

CURRICULUM VITAE

Stephen Manuel Roth

EDUCATION

- 2002 Postdoctoral Research Fellow (NRSA – Human Genetics), Department of Human Genetics, Graduate School of Public Health, University of Pittsburgh, PA 15261. R.E. Ferrell, mentor.
- 2000 Ph.D. – Kinesiology (Exercise Physiology), Department of Kinesiology, College of Health and Human Performance, University of Maryland, College Park, MD 20742. M.A. Rogers, advisor.
- 1998 M.A. – Kinesiology (Exercise Physiology), Dept. Kinesiology, University of Maryland, College Park, MD 20742. M.A. Rogers, advisor.
- 1996 B.S. (with Honors), Dept. Health and Human Performance (Exercise Science major, Chemistry minor), University of Montana, Missoula, MT 59812.

WORK EXPERIENCE

- 2009 – present Associate Professor
Director, Functional Genomics Laboratory and Exercise Physiology Research Labs
Department of Kinesiology, School of Public Health, University of Maryland.
- 2005 – present Affiliate Faculty, Neuroscience and Cognitive Science (NACS) Graduate Program,
University of Maryland, College Park.
- 2003 – 2009 Assistant Professor
Director, Functional Genomics Laboratory and Exercise Physiology Research Labs
Department of Kinesiology, School of Public Health, University of Maryland (previously
the College of Health and Human Performance).
- 2000 – 2002 Postdoctoral Research Fellow (NRSA Postdoctoral Fellowship, F32 AG-05893), Dept. of
Human Genetics, Univ. Pittsburgh.
- 1999 – 2000 Pre-doctoral Research Fellow (NRSA Pre-doctoral Training Award, AG-00268), Dept. of
Kinesiology, Univ. MD.
- 1997 – 1999 Exercise Physiology Laboratory Coordinator, Dept. of Kinesiology, Univ. MD.
- 1996 – 1999 Research Assistant, Dept. of Kinesiology, Univ. MD.
- 1995 – 1996 Research Assistant, Dept. of Health and Human Performance, Univ. MT.

PUBLICATIONS (*denotes advisee/trainee of Dr. Roth; †denotes senior or lead author)

Publication Statistics: From ISI Web of Knowledge as of 3 Jul. 2009. Authorship “h-index”: **20** (i.e., 20 papers cited 20 or more times; see Hirsch, *PNAS* 102: 16569-16572, 2005). Total citations: 958. Average citations per item: 19. Average citations per year: 87.

Books:

- 1 **Roth, S.M.** (2007). *Genetics Primer for Exercise Science and Health*. Champaign IL: Human Kinetics. 177 pages. ISBN: 0736063439.

Edited Books:

- 1 Pescatello, L.S., **S.M. Roth** (Co-editors). (in preparation) *Exercise Genomics* (in the *Molecular and Translational Medicine* series). Publishing agreement signed with Humana Press, 14 Apr 2009. Book draft due March 2010 to the publisher.

Book Chapters:

- 1 Franks, P.W., **S.M. Roth**. Interaction between genetic factors and energy expenditure in complex metabolic disease. (Chapter 9, pp: 155-174). In: P.A. Donohoue (ed.), *Energy Metabolism and Obesity: Research and Clinical Applications* (*Contemporary Endocrinology* series). Humana Press. Clifton, NJ (2007). ISBN: 1588296717.

Position Stands:

- 1 PanAmerican Confederation of Sports Medicine (COPAMEDE) Position Statement: Genetics in Sports Medicine. Prepared by **S.M. Roth**[†] and C. Bouchard for the COPAMEDE Scientific Commission. Approved and released by the COPAMEDE Executive Committee, April 2008. Published in *Medicine del Ejercicio (Journal of Uruguayan Sports Medicine)*, 21(4): 19-24, 2008.

Refereed Research Articles:

- 1 **Roth, S.M.**, G.F. Martel, F.M. Ivey, J.T. Lemmer, B.L. Tracy, D.E. Hurlbut, E.J. Metter, B.F. Hurley, M.A. Rogers[†]. Ultrastructural muscle damage in young vs. older men after high-volume, heavy-resistance strength training. *Journal of Applied Physiology* 86(6): 1833-1840, 1999.
- 2 Martel, G.F., D.E. Hurlbut, M.E. Lott, J.T. Lemmer, F.M. Ivey, **S.M. Roth**, M.A. Rogers, J.L. Fleg, B.F. Hurley[†]. Strength training normalizes resting blood pressure in 65- to 73-year-old men and women with high normal blood pressure. *Journal of the American Geriatrics Society* 47: 1215-1221, 1999.
- 3 Ferrell, R.E.[†], V. Conte, E.C. Lawrence, **S.M. Roth**, J.M. Hagberg, B.F. Hurley. Frequent sequence variation in the human myostatin (GDF8) gene as a marker for analysis of muscle-related phenotypes. *Genomics* 62: 203-207, 1999.
- 4 **Roth, S.M.**, G.F. Martel, F.M. Ivey, J.T. Lemmer, E.J. Metter, B.F. Hurley, M.A. Rogers[†]. High-volume, heavy-resistance strength training and muscle damage in young and older women. *Journal of Applied Physiology* 88: 1112-1118, 2000.
- 5 Ivey, F.M., **S.M. Roth**, R.E. Ferrell, B.L. Tracy, J.T. Lemmer, D.E. Hurlbut, G.F. Martel, E.L. Siegel, J.L. Fozard, E.J. Metter, J. L. Fleg, B.F. Hurley[†]. Effects of age, gender, and myostatin genotype on the hypertrophic response to heavy resistance strength training. *Journal of Gerontology: Medical Sciences* 55A(11): M641-M648, 2000.
- 6 **Roth, S.M.**, G.F. Martel, F.M. Ivey, J.T. Lemmer, E.J. Metter, B.F. Hurley, M.A. Rogers[†]. Skeletal muscle satellite cell populations in healthy young and older men and women. *The Anatomical Record* 260: 351-358, 2000.
- 7 **Roth, S.M.**, M.A. Schrager, R.E. Ferrell, S.E. Riechman, E.J. Metter, N.A. Lynch, R.S. Lindle, B.F. Hurley[†]. CNTF genotype is associated with muscular strength and quality in humans across the adult age span. *Journal of Applied Physiology* 90: 1205-1210, 2001.
- 8 **Roth, S.M.**, G.F. Martel, F.M. Ivey, J.T. Lemmer, B.L. Tracy, E.J. Metter, B.F. Hurley, M.A. Rogers[†]. Skeletal muscle satellite cell characteristics in young and older men and women after heavy resistance strength training. *Journal of Gerontology: Biological Sciences* 56A(6): B240-B247, 2001.
- 9 **Roth, S.M.**, R. Gajdosik, B.C. Ruby[†]. Effects of circulating estradiol on exercise-induced creatine kinase activity. *Journal of Exercise Physiology [Online]*, 4(2): 10-17, 2001.
- 10 **Roth, S.M.**, F.M. Ivey, G.F. Martel, J.T. Lemmer, D.E. Hurlbut, E.L. Siegel, E.J. Metter, J. L. Fleg, J.L. Fozard, M.C. Kostek, D.M. Wernick, and B.F. Hurley[†]. Muscle size responses to strength training in young and older men and women. *Journal of the American Geriatrics Society*, 49: 1428-1433, 2001.
- 11 Hurlbut, D.E., M.E. Lott, A.S. Ryan, R.E. Ferrell, **S.M. Roth**, F.M. Ivey, G.F. Martel, J.T. Lemmer, J.L. Fleg, and B.F. Hurley[†]. Does age, sex, or ACE genotype affect glucose and insulin responses to strength training? *Journal of Applied Physiology*, 92: 643-650, 2002.
- 12 **Roth, S.M.**, M.A. Schrager, E.J. Metter, S.E. Riechman, J.L. Fleg, B.F. Hurley, R.E. Ferrell[†]. *IGF2* genotype and obesity in men and women across the adult age span. *International Journal of Obesity*, 26(4): 585-587, 2002.
- 13 **Roth, S.M.**, R.E. Ferrell, D.G. Peters, E.J. Metter, B.F. Hurley, M.A. Rogers[†]. Influence of age, sex, and strength training on human muscle gene expression determined by microarray. *Physiological Genomics*, 10:181-190, 2002.

- 14 **Roth, S.M.**, G.F. Martel, R.E. Ferrell, E.J. Metter, B.F. Hurley, M.A. Rogers[†]. Myostatin gene expression is reduced in humans with heavy-resistance strength training: a brief communication. *Experimental Biology and Medicine*, 228: 706-709, 2003.
- 15 Sinha-Hikim, I., **S.M. Roth**, M.I. Lee, S. Bhasin[†]. Testosterone-induced muscle hypertrophy is associated with an increase in satellite cell number in healthy, young men. *American Journal of Physiology Endocrinology and Metabolism*, 285: E197-E205, 2003.
- 16 **Roth, S.M.**, E.J. Metter, M.R. Lee, B.F. Hurley, R.E. Ferrell[†]. The C174T polymorphism in the CNTF receptor (CNTFR) gene is associated with fat free mass in men and women. *Journal of Applied Physiology*, 95: 1425-1430, 2003.
- 17 Prior, S.J.*[†], J.M. Hagberg, D.A. Phares, M.D. Brown, L. Fairfull, R.E. Ferrell, **S.M. Roth**[†]. Sequence variation in hypoxia-inducible factor 1 α (*HIF1A*): Association with maximal oxygen consumption. *Physiological Genomics*, 15: 20-26, 2003.
- 18 **Roth, S.M.**, M.A. Schrager, M.R. Lee, E.J. Metter, B.F. Hurley, R.E. Ferrell[†]. Interleukin-6 (IL6) genotype is associated with fat free mass in men but not women. *The Journal of Gerontology: Biological Sciences*, 58A: 1085-1088, 2003.
- 19 Jacob, A.C.*[†], J.M. Zmuda, J.A. Cauley, E.J. Metter, B.F. Hurley, R.E. Ferrell, **S.M. Roth**[†]. Ciliary neurotrophic factor (CNTF) genotype and body composition. *European Journal of Human Genetics*, 12: 372-376, 2004.
- 20 Schrager, M.A., **S.M. Roth**, R.E. Ferrell, E.J. Metter, E. Russek-Cohen, N.A. Lynch, R.S. Lindle, B.F. Hurley[†]. Insulin-like growth factor-2 genotype, fat-free mass, and muscle performance across the adult life span. *Journal of Applied Physiology*, 97: 2176-2183, 2004.
- 21 Riechman, S.E., G. Balasekaran, **S.M. Roth**, R.E. Ferrell[†]. Association of interleukin-15 protein and interleukin-15 receptor genetic variation with resistance exercise training responses. *Journal of Applied Physiology*, 97: 2214-2219, 2004.
- 22 **Roth, S.M.**, J.M. Zmuda, J.A. Cauley, P.R. Shea, R.E. Ferrell[†]. Vitamin D receptor genotype is associated with fat free mass and sarcopenia in elderly men. *The Journal of Gerontology: Biological Sciences*, 59A: 10-15, 2004.
- 23 Delmonico, M.J., R.E. Ferrell, A. Meerasahib, G.F. Martel, **S.M. Roth**, M.C. Kostek, B.F. Hurley[†]. Blood pressure response to strength training may be influenced by angiotensinogen A-20C and angiotensin II type 1 receptor A1166C genotypes in older men and women. *Journal of the American Geriatrics Society*, 53: 204-210, 2005.
- 24 Kostek, M.C., M.J. Delmonico, J.B. Reichel, **S.M. Roth**, L. Douglass, R.E. Ferrell, B.F. Hurley[†]. Muscle strength response to strength training is influenced by insulin-like growth factor 1 (IGF1) genotype in older adults. *Journal of Applied Physiology*, 98: 2147-2154, 2005.
- 25 Walsh, S.*[†], J.M. Zmuda, J.A. Cauley, P.R. Shea, E.J. Metter, B.F. Hurley, R.E. Ferrell, **S.M. Roth**[†]. Androgen receptor CAG repeat polymorphism is associated with fat-free mass in men. *Journal of Applied Physiology*, 98: 132-137, 2005.
- 26 Halverstadt, A., D.A. Phares, **S.M. Roth**, R.E. Ferrell, A.P. Goldberg, J.M. Hagberg[†]. Interleukin-6 genotype is associated with high-density lipoprotein cholesterol response to exercise training. *Biochimica et Biophysica Acta (BBA) – Molecular and Cell Biology of Lipids*, 1734: 143-151, 2005.
- 27 Rabon-Stith, K.M., J.M. Hagberg, D.A. Phares, M.C. Kostek, M.J. Delmonico, **S.M. Roth**, R.E. Ferrell, J.M. Conway, A.S. Ryan, B.F. Hurley[†]. Vitamin D receptor FokI genotype influences bone mineral density response to strength training, but not aerobic training. *Experimental Physiology*, 90: 653-661, 2005.
- 28 Conwit, R.A., S. Ling, **S.M. Roth**, D. Stashuk, B. Hurley, R. Ferrell and E.J. Metter[†]. The relationship between ciliary neurotrophic factor (CNTF) genotype and motor unit physiology: preliminary studies. *BMC Physiology*, 5: 15, 2005.
- 29 Halverstadt, A., S. Walsh*, **S.M. Roth**, R.E. Ferrell, J.M. Hagberg[†]. Identification of a novel mutation combination in factor XIII deficiency: genetic update to the first reported case in the United States. *International Journal of Hematology*, 83: 144-146, 2006.
- 30 Prior, S.J.*[†], J.M. Hagberg, C. Paton, L. Douglass, M. Brown, J. McLenithan, **S.M. Roth**[†]. DNA sequence variation in the promoter region of the VEGF gene impacts VEGF gene expression and maximal oxygen consumption. *American Journal of Physiology Heart and Circulatory Physiology*, 290: H1848-H1855, 2006.
- 31 Martel, G.F., **S.M. Roth**, F.M. Ivey, J.T. Lemmer, B.L. Tracy, D.E. Hurlbut, E.J. Metter, B.F. Hurley, M.A. Rogers[†]. Age and sex affect muscle fibre adaptations to heavy resistance strength training. *Experimental Physiology*, 91: 457-464, 2006.

- 32 Paton, C.M., J. Brandauer, E.P. Weiss, M.D. Brown, F.M. Ivey, **S.M. Roth**, J.M. Hagberg[†]. Hemostatic response to postprandial lipemia before and after exercise training. *Journal of Applied Physiology*, 101: 316-321, 2006.
- 33 Hand, B.D., **S.M. Roth**, M.H. Roltsch, J.J. Park, M.C. Kostek, R.E. Ferrell, M.D. Brown[†]. AMPD1 gene polymorphism and the vasodilatory response to ischemia. *Life Sciences*, 79: 1413-1418, 2006.
- 34 Delmonico, M.J., M.C. Kostek, N.A. Doldo, B.D. Hand, S. Walsh*, J.M. Conway, C.R. Carignan, **S.M. Roth**, B.F. Hurley[†]. Alpha-actinin-3 (*ACTN3*) R577X polymorphism influences knee extensor peak power response to strength training in older men and women. *The Journal of Gerontology: Medical Sciences*, 62A (2): 206-212, 2007.
- 35 Walsh, S.* , E.J. Metter, L. Ferrucci, **S.M. Roth**[†]. Activin RIIIB and follistatin haplotype associations with muscle mass and strength in humans. *Journal of Applied Physiology*, 102: 2142-2148, 2007. (PMCID: PMC2646094)
- 36 Yao, L., M.J. Delmonico, **S.M. Roth**, B.D. Hand, J. Johns, J. Conway, L. Douglass, B.F. Hurley[†]. Adrenergic receptor genotype influence on mid-thigh intermuscular fat response to strength training in middle-aged and older adults. *The Journal of Gerontology: Medical Sciences*, 62: 658-663, 2007.
- 37 Park, J.-Y., I.K.G. Farrance, N.M. Fenty, J.M. Hagberg, **S.M. Roth**, D.M. Mosser, M.Q. Wang, H. Jo, T. Okazaki, S.R. Brant, M.D. Brown[†]. NFKB1 promoter variation implicates shear-induced NOS3 gene expression and endothelial function in prehypertensives and stage I hypertensives. *American Journal of Physiology Heart and Circulatory Physiology*, 293: H2320-H2327, 2007. (PMCID: PMC2614625)
- 38 Prior, S.J.* , **S.M. Roth**, X. Wang, C. Kammerer, I. Miljkovic-Gacic, C.H. Bunker, V.W. Wheeler, A.L. Patrick, J.M. Zmuda[†]. Genetic and environmental influences on skeletal muscle phenotypes as a function of age and sex in large, multi-generational families of African heritage. *Journal of Applied Physiology*, 103: 1121-1127, 2007. [Invited Editorial on this paper in the same issue: P.W. Franks. Muscling in on the genetics of quantitative disease traits; pages 1111-1112.]
- 39 Hand, B.D., M.C. Kostek, R.E. Ferrell, M.J. Delmonico, L.W. Douglass, **S.M. Roth**, J.M. Hagberg, B.F. Hurley[†]. Influence of promoter region variants of insulin-like growth factor pathway genes on the strength-training response of muscle phenotypes in older adults. *Journal of Applied Physiology*, 103: 1678-1687, 2007.
- 40 **Roth, S.M.**[†], S. Walsh*, D. Liu*, E.J. Metter, L. Ferrucci, B.F. Hurley. The *ACTN3* R577X nonsense allele is under-represented in elite-level strength athletes. *European Journal of Human Genetics*, 16: 391-394, 2008. (PMCID: PMC2668151)
- 41 Charbonneau, D.E.* , E.D. Hanson, A.T. Ludlow*, M.J. Delmonico, B.F. Hurley, **S.M. Roth**[†]. *ACE* genotype and the muscle hypertrophic and strength responses to strength training. *Medicine and Science in Sports and Exercise*, 40: 677-683, 2008.
- 42 Deeny, S.P., D. Poeppel, J.B. Zimmerman, **S.M. Roth**, J. Brandauer, S. Witkowski, J.W. Hearn, A.T. Ludlow*, J.L. Contreras-Vidal, J. Brandt, B.D. Hatfield[†]. Exercise, APOE, and working memory: MEG and behavioral evidence for benefit of exercise in epsilon4 carriers. *Biological Psychology*, 78: 179-187, 2008.
- 43 Liu, D.* , E.J. Metter, L. Ferrucci, **S.M. Roth**[†]. *TNF* promoter polymorphisms associated with muscle phenotypes in humans. *Journal of Applied Physiology*, 105: 859-867, 2008. (PMCID: PMC2536817)
- 44 **Roth, S.M.**[†], S.M. Williams, L. Jiang, K.S. Menon, J.J. Jeka. Susceptibility genes for gentamicin-induced vestibular dysfunction. *Journal of Vestibular Research*, 18: 59-68, 2008. (PMCID: PMC2581796)
- 45 Ludlow, A.T.* , J.B. Zimmerman, S. Witkowski, J.W. Hearn, B.D. Hatfield, **S.M. Roth**[†]. Relationship between physical activity, telomere length, and telomerase activity. *Medicine and Science in Sports and Exercise*, 40: 1764-1771, 2008. (PMCID: PMC2581416)
- 46 Walsh, S.* , D. Liu*, E.J. Metter, L. Ferrucci, **S.M. Roth**[†]. *ACTN3* genotype is associated with muscle phenotypes in women across the adult age span. *Journal of Applied Physiology*, 105: 1486-1491, 2008. (PMCID: PMC2584847)
- 47 Delmonico, M.J., J.M. Zmuda, B.C. Taylor, J.A. Cauley, T.B. Harris, T.M. Manini, A. Schwarz, R. Li, **S.M. Roth**, B.F. Hurley, D.C. Bauer, R.E. Ferrell, A.B. Newman[†]. Association of the *ACTN3* genotype and physical functioning with age in older adults. *Journal of Gerontology Medical Sciences*, 63A, 1227-1234, 2008.

Invited Reviews and Synthesis Articles:

- 48 **Roth, S.M.**, R.E. Ferrell, and B.F. Hurley[†]. Strength training for the prevention and treatment of sarcopenia. *The Journal of Nutrition, Health and Aging* 4(3): 143-155, 2000.
- 49 Hurley, B.F.[†] and **S.M. Roth**. Strength training in the elderly: effects on risk factors for age-related diseases. *Sports Medicine* 30(4): 249-268, 2000.

- 50 **Roth, S.M.** †, G.F. Martel, M.A. Rogers. Muscle biopsy and muscle fiber hypercontraction: a brief review. Unsolicited review for *European Journal of Applied Physiology* 83: 239-245, 2000.
- 51 **Roth, S.M.** †, S. Walsh*. Myostatin: a therapeutic target for skeletal muscle wasting. *Current Opinion in Clinical Nutrition and Metabolic Care* 7(3): 259-263, 2004.
- 52 Delmonico, M.J., **S.M. Roth**, B.F. Hurley†. Effects of strength training on blood pressure in older adults: can genotype influence response? *American Journal of Medicine and Sports*, 4: 215-218, 2004.
- 53 Wolfarth, B., M.S. Bray, J.M. Hagberg, L. Pérusse, R. Rauramaa, M.A. Rivera, **S.M. Roth**, T. Rankinen, C. Bouchard†. The human gene map for performance and health-related fitness phenotypes: the 2004 update. *Medicine and Science in Sports and Exercise* 37(6): 881-903, 2005.
- 54 **Roth, S.M.** Commentary to accompany ACE ID genotype and muscle strength and size response to unilateral resistance training. *Medicine and Science in Sports and Exercise* 38(6): 1073, 2006.
- 55 Rankinen, T., M.S. Bray, J.M. Hagberg, L. Pérusse, **S.M. Roth**, B. Wolfarth, C. Bouchard†. The human gene map for performance and health-related fitness phenotypes: the 2005 update. *Medicine and Science in Sports and Exercise* 38(11): 1863-1888, 2006.
- 56 **Roth, S.M.**, E.J. Metter, S. Ling, L. Ferrucci†. Inflammatory factors in age-related muscle wasting. *Current Opinion in Rheumatology* 18(6): 625-630, 2006.
- 57 **Roth, S.M.** Functional genomics and the path to personalized medicine. Commentary article for *Exercise and Sport Sciences Reviews*, 36: 49-50, 2008.
- 58 **Roth, S.M.** Viewpoint: Perspective on the future use of genomics in exercise prescription. Unsolicited commentary for *Journal of Applied Physiology*, 104: 1243-1245, 2008. [See associated invited commentaries on pages 1246-1253 in this same issue.]
- 59 Bray, M.S., J.M. Hagberg, L. Pérusse, Rankinen, T., **S.M. Roth**, B. Wolfarth, C. Bouchard†. The human gene map for performance and health-related fitness phenotypes: the 2006-2007 update. *Medicine and Science in Sports and Exercise*, 41: 34-72, 2009.

Articles In Press:

- 1 Fenty-Stewart, N., J.-Y. Park, **S.M. Roth**, J.M. Hagberg, S. Basu, R.E. Ferrell, M.D. Brown†. Independent and combined influence of the *AGTR1* variants and aerobic exercise oxidative stress in hypertensives. *Blood Pressure*, in press.

Other Refereed Articles:

- 1 Cracolice, M.S. †, **S.M. Roth**. Keller's "old" Personalized System of Instruction: a "new" solution for today's college chemistry student. Unsolicited review for *The Chemical Educator [Online]* 1 (1): S1430-4171, 1996; DOI 10.1333/s00897960004a.
- 2 **Roth, S.M.** †, M.A. Rogers. Interpretation of muscle damage from fixed tissue obtained by needle biopsy (Letter). *American Journal of Physiology Endocrinology and Metabolism* 278: E754-E756, 2000.
- 3 **Roth, S.M.** †, M.A. Rogers, B.F. Hurley, G.F. Martel. Pneumatic resistance machines can provide eccentric loading (Letter). *Medicine and Science in Sports and Exercise* 36: 1655-1656, 2004.
- 4 **Roth, S.M.** *ACTN3* was never 'the' gene for speed (Letter). *British Journal of Sports Medicine*, 24 Sept. 2007. <http://bjsm.bmj.com/cgi/eletters/41/9/616>.
- 5 **Roth, S.M.** Last word on Viewpoint: Perspective on the future use of genomics in exercise prescription (Letter). *Journal of Applied Physiology*, 104: 1254, 2008.

Non-refereed and Other Publications:

1. Sharkey, B. †, T. Rothwell, T. DeLorenzo-Green, **S.M. Roth**. Lung function of wildland firefighters: 1993-1995. *Health Hazards of Smoke*, USDA Forest Service, Fall 1995.
2. **Roth, S.M.** Why does lactic acid build up in muscles? *Scientific American* 294(4): 104, 2006.
3. **Roth, S.M.** Gene doping in Olympic sports. Invited ACSM website commentary, posted 15 August 2008.
4. **Roth, S.M.** Can genes predict athletic performance? Extended interview with *Scientific American*, posted 1 Dec 2008: www.sciam.com/article.cfm?id=genes-sports-talent

PRESENTATIONS

Invited:

1. **Roth, S.M.** Genetics and exercise science: an overview of representative research. Symposium presentation at Mid-Atlantic Region ACSM annual meeting, Bushkill PA, 2001.

2. **Roth, S.M.** The myostatin puzzle: from “double muscle” cows to insulin resistance. Seminar, Endocrinology Research Conference, School of Medicine, University of Pittsburgh, 2002.
3. **Roth, S.M.** The exercise genes: the role of genetics in exercise science. Symposium presentation at the Northwest Region ACSM annual meeting, Missoula, MT, 2003.
4. **Roth, S.M.** Genetic aspects of skeletal muscle and its response to training. Seminar, Children’s National Medical Center, Washington, DC, 2004.
5. **Roth, S.M.** Role of myostatin genotype in resistance training adaptation. Invited symposium presentation for the American College of Sports Medicine Annual Meeting in Indianapolis, IN, 2004.
6. **Roth, S.M.** Genetics of oxygen signaling: HIF-1alpha, VEGF, and exercise training adaptations. Invited mini-symposium presentation for the American College of Sports Medicine Annual Meeting in Indianapolis, IN, 2004.
7. **Roth, S.M.** Genetic aspects of skeletal muscle phenotypes and sarcopenia. Symposium presentation for the Gerontology Society of America Annual Meeting, Washington, DC. *The Gerontologist*, 44 (spec. 1): 439, 2004.
8. **Roth, S.M.** Genetic epidemiology of skeletal muscle. Seminar, GCRC Seminar Series, Howard University School of Medicine, 2004.
9. **Roth, S.M.** Genes associated with muscle mass and strength: update from the BLSA and GUSTO studies. Invited symposium presentation for the American College of Sports Medicine Annual Meeting, Nashville, TN, 2005.
10. **Roth, S.M.** Genes and physical function: genetic aspects of muscle mass and strength. Seminar, Geriatric Research, Education, and Clinical Center (GRECC), Baltimore VA Medical Center, Baltimore MD, 2006.
11. **Roth, S.M.** A cause for concern: genetic screening and gene doping in sport. Invited symposium presentation for the American College of Sports Medicine Annual Meeting, New Orleans, LA, 2007.
12. **Roth, S.M.** A tale of two genes: the best and worst of skeletal muscle genetics. Schulze Memorial Lecture, Ball State University, Muncie, IN, 2007.
13. **Roth, S.M.** Genetics in exercise science: peril and promise in an emerging field. College of Health Professions, Temple University, Philadelphia, PA, 2008.
14. **Roth, S.M.** Genetics in physical activity and health: DNA shaping our physical function...and vice versa. For the Exercise and Physical Activity in Health and Disease Program. Katholieke Universiteit Leuven, Belgium, 2008.
15. **Roth, S.M.** Kinesiogenomics: The intersection of genomics and physical activity. Universidade Catolica de Brasilia (Catholic University of Brasilia), Brazil, 2009.
16. **Roth, S.M.** with P.W. Franks and M. Hamilton. Conversational Forum presentation entitled: Genetics in exercise prescription for disease treatment and prevention. American College of Sports Medicine Annual Meeting, Seattle, WA, 2009.
17. **Roth, S.M.** Genomics 101: An introduction and implications for DCD. Symposium presentation, Conference on Developmental Coordination Disorders, Baltimore, MD, 2009.

Chaired Symposia:

- 1 **Roth, S.M.** (Chair) Genetics of skeletal muscle and the muscle response to strength training. Mini-Symposium, American College of Sports Medicine Annual Meeting, Nashville, TN, 2005.
- 2 **Roth, S.M.** (Chair) Gene doping: separating hype from reality. Special Event Symposium, American College of Sports Medicine Annual Meeting, Denver, CO, 2006.
- 3 **Roth, S.M.** (Chair). The emergence of genetics in sports medicine. Symposium, American College of Sports Medicine Annual Meeting, New Orleans, LA, 2007.
- 4 **Roth, S.M.** (Chair). Physical activity as a modifier of the genetic susceptibility to dementia. Featured Science Session, American College of Sports Medicine Annual Meeting, Indianapolis, IN, 2008.

Research Presentations: (*denotes advisee/trainee of Dr. Roth; †denotes senior or lead author)

- 1 **Roth, S.M.**, B.C. Ruby[†]. Effects of circulating estradiol and oral birth control on exercise-induced creatine kinase release. Poster presentation at Northwest Region ACSM annual meeting, Corvallis OR, 1996.
*1996 NWACSM Pre-Doctoral Poster Presentation Award
- 2 **Roth, S.M.**, G.F. Martel, F.M. Ivey, J.T. Lemmer, E.J. Metter, F.L. Fozard, T.K. Mangel, M.A. Rogers[†]. Ultrastructural muscle damage in older men following eight weeks of strength training. Slide presentation at American College of Sports Medicine Annual Meeting, Orlando FL. *Med. Sci. Sports Exerc.* 30 (5 supp.): S2, 1998.

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- 82 Hanson, E.D., A.T. Ludlow*, A.K. Sheaff, J. Park, **S.M. Roth**[†]. *ACTN3* R577X genotype is not associated with muscle fatigue performance. Poster presentation for the American College of Sports Medicine Annual Meeting, Seattle WA, 2009. *Med. Sci. Sports Exerc.*, 41 (5 Supp.): S583, 2009.
- 83 Ludlow, A.T.*, P. Nadendla*, S. Witkowski*, L.M. Wohlers, E.E. Spangenburg, **S.M. Roth**[†]. Physical activity ancestry affects body composition phenotypes and gene expression in mice offspring. Poster presentation for the American College of Sports Medicine Annual Meeting, Seattle WA, 2009. *Med. Sci. Sports Exerc.*, 41 (5 Supp.): S584, 2009.
- 84 Zimmerman, J.B., A.T. Ludlow*, S. Witkowski, M. Kayes, D. Poeppel, **S.M. Roth**, B.D. Hatfield[†]. *APOE* genotype, aerobic fitness, and cerebral cortical activation during working memory challenge in middle-aged

adults. Slide presentation for the American College of Sports Medicine Annual Meeting, Seattle WA, 2009. *Med. Sci. Sports Exerc.*, 41(5 Supp.): S52, 2009.

- 85 Ludlow, A.T.*, M. Marshall*, S. Witkowski*, E.E. Spangenburg, **S.M. Roth**[†]. High levels of physical activity accelerate telomere shortening in Cast/ei J mice. Abstract accepted for Keystone Symposium, Telomere Biology and DNA Repair, Ashmore, Queensland, Australia, 2009.

State & Local:

- 1 Riechman, S.E., G. Balasekaran, **S.M. Roth**, R.E. Ferrell[†], R.J. Robertson, B.F. Hurley. Ciliary neurotrophic factor (CNTF) genotype associations with skeletal muscle responses to strength training. Poster presentation, Arthritis Institute, University of Pittsburgh, 2000.
- 2 Riechman, S.E., T.J. Fabian, P.D. Kroboth, **S.M. Roth**, R.E. Ferrell[†]. DHEA/DHEAS responses to strength training in men and women: influence of a polymorphic marker in the x-linked steroid sulfatase gene. Poster presentation, Science 2001, University of Pittsburgh, PA, 2001.
- 3 **Roth, S.M.** Myostatin: from “super cows” to insulin resistance. Seminar, Dept. of Kinesiology, University of Maryland, College Park, 2002.
- 4 **Roth, S.M.** Genetic aspects of skeletal muscle. Seminar, Human Genetics Seminar Series, University of Pittsburgh, 2002.
- 5 Prior, S.J.* , D.A. Phares, L. Fairfull, R.E. Ferrell, J.M. Hagberg, **S.M. Roth**[†]. Association of *HIF1A* genotype with maximal oxygen consumption before and after aerobic exercise training. Poster presentation for the College of Health and Human Performance, Health and Society Theme Series, University of Maryland, 2004.
- 6 Walsh, S.* , J.M. Zmuda, P.R. Shea, J. Cauley, E.J. Metter, B.F. Hurley, R.E. Ferrell, and **S.M. Roth**[†]. Androgen receptor CAG repeat is associated with fat free mass in men. Poster presentation for the College of Health and Human Performance, Health and Society Theme Series, University of Maryland, 2004.
- 7 **Roth, S.M.**, J.M. Zmuda, J.A. Cauley, P.R. Shea, R.E. Ferrell[†]. Association of the vitamin D receptor (*VDR*) FokI genotype with muscle mass in older men. Poster presentation for the College of Health and Human Performance, Health and Society Theme Series, University of Maryland, 2004.
- 8 **Roth, S.M.**, S. Prior*, C. Kammerer, J. Cauley, J. Zmuda[†]. Genetic and environmental influences on muscle mass and strength in Afro-Caribbean men. Poster presentation for the HHP College Research Interaction Day, University of Maryland, 2004.
- 9 Prior, S.J.* , T.P. Gavin, L.M. Westerkamp, **S.M. Roth**[†]. Association of skeletal muscle capillarity with *VEGF* gene sequence variation. Poster presentation for the HHP College Research Interaction Day, University of Maryland, 2004.
- 10 Prior, S.J.* , T.P. Gavin, L.M. Westerkamp, **S.M. Roth**[†]. Association of skeletal muscle capillarity with *VEGF* gene sequence variation. Poster presentation for Bioscience Day, University of Maryland, 2004.
- 11 Fenty, N., **S.M. Roth**, M. Bathula, J.Y. Park, M.D. Brown[†]. *AT1R* A1166C polymorphism is associated with plasma angiotensin II levels, but not ambulatory blood pressure responses to aerobic exercise training. Poster presentation for the HHP College Research Interaction Day, Sept. 2006.
- 12 Park, J.Y., I.K. Farrance, H. Jo, S.R. Brant, **S.M. Roth**, M.D. Brown[†]. A promoter polymorphism regulates NFkB1 gene transactivity in human endothelial cells under laminar shear stress. Poster presentation for the HHP College Research Interaction Day, Sept. 2006.
- 13 Liu, D.* , S. Walsh*, M.J. Delmonico, K.L. Voss*, B.F. Hurley, **S.M. Roth**[†]. Newly identified myostatin mutation not observed in strength athletes or the general population. Poster presentation for the HHP College Research Interaction Day, Sept. 2006.
- 14 Walsh, S.* , E.J. Metter, L. Ferrucci, B.F. Hurley, **S.M. Roth**[†]. Myostatin related gene associations with muscle mass and strength in humans. Poster presentation for the HHP College Research Interaction Day, Sept. 2006.
- 15 Walsh, S.* , E.J. Metter, L. Ferrucci, **S.M. Roth**[†]. Myostatin related gene associations with muscle mass and strength in humans. Poster presentation for Bioscience Day, Nov. 2006.
- 16 Liu, D.* , S. Walsh*, M.J. Delmonico, K.L. Voss*, B.F. Hurley, **S.M. Roth**[†]. Newly identified myostatin mutation not observed in strength athletes or the general population. Poster presentation for Bioscience Day, Nov. 2006.
- 17 Zimmerman, J., R. Conery, J.W. Hearn, J.C. Rietschel, S.P. Deeny, **S.M. Roth**, B.D. Hatfield[†]. Behavioral evidence of brain changes moderated by APOE and physical activity in middle-aged adults. Poster presentation for Bioscience Day, Nov. 2006.
- 18 **Roth, S.M.**[†], S. M. Williams, S. Menon, J. Jeka. Susceptibility genes for gentamicin-induced vestibular dysfunction. Poster presentation for NACS-fest, Mar. 2007.

- 19 Ludlow, A.T.* , J.B. Zimmerman, J.W. Hearn, S. Witkowski, B.D. Hatfield, **S.M. Roth**[†]. Relationship between exercise energy expenditure and telomere length and telomerase activity. Poster presentation for Bioscience Day, Nov. 2007.
- 20 **Roth, S.M.**[†], S. Walsh*, L. Doby*, E.J. Metter, L. Ferrucci, B. Hurley. The *ACTN3* R577X nonsense allele (X) is under-represented in elite-level strength athletes. Poster presentation for Bioscience Day, Nov. 2007.
- 21 Woo, M., **S.M. Roth**, B.D. Hatfield[†]. Physical activity, brain function and the role of the apolipoprotein e4 allele in young adults. Poster presentation for Bioscience Day, Nov. 2007.
- 22 Hatfield, B.D.[†], J. Zimmerman, A.J. Hafler, **S.M. Roth**, D. Poepfel, J. Contreras-Vidal. Physical activity and the graying of America: preventing the decline of the aging brain – a public health imperative. Poster presentation for Bioscience Day, Nov. 2007.
- 23 Zimmerman, J.B., J.W. Hearn, A.T. Ludlow*, J. Savin-Murphy, J.C. Rietschel, R. Conery, S.P. Deeny, **S.M. Roth**, B.D. Hatfield[†]. Executive and memory performance is moderated by APOE and physical activity in middle-aged adults. Poster presentation for Bioscience Day, Nov. 2007.
- 24 **Roth, S.M.**[†], A.T. Ludlow*, P. Nadendla*, S. Witkowski*, L.M. Wohlers, E.E. Spangenburg. Physical activity ancestry affects body composition phenotypes and gene expression in mice offspring. SPH Research Interaction Day, Oct. 2008.
- 25 Ludlow, A.T.* , M. Auriemma*, P. Nadendla*, K.Y. Ngai*, E.E. Spangenburg, **S.M. Roth**[†]. Does DNA methylation of myosin heavy chain IIb gene promoter regulate expression during skeletal muscle differentiation? SPH Research Interaction Day, Oct. 2008.
- 26 Sheppard, R.* , E.E. Spangenburg, **S.M. Roth**[†]. Effects of androgen receptor polyglutamine repeat on C2C12 cell cycle and gene expression. SPH Research Interaction Day, Oct. 2008.
- 27 Lima, R.M., T.M. Leite, R.W. Pereira, **S.M. Roth**, R.J. de Oliveira. Association between angiotensin converting enzyme (*ACE*) insertion/deletion polymorphism and fat free mass and strength in older Brazilian women. Poster presentation for Bioscience Day, Nov. 2008.
- 28 Ludlow, A.T.* , M. Auriemma*, P. Nadendla*, K.Y. Ngai*, E.E. Spangenburg, **S.M. Roth**[†]. Does DNA methylation of myosin heavy chain IIb gene promoter regulate expression during skeletal muscle differentiation? Poster presentation for Bioscience Day, Nov. 2008.
- 29 Nadendla, P.* , A.T. Ludlow*, S. Witkowski*, L.M. Wohlers, E.E. Spangenburg, **Roth, S.M.**[†]. The role of physical activity ancestry on body composition and brain gene expression. Poster presentation for Bioscience Day, Nov. 2008.
- 30 Nadendla, P.* , A.T. Ludlow*, S. Witkowski*, L.M. Wohlers, E.E. Spangenburg, **Roth, S.M.**[†]. The role of physical activity ancestry on body composition and brain gene expression. Poster presentation for Undergraduate Research Day, Apr. 2009.
- 31 Sheppard, R.* , E.R. Chin, E.E. Spangenburg, **S.M. Roth**[†]. Effects of androgen receptor polyglutamine repeat on C2C12 cell cycle and gene expression. SPH Research Interaction Day, Sept., 2009.
- 32 Marshall, M.R.* , A.T. Ludlow*, S. Witkowski*, J. Wang*, S. Frank*, E.E. Spangenburg, **S.M. Roth**[†]. High physical activity levels modify telomere length in a tissue-specific manner in CAST/Ei mice. SPH Research Interaction Day, Sept., 2009.
- 33 Ludlow, A.T.* , P. Nadendla*, S. Witkowski*, L.M. Wohlers, E.E. Spangenburg, **S.M. Roth**[†]. Physical activity ancestry affects body composition phenotypes and gene expression in mice offspring. SPH Research Interaction Day, Sept., 2009.

TV, Video and Documentaries:

1. Interviewed for “World’s Strongest Toddler”, documentary for cable channel TLC, first aired 10 June 2009.

GRANTS

Extramural Funded (*current)

Funded as Principal Investigator:

Principal Investigator
with Ferrell (Mentor)

F32 AG05893: Genetic effects on muscle response to aging and exercise. NIH/NIA NRSA Postdoctoral Fellowship. June 2000-Dec. 2002, \$100,848. Score: 173, funded 1st round.

Principal Investigator
with Jeka (Co-I)

R21 NS046021: Genetic aspects of vestibular dysfunction. NIH, March 2003-2006, \$364,589. Score: 141, funded 1st round.

Principal Investigator

R01 AG021500: Genetic architecture of aging skeletal muscle.

with Hurley (Co-I) NIH/NIA, Aug. 2003-2007, \$721,292. Score: 172, funded 2nd round.

Principal Investigator with Hagberg (Co-I) K01 AG022791: Genetic epidemiology of aging skeletal muscle. NIH/NIA Mentored Research Scientist Career Development Award. Sept. 2003-2008, \$555,940. Score: 168, funded 1st round.

Funded as Co-Investigator (or Principal Investigator of sub-contract):

Co-Investigator with Hatfield (PI) et al. R21 AG025505: Age, physical activity, genotype and cognitive function. NIH/NIA, Sept 2006-2008, \$364,958. 15% effort.

*PI of subcontract for M. Brown (project PI) et al. R01 HL085497: Genetics of in vivo and in vitro endothelial function. NIH/NHLBI, October 2007-2012, \$600,000 (sub-contract costs, S. Roth PI of subcontract). 15% effort.

Co-I with Hurley R21 CA127784: Strength training, self-efficacy, and function in blacks with prostate cancer. NIH/NCI, \$275,000 (TDC), Mar 08-Mar 10. 10% effort.

Funded as Collaborator or Consultant:

Collaborator with Ferrell (PI) et al. R01 AG021024: Genetic epidemiology of musculoskeletal aging. NIH, July 2002-2007, \$35,000 (funds to S. Roth).

Training/Mentee Grants:

Sponsor for Steven Prior (PI) Michael Pollock Memorial Research Grant: Genetics of maximal oxygen consumption. Aug 2003-2004, \$2500.

*Primary Mentor with Hagberg (PI) et al. T32 AG00268: Predoctoral training in exercise physiology and aging. NIH/NIA Institutional Predoctoral Training Grant, May 2004-2013, \$1,496,040 (all costs to student funding). (renewed 2009)

Secondary Mentor for Halverstadt (PI) F32 AG023464: Genetics, Lipids, and Responses to Exercise Training. NIH/NIA Postdoctoral Fellowship Grant, June 2004-2007, \$150,000 (all costs to Dr. Halverstadt).

Intramural Funded (*current)

Funded as Principal Investigator:

Principal Investigator NIH-Obesity/Nutrition Research Center (ONRC; P30 DK46204-10) pilot/feasibility grant: Ciliary neurotrophic factor (CNTF) receptor alpha (CNTFR α) genotype and its relation to obesity. University of Pittsburgh. March 2001-2002, \$15,000.

Principal Investigator Competitive Medical Research Fund (CMRF; PUH 001 3617): Effects of age, sex and exercise on gene expression patterns in human skeletal muscle. University of Pittsburgh, July 2001-2002, \$25,000.

Principal Investigator General Research Board (GRB) Summer Research Award: The role of human genetic variation in susceptibility to obesity-associated cardiovascular disease risk. Division of Research and Graduate Studies, University of Maryland, June-Aug 2003, \$8,750 (summer salary).

Principal Investigator General Research Board (GRB) Research Support Award: Role of exercise ancestry on longevity and disease. University of Maryland July 2007, \$3,500 (equipment).

Principal Investigator Influence of physical activity ancestry on brain gene expression and cognitive function. College of Health and Human Performance Public Health Research Seed Money Program, 8/2007-8/2008, \$10,000.

Funded as Co-Investigator:

Co-Investigator with NIH-Obesity/Nutrition Research Center (ONRC; P30 DK46204-10)
Riechman (PI) pilot/feasibility grant: A novel stimulus of exercise-induced growth hormone release. University of Pittsburgh. Jan. 2001-2002, \$15,000.

Training/Mentee Grants:

Faculty mentor for Senior Summer Scholars Program award: Influence of physical activity
Pallavi Nadendla (UG) on hippocampus epigenetic regulation. Jun 2008 - Aug 2008, \$3000.

Faculty Mentor for Andrew Dept. Kinesiology GRIP grant: Comparison of telomere length,
Ludlow (G) telomerase enzyme activity and running endurance in CAST/Ei mice.
Jun 2008-2009, \$2500.

HONORS AND AWARDS

1996 Pre-Doctoral Poster Presentation Award Winner, Northwest Region American College of Sports Medicine Conference (ACSM).
1996 National Association for Sport and Physical Education (NASPE) Major of the Year Award.
1996 Charles F. Hertler Award (Senior Award), University of Montana.
1996 President's Senior Recognition Award, University of Montana.
1998 Phi Alpha Theta, Honors Society for the College of Health and Human Performance, University of Maryland College Park.
1999 Burris F. and Jean L. Husman Scholarship, Dept. Kinesiology, Univ. Maryland.
1999 Elaine Henson Memorial Award, Dept. Kinesiology, Univ. Maryland.
1999 – 2000 NRSA Institutional Pre-doctoral Research Award, AG-00268.
2000 – 2002 NRSA Individual Postdoctoral Research Award, AG-05893.
2002 FASEB MARC Poster Travel Award for Experimental Biology Meeting 2002
2002 – 2007 NIH Clinical Research Loan Repayment Program (renewed in 2004, 2006)
2003 – 2008 K01 Mentored Research Scientist Award – Career Development in Aging and Genetic Epidemiologic Research Methodology (AG-022791)
2005 American College of Sports Medicine (ACSM) New Investigator Award
2006 Research and Development Award, College of Health and Human Performance
2007 Charter Contributor Award, School of Public Health
2007 Fellow of the American College of Sports Medicine
2008 Leda Amick Wilson Mentoring Award, School of Public Health

PROFESSIONAL SERVICE

Editorial Board Service:

2005 – 2008 Assistant Editor, *Exercise and Sport Sciences Reviews*
2009 – present Associate Editor, *Exercise and Sport Sciences Reviews*
2008 – present Associate Editor, *Medicine and Science in Sports and Exercise*

Manuscript Reviewing Activities (i.e., occasional reviewer – listed since 2003):

2003 – *American Journal of Physiology – Endocrinology and Metabolism, Biological Research for Nursing, Clinical Genetics, Journal of the American Geriatrics Society (2), Journal of Sports Sciences, Medicine and Science in Sports and Exercise (2), Physiological Genomics (2)*
2004 – *Diabetologia, Expert Opinion on Emerging Drugs, Hypertension, Journal of the American Geriatrics Society (2), Journal of Sports Sciences, Medicine and Science in Sports and Exercise, Muscle and Nerve, Physiological Genomics*
2005 – *Expert Opinion on Biological Therapy, Indian Journal of Medical Sciences, International Journal of Sports Medicine, Journal of the American Geriatrics Society, Journal of Applied Physiology (3),*

- Medicine and Science in Sports and Exercise (3), Muscle and Nerve, Physiological Genomics, Scandinavian Journal of Medicine and Science in Sports*
- 2006 – *Aging Health, American Journal of Physiology – Heart and Circulatory Physiology, BMC Genomics, European Journal of Applied Physiology, European Journal of Endocrinology, European Journal of Human Genetics, Journal of Applied Physiology (5), Journal of Gerontology: Medical Sciences, Medicine and Science in Sports and Exercise (4)*
- 2007 – *American Journal of Physiology – Cell Physiology, American Journal of Physiology – Endocrinology and Metabolism, American Journal of Physiology – Regulatory, Integrative and Comparative Physiology, Biological Research for Nursing, Cytokine, JAMA, Journal of Applied Physiology (2), Journal of Gerontology: Medical Sciences, Medicine and Science in Sports and Exercise (2), Physiological Genomics*
- 2008 – *American Journal of Physiology – Regulatory and Integrative, European Journal of Applied Physiology (3), JAMA (2), Journal of Applied Physiology (4), Journal of Gerontology: Biological Sciences, Medicine and Science in Sports and Exercise (2)*
- 2009 – *Diabetologia, European Journal of Applied Physiology (2), International Journal of Obesity, JAMA, Journal of Applied Physiology (4), Journal of Gerontology: Medical Sciences (2), Obesity (2), Perspectives on Psychological Science, PLoS One*

Grant Reviewing Activities:

- | | |
|----------------|--|
| 2003 | Ad hoc reviewer for Project Grant Application submitted to the Wellcome Trust (UK) |
| 2004 | Ad hoc reviewer for Fellowship Grant submitted to the French Muscular Dystrophy Association (AFM) |
| 2006 | Ad hoc reviewer for the Belgian Flanders Scientific Research Fund. |
| 2006 | Review panel member for 2006 NIH/NIA Beeson Career Development Award applications (K08 and K23 applications; ZAG1 ZIJ-9 – 5 applications reviewed). |
| 2006 | Ad hoc reviewer for the South Carolina EPSCoR Collaborative Research Program (NSF/NIH-funded development/pilot/feasibility awards). |
| 2006 | Ad hoc reviewer for University of Pittsburgh Pepper Center pilot/feasibility grant application. |
| 2007 | Review panel member for 2007 NIH/NIA Beeson Career Development Award applications (K08 and K23 applications; ZAG1 ZIJ-4 – 6 applications reviewed). |
| 2007 | Ad hoc reviewer for University of Connecticut AHA grant application. |
| 2008 | Ad hoc reviewer for Individual Research Grant Proposal submitted to the National Medical Research Council (Singapore). |
| 2008 | Review panel member for 2008 NIH/NIA Beeson Career Development Award applications (K08 and K23 applications; ZAG1 ZIJ-4 – 5 applications reviewed). |
| 2008 | Ad hoc reviewer for Katholieke Universiteit Leuven (Belgium) Research Council. |
| 2008 | Ad hoc reviewer for the Belgian Flanders Scientific Research Fund. |
| 2008 | Review panel member for 2008 NIH/NIA Loan Repayment Award applications (ZAG1 ZIJ-4 (A1) – 9 applications reviewed). |
| 2008 – present | Member, External Advisory Board, University of Missouri Program Project (P01HL052490) |
| 2008 | Ad hoc reviewer for Singapore National Research Foundation for the Scenario-based Competitive Research Programme (CRP) Call. |
| 2009 | Review panel member for 2009 NIH/NIA Beeson Career Development Award applications (K08 and K23 applications; ZAG1 ZIJ-4 M1 – 4 applications reviewed). |
| 2009 | Review panel member for 2009 NIH/NIA Loan Repayment Award applications (ZAG1 ZIJ-2 (A1) – 10 applications reviewed). |
| 2009 | University of Maryland, Clinical Nutrition Research Unit, Pilot Feasibility grants (1) |

Professional Society Activities, Consulting, and Other Activities:

- | | |
|----------------|---|
| 2004 – 2007 | Expert consultant for sarcopenia genetics, Genetic Association Database |
| 2006 – present | Member, ACSM Annual Meeting Program Sub-Committee:
Immunology/Genetics/Endocrinology |
| 2007 | Session Chair, Genetics I Slide (B-12), ACSM Annual Meeting (New Orleans) |
| 2009 | Session Chair, Genetics Slide (F-56), ACSM Annual Meeting (Seattle) |

2009 Evaluation of promotion portfolio, Pennington Biomedical Research Center

MEMBERSHIPS AND CERTIFICATES

Since:

1995 American College of Sports Medicine (ACSM); Fellow since 2007
 1998 The American Physiological Society (APS)
 2000 American Association for the Advancement of Science (AAAS)
 2000 Researchers against Inactivity-related Disorders (RID)
 2002 The American Society of Human Genetics (ASHG)
 2003 The Gerontological Society of America (GSA)

 2001 University of Pittsburgh Research Practice Fundamentals Certification
 2004 (renewal) Human Participants Protection Education Certificate – required NIH education certificate
 2007 IACUC certification (working with IACUC, basic animal/mouse procedures)

TEACHING (since 2003)

Spring 2003 *Kinesiogenomics Journal Club*, KNES 609A.
 KNES 689, *Special Problems in Kinesiology*: 3 credits

Fall 2003 *Kinesiogenomics Journal Club*, KNES 609E.
 KNES 689, *Special Problems in Kinesiology*: 11 credits

Spring 2004 *Genetic Aspects of Health and Fitness*, KNES 689Z (3 cr.; n=5), *Kinesiogenomics Laboratory*, KNES 689X (1 cr.), and *Kinesiogenomics Journal Club*, KNES 609J (1 cr.).
 KNES 689, *Special Problems in Kinesiology*: 7 credits

Fall 2004 *Genetic Aspects of Health and Fitness*, KNES 689Z (3 cr.; n=5), *Kinesiogenomics Laboratory*, KNES 689X (1 cr.; n=5), and *Kinesiogenomics Journal Club*, KNES 609L (1 cr.).
 KNES 689, *Special Problems in Kinesiology*: 10 credits
 KNES 899, *Doctoral Dissertation Research*: 4 credits

Spring 2005 *Kinesiogenomics Journal Club*, KNES 609N.
 KNES 689, *Special Problems in Kinesiology*: 7 credits
 KNES 899, *Doctoral Dissertation Research*: 8 credits

Fall 2005 *Genetic Aspects of Health and Fitness*, KNES 689Z (3 cr.; n=6), and *Kinesiogenomics Journal Club*, KNES 609P (1 cr.).
 KNES 689, *Special Problems in Kinesiology*: 3 credits
 KNES 899, *Doctoral Dissertation Research*: 6 credits

Spring 2006 *Genetics in Physical Activity and Sport*, KNES 498Q (3 cr.; n=30), and *Kinesiogenomics Journal Club*, KNES 609S (1 cr.).
 KNES 899, *Doctoral Dissertation Research*: 6 credits

Fall 2006 *Genetics in Physical Activity and Sport*, KNES 498Q (3 cr.; n=35), and *Kinesiogenomics Journal Club*, KNES 609P (1 cr.).
 KNES 689, *Special Problems in Kinesiology*: 5 credits
 KNES 899, *Doctoral Dissertation Research*: 6 credits

Spring 2007 *Genetics in Physical Activity and Sport*, KNES 498Q (3 cr.; n=35), and *Kinesiogenomics Journal Club*, KNES 609S (1 cr.).
 KNES 689, *Special Problems in Kinesiology*: 3 credits
 KNES 799, *Masters Thesis Research*: 12 credits
 KNES 899, *Doctoral Dissertation Research*: 6 credits

- Fall 2007 *Honors Thesis Proposal*, KNES 476 (3 cr.; n=10), *Honors Seminar*, KNES 478 (1 cr.; n=16), *Genetic Aspects of Health and Fitness*, KNES 696 (3 cr.; n=6), and *Kinesiogenomics Journal Club*, KNES 609P (1 cr.).
 KNES 498, *Special Topics in Kinesiology*: 3 credits
 KNES 689, *Special Problems in Kinesiology*: 8 credits
 KNES 899, *Doctoral Dissertation Research*: 6 credits
- Spring 2008 *Honors Thesis*, KNES 477 (3 cr.; n=10), *Honors Seminar*, KNES 478 (1 cr.; n=16), *Genetics in Physical Activity and Sport*, KNES 467 (3 cr.; n=34), and *Current Readings in Kinesiogenomics*, KNES 618 (1 cr.).
 KNES 689, *Special Problems in Kinesiology*: 2 credits
 KNES 899, *Doctoral Dissertation Research*: 6 credits
- Fall 2008 *Honors Thesis Proposal*, KNES 476 (3 cr.; n=10), *Honors Seminar*, KNES 478 (1 cr.; n=18), and *Current Readings in Kinesiogenomics*, KNES 618 (1 cr.).
 KNES 389/498, *Topical Investigations and Special Topics in Kinesiology*: 2 credits
 KNES 689, *Special Problems in Kinesiology*: 6 credits
 KNES 899, *Doctoral Dissertation Research*: 6 credits
- Spring 2009 *Honors Thesis*, KNES 477 (3 cr.; n=9), *Honors Seminar*, KNES 478 (1 cr.; n=18), *Genetics in Physical Activity and Sport*, KNES 467 (3 cr.; n=39), and *Current Readings in Kinesiogenomics*, KNES 618 (1 cr.; n=6).
 KNES 689, *Special Problems in Kinesiology*: 7 credits
 KNES 899, *Doctoral Dissertation Research*: 6 credits
- Fall 2009 *Honors Thesis Proposal*, KNES 476 (3 cr.; n=11), *Honors Seminar*, KNES 478 (1 cr.; n=20), *Genetic Aspects of Health and Fitness*, KNES 696 (3 cr.; n=6), and *Kinesiogenomics Journal Club*, KNES 609P (1 cr.).
 KNES 689, *Special Problems in Kinesiology*: 6 credits
 KNES 799, *Masters Thesis Research*: 3 credits
 KNES 899, *Doctoral Dissertation Research*: 6 credits

New courses developed: *Genetic Aspects of Health and Fitness*, KNES 696 (3 cr.) (formerly 689Z)
Genetics in Physical Activity and Sport, KNES 467 (3 cr.) (formerly 498Q)
Current Readings in Kinesiogenomics, KNES 618 (1 cr.) (formerly 609_x)

New courses in preparation: *Genetics in Public Health*, EPIB 624 (3 cr.)

Invited Instructional Lectures:

- 1 **Roth, S.M.**, M.S. Cracolice. Research-based instructional strategies: a college chemistry course utilizing the Personalized System of Instruction. Slide presentation, Montana State American Chemical Society Conference, Missoula MT, 1996.
- 2 **Roth, S.M.**, S.E. Riechman. Genetics in exercise physiology: research design issues. Seminar, Dept. Health, Physical and Recreation Education, University of Pittsburgh, 2001.
- 3 **Roth, S.M.**, S.E. Riechman. Genetics in exercise physiology: research design issues. Seminar, Dept. Health, Physical and Recreation Education, University of Pittsburgh, 2002.
- 4 **Roth, S.M.** Genetics and exercise science. Seminar, Catalyst Seminar Series, University of Maryland, 2003.
- 5 **Roth, S.M.** Genetic aspects of health and fitness. Seminar, Research and Development Seminar Series, University of Maryland Counseling Center, 2003.
- 6 **Roth, S.M.** Genetics and exercise science. Seminar, Catalyst Seminar Series, University of Maryland, 2004.
- 7 **Roth, S.M.** Genetics and exercise science. Seminar, Catalyst Seminar Series, University of Maryland, 2005.
- 8 **Roth, S.M.**, D.J. Casa, S. Trappe. The future of exercise science and ACSM: a contemporary perspective. Student Colloquium presentation for the 2005 American College of Sports Medicine Annual Meeting, Nashville, TN.

- 9 **Roth, S.M.** Genetics in health and fitness: an introduction to genetics for the exercise physiologist. Tutorial Lecture for the 2005 American College of Sports Medicine Annual Meeting, Nashville, TN.
- 10 **Roth, S.M.** Genetics and exercise science. Seminar, Catalyst Seminar Series, University of Maryland, 2006.
- 11 Hagberg, J.M., B.F. Hurley, **S.M. Roth**. Exercise science for special populations: Cancer. Seminar, Lombardi Cancer Center, Georgetown University, 2006.
- 12 **Roth, S.M.** Introduction to genetics and sport performance. Seminar, Chinese Olympic Committee Delegation, University of Maryland, 2006.
- 13 **Roth, S.M.** Genetics and exercise science. Seminar, Catalyst Seminar Series, University of Maryland, 2007.
- 14 **Roth, S.M.** Introduction to genetics and sport performance. Seminar, Chinese Sports Research Delegation, University of Maryland, 2007.
- 15 **Roth, S.M.** Genomics 101: An introduction for SPH researchers. Seminar, School of Public Health Seminar Series, 2007.
- 16 **Roth, S.M.** Genetics and exercise science. Seminar, Catalyst Seminar Series, University of Maryland, 2008.
- 17 **Roth, S.M.** Candidate gene and polymorphism selection in exercise physiology research. College of Health Professions, Temple University, 2008.
- 18 **Roth, S.M.** Genetics and exercise science. Seminar, Catalyst Seminar Series, University of Maryland, 2009.

ADVISING

Recognition:

2008 - Faculty mentor for J. Corey Williams, Philip Merrill Presidential Scholar for 2008-2009

Undergraduate Research Advising:

Spring 2003 – Nicholas Amoroso, Benjamin Snow (Undergraduate Research Assistant Program - URAP)
Summer 2003 – Adam Isaac (URAP)
Fall 2003 – Sara Gemmill, Crystal Humphries (URAP)
Spring 2004 – Roshni Prabhu, Aminah Shahid (URAP)
Summer 2004 – Greg Winter (Volunteer)
Fall 2004 – Rima Luhar (KNES), Greg Winter (URAP), and Deandra Dodd (Ind. Study credits)
Spring 2005 – Stephanie Cole (Life Sciences Scholar), Angela Kim (URAP), D. Dodd (Ind. Study credits)
Summer 2005 – May Nguy (URAP)
Fall 2005 – Brittany Duke (URAP/Life Sciences Scholar), David Kitchel (URAP)
Spring 2006 – Liz Doby (KNES-honors), Brittany Duke (URAP/Life Sciences Scholar), Paul Ortiz (URAP)
Summer 2006 – Liz Doby (KNES-honors)
Fall 2006 – Liz Doby (KNES-honors), Scott Middleton (KNES-honors)
Spring 2007 – Liz Doby (KNES-honors), Scott Middleton (KNES-honors)
Summer 2007 – Liz Doby (KNES-honors)
Fall 2007 – Grigory Gershkovich (KNES-honors), Karishma Dagar (Maryland Student Researcher), Jennifer Ginsberg (Maryland Student Researcher)
Spring 2008 – Grigory Gershkovich (KNES-honors), Michael Auriemma (KNES-honors), Pallavi Nadendla (Maryland Student Researcher), Kwan Yee Ngai (Maryland Student Researcher)
Summer 2008 – Michael Auriemma (KNES-honors), Pallavi Nadendla (Senior Summer Scholar Award)
Fall 2008 – Kwan Yee Ngai (KNES 498, 2 credits), Pallavi Nadendla (Maryland Student Researcher), Megan Eng (Maryland Student Researcher), Hannah Miller (KNES 389, 2 credits)
Spring 2009 – Pallavi Nadendla (Maryland Student Researcher), Megan Eng (Maryland Student Researcher), Valencia Latimore (Maryland Student Researcher)
Summer 2009 – Pallavi Nadendla, Jenny Wang, Abe Veppumthara, Tara Thompson (UM Stars program), Sarah Frank (Montgomery Blair High School)
Fall 2009 – Katherine Perret (KNES Honors), Jenny Wang, Naomi Frank (Maryland Student Researcher), Sarah Frank (Montgomery Blair High School)

Notables: Sara Gemmill, Nursing School (Univ. Conn); Adam Isaac, Podiatry (Temple Univ.); Nicholas Amoroso, Medical School (George Washington Univ.); Gregory Winter, Dental School (Univ. Maryland); Stephanie Cole, Grad School – cell biology (Carnegie Mellon); Paul Ortiz, Pharmacy (Univ. Maryland); Grigory Gershkovich, Medical School (Georgetown); Brittany Duke, Pharmacy (Howard Univ.); Michael Auriemma, Medical School (Robert Wood Johnson); Pallavi Nadendla, Medical School (American University of the Caribbean); Abe Veppumthara, Medical School (Georgetown).

Graduate Advising (Chair: Program of Study, Comprehensive Examination, and Thesis/Dissertation Committees):

Master's:

Past (with graduation date, thesis title, present position):

- David Charbonneau, 8/2007 “Association between *ACE* genotype and skeletal muscle strength and volume, and their response to strength training in older adults.”
Accepted to PhD program, Springfield College (deferred until 2009)
- Andrew T. Ludlow, 8/2007 “Relationship between physical activity and telomere maintenance in peripheral blood mononucleocytes.”
PhD student, University of Maryland Dept. Kinesiology

Current (with training start date):

Mallory Marshall, 8/2008

Ph.D.:

Past (with graduation date, dissertation title, present position):

- Steven J. Prior, 8/2005 “DNA sequence variation in the promoter region of the *VEGF* gene: impacts on VEGF gene expression and maximal oxygen consumption.”
Assistant Professor, Division of Gerontology, Department of Medicine, University of Maryland School of Medicine
- Sean Walsh, 8/2006 “Myostatin related gene associations with muscle mass and strength in humans.”
Assistant Professor, Department of Physical Education and Human Performance, Central Connecticut State University
- Dongmei Liu, 5/2008 “*TNF* promoter polymorphisms associated with skeletal muscle phenotypes in humans.”
Postdoctoral Fellow, University of Michigan School of Medicine.

Current (status; expected graduation year):

- Lisa M. Guth (first year 8/09)
Andrew T. Ludlow (third year, Program of Study approved 12 Aug. 2008; 2011)
Ryan L. Sheppard (advanced to candidacy 4 Feb. 2008; 2009)
Andrew C. Venezia (first year 8/09)

Visiting Scholars:

- Ricardo Moreno Lima, PhD Candidate, Universidade Católica de Brasília. Oct. 2008-Feb. 2009.
Laila Lima, PhD Candidate, Universidade Católica de Brasília. Oct. 2009-Apr. 2010.

Postdoctoral Mentorship:

Past (with training dates and present position):

None

Current (with training start date):

Sarah Witkowski, Ph.D., since 5/2008 (co-mentor with Dr. E. Spangenburg). Will begin as *Assistant Professor*, University of Massachusetts (Amherst), January 2010.

External Dissertation Committees (i.e., external juror):

- 2008 – External jury member for Gunther De Mars, Katholieke Universiteit Leuven, Belgium. Thesis title:
Whole genome scan and candidate-gene study in human muscular strength. The Leuven Genes for Muscular Strength study.
- 2009 – External member, board of examiners for B. Anandan, University of Madras, India. Thesis title:
Sequence variations in 10 genes and their role in athletic performance – a case-control study on South Indian athletes.

2009 – Foreign examiner, dissertation defense board for Ricardo Moreno Lima, Catholic University of Brasilia, Brazil. Dissertation title: *Association between the polymorphisms of insertion/deletion of the ACE gene with muscle strength, fat free mass and adaptations to resistance training for Brazilian elderly women.*

2009 – External examiner for Jane T. C. Seto, University of Sydney, Australia. Thesis title: *The effect of alpha-actinin-3 deficiency on skeletal muscle, ageing and exercise training.*

UNIVERSITY SERVICE

Department of Kinesiology:

Chair/Director-level Service:

2006 – present *Director*, Exercise Physiology Research Laboratories
 2006 – present *Compliance Officer* – Dept. Kinesiology, Department of Environmental Safety
 2007 – present *Director*, Honors Program (*Chair*, Honors Committee)
 2009 – present *Chair*, Undergraduate Committee

Other Dept. Service:

2003 – 2004 Member, Computer Committee
 2003 – 2004 Member, Women’s History Month Speaker Committee
 2004 Member, Search Committee for Business Manager
 2004 – 2005 Member, Web/Computer Committee
 2004 – 2006 Member, Undergraduate Honors Program Committee
 2005 – 2006 Member, Search Committee for Exercise Physiology/Molecular Biology position
 2005 – 2007 Member, Graduate Committee
 2006 – 2007 Member, Search Committee for Exercise Physiology position
 2007 – 2009 Member, Undergraduate Committee
 2007 – 2008 Member, Search Committee for Exercise Physiology position
 2008 – 2009 Member, Search Committee for three Translational Kinesiology faculty members
 2008 – present Member, Undergraduate Scholarships and Awards Committee
 2008 – 2009 Member, Programs, Curricula & Courses (PCC) Committee
 2009 Ad hoc reviewer, GRIP Grant Review Committee

School of Public Health:

2005 – 2006 Member, Search Committee for six Public Health faculty members
 2006 – 2008 Member, Graduate Public Health Committee
 2007 Member, Search Committee for Research Coordinator
 2007 – 2008 Member, Search Committee for Dept. Epidemiology and Biostatistics

University of Maryland:

2004 Research Poster Judge, Bioscience Research and Technology Review Day
 2006 – 2008 Research Poster Judge, Bioscience Research and Technology Review Day
 2007 – 2008 Research Poster Judge, GRID (Graduate Research Interaction Day)
 2007 Research Poster Judge, Dept. Nutrition and Food Science Annual Poster Session
 2008 Reviewer, Internal Review Panel for limited-submission NSF STEP grant applications
 2009 Banneker/Key Scholarship Selection Committee
 2009 – present Health Professions Committee