+ sensitivity of skeletal muscle contraction*. J Appl Physiol (1985), 2002. 92(4): p. 1661-70. Dephosphorylated vs. re-phosphorylated. Po (% control): Increased 68.9 (3.36) to 80 (2.6), P < 0.05; Ca-sen (pCa50): Increased 5.53 (.015) to 5.68 (.01), P < 0.01; nH: Decreased 3.16 (.06) to 2.70 (.20), P = 0.057.

14. Kentish, J.C., *The inhibitory effects of monovalent ions on force development in detergent-skinned ventricular muscle from guinea-pig.* J Physiol, 1984. 352: p. 353-74. Ionic strength from 200 mM to 100 mM. Po: Increased > 30 %, data not reported, see Fig 2; Ca-sen (pCa50): Increased 5.56 (.03) to 5.85 (.03), P < 0.05; nH: Decreased 2.14 (.08) to 1.67(.02), P < 0.05.

16. Martyn, D.A. and A.M. Gordon, *Length and myofilament spacing-dependent changes in calcium sensitivity of skeletal fibres: effects of pH and ionic strength.* J Muscle Res Cell Motil, 1988. **9**(5): p. 428-45. **a**. Ionic strength from 200 mM to 110, 2.7 um, pH7.0, 0% PVP. Po: Increased 13% (i.e., 1.13 (.04) fold), P < 0.05; Ca-sen (pCa): Increased 5.81 (.01) to 6.16 (.003), P < 0.01; nH: decreased 3.02 (0.16) to 2.61 (0.05), P < 0.01. **b**. pH from 6.0 to 7.0, 200 mM, 0% PVP, 2.3 um & 2.7 um. Po: Both increased 90 - 100 % but not tabulated, see Fig. 4; Ca-sen (pCa): Both increased, 5.36 (0.01) to 5.76 (.01) and 5.40(0.01) to 5.81 (0.01), both P < 0.01; nH: Both decreased, 3.85 (0.10) to 3.12 (0.13), 4.24 (0.20) to 3.20 (0.16), both P < 0.01. **c.** Stretch from 2.3 to 3.1 um at pH 7.0, 200 mM, 0% PVP. Po: Not relevant, muscle stretched beyond optimum overlap; Ca-Sen (pCa): Increased 5.76 (0.01) to 5.92 (0.01), P<0.001; nH, decreased, 3.12 (0.13) to 2.45 (0.10), P< .001. **d**. Dextran T-500 0% to 3%, pH 7.0, 200 mM, 2.7 um. Po: Unchanged; Ca-Sen (pCa), increased 5.81 (0.01) to 6.04 (0.02), p<0.001; nH: decreased, 3.02 (0.16) to 2.77 (0.10), p=0.24, consistent with low level of osmotic compression.

17. Fukuda, N., et al., *Acidosis or inorganic phosphate enhances the length dependence of tension in rat skinned cardiac muscle.* J Physiol, 2001. **536**(Pt 1): p. 153-60. pH from 6.2 to 7.0 at 2.3 um. Po: Increased, (60% to 100%), P <0.05; Ca-sen (pCa50): Increased, ~4.5 to ~5.5, see Fig 1c, P (very likely) < 0.05; nH: Decreased, 5.70 (0.43) to 4.59 (0.21), P < 0.05.

19. Dobesh, D.P., J.P. Konhilas, and P.P. de Tombe, *Cooperative activation in cardiac muscle: impact of sarcomere length.* Am J Physiol Heart Circ Physiol, 2002. **282**(3): p. H1055-62. Sarcomere length 1.95 to 2.25 um. Po (Fmax, mN/mm2): Increased 56.8 (4.8) to 72.0 (6.0), P< 0.05; Ca-sen (EC50): Increased as EC50 decreased 4.03 (0.05) to 3.24 (0.07), P < 0.001; n2 (i.e., slope below EC50), decreased 10.6 (1.0) to 7.3(0.7), P < 0.02.

20. Konhilas, J.P., T.C. Irving, and P.P. de Tombe, *Myofilament calcium sensitivity in skinned rat cardiac trabeculae: role of interfilament spacing.* Circ Res, 2002. **90**(1): p. 59-65. **a**. Stretch from 1.95 um to 2.25 um, 0% dextran. Po: Not reported; Ca-sen (EC50): Increased as EC50 decreased 3.41 (0.16) to 2.77 (0.14), P < 0.05; nH: Decreased 6.34 (0.43) to 5.35 (0.27), P < 0.05; **b**. Dextran T-500 0% to 6%. Po: At 2.20 um, increased 11.9 (5.2)%, P < 0.01; Ca-sen (EC50): Increased as EC50 decreased 3.41(0.16) to 2.45(0.13), P < 0.001; nH: At 1.95 um, decreased 6.34(0.42) to 5.25(0.30), P < 0.05.

21. Fukuda, N., et al., *Sarcomere length-dependent Ca2+ activation in skinned rabbit psoas muscle fibers: coordinated regulation of thin filament cooperative activation and passive force.* J Physiol Sci, 2011. **61**(6): p. 515-23. Stretch from 2.0 to 2.4 um, Control. Po (mN/mm2): Increased 168.50 (7.74) to 191.83 (8.98), P=0.05; Ca-sen (pCa50): Increased 5.86 (0.01) to 6.00 (0.01), P < 0.01; nH: Decreased 4.12 (0.12) to 3.31 (0.12), P < 0.01.

22. Kawai, M., J. Wray, and Y. Zhao, *The effect of lattice spacing change on cross-bridge kinetics in chemically skinned rabbit psoas muscle fibers. I. Proportionality between the lattice spacing and the fiber width.* 1993, 1993. **64**(1): p. 187-196. Dextran T-500 0% to 7%. Po: Increased > 30%, data not tabulated, see Fig 2.

23. Joumaa, V. and W. Herzog, *Calcium sensitivity of residual force enhancement in rabbit skinned fibers.* Am J Physiol Cell Physiol, 2014. **307**(4): p. C395-401. Partial trypsin digestion (Dig) of titin vs. no trypsin control (Ct). Ca-sen (pCa50): 6.00 (0.02) vs. 6.09 (0.10), P < 0.05; nH; 3.63 (0.26) vs. 2.15 (0.15), P < 0.05.