CURRICULUM VITAE

David A. O'Brochta, Ph.D.

The Foundation for the National Institutes of Health
9650 Rockville Pike
Bethesda, MD 20814
dobrochta@fnih.org
301-451-2762

Education:

Institution	Field	Degree	Year
University of Kansas	Biology	B.Sc.	1977
University of California, Irvine	Dev. & Cell Biology	Ph.D.	1984

Positions:

Technical Lead for Gene Drive Research & Scientific Program Manager, 2017 –present
The Foundation for the National Institutes of Health, Bethesda, Maryland

Professor Emeritus, 2017 – present
Department of Entomology University of Maryland, College Park

Professor, 2009 - 2017
Department of Entomology & The Institute for Biological and Biotechnology Research, University of Maryland, College Park
Research: 100% Instruction: 0% Extension: 0%
Head, 2009 – 2017, The Institute for Biological and Biotechnology Research's Insect Transformation Facility
Editor-in-Chief, 2006 – 2017, *Insect Molecular Biology*, Blackwell Publishing.

Professor, 2004 -2009
Center for Biosystems Research (formerly the Center for Agricultural Biotechnology), University of Maryland Biotechnology Institute.
University of Maryland, College Park, Graduate Faculty
Member, Molecular and Cell Biology Graduate Program, College of Life Sciences, University of Maryland, College Park
Research: 100% Instruction: 0% Extension: 0%
Head, 2006 - 2009, UMBI Insect Transformation Facility, Shady Grove.

Associate Professor, 1995 - 2004,
Associate Editor, 1992-2006, *Insect Molecular Biology*, Blackwell Publishing
Assistant Professor, 1989 - 1995
Center for Agricultural Biotechnology, University of Maryland Biotechnology Institute.
1992-1995 100% appointment; 1989-1992 51% appointment.
Department of Entomology, University of Maryland, College Park,
1989 – 1992 49% appointment.
University of Maryland, College Park, Graduate Faculty
Member, Molecular and Cell Biology Graduate Program, College of Life Sciences, University of Maryland, College Park

Research: 100% Instruction: 0% Extension: 0%

Postdoctoral Fellow (GS-11), 1986-1989,
USDA-ARS, Insect Attractants Behavior and Basic Biology Laboratory, Gainesville, FL.
Laboratory of: Dr. Alfred M. Handler.
Research: 100% Instruction: 0% Extension: 0%

Postdoctoral Fellow, 1985-1986,
Department of Biology, University of California, San Diego.
Laboratory of: Dr. Donald R. Helinski.
Research: 100% Instruction: 0% Extension: 0%

Research and Teaching Assistant, 1979-1984,
Developmental and Cell Biology Department, University of California, Irvine.
Laboratory of: Dr. Peter J. Bryant.

Professional Memberships:

Genetics Society of America, member
Entomological Society of America, member
American Society of Tropical Medicine and Hygiene, member

Publications (selected)

O'Brochta, D.A., Alford, R., Harrell, R., Aluvihare, C., Eappen, A.G., Li, T., Chakravarty, S., Sim, B.K.L., Hoffman, S.L., and Billingsley, P.F. (2019). Is Saglin a mosquito salivary gland receptor for Plasmodium falciparum? Malaria Journal *18*.

O'Brochta, D.A., Tonui, W.K., Dass, B., and James, S. (2019). A Cross-Sectional Survey of Biosafety Professionals Regarding Genetically Modified Insects. Applied Biosafety, 1535676019888047.

Reid, W., Pilitt, K., Alford, R., Cervantes-Medina, A., Yu, H., Aluvihare, C., Harrell, R., and **O'Brochta, D.A.** (2018). An Anopheles stephensi Promoter-Trap: Augmenting Genome Annotation and Functional Genomics. G3-Genes Genomes Genetics *8*, 3119-3130.

Scott, M.J., Gould, F., Lorenzen, M., Grubbs, N., Edwards, O., and **O'Brochta, D**. (2018). Agricultural production: assessment of the potential use of Cas9-mediated gene drive systems for agricultural pest control. Journal of Responsible Innovation *5*, S98-S120.

Häcker I, Harrell RA, Eichner G, Pilitt KL, **O'Brochta** DA, Handler AM, Schetelig MF. 2017 Cre/lox-Recombinase-Mediated Cassette Exchange for Reversible Site-Specific Genomic Targeting of the Disease Vector, Aedes aegypti. Sci Rep. 2017 Mar 7;7:43883. doi: 10.1038/srep43883

Riabinina O, Task D, Marr E, Lin CC, Alford R, **O'Brochta** DA, Potter CJ. 2016. Organization of olfactory centres in the malaria mosquito Anopheles gambiae. Nat Commun. 7:13010. doi: 10.1038/ncomms13010.

Criscione, F., O'Brochta, D. A., Reid, W., 2015 Genetic technologies for disease vectors. *Current Opinion in Insect Science* **10:** 90-97doi: 10.1016/j.cois.2015.04.012.

Reid, W., O'Brochta, D. A., 2016 Applications of genome editing in insects. *Current Opinion in Insect Science* **13:** 43-54doi: 10.1016/j.cois.2015.11.001.

Xu, H. F., O'Brochta, D. A., 2015 Advanced technologies for genetically manipulating the silkworm Bombyx mori, a model Lepidopteran insect. *Proceedings of the Royal Society B-Biological Sciences* **282:** doi: 10.1098/rspb.2015.0487.

O'Brochta DA, George K, Xu H (2014a) Transposon-based Technologies for Insects. In *Transgenic Insects: Techniques and Applications*, Benedict MQ (ed). Wallingford: CABI

O'Brochta DA, George K, Xu H (2014b) Transposons for Insect Transformation. In *Transgenic Insects: Techniques and Applications*, Benedict MQ (ed). Wallingford, UK: CABI

Palavasam A, Esnault C, **O'Brochta DA** (2013) Post-integration silencing of piggyBac transposable elements in Aedes aegypti. PLoS ONE 8(7): e68454

O'Brochta DA, Pilitt KL, Harrell II RA, Aluvihare C, Alford RT (2012) Gal4-based enhancer-trapping in the malaria mosquito Anopheles stephensi. G3: Genes, Genomes,Genetics 2: 1305-1315.

O'Brochta DA, Alford RT, Pilitt KL, Aluvihare CU, Harrell RA (2011) piggyBac transposon remobilization and enhancer detection in Anopheles mosquitoes. Proceedings of the National Academy of Sciences of the United States of America 108: 16339-16344.

O'Brochta, D.A., Stosic, C.D., Pilitt, K., Subramanian, R.A., Hice, R.H. and Atkinson, P.W. (2009). Transpositionally active episomal *hAT* elements. BMC Mol. Biol. 10.

Sethuraman, N., Fraser Jr, M.J, Eggleston, P., and **D.A. O'Brochta**. 2007. Post-integration stability of piggyBac in Aedes aegypti. Insect Biochem Mol Biol. 37:941-951.

O'Brochta, D. A., Subramanian, R. A., Orsetti, J., Peckham, E., Nolan, N., Arensburger, P., Atkinson, P. W. and J. D. Charlwood. (2006). hAT element population genetics in Anopheles gambiae s.l. in Mozambique. Genetica. 27:185-98.

Arensburger P, Kim YJ, Orsetti J, Aluvihare C, **O'Brochta DA**, Atkinson PW. 2005 An Active Transposable Element, *Herves*, From the African Malaria Mosquito Anopheles gambiae. Genetics. 169(2):697-708.

Rowan, K., Orsetti, Atkinson, P.W., and **D. A. O'Brochta**. (2004). *Tn5* as an insect gene vector. Insect Bioch. Molec. Biol. 34:695-705.

Irvin, N., M. S. Hoddle, D. A. O'Brochta, B. Carey and P. W. Atkinson. (2004). Assessing fitness costs for transgenic Aedes aegypti expressing the green fluorescent protein marker and transposase genes. Proc. Natl. Acad. Sci. 1001:891-896.

Kim, W., H. Koo, A. M. Richman, D. Seeley, J. Vizioli, A. D. Klocko and **D. A. O'Brochta**. (2004). Ectopic expression of a cecropin transgene in the human malaria vector mosquito *Anopheles gambiae* (Diptera: Culicidae): Effects on susceptibility to *Plasmodium*. J. Med. Ent. 41:447-455

O'Brochta, D. A., N. Sethuraman, R. Wilson, R. H. Hice, A. C. Pinkerton, C. S. Levesque, D. K. Bideshi, N. Jasinskiene, C. J. Coates, A. A. James, M. J. Lehane and P. W. Atkinson. (2003). Gene vector and transposable element behavior in mosquitoes. J. Exp. Biol. 206:3823-3834.

Wilson, R., Orsetti, J., Klocko, A. D., Aluvihare, C., Peckham, E., Atkinson, P. W., Lehane, M. J. and **D. A. O'Brochta**. (2003). Post-integration behavior of a *mariner* gene vector in *Aedes aegypti*. Insect Biochem. Molec. Biol 33:853-63.

Holt R. A., et al. (2002). The genome sequence of the malaria mosquito *Anopheles gambiae*. Science. 298:129-49.

Allen, M. L., **D. A. O'Brochta**, P. W. Atkinson and C. S. Levesque, (2001). Stable, germ-line transformation of *Culex quinquefasciatus* (Diptera: Culicidae). J. Med. Entomol. 38:701-710.

Sundararajan, P., P. W. Atkinson and **D. A. O'Brochta**, (1999). Transposable element interactions in insects: Crossmobilization of *Hermes* and *hobo*. Insect Molec. Biol. 8:359-368.

Sarkar, A., K. Yardley, P. W. Atkinson, A. A. James and **D. A. O'Brochta**, (1997). Transposition of the *Hermes* element in embryos of the vector mosquito, *Aedes aegypti*. Insect Biochem. Molec. Biol. 27: 359-363.

O'Brochta, **D. A.**, W. D. Warren, K. J. Saville and P. W. Atkinson, (1996). *Hermes*, a functional non-drosophilid insect gene vector from *Musca domestica*. Genetics. 142: 907-914.

Warren, W. D., P. W. Atkinson and **D. A. O'Brochta**, (1994). The *Hermes* transposable element from the housefly, *Musca domestica*, is a short inverted repeat-type element of the *hobo, Ac*, and *Tam3* (*hAT*) element family. Genetical Res. Camb. 64: 87-97.

Atkinson, P. W., W. D. Warren and **D. A. O'Brochta**, (1993). The *hobo* transposable element of *Drosophila* can be cross-mobilized in houseflies and excises like the *Ac* element of maize. Proc. Natl. Acad. Sci. USA 90: 9693-9697.

Handler, A.M. and **O'Brochta**, D.A. (1991). Prospects for gene transformation in insects. Ann. Rev. Entomol. 36:159-183.

O'Brochta, D.A. and Handler, A.M. (1988). Mobility of P-elements in drosophilids and non-drosophilids. Proc. Natl. Acad. Sci. USA 85:6052-6056.

Complete List of Published Work in MyBibliography in PubMed:
http://www.ncbi.nlm.nih.gov/pubmed?term=O%27Brochta[Author]

Consultant/Expert:

NIH grant review panel member and d hoc Reviewer
USDA Biotechnology Risk Assessment Program
NSF ad hoc grant reviewer
FAO/IAEA

Patents

Gene transformation system for insects. Inventors: **D. A. O'Brochta**, W. D. Warren, and P. W. Atkinson. Patent number 5614398.

Courses Taught

Eukaryote Molecular Genetics (graduate)
Insects in the 21st Century (graduate)

Principles of Genetics (undergraduate)
Biothics (graduate)

Training

Visiting Scientists:	Total of 14
Postdoctoral Fellows:	Total of 15
Graduate Students:	Total of 9
Thesis Committees:	Total of 22
Undergraduate Research Mentored:	Total of 45
High school Student Mentored:	Total of 11