**Supplemental Digital Content 4: References**

1. Ahmetov II, Mozhayskaya IA, Flavell DM, et al. PPARalpha gene variation and physical performance in Russian athletes. *Eur J Appl Physiol*. 2006;97:103–8.

2. Arking DE, Fallin DM, Fried LP, et al. Variation in the ciliary neurotrophic factor gene and muscle strength in older Caucasian women. *J Am Geriatr Soc*. 2006;54:823–6.

3. Bae JS, Kang BY, Lee KO, Lee ST. Genetic variation in the renin–angiotensin system and response to endurance training. *Med Princ Pract*. 2007;16:142–46.

4. Bouchard C, Sarzynski MA, Rice TK, Kraus WE, Church TS, Sung YJ, Rao DC, Rankinen T. Genomic predictors of the maximal O2 uptake response to standardized exercise training programs. *J Appl Physiol*. 2011;110:1160–1170.

5. Buemann B, Schierning B, Toubro S, et al. The association between the val/ala-55 polymorphism of the uncoupling protein 2 gene and exercise efficiency. *Int J Obes Relat Metab Disord*. 2001;25:467–71.

6. Clarkson PM, Devaney JM, Gordish-Dressman H, et al. ACTN3 genotype is associated with increases in muscle strength in response to resistance training in women. *J Appl Physiol*. 2005;99:154–63.

7. Defoor J, Martens K, Zielinska D, et al. The CAREGENE study: polymorphisms of the beta1-adrenoceptor gene and aerobic power in coronary artery disease. *Eur Heart J*. 2006;27:808–16.

8. Delmonico MJ, Kostek MC, Doldo NA, et al. Alpha-actinin-3 (ACTN3) R577X polymorphism influences knee extensor peak power response to strength training in older men and women. *J Gerontol A Biol Sci Med Sci*. 2007;62:206–12.

9. De Mars G, Windelinckx A, Beunen G, Delecluse C, Lefevre J, Thomis MA. Polymorphisms in the CNTF and CNTF receptor genes are associated with muscle strength in men and women. *J Appl Physiol*. 2007;102:1824–31.

10. Devaney JM, Hoffman EP, Gordish-Dressman H, Kearns A, Zambraski E, Clarkson PM. IGF-II gene region polymorphisms related to exertional muscle damage. *J Appl Physiol*. 2007; 102:1815–23.

11. Fischer H, Esbjornsson M, Sabina RL, Stromberg A, Peyrard-Janvid M, Norman B. AMP deaminase deficiency is associated with lower sprint cycling performance in healthy subjects. *J Appl Physiol*. 2007;103:315–22.

12. Geusens P, Vandevyver C, Vanhoof J, Cassiman JJ, Boonen S, Raus J. Quadriceps and grip strength are related to vitamin D receptor genotype in elderly nonobese women. *J Bone Miner Res*. 1997;12:2082–8.

13. Grundberg E, Brandstrom H, Ribom EL, Ljunggren O, Mallmin H, Kindmark A. Genetic variation in the human vitamin D receptor is associated with muscle strength, fat mass and body weight in Swedish women. *Eur J Endocrinol*. 2004; 150:323–8.

14. Hagberg JM, Ferrell RE, Katzel LI, Dengel DR, Sorkin JD, Goldberg AP. Apolipoprotein E genotype and exercise training-induced increases in plasma high-density lipoprotein (HDL)- and

HDL2-cholesterol levels in overweight men. *Metabolism.*1999; 48: 943–5.

15. Hautala AJ, Leon AS, Skinner JS, Rao DC, Bouchard C, Rankinen T. Peroxisome proliferator-activated receptor-delta polymorphisms are associated with physical performance and plasma lipids: the HERITAGE Family Study. *Am J Physiol Heart Circ Physiol*. 2007;292:H2498–505.

16. He Z, Hu Y, Feng L, et al. NRF2 genotype improves endurance capacity in response to training. *Int J Sports Med.* 2007;28: 717–21.

17. He Z, Hu Y, Feng L, et al. Polymorphisms in the HBB gene relate to individual cardiorespiratory adaptation in response to endurance training. *Br J Sports Med*. 2006;40:998–1002.

18. Henderson J, Withford-Cave JM, Duffy DL, et al. The EPAS1 gene influences the aerobic-anaerobic contribution in elite endurance athletes. *Hum Genet*. 2005;118:416–23.

19. Hersh CP, Demeo DL, Lazarus R, et al. Genetic association analysis of functional impairment in chronic obstructive pulmonary disease. *Am J Respir Crit Care Med*. 2006;173: 977–84.

20. Lucia A, Gomez-Gallego F, Barroso I, et al. PPARGC1A genotype (Gly482Ser) predicts exceptional endurance capacity in European men*. J Appl Physiol*. 2005;99:344–8.

21. McCole SD, Shuldiner AR, Brown MD, et al. Beta2- and beta3- adrenergic receptor polymorphisms and exercise hemodynamics in postmenopausal women. *J Appl Physiol.* 2004;96:526–30.

22. Moore GE, Shuldiner AR, Zmuda JM, et al. Obesity gene variant and elite endurance performance. *Metabolism.* 2001;50:1391–2.

23. Moran CN, Yang N, Bailey ME, et al. Association analysis of the ACTN3 R577X polymorphism and complex quantitative body composition and performance phenotypes in adolescent Greeks. *Eur J Hum Genet*. 2007;15:88–93.

24. Nicklas BJ, Mychaleckyj J, Kritchevsky S, et al. Physical function and its response to exercise: associations with cytokine gene variation in older adults with knee osteoarthritis. *J Gerontol A Biol Sci Med Sci*. 2005;60:1292–8.

25. Peeters RP, van den Beld AW, van Toor H, et al. A polymorphism in type I deiodinase is associated with circulating free insulin-like growth factor I levels and body composition in humans. *J Clin Endocrinol Metab*. 2005;90:256–63.

26. Pistilli EE, Gordish-Dressman H, Seip RL, et al. Resistin polymorphisms are associated with muscle, bone, and fat phenotypes in white men and women. *Obesity*. 2007;15:392–402.

27. Prior SJ, Hagberg JM, Paton CM, et al. DNA sequence variation in the promoter region of the VEGF gene impacts VEGF gene expression and maximal oxygen consumption. *Am J Physiol*

*Heart Circ Physiol*. 2006;290:H1848–55.

28. Rico-Sanz J, Rankinen T, Joanisse DR, et al; HERITAGE Family study. Associations between cardiorespiratory responses to exercise and the C34T AMPD1 gene polymorphism in the HERITAGE Family Study. *Physiol Genomics*. 2003;14:161–6.

29. Rivera MA, Dionne FT, Simoneau JA, et al. Muscle-specific creatine kinase gene polymorphism and VO2max in the HERITAGE Family Study. *Med Sci Sports Exerc.* 1997;29(5):1311–7.

30. Rivera MA, Perusse L, Simoneau JA, et al. Linkage between a muscle-specific CK gene marker and V˙ O2max in the HERITAGE Family Study. *Med Sci Sports Exerc.* 1999;31:698–701.

31. Roth SM, Schrager MA, Ferrell RE, et al. CNTF genotype is associated with muscular strength and quality in humans across the adult age span*. J Appl Physiol*. 2001; 90:1205–10.

32. Rubio JC, Martin MA, Rabadan M, et al. Frequency of the C34T mutation of the AMPD1 gene in world-class endurance athletes: does this mutation impair performance? *J Appl Physiol*. 2005; 98:2108–12.

33. Sandilands AJ, Parameshwar J, Large S, Brown MJ, O’Shaughnessy KM. Confirmation of a role for the 389R 9 G beta-1 adrenoceptor polymorphism on exercise capacity in heart failure. *Heart.* 2005;91:1613–4.

34. Sayer AA, Syddall H, O’Dell SD, et al. Polymorphism of the IGF2 gene, birth weight and grip strength in adult men. *Age Ageing.* 2002;31:468–70.

35. Saunders CJ, Xenophontos SL, Cariolou MA, Anastassiades LC, Noakes TD, Collins M. The bradykinin beta 2 receptor (BDKRB2) and endothelial nitric oxide synthase 3 (NOS3) genes and endurance performance during ironman triathlons. *Hum Mol Genet*. 2006;15:979–87.

36. Schrager MA, Roth SM, Ferrell RE, et al. Insulin-like growth factor-2 (IGF2) genotype, fat-free mass, and muscle performance across the adult life span. *J Appl Physiol*. 2004;97:2176–83.

37. Seibert MJ, Xue QL, Fried LP, Walston JD. Polymorphic variation in the human myostatin (GDF-8) gene and association with strength measures in the Women’s Health and Aging Study II cohort. *J Am Geriatr Soc*. 2001;49:1093–6.

38. Sengler C, Heinzmann A, Jerkic SP, et al. Clara cell protein 16 (CC16) gene polymorphism influences the degree of airway responsiveness in asthmatic children. *J Allergy Clin Immunol*. 2003;111:515–9.

39. Stefan N, Thamer C, Staiger H, et al. Genetic variations in PPARD and PPARGC1A determine mitochondrial function and change in aerobic physical fitness and insulin sensitivity during lifestyle intervention. *J Clin Endocrinol Metab*. 2007; 92:1827–33.

40. Thompson PD, Tsongalis GJ, Seip RL, et al. Apolipoprotein E genotype and changes in serum lipids and maximal oxygen uptake with exercise training. *Metabolism.* 2004;53:193–202.

41. Timmons JA, Knudsen S, Rankinen T, et al. Using molecular classification to predict gains in maximal aerobic capacity following endurance exercise training in humans. *Journal of Applied Physiology.* 2010; 108: 1487-1496.

42. Van Pottelbergh I, Goemaere S, Nuytinck L, De Paepe A, Kaufman JM. Association of the type I collagen alpha1 Sp1 polymorphism, bone density and upper limb muscle strength in community-dwelling elderly men. *Osteoporos Int.* 2001;12:895–901.

43. van Rossum EF, Voorhoeve PG, te Velde SJ, et al. The ER22/23EK polymorphism in the glucocorticoid receptor gene is associated with a beneficial body composition and muscle strengthin young adults*. J Clin Endocrinol Metab.* 2004;89:4004–9.

44. Vincent B, De Bock K, Ramaekers M, et al. ACTN3 (R577X) genotype is associated with fiber type distribution. *Physiol Genomics*. 2007;32:58–63.

45. Walsh S, Metter EJ, Ferrucci L, Roth SM. Activin-type II receptor B (ACVR2B) and follistatin haplotype associations with muscle mass and strength in humans. *J Appl Physiol*. 2007;102:2142–8.

46. Wagoner LE, Craft LL, Zengel P, et al. Polymorphisms of the beta1-adrenergic receptor predict exercise capacity in heart failure. *Am Heart J*. 2002;144:840–6.

47. Wagoner LE, Craft LL, Singh B, et al. Polymorphisms of the beta(2)-adrenergic receptor determine exercise capacity in patients with heart failure. *Circ Res*. 2000;86:834–40.

48. Wang P, Ma LH, Wang HY, et al. Association between polymorphisms of vitamin D receptor gene ApaI, BsmI and TaqI and muscular strength in young Chinese women. *Int J Sports Med*. 2006;27:182–6.

49. Windelinckx A, De Mars G, Beunen G, et al. Polymorphisms in the vitamin D receptor gene are associated with muscle strength in men and women. *Osteoporos Int*. 2007;18:1235–42.

50. Wolfarth B, Rivera MA, Oppert JM, et al. A polymorphism in the alpha2a-adrenoceptor gene and endurance athlete status. *Med Sci Sports Exerc*. 2000;32:1709–12.

51. Wolfarth B, Rankinen T, Muhlbauer S, et al. Association between a beta2-adrenergic receptor polymorphism and elite endurance performance. *Metabolism*. 2007;56:1649–51.

52. Yang N, MacArthur DG, Gulbin JP, et al. ACTN3 genotype is associated with human elite athletic performance. *Am J Hum Genet*. 2003;73:627–31.

53. Zhou DQ, Hu Y, Liu G, Gong L, Xi Y, Wen L. Muscle-specific creatine kinase gene polymorphism and running economy responses to an 18-week 5000-m training programme. *Br J*

*Sports Med.* 2006;40:988–91.