

CURRICULUM VITAE FOR LAWRENCE HARSHMAN

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EDUCATION AND EXPERIENCE

1975 **B.S. in Biology**, Department of Biology, University of California, Riverside.

1977 **M.S. in Biology**, Department of Biology, University of California, Riverside.

1977-1982 **Ph.D.** in the laboratory of D. Futuyma, Department of Ecology and Evolution, S.U.N.Y. at Stony Brook

1982-1984 **Postdoctoral Associate** in the laboratory of T. Prout, Department of Genetics, University of California, Davis

1984 **Instructor** for population genetics, Department of Genetics, University of California, Davis

1985- 1987 **Postdoctoral Associate** in the laboratory of B. Hammock, Department of Entomology, University of California, Davis

1988-1993 **Assistant Research Scientist** in the laboratory of B. Hammock, Department of Entomology, University of California, Davis

1994 **Instructor** for genetics, Department of Cell and Developmental Biology, University of California, Davis

1994-2000 **Assistant Professor**, School of Biological Sciences, University of Nebraska-Lincoln

2001-2007 **Associate Professor**, School of Biological Sciences, University of Nebraska-Lincoln

PROFESSIONAL ACTIVITIES

Editorial:

Associate Editor (Genetics 2003-2005, 2006-present)

Reviewer:

I review manuscripts for many journals including those with the highest impact factor. Regular reviewer for NSF, as well as reviewer for NIH and other granting agencies.

Professional Societies:

Genetics Society of America, Evolution Society of America, Sigma Xi

CURRENT/RECENT EXTRAMURAL FUNDING

CURRENT (ACTIVE)

National Institute of Health (2006 – 2009), “Comparative Functional Genomics of *Drosophila* Obesity”, A. Clark PI, L. Harshman co-PI

- \$1,250,000 total, \$516,548 subcontract to the University of Nebraska-Lincoln

This grant is designed to investigate lipid accumulation and related traits in *Drosophila* populations and species.

National Sciences Foundation DEB (2006-2008), “Molecular Population Genetics of Genes Expressed in Female Sperm Storage Structures in Female *Drosophila melanogaster*”, L. Harshman PI, E. Moriyama co-PI

- \$283,213 total

This grant is designed to investigate the molecular evolution and expression of genes associated with female sperm storage organs.

Army Office of Research (2007-2009), “Genome Biology of Innate Immunity: Genetic Dissection of *Drosophila melanogaster* Responses to *Bacillus* Infection”, L. Harshman PI

- \$902,582 total (\$600,000 direct and indirect, \$302, 582 University of Nebraska-Lincoln match of which \$225,891 is a hard cash match)

This grant is designed to investigate how evolved resistance to *Bacillus* affects the transcriptome and to map the resistance factors.

National Institute of Aging (2004-2009) “Determinants of Exceptional Longevity in Tephritid Fruitflies”, J. Carey PI, L. Harshman co-PI

- \$47,405 subcontract to the University of Nebraska-Lincoln

This grant is designed to investigate the consequences of dietary restriction and the effects of age on behavior and other traits.

National Science Foundation (2005-2008), “Enzymatic and Molecular Bases of Tradeoffs in Lipid Metabolism That Underlie a Life History Trade-Off”, A.J.Zera PI, L. Harshman co-PI

- \$417,681 total

This grant is designed to investigate the activity and key enzymes involved in the trade-off between flight and reproduction in crickets.

Department of Defense (2008-2009), “Single Nucleotide Polymorphism Genotyping Core Facility”, L. Harshman PI

- \$149,770 direct

RECENT (INACTIVE)

Army Research Office (2003-2006), “Identification of Genes and Proteins that Regulate Multiple Stress Resistance”, L.G. Harshman PI, S.V. Nuzhdin co-PI

- \$505,985

National Institute of Health (2002-2005), “Quantitative Genetics of Sexual Dimorphism”. S.V. Nuzhdin PI, co-PI subcontracts to G. Gibson, L. Harshman, L. McIntyre and M.L. Wayne

- approximately \$1,000,000

National Science Foundation EPSCOR (2004 -2006), “Metabolite Signaling Center”, M. Fromm PI, L. Harshman is a budgeted investigator approximately \$150,0000 to the Harshman laboratory

National Institute of Aging (1998-2003), “Modes and Mechanisms of Medfly Longevity”, J. Carey PI, L. Harshman coPI

- \$298,538 total in subcontract funds to the University of Nebraska – Lincoln

National Science Foundation (2003-2007), “Physiological and Molecular Causes of Genetic Variation/Covariation in Endocrine Regulation”, A.J. Zera PI, L.G. Harshman co-PI

- \$372,000 total

PENDING

National Institute of Health (2008 – 2013), “Sex Differences in Fruitfly Health and Survival”, J. Carey PI, L. Harshman co-PI (part of a program project that would be administered through Duke University)

- \$1,441, 163 to UC Davis (6 partner institutions)

INTRAMURAL (INACTIVE)

Vice Chancellor of Research Funds (2004-2006), “Development of Interventions Against Bioterrorism Agents Using *Drosophila* as a Model”, L. Harshman PI

- \$60,000

REFEREED PUBLICATIONS

(1) **Harshman, L.G.** and C.E. Taylor. 1978. Gene frequencies of an isolated population of *Drosophila pseudoobscura*. Journal of Heredity 69:197-199.

- (2) **Harshman, L.G.** and M. Riley. 1980. Conservation and Variation of Nucleotide Sequences in *Escherichia coli* Strains Isolated from Nature. Journal of Bacteriology 144: 560-568.
- (3) **Harshman, L.G.** and D.J. Futuyma. 1985. The origin and distribution of clonal diversity in *Alsophila pometaria* (Lepidoptera: Geometridae). Evolution 39: 315-324.
- (4) **Harshman, L.G.** and D.J. Futuyma. 1985. Survivorship and growth of sexually and asexually derived larvae of *Alsophila pometaria* (Lepidoptera: Geometridae). American Naturalist 125: 896-902.
- (5) **Harshman, L.G.** and D.J. Futuyma. 1985. Variation in population sex ratio and mating success of asexual lineages of *Alsophila pometaria* (Lepidoptera: Geometridae), Annals of the Entomological Society of America. 78: 456-458.
- (6) Hoffmann, A.A. and **L.G. Harshman**. 1985. Male effects on fecundity in *Drosophila melanogaster*. Evolution 39: 368-644.
- (7) Ashour, M. A., **L.G. Harshman**, and C. Hammock. 1987. Malathion toxicity and carboxylesterase activity in *Drosophila melanogaster*. Pesticide Biochemistry and Physiology 29: 97-111.
- (8) **Harshman, L.G.** and A.A. Hoffmann. 1987. Residual influences on fecundity in drosophilid species. Experientia 43: 213-215.
- (9) Ottea, J.A., **L.G. Harshman** and B. Hammock. 1987. Patterns of epoxide metabolism by epoxide hydrolase and glutathione *S*-transferase associated with age and genotype in *Drosophila melanogaster*, Mutation Research 177: 247-254.
- (10) Ottea, J.A., **L.G. Harshman** and B. Hammock. 1988. Novel assay for determining the metabolic fate of juvenile hormone III: A study with *Drosophila melanogaster*. Archives of Insect Biochemistry and Physiology 8: 25-37.
- (11) **Harshman, L.G.**, A.A. Hoffmann and T. Prout. 1988. Environmental effects on remating in *Drosophila melanogaster*. Evolution 42: 312-321.
- (12) Hammock, B.D., **L.G. Harshman**, M.L. Philpott, A. Szekacs, J.A. Ottea, R.A. Newitt, V. J. Wrolbewsi, P.P. Halarnkar and T.N. Hanzlik. 1988. Strategies for the discovery of insect control agents: Exploitation of biomechanisms regulating insect development. In "Biomechanisms Regulating Growth and Development," USDA Beltsville Symposia in Agricultural Research, G.L. Steffens and T. S. Rusey (Eds.), vol. 12, pp. 137-173. Kluwer Academic Publishers, Dordrecht, The Netherlands.
- (13) Abdel-Aal, Y.A., T.M. Hanzlik, B.D. Hammock, **L.G. Harshman** and G. Prestwich. 1988. Juvenile hormone esterases in two Heliothine: kinetic biochemical and immunogenic characterization. Comparative Biochemistry and Physiology 90B: 117-124.

- (14) Hanzlik, T.N., Y.A.I. Abdel-Aal, **L.G. Harshman** and B.D. Hammock. 1989. Isolation and sequencing of cDNA clones coding for juvenile hormone esterase from *Heliothis virescens*: evidence for a charge relay network of the serine esterases different from the serine proteases. Journal of Biological Chemistry 264: 12419-12425.
- (15) Wroblewski, V.J., **L.G. Harshman**, T.N.Hanzlik and B.D. Hammock. 1990. Regulation of juvenile hormone esterase gene expression in the tobacco budworm (*Heliothis virescens*). Archives of Biochemistry and Biophysics 278: 461-466.
- (16) Hammock, B., V. Wroblewski, **L. Harshman**, T. Hanzlik, S. Maeda, M. Philpott, B. Bonning and R. Possee. 1990. Cloning, expression and biological activity of the juvenile hormone esterase from *Heliothis virescens*. In "Molecular Insect Science," H. Hagedorn, J. Hildebrand, M. Kidwell and J. Law (Eds.). Plenum Press, N.Y.
- (17) **Harshman, L.G.** and B. D. Hammock. 1990. The use of *Drosophila melanogaster* for *in situ* biomonitoring. In *In Situ Evaluations of the Biological Hazards of Environmental Pollutants*," S.S. Sandhu, W. R. Lower, F.J. de Serres, W. A. Suk and R. R. Tice (Eds.). Plenum Press, N.Y.
- (18) **Harshman, L.G.** and T. Prout. 1990. Synthesis of an attached autosome, C(3)RM, in *Drosophila pseudoobscura*. Genetica 80: 87-91.
- (19) Hoffmann, A.A., M. Turelli and **L.G. Harshman**. 1990. Factors affecting the distribution of cytoplasmic incompatibility in *Drosophila simulans*. Genetics 126: 933-948.
- (20) Anderson, W.W., J. Arnold, D.G. Baldwin, A.T. Beckenbach, C.J. Brown, S.H. Bryant, J.A. Coyne, **L.G. Harshman**, W.B. Heed, D.E. Jeffery, L.B. Kloaczko, B.C. Moore, J.M. Porter, J.R. Powell, T. Prout, S.W. Schaeffer, J.C. Stephens, C.E. Taylor, M.E. Turner, G.O. Williams and J.A. Moore. 1991. Four decades of inversion polymorphism in *Drosophila pseudoobscura*. Proceeding of the National. Academy of Science USA 88: 10367-10371.
- (21) Casas, J., **L.G. Harshman**, and B.D. Hammock. 1991. Epoxide hydrolase activity on juvenile hormone in *Manduca sexta*. Insect Biochem. 21: 17-26.
- (22) Casas, J., **L.G. Harshman**, A. Messeguer, E. Kuwano and B.D. Hammock. 1991. *In vitro* metabolism of juvenile hormone III and juvenile hormone III bisepoxide by *Drosophila melanogaster* and mammalian cytosolic epoxide hydrolase. Archives of Biochemistry and Biophysics 286: 153-158.
- (23) **Harshman, L.G.**, J.A. Ottea and B.D. Hammock. 1991. Evolved environment-dependent expression of detoxication enzyme activity in *Drosophila melanogaster*. Evolution 45: 791-795.
- (24) **Harshman, L.G.**, J. Casas, E.C. Dietze and B.D. Hammock. 1991. Epoxide hydrolase activities

in *Drosophila melanogaster*. Insect Biochemistry 21: 887-894.

- (25) Hammock, B.D., B.F. McCutchen, J. Beetham, P.V. Choudary, E. Fowler, R. Ichinose, V.K. Ward, J.M. Vickers, B.C. Bonning, **L.G. Harshman**, D. Grant, T. Uematsu, and S. Maeda. 1993. Development of Recombinant Viral Insecticides by Expression of an Insect-Specific Toxin and Insect-Specific Enzyme in Nuclear Polyhedrosis Viruses. Archives of Insect Biochemistry and Physiology 22: 315-344.
- (26) **Harshman, L.G.**, V.K. Ward, J.K. Beetham, D.F. Grant, L.J. Grahan, C.A. Zraket, D.G. Heckel, B.D. Hammock. 1994. Cloning, characterization, and genetics of the juvenile hormone esterase gene from *Heliothis virescens*. Insect Biochemistry and Molecular Biology 24: 671-676.
- (27) **Harshman, L.G.** and T. Prout. 1994. Sperm displacement without sperm transfer in *Drosophila melanogaster*. Evolution 48: 758-766.
- (28) Clark, Andrew G., A. Montserrat, T. Prout, **L.G. Harshman**, C.H. Langley. 1995. Variation in sperm displacement and its association with accessory gland protein loci in *Drosophila melanogaster*. Genetics 139: 189-201.
- (29) **Harshman, L.G.** and A. James. 1998. Differential Gene Regulation: Models of Transcription Control. Annual Review of Entomology 43: 671-700.
- (30) **Harshman, L.G.**, J. Schmid. 1998. Evolution of starvation resistance in *Drosophila melanogaster*: aspects of metabolism and counter-impact selection. Evolution 52: 1679-1685.
- (31) **Harshman, L.G.** and A.G. Clark. 1998. Inference of sperm competition from broods of field-caught *Drosophila*. Evolution 52: 1334-1341.
- (32) Carlson, K.A., T.J. Nusbaum, M.R. Rose, and **L.G. Harshman***. 1998. Oocyte maturation and ovariole numbers in lines of *Drosophila melanogaster* selected for postponed senescence. Functional Ecology 12: 514-520.
- (33) **Harshman, L.G.**, A.M. Loeb and B.A. Johnson. 1999. Ecdysteroid titers in mated and unmated *Drosophila melanogaster* females. Insect Physiology 45: 571-577.
- (34) Carlson, K.A. and **L.G. Harshman***. 1999. Extended longevity lines of *Drosophila melanogaster*: abundance of yolk protein gene mRNA in fat body and ovary. Experimental Gerontology 34: 173-184.
- (35) K.T. Dao, K.E. Hamer, C.L. Clark and **L.G. Harshman***. 1999. Pyoverdine production by *Pseudomonas aeruginosa* exposed to metals or an oxidative stress agent. Ecological Applications 9: 441-448.

- (36) **Harshman, L.G.** and A.A. Hoffman and A.G. Clark. 1999. Selection for starvation resistance in *Drosophila melanogaster*. Journal of Evolutionary Biology 12: 370-379.
- (37) **Harshman, L.G.** 1999. Investigation of the endocrine system in extended longevity lines of *Drosophila melanogaster*. Experimental Gerontology 34: 997-1006.
- (38) Carlson, K.A. and **L.G. Harshman***. 1999. Extended longevity lines of *Drosophila melanogaster*: Characterization of oocyte stages and ovariole numbers as a function of age and diet. Journal of Gerontology. 54: B432-B440.
- (39) **Harshman, L.G.**, K.M. Moore, M.A. Sty and M.M. Magwire. 1999. Stress resistance and longevity in selected lines of *Drosophila melanogaster*. Neurobiology of Aging 20(5): 521-529.
- (40) Hoffmann, A.A. and **L.G. Harshman**. 1999. Desiccation and starvation resistance in *Drosophila*: patterns of variation at the species, population and intrapopulation levels. Heredity 83:637-643.
- (41) **Harshman, L.G.** and A.A. Hoffmann. 2000. Laboratory selection experiments on life history and stress resistance traits in *Drosophila*; what do they really tell us? Trends in Ecology and Evolution 15: 32-36.
- (42) **Harshman, L.G.** and B.A. Haberer. 2000. Oxidative stress resistance: A robust correlated response to selection in extended longevity lines of *Drosophila melanogaster*? Journal of Gerontology A Biol Sci Med Sci. 55: B415-B417.
- (43) **Harshman, L.G.** and A.A. Hoffmann. 2000. Reply from L.G. Harshman and A.A. Hoffmann. Trends in Ecology and Evolution 15: 207.
- (44) Carey, J.R., P. Liedo, H. Müller, J. Wang, B. Love, **L. Harshman** and L. Partridge. 2001. Female sensitivity to diet and irradiation treatments underlies sex-mortality differentials in the Mediterranean Fruit Fly. Journal of Gerontology 56A: B1-B5.
- (45) Wang, Y., A.B. Salmon and **L.G. Harshman***. 2001. A cost of reproduction: oxidative stress susceptibility is associated with increased egg production in *Drosophila melanogaster*. Experimental Gerontology 36: 1349-1359.
- (46) Salmon, A.B., D.B. Marx and **L.G. Harshman***. 2001. A cost of reproduction in *Drosophila melanogaster*: stress susceptibility. Evolution 55: 1600-1608.
- (47) Clancy, D.J., D. Gems, **L.G. Harshman**, H.S. Oldham, E. Hafen, S.J. Leivers and L. Partridge. 2001. Extension of lifespan by CHICO, a *Drosophila* insulin receptor substrate protein. Science 292: 104-106.
- (48) Zera, A.J. and **L.G. Harshman**. 2001 The physiology of life history trade-offs in animals. Annual

Review Ecology, Evolution and Systematics 32: 95-126.

- (49) Zera, A.J., T. Sanger, J. Hanes and **L.G. Harshman**. 2002. Purification and characterization of hemolymph juvenile hormone esterase from the cricket, *Gryllus assimilis*. Archives of Insect Biochem. Physiol. 49: 41-55.
- (50) Carey, J.R., P. Liedo, **L. Harshman**, Y. Zhang, H.G. Muller, L. Partridge and J.L. Wang. 2002. A mortality cost of virginity at older ages in female Mediterranean fruit flies. Exp. Gerontol. 37: 507-512.
- (51) Carey, J.R., P. Liedo, **L. Harshman**, X. Liu, H.-G. Muller, L. Partridge and J.-L. Wang. 2002. Food pulses increase longevity and induce cyclical egg production in Mediterranean fruit flies. Functional Ecology 16: 313-325.
- (52) Carey, J.R., P. Liedo, **L. Harshman**, Y. Zhang, J.-G. Muller, L. Partridge and J.-L. Wang. 2002. Life history response of Mediterranean fruit flies to dietary restriction. Aging Cell 1: 140-148.
- (53) **Harshman, L.G.** 2003. Genetic research on aging and longevity of *Drosophila melanogaster*. Population and Development Review Vol. 29S: 99-126.
- (54) Gibson, G., Riley Berger, R., **Harshman, L.G.**, Kopp, A., Vacha, S., Nuzhdin, S.V. and M. L. Wayne. 2004. Extensive sex-specific non-additivity of gene expression in *Drosophila melanogaster*. Genetics 167: 1791-1799.
- (55) Wang, M.-H., Lazebny, O., **Harshman, L.G.** and S.V. Nuzhdin. 2004. Quantitative trait loci for longevity and starvation resistance in *Drosophila melanogaster*. Aging Cell 3: 133-140.
- (56) Landenberger, A., Kabil, H., **Harshman, L.G.** and J. Zempleni, J. 2004. Biotin deficiency decreases life span and fertility, but increases stress resistance in *Drosophila melanogaster*. Jour. Nutrition. Biochem. 15: 591-600.
- (57) Carey, J.R., P. Liedo, H.-G. Muller, J.-L. Wang, Y. Zhang and **L. Harshman**. 2005. Stochastic dietary restriction, Markov-chain feeding protocol elicits complex, life history response in medflies. Aging Cell 4: 31-39.
- (58) Richard, D.S., R Rybczynski, T.G. Wilson, Y. Wang, M.L. Wayne, Y. Zhou., L. Partridge and **L.G. Harshman***. 2005. Insulin signaling is necessary for vitellogenesis in *Drosophila melanogaster* independent of the roles of juvenile hormone and ecdysteroids: Female sterility of the *chico*¹ insulin signaling mutation is autonomous to the ovary. Journal of Insect Physiology 51: 455-464.
- (59) **Harshman, L.G.**, H.-G. Mueller, X. Liu, Yue Wang, James R. Carey. 2005. The symmetry of longevity. Jour. Gerontol. 60: 1233-1237.

- (60) Carey, J.R., P. Liedo, H.G. Muller, J.-L. Wang, D. Senturk and **L. Harshman**. 2005. Biodemography of a long-lived Tephritid: Reproduction and longevity in a large cohort of female Mexican fruit flies, *Anastrepha ludens*. Experimental Gerontology 40: 793-800.
- (61) Wang, M.H., **L.G. Harshman** and S.V. Nuzhdin. 2005. Quantitative trait loci for lipid content in *Drosophila melanogaster*. Obesity Research 13: 1891-1897.
- (62) Wang, Y., Pott, D. Kachman, S., Nuzhdin, S.V. and **L.G. Harshman***. 2006. Quantitative genetic analysis of oxidative stress resistance and early age egg production. Journal of Heredity 97: 355-366.
- (63) McIntyre, L.M., L. Bono, A. Genissel, R. Westerman, D. Junk, M. Telonis-Scott, **L. Harshman**, M.L. Wayne, A. Kopp, and S.V. Nuzhdin. 2006. Sex-specific expression of alternative transcripts in *Drosophila*. Genome Biology 7:R79
- (64) Wayne, M.L., U. Soundararajan and **L.G. Harshman***. 2006. Correlated responses to selection for female starvation resistance in *Drosophila melanogaster*: ovariole number and age-specific egg production. Biomed Central Evolutionary Biology 6:57
- (65) Kabil, H., Partridge, L. and **L.G. Harshman***. 2006. Superoxide dismutase activity and oxidative stress survival in the long-lived *chico*¹ mutation and in dietary restricted *Drosophila melanogaster*. Biogerontology 8: 201-208.
- (66) **Harshman, L.G.** and A.J. Zera. 2007. The cost of reproduction – the devil in the details. Trends in Ecology and Evolution 22: 80-86.
- (67) Nuzhdin, S.V., **L.G. Harshman**, M. Zhou and K. Harmon. 2007. Genome enabled hitch-hiking mapping identifies alleles for stress resistance in laboratory selected *Drosophila* from a natural population. Heredity 99: 313-321.
- (68) Crone, E.J., A.J. Zera, A. Anand, J.G. Oakeshott, T.D. Sutherland, R.J. Russell, **L.G. Harshman**, F.G. Hoffmann and C. Claudianos. 2007. The in *Gryllus assimilis*: cloning, sequence-activity associations and phylogeny. Insect Biochemistry and Molecular Biology 37: 1359-1365.
- (69) Zera, A.J., **L.G. Harshman**, T. Williams. 2007. Evolutionary endocrinology: The developing synthesis between endocrinology and evolutionary genetics. Annu. Rev. Ecol. Evol. Systematics 38: 793-817.
- (70) Wayne, M.L., M. Telonis-Scott, L. Bono, **L.G. Harshman**, L.M. McIntyre, A. Kopp and S.V. Nuzhdin. 2007. Simpler mode of inheritance of transcriptional variation in male *Drosophila melanogaster*. P.N.A.S. 104: 18577-18582.
- (71) Carey, J.R., **L.G. Harshman**, P. Liedo, H.-G. Muller, J.-L. Wang and Z. Zhang. 2008. Longevity-fertility trade-offs in the tephritid fly, *Anastrepha ludens*. Ageing Cell 7:470-477.

- (72) Prokupeck, A., F. Hoffmann, S. Eyun, E. Moriyama, E. Moriyama, M. Zhou and **L. Harshman***. 2008. An evolutionary expressed sequence tag analysis of *Drosophila spermatheca* genes. *Evolution* 62: 2936-2947.
- (73) Zera, A.J. and **L.G. Harshman**. 2009. Laboratory selection studies of life-history physiology in insects. In "Experimental Evolution" (T. Garland Jr. and M.R. Rose, editors). University of California Press.
- (74) Nuzhdin, S.V., A. Pickering, J.A. Brisson, M.L. Wayne, **L.G. Harshman** and L.M. McIntyre. 2009. Natural genetic variation in transcriptome reflects network structure inferred with major effect mutations: insulin/TOR and associated phenotypes in *Drosophila melanogaster*. *BMC Genomics* 10.
- (75) Shchedrina, V.A., G. Vorbruggen, B.C. Lee, H.Y. Kim, H. Kabil, **L.G. Harshman** and V.N. Gladeshev. 2009. Overexpression of methionine-R-sulfoxide reductases has no influence on fruit fly aging. *Mech. Ageing Dev.* 130:429-443.
- **Lead authorship or an asterisk indicates that the publication was from L. Harshman's laboratory (University of Nebraska-Lincoln)**

SUBMITTED MANUSCRIPTS

Zera, A.J. and **L.G. Harshman**. 2009. Intermediary metabolism and the biochemical-molecular of life history evolution and trade-offs in two insect models. In "Molecular Mechanisms of Life History Evolution", T. Flatt and A. Heyland (eds.), Oxford University Press.

Kabil, H., S.D. Kachman and **L.G. Harshman***. 2009. A *Drosophila melanogaster* quantitative trait locus study of dietary restriction. *Ageing Cell*.

SEMINARS

Research Triangle Park (North Carolina), Symposium Speaker. December, 1988. "Use of *Drosophila melanogaster* for *in situ* biomonitoring".

Oxford University, Institute of Virology, June, 1989. "Molecular biology of juvenile hormone esterase and insect control"

Research Triangle Park, Ciba Geigy Ecdysone Workshop. July, 1992. "Ecdysone antibodies"

- Institute of Sericulture; Hormone Action and Gene Expression Conference, Tsukuba Japan, August 1992, "Recombinant juvenile hormone esterase and baculovirus control of insect pests".
- Takarazuka Research Center (Osaka, Japan). August, 1992. "Recombinant juvenile hormone esterase and baculovirus control of insect pests".
- University of Nebraska, Biotechnology Center Seminar. February, 1993. "Recombinant juvenile hormone esterase and baculovirus control of insect pests"
- Society for the Study of Evolution Meeting, Evolutionary Physiology Symposium Speaker. June, 1993. "Starvation resistance in *Drosophila melanogaster*"
- Insect Molecular Science Meeting (Flagstaff, Arizona), Symposium Speaker. July, 1993. "Genetic approaches to the study of insect physiology"
- Rutgers University, Center for Theoretical and Applied Genetics Seminar. February, 1994. "Sperm competition in *Drosophila melanogaster*"
- Harvard University, Museum of Comparative Zoology Population Biology Seminar. March, 1994. "Sperm competition in *Drosophila melanogaster*"
- University of Arizona at Tucson, Department of Entomology Seminar. February, 1995, "Sperm competition in *D. melanogaster*"
- University of California at Irvine, Department of Ecology and Evolutionary Biology Seminar. April, 1995. "Sperm competition in *Drosophila melanogaster*"
- University of Nebraska Medical Center, Hatti B. Monroe Center For Human Genetics. May, 1995, "Sperm competition in *Drosophila melanogaster*"
- University of Chicago; Department of Ecology and Evolution Seminar, March, 1996. "Sperm competition in *Drosophila melanogaster*"
- University of Illinois at Champaign-Urbana; Department of Entomology Seminar. March, 1996, "Sperm competition in *Drosophila melanogaster*"
- University of Minnesota; Department of Ecology, Evolution and Behavior Seminar. April, 1996. "Sperm competition in *Drosophila melanogaster*"
- International Congress of Entomology; Florence Italy, Symposium Honoring Geoff Parker, August 1996, Sperm competition in *D. melanogaster*.
- Nebraska Behavior Biology Group Meeting VII. October, 1996. "Sperm competition in *Drosophila melanogaster*"

- University of Southern California, Department of Biological Sciences Seminar. January, 1997. "Sperm competition in *Drosophila melanogaster*"
- University of Nebraska at Omaha, Biology Department Seminar. January, 1997. "Sperm competition in *Drosophila melanogaster*."
- Arizona State University West; Department of Life Sciences, March 1997, Sperm competition in *D. melanogaster*.
- Louisiana State University, Department of Entomology Seminar. April, 1997. "Sperm competition in *Drosophila melanogaster*"
- Society for the Study of Evolution Meeting, Symposium Honoring Timothy Prout, June, 1997. "Remating, sperm storage and sperm competition in *Drosophila melanogaster*"
- University of Zurich, Zoological Institute seminar, June, 1997. "Sperm competition in *Drosophila Melanogaster*"
- EcoSur University, El Colegio de la Frontera Sur (Chiapas, Mexico). July, 1997. "Dinamica de la mortalidad en *Drosophila*, Moscamed y Humanos" (presentation by a research group)
- University of Kansas, Department of Entomology Seminar. January, 1999. "Multiple mating and sperm precedence in laboratory and field populations of *Drosophila melanogaster*".
- University of Florida, Department of Zoology Seminar. February, 1999. "The effects of starvation and selection for starvation resistance using *Drosophila melanogaster*".
- Louisiana State University, Department of Biology Seminar. February, 1999. "Remating and sperm competition in *Drosophila melanogaster*"
- University of California at Davis, Population Biology Seminar Series, April, 1999. "Multiple mating and sperm precedence in laboratory and field populations of *D. melanogaster*".
- International Research Colloquium on Social and Biological Determinants of Aging (Rostock, Germany), invited speaker. August, 1999. "Reproduction and fly longevity"
- International Congress of Comparative Physiology and Biochemistry (University of Calgary, Canada), invited symposium speaker. August, 1999. "Physiological and genetic studies of starvation resistance in *Drosophila melanogaster*".
- Life Span Workshop (Santorini, Greece), invited symposium speaker. May, 2001. "Genetic basis of extended longevity in *Drosophila melanogaster*".

- European Evolution Society Meetings (Aarhus, Denmark), invited symposium speaker. August 2001. "Male accessory gland proteins in *Drosophila*".
- Colorado State University, Biology Department. February 15, 2002. "Endocrinology, reproduction and morphology in relationship to the life span of *Drosophila melanogaster*".
- University of Nebraska Medical Center, The Center for Human Molecular Genetics Seminar Series. February 21, 2002. "Stress, hormones and longevity of *Drosophila melanogaster*".
- Stanford University, Biology Department Seminar. May 13, 2002. "Insulin/IGF signaling mutations in *Drosophila melanogaster*: endocrinology, reproduction and life span".
- University of Southern California, Molecular Biology Seminar. May 17, 2002. "Bridging laboratory and field studies; molecular variation in a *Drosophila melanogaster* male accessory gland protein gene".
- Evolution Society Meeting Symposium, Symposium Speaker (Advances in the Study of the Cost of Reproduction). June 2002. "Egg resorption and the cost of reproduction in female *D. melanogaster*".
- University of Chicago, Ecology and Evolution Department Seminar. December 2, 2002. "Insulin-like, insulin-like growth factor (IIS) signaling mutations in *Drosophila melanogaster*: endocrinology, reproduction and life span".
- Academia Sinica . February 10, 2003. "Bridging laboratory and field studies; molecular variation in a *Drosophila melanogaster* male accessory gland protein gene (*Acp36DE*)"
- National Taiwan University. February 12, 2003, "Insulin-like, insulin-like growth factor signaling (IIS) mutations in *Drosophila melanogaster*: endocrinology, reproduction and life span"
- Stanford University, workshop presentation. March 28, 2003. "Life span extension of *Drosophila melanogaster*: genetic and population studies"
- Cornell University, informal seminar. May 2003, "Insulin-like, insulin-like growth factor (IIS) signaling mutations in *Drosophila melanogaster*: endocrinology, reproduction and life span"
- Cornell University, informal seminar. May 2003. "Bridging Laboratory and Field Studies: Molecular variation in a *Drosophila melanogaster* male accessory gland protein gene (*Acp36DE*)"
- Satellite Meeting of the Genetics Congress (Melbourne, Australia). July 6, 2003. "Egg content depletion in response to selection for starvation resistance in *Drosophila melanogaster*"

- Great Barrier Reef Drosophila Meeting (Cairns, Australia), July 11, 2003. “Insulin-like, insulin-like growth factor signaling (IIS) mutations in *Drosophila melanogaster*: endocrinology, reproduction and life span”
- Simon Frasier University, Biology Department Seminar. February 5, 2004. “Endocrinology and reproductive system of a long-lived insulin signaling mutation (*chico*¹) of *Drosophila melanogaster*”
- North Carolina State University, Department of Genetics Seminar. February 16, 2004. “Endocrinology and reproductive system of a long-lived insulin signaling mutation (*chico*¹) of *Drosophila melanogaster*”
- Cold Spring Harbor Laboratory, Molecular Genetics of Aging Meeting. October 8, 2004. “Female sterility involving a failure of vitellogenesis in the *chico*¹ insulin signaling mutation of *D. melanogaster* is autonomous to the ovary and does not involve systemic hormones.
- Annual Drosophila Research Conference, San Diego, April 1, 2005. “Quantitative trait locus analysis of multiple stress survival and life span”.
- Department of Animal Sciences, University of Nebraska-Lincoln. February 2006. “Starvation resistance in *Drosophila melanogaster*: laboratory selection and mapping”.
- Buck Institute for Age Research, February 17, 2006. “Dietary restriction, starvation resistance and oxidative stress resistance in *Drosophila melanogaster*”.
- Annual Drosophila Research Conference, Houston, March 29, 2006. “Dietary conditions that extend the life span of *Drosophila melanogaster*: superoxide dismutase activities and oxidative stress survival”.
- Duke University Program in Genetics and Genomics, Durham NC, May 2, 2006. “A tale of two organs: evolution of *Drosophila* genes expressed in male accessory glands or female spermathecae”.
- Florida State University, Tallahassee, FL, April 2, 2007. “Population genetic and molecular evolution studies of *Drosophila melanogaster* genes associated with sperm storage.
- University of Nebraska, Kearney, Kearney, NE, October 8, 2007. “Building bridges: male and female genes associated with sperm storage in *Drosophila melanogaster* “.
- University of Nevada, Las Vegas, November 9, 2007. “Endocrinology and reproductive system of a long-lived insulin signaling mutation (*chico*¹) of *Drosophila melanogaster*”.

North Carolina State University, May 4, 2008. "Evolutionary genetic studies using *Drosophila melanogaster*: rapidly evolving sperm storage genes and laboratory selection for starvation resistance".

Mayo Clinic, Rochester Minnesota, January 16, 2009. "Endocrinology and reproduction of a long-lived insulin signaling mutation (*chico*¹) of *Drosophila melanogaster*".

Aarhus University, Aarhus Denmark, March 4, 2009. "Making calories count: Studies of acute starvation resistance and dietary restriction using *Drosophila melanogaster*".

University of California at Riverside, Riverside California, February 26, 2009. "What not to eat: Insulin signaling and dietary restriction effects on life history traits, and aspects of the underlying biochemistry and physiology in *Drosophila melanogaster*".

University of California at Riverside, Riverside California, February 27, 2009. "Building bridges: Rapidly evolving female sperm storage organ proteins and male accessory gland proteins in *Drosophila melanogaster*".

University of East Anglia, Norwich England, May 19, 2009. "Gene expression and evolution in *Drosophila* sperm storage organs".

Arizona State University. June 30, 2009. "Reduced Insulin Signaling and Dietary Restriction as Mediators of *Drosophila melanogaster* Life Span and Reproduction".

COURSES TAUGHT

General Genetics (Fall 2008), 4 credits - School of Biological Sciences, UNL

Microarray Course (Spring 2008), 4 credits, primarily taught by Andy Benson, co-taught by L. Harshman and others - Department of Food Sciences, UNL

General Genetics (Fall 2007), 4 credits – School of Biological Sciences, UNL

Sex and Reproduction (Fall 2007), 2 credits (BIOS 998) – School of Biological Sciences, UNL

Microarray Course (Spring 2007), 3 credits (FDS 908B), principally taught by Andy Benson, co-taught by L. Harshman and others – Department of Food Science, UNL

Meet the Speaker (Spring 2007), 1 credit (BIOS 915G) – School of Biological Sciences, UNL

General Genetics (Fall 2006), 4 credits – School of Biological Sciences, UNL

Human Genetics, (Fall 2006), 3 credits – School of Biological Sciences, UNL

General Genetics (Fall 2005) – School of Biological Sciences, UNL

Human Genetics (Fall 2005), 3 credits – School of Biological Sciences, UNL

General Genetics (Fall 2004), 4 credits – School of Biological Sciences, UNL

Genetics of Longevity (2004), 2 credits - School of Biological Sciences, UNL

Human Genetics (Fall 2003), 3 credits - School of Biological Sciences, UNL

General Genetics (Fall 2003), 4 credits – School of Biological Sciences, UNL

Human Genetics (Fall 2002), 3 credits – School of Biological Sciences, UNL

General Genetics (Fall 2002), 4 credits – School of Biological Sciences, UNL

Molecular Biology Laboratory (Summer 2002) – Biotechnology Program, University of California at Davis

Aging and Longevity Studies Using Model Organisms, Spring 2001, 1 credit – School of Biological Sciences, UNL

Human Genetics (Fall 2001), 3 credits – School of Biological Sciences, UNL

General Genetics (Fall 2001), 4 credits – School of Biological Sciences, UNL

Molecular Biology Laboratory (Summer 2001) – Biotechnology Program, University of California at Davis

Genetics Graduate Group Seminar (Genomics and Bioinformatics, Spring 2000), 1 credit – School of Biological Sciences, UNL

Human Genetics (Fall 2000), 3 credits – School of Biological Sciences, UNL

General Genetics (Fall 2000), 4 credits – School of Biological Sciences, UNL

Genetics Graduate Group Seminar (Meiotic Drive, Spring 1999), 1 credit – School of Biological Sciences, UNL

Human Genetics (Fall 1999), 3 credits - School of Biological Sciences, UNL

General Genetics (Fall 1999), 4 credits - School of Biological Sciences, UNL

Lecturer for the Bioinformatics, Functional/Computational Genomics Workshop (Summer 1998) – University of California at Davis

Genetics and Bioinformatics Graduate Group Seminar (Evo-Devo, Spring 1998), 1 credit – School of Biological Sciences, UNL

Human Genetics (Fall 1998), 3 credits - School of Biological Sciences, UNL

General Genetics (Fall 1998), 4 credits - School of Biological Sciences, UNL

Human Genetics (Spring 1997) - School of Biological Sciences, UNL

General Genetics (Fall 1997), 4 credits - School of Biological Sciences, UNL

Human Genetics (Spring 1996), 3 credits - School of Biological Sciences, UNL

General Genetics (Fall 1996), 4 credits - School of Biological Sciences, UNL

General Genetics (Fall 1995), 4 credits - School of Biological Sciences, UNL

Molecular Biology for Community College Instructors (Summer 1995) – U.C. Davis sponsored by NSF

DNA Diagnostics (January 1995) - Biotechnology Program, U.C. Davis

PCR Methods (December 1994) - Biotechnology Program, U.C. Davis

General Genetics (Fall 1994), 4 credits - School of Biological Sciences, UNL

Molecular Biology for Community College Instructors (Summer 1994) – U.C. Davis sponsored by NSF

Non-Radioactive Labeling (Summer 1994) - Biotechnology Program, U.C. Davis

DNA Sequencing (Summer 1994) - Biotechnology Program, U.C. Davis

General Genetics (Spring 1994), 4 credits - Division of Cell and Molecular Biology, U.C. Davis

Molecular Biology Laboratory (Winter 1994) - Division of Cell and Molecular Biology, U.C. Davis

DNA Sequencing (December 1993) - Biotechnology Program, U.C. Davis

PCR Methods (December 1993) - Biotechnology Program, U.C. Davis

Introduction to DNA Manipulation (July 1993) - Biotechnology Program, U.C. Davis

Population Genetics (1984, fall quarter), 4 credits - Department of Genetics, U.C. Davis

TEACHING AWARDS AND RECOGNITION

Certificate of Recognition for Contributions to Students, UNL Teaching Council and the Parents Association, January 2008

Professor Appreciation Night, Pi Beta Phi, 2007

Scholarship Banquet, Alpha Xi Delta, October 2007

Student-Athlete Academic Banquet (invited as a faculty member who had a significant influence on the academic achievement of a student receiving an award), April 2007

Certificate of Recognition for Contributions to Students, UNL Teaching Council and the Parents Association, February 2007

Nominated as an Outstanding Professor at the University of Nebraska, Kappa Alpha Theta, March 2004

Certificate of Recognition for Contributions to Students, UNL Teaching Council and the Parents Association, February 2004

Professor Dinner, Alpha Xi Delta, November 2003

Greek Scholarship Week Faculty Recognition Award, October 2003

T.O. Hass Award for research and teaching, April 2003

Student-Athlete Academic Banquet (invited as a faculty member who had a significant influence on the academic achievement of a student receiving an award), April 2003

Five Time Recipient Award (contributions to students), 2003

Certificate of Recognition for Contributions to Students, 2003

“People Who Inspire” Award (Mortar Board), 2002

Invited Dinner at the Honors Dormitory, 2001

Certificate of Recognition for Contributions to Students, 2001

Invited Dinner at the Honors Dormitory, 2000

University of Nebraska-Lincoln Academic Honors Gallery, 2000

Certificate of Recognition for Contributions to Students, 2000

Award for Excellence in Education at the University of Nebraska (Alpha Tau Chapter of Beta Theta Pi), 2000

Invited Dinner at the Honors Dormitory, 2000 (spring semester)

University of Nebraska-Lincoln College of Arts and Sciences Award for Distinguished Teaching, 1999

Invitation to and Participation in "Celebrating Teaching at UNL and Beginning a Discussion of the Scholarship of Teaching", 1999

"People Who Inspire" Award (Mortar Board), 1998

Professor of the Month at the University of Nebraska-Lincoln, 1997

Certificate of Recognition for Contributions to Students, 1997

Invitation and Participation in "Celebration of UNL Teaching Accomplishments", 1997

UNL Howard Hughes Summer Undergraduate Research Experience Program representative to the National Conference on Undergraduate-Research, 1997

"People Who Inspire" Award (Mortar Board), 1997

Pi Beta Phi Professor Dinner, 1996

Faculty Fellowship in Peer Review, 1996

Nomination for Outstanding Teacher of the Year by the Association of Students at the University of Nebraska, 1995

"People Who Inspire" Award (Mortar Board), 1995

GRADUATE STUDENTS

Kimberly Carlson, 1995 – 1998 (Ph.D., current collaborator on the Nebraska INBRE grant)

Hien Dao, 1995 - 1996 (M.S.)

Erin Scdoris, 1997 – 1999 (M.S.)

Adam Salmon, 1997 – 2000 (M.S.)

Toni Kroll, 2000 – 2001 (M.S.)

Yue Wang, 2000 - 2005 (Ph.D.)

Wanda Layman, 2004 - 2005 (M.S.)

Hadise Kabil, 2001 – 2006 (Ph.D.)

Meihui Wang, 2003 – 2007 (Ph.D.)

Devarti Mukergee, 2005 – 2007 (M.S.)

Adrienne Prokupeck, 2002 – 2007 (Ph.D.)

Tiffany Schwashinger, 2006 – present, Ph.D. candidate

Junjie Ma , 2008, Ph.D. student

Zhen Hu, 2009, Ph.D. student

Michael Wollar, 2009, Ph.D. student

SERVICE (2001 – present)

School of Biological Sciences Committees

2000-01

Curriculum Committee

Peer Review of Teaching

2001-02

Curriculum Committee

Graduate Committee – Genetics and Bioinformatics GREG Rep
Peer Review of Teaching
Search committee for a bioinformatics position

2002-03

Executive Committee
Graduate Committee – Genetics and Bioinformatics GREG Rep
Special Funds

2003-04

Executive Committee
Graduate Committee – Genetics and Bioinformatics GREG Rep
Biotechnology Advisory Committee

2004-05

Executive Committee
Graduate Committee – Genetics and Bioinformatics GREG Rep
Special Funds f04-s05
Biotechnology Advisory Committee

2005-06

Executive Committee
Graduate Committee – Genetics and Bioinformatics GREG Rep
Search Committee for a molecular ecology - evolutionary biology position
Strategic Planning Committee

2006-07

Graduate Committee – Genetics and Bioinformatics GREG Rep
Peer Review of Teaching
Member of the A&S Undergraduate Awards Committee
Search Committee for a population biology position
Search committee for a statistical genetics - genomics position

2007-08

Graduate Committee – Genetics and Bioinformatics GREG Rep
Peer Review of Teaching
Search Committee for a complex phenotype position

Strategic Planning Committee

Other School of Biological Science Service

Advocate for 5 Promotion and Tenure Cases (Associate Professor: H. Cerutti, G. Orti, A. Atkins; Full Professor: T. Zera, P. Blum)

Regular host for seminar speakers

College of Arts and Sciences Committees

2006, 2007

Committee on Academic Distinction and Awards for Students

2007

College Pre-Health Advisory Committee

Other University Service

Reviewer of EPSCoR grant applications

Faculty Advisor for a UNL Undergraduate Student Organization (“Humanities in Medicine”)

Extramural Academic Service

Associate Editor for Genetics (2003-2005, 2006-present)

Reviewer of grant applications for NSF, NIH, BARD, Wellcome Trust

Reviewer of manuscripts for approximately 20 journals

Full professor and tenure case external letter writer