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**BIOGRAPHICAL SKETCH**

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**NAME:** Ernest Bailey**POSITION TITLE:** Professor

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**EDUCATION/TRAINING**

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INSTITUTION AND LOCATION	DEGREE	COMPLETION	FIELD OF STUDY
University of California, Davis	BS	12/1973	Genetics
University of California, Davis	MS	12/1975	Comparative Pathology
University of California, Davis	PhD	6/1980	Genetics

**A. Personal Statement**

Genetic variation between horses can be used two ways: 1) understand the biology of horses, and 2) identify hereditary traits that improve the quality and health of our horses. Work in my laboratory has contributed to development of tools for investigating genetic variation, discovery of genetic variation associated with resistance or susceptibility to infectious diseases, discovery of genes and novel variants affecting hair color or diseases and investigation of genes influencing performance.

**B. Positions and Honors**

11/1979- Present: Faculty member, Department of Veterinary Science, University of Kentucky. (Assistant professor 1879-1884; Associate Professor 1984-1990; Professor 1990-present)

**Honors**

10/2014: Elected to Equine Research Hall of Fame; MH Gluck Equine Research Foundation at University of Kentucky

**Current Editorial Service**

2012-2017 Editorial Consultant Board, *Equine Veterinary Journal*

2005- present Editorial Board: *BMC Genetics*

2004-present Associate Editor, *Journal of Heredity*

**Professional Service**

USDA-NRSP8 Horse Genome Coordinator (1995- present)

International Society for Animal Genetics, president (2010-2016)

**C. Contribution to Science**Genetic and Genomic Tools

Lear TL, Coogle LD, Bailey E (1998) Assignment of the horse mitochondrial glutamate oxaloacetate transaminase 2 (GOT2) and v-Kit Hardy Zuckerman 4 feline sarcoma viral oncogene homolog (KIT) to horse chromosome 3 by in situ hybridization. *Cytogenetics and Cell Genetics* 82: 112-113.

Penedo M.C.T., L.V. Millon, D. Bernoco, E. Bailey, M. Binns, G. Cholewinski, N. Ellis, J. Flynn, B. Gralak, A. Guthrie, G. Lindgren, L.A. Lyons, T. Tozaki, K. Røed & J. Swinburne (2005) International Equine Gene Mapping Workshop Report: A comprehensive linkage map constructed with data from new markers and by merging four mapping resources. *Cytogenetics and Genome Research* 111:5-15.

Wade CM, Giulotto E, Sigurdsson S, Zoli M, Gnerre S, Imsland F, Lear TL, Adelson DL, Bailey E, et al., (2009) Genome sequence, comparative analysis and population genetics of the domestic horse (*Equus caballus*). *Science* 326: 865-867

McCue, ME, Bannasch DL, Petersen JL, Bailey E, et al.;, (2012) A high density SNP array for the domestic horse and extant perissodactyla: utility for association mapping, genetic diversity and phylogeny studies. *PLoS Genetics*: 8: e1002451

Petersen JL, Mickelson JR, Rendahl AK, Valberg SJ, Andersson LS, Axelsson J, Bailey E, Bannasch D, Binns MM, Borges AS, Brama P, Machado AC, Capomaccio S, Cappelli K, Cothran EG, Distl O, , Fox-Clipsham L, Graves KT, Guérin G, Haase B, Hasegawa T, Hemmann K, Hill EW, Leeb T, Lindgren G, Lohi H, Lopes MS, McGivney BA, Mikko S, Orr N, Penedo MCT, Piercy RJ, Raekallio M, Rieder S, Røed KH, Swinburne J, Tozaki T, Vaudin M, Wade CM , McCue. (2013) Genome-wide analysis reveals selection for important traits in domestic horse breeds. *PLOS Genetics* 9: e1003211

#### Discovery and investigation of novel genetic variants

Terry, RB, S Archer, S.Brooks, D Bernoco & E Bailey (2004) Assignment of the appaloosa coat colour gene (LP) to equine chromosome 1. *Animal Genetics* 35: 134-137

Brooks SA & Bailey E (2005) Exon skipping in the *KIT* gene causes the Sabino spotting pattern in horses. *Mammalian Genome*, 16: 893-902.

Brooks SA, Lear TL, Adelson DA, Bailey E (2008) A chromosome inversion near the *KIT* gene and the tobiano spotting pattern in horses. *Cytogenetics and Genome Research* 119: 225-230.

Eberth J, T. Swerczak, E. Bailey (2009) Investigation of Dwarfism Among Miniature Horses using the Illumina Horse SNP50 Bead Chip. *Journal of Equine Veterinary Science* 29: 315.

Cook, D, Brooks SA, Bellone R, Bailey E (2008) Missense Mutation in Exon 2 of *SLC36A1* Responsible for Champagne Dilution in Horses. *PLOS Genetics* 4(9): e1000195. doi:10.1371/journal.pgen.1000195

Regatieri IC, Eberth JE, Sarver F, Lear TL, Bailey E. (2016) Comparison of *DMRT3* genotypes among American Saddlebred horses with reference to gait. *Anim Genet.*. doi: 10.1111/age.12458

#### Genetics of Susceptibility/Resistance to Equine Arteritis Virus

Go , Y.Y., Bailey E., Cook D., Coleman S., MacLeod J., Chen K-C, Timoney P., and Balasuriya U.B. (2011) Genome-Wide Association Study Among Four Horse Breeds Identifies a Common Haplotype Associated with the In Vitro CD3+ T Cell Susceptibility/Resistance to Equine Arteritis Virus Infection. *J. Virol.* 85:13174-13184

Sarkar, S., Chelvarajan, L., Go, Y.Y., Cook, F., Artuishin, A., Mondal, A., Anderson, K., Eberth, J., Timoney, P.J., Kalbfleisch, T., Bailey, E., Balasuriya, U.B.R. (2016) Equine Arteritis Virus uses Equine CXCL16 (EqCXCL16) as an entry receptor. *Journal of Virology* 90:3366-84

Sarkar, S., Bailey, E., Go, Y.Y., Cook, F., Eberth, J., Kalbfleisch, T., Chelvarajan, L., Shuck, K.M., Artuishin, S., M., Peter J. Timoney, P.J., Balasuriya, U.B.R. (2016) Allelic Variation in *CXCL16* Gene Determines CD3+ T-Cell Susceptibility to Equine Arteritis Virus Infection and is Strongly Associated with Establishment of Long-Term Carrier State in the Stallion Reproductive Tract. *PLOS Genetics* 12: e1006467

#### Major Histocompatibility Complex of the Horse

Bailey, E, C Stormont, Y Suzuki, A Trommershausen-Smith (1979) Linkage of loci controlling alloantigens of red blood cells and lymphocytes in the horse. *Science* 204:1317-1319.

Bailey, E, DF Antczak, D Bernoco, RW Bull, G Byrns, R Fister, G Guerin, S Lazary, J McClure, V Mottironi, J Templeton, H Varewyck (1983) Joint Report of the Second International Workshop on Lymphocyte Alloantigens of the Horse, held 3-8 October 1982. *Animal Blood Groups and Biochemical Genetics* 15:123-132.

Bailey, E (1986) Segregation distortion within the equine MHC; analogy to a murine T/t complex trait. *Immunogenetics* 24:225-229.

Alexander, AJ, E Bailey, JG Woodward (1987) Analysis of the equine lymphocyte antigen system by Southern blot hybridization. *Immunogenetics* 25:47-54.

Tseng CT, D. Miller D, Cassano J, Bailey E and Antczak DF (2010) Molecular Identification of Equine Major Histocompatibility Complex Haplotypes using Polymorphic Microsatellites. *Animal Genetics* 41 (supl 2): 150-153.

#### Neonatal Isoerthyrolysis

Bailey, E, HS Conboy, P McCarthy (1988) Neonatal isoerythrolysis of foals: an update on testing. In: (FJ Milne, editor) *Proceedings of the Twenty-third Annual convention of the American Association of Equine Practitioners* p.341-353.

Bailey, E, D Albright, PJ Henney (1988) Equine neonatal isoerythrolysis; evidence for prevention by maternal anti-Ca antibodies. *American Journal of Veterinary Research* 49:1218-1222.

Bailey, E (1982) The prevalence of anti-red blood cell antibodies in the serum and colostrum of mares and its relationship to neonatal isoerythrolysis. *American Journal of Veterinary Research* 43:1917-1921.

#### Book and Reviews on Horse Genetics

Bailey, E & S A Brooks (2013) *Horse Genetics*, 2<sup>nd</sup> Edition. CABI publisher, Oxford, UK.

Bailey, E (2015) Genetics after Twilight. *Journal of Equine Veterinary Science* 35: 361-366.

Bailey, E. (2014) Five things equine veterinarians should know about genomics. *Equine Veterinary Journal* 46: 404-407.

Bailey, E (2014) Heritability and the Equine Clinician. *Equine Veterinary Journal* 46:12-14.

Lear T, Bailey E (2008) Equine Clinical Cytogenetics: Past and Future. *Cytogenetics and Genome Research* 120:42-49.

My Bibliography:

<https://www.ncbi.nlm.nih.gov/sites/myncbi/ernest.bailey.1/bibliography/49519958/public/?sort=date&direction=ascending>

#### **D. Current research Support**

2013-2018; 2008-2013; 2003-2008; 1998-2003: National Animal Genome Project; USDA-NRSP-8 Horse Coordinator (PI) \$1,15M (Currently, \$65K per year).

2013-2017; Identification of Genetic Factors Responsible for Establishment of Equine Arteritis Virus Carrier State in Stallions; USDA-AFRI; \$2.93M; Balasuriya (PI), Bailey (Co-PI) and others.