CURRICULUM VITAE

Jeffrey R. Bloomquist

Education

Ph. D., Entomology, University of California, Riverside, 1984
M. S., Entomology, Mississippi State University, 1981
B. S., Entomology, Purdue University, 1978

Experience

2009-Present: Professor of Vector Management, Emerging Pathogens Institute, Department of Entomology and Nematology, University of Florida
2003-2009: Professor of Toxicology and Pharmacology, Department of Entomology and Adjunct Professor of Chemistry, Department of Chemistry, Virginia Tech
2001-2003: Associate Professor of Toxicology and Pharmacology, Department of Entomology and Adjunct Associate Professor of Chemistry, Department of Chemistry, Virginia Tech
1995-2001: Associate Professor of Insect Physiology, Department of Entomology, Virginia Tech
1989-1995: Assistant Professor of Insect Physiology, Department of Entomology, Virginia Tech
1988-1989: Research Scientist, Rhone-Poulenc Ag Company, Research Triangle Park, NC
1987-1988: Research Associate III, Department of Entomology, NYSAES, Cornell University
1984-1987: Postdoctoral Associate, Department of Entomology, NYSAES, Cornell University

Fields of Research Specialization

Mode of action and neurotoxicity of synthetic insecticides, natural toxins, and drugs
Mechanisms of resistance to insecticides and nematicides
Expression and function of membrane transporters for neurotransmitters

Honors

John V. Osmun Alumni Professional Achievement Award in Entomology, Purdue University (2009)
Virginia Tech, Fralin Institute Senior Faculty Fellow (2009)
Virginia Tech, CALS Award for Research Excellence in Basic Research (2006)
Gamma Sigma Delta, Honor Society of Agriculture Research Award of Merit, Virginia Tech (2000)
Justin Morrill Award from the W. B. Alwood Entomological Society (Virginia Tech Department of Entomology graduate students), as recognition for teaching efforts (1997)
Postdoctoral Fellowship in Biotechnology, Cornell Biotechnology Program (1987)
Chancellor's Patent Fund Award, University of California, Riverside (1983)

Professional Affiliations

American Chemical Society, Division of Agrochemicals (1980-Present)
CALS Faculty Association (1989-Present)

Molecular Cell Biology and Biotechnology Program, Virginia Tech (1990-Present)
Society for Neuroscience/International Brain Research Organization (1984-Present)
Society of Toxicology (1994-Present)
University Center for Gerontology, Virginia Tech (1998-present)
External Scientific Advisory Committee, Innovative Vector Control Consortium, Liverpool School of Tropical Medicine, Liverpool, U.K. (2007-present)

Editorial Boards

Invertebrate Neuroscience (2001-present)
Pesticide Biochemistry and Physiology (2007-present)
Associate Editor of *Pest Management Science* (2007-present)

Consulting

DuPont CropScience (2007, 2009)
Makhteshim-Agan of North America Inc. (2008)
Battelle Memorial Institute/U.S. government (2006)
BASF Agricultural Products, Research Triangle Park, North Carolina (2003-2005)
Stuart Calwell, Attorney at Law, PLLC, Charleston, West Virginia (2000-2003)
FMC Corporation, Princeton, New Jersey (1992-2003)
DowElanco, Greenfield, Indiana (1990-1991)
Eli Lilly Research Laboratories, Greenfield, Indiana (1989)
Rhone-Poulenc Ag Co., Research Triangle Park, North Carolina (1989)

Laboratory Research Personnel (1989-present)

Undergraduates (Undergraduate Research ENT 4994, work-study, summer interns): 24
Completed Graduate Students: 6 (2 M.S., 4 Ph.D.)
Current Graduate Students: 4 (2 Ph.D. and 2 M.S.)
Postdoctoral Research Scientists: 8 total, 1 current

Visiting Scientists

Dr. Josef Braun, BASF Corp. Research Triangle Park, North Carolina (2003)
Dr. Krishnappa Vankatesh, BASF Corp. Research Triangle Park, North Carolina (2002)
Dr. Rathnam Chagaturu, FMC, Princeton, New Jersey (1998, 1999)
Mr. Lyle Kinne, FMC, Princeton, New Jersey (1998, 1999)
Dr. Jim Ottea, Dept. of Entomology, Louisiana State University, Baton Rouge , Louisiana (1992)

Patents

"Insecticidal Carbamates Exhibiting Species-Selective Inhibition of Acetylcholinesterase (AChE)." P. Carlier, J. Bloomquist, E. Wong, and S. Paulson, submitted 9/12/08 (VTIP #142). The pending application was published on 3/12/09.

"Pesticidal Compositions and Methods of Use." Sole Inventor, full world-wide patent (International Application # PCT/US2006/041968) was applied for 10/27/06 (VTIP # 04.111). The pending patent application was published on 3/5/07 (Pub. # WO/2007/050867).

"Induced Expression of Neuronal Phenotype in Continuously Cultured Insect Cells." Co-Inventor, with Dr. S. Paulson, disclosed in the Spring of 2001, full patent applied for 4/05/05 (VTIP # 01.037) and published 10/6/2005.

RESEARCH AND SCHOLARLY PUBLICATIONS

Summary:

Publication	Total
Book Chapters	8
Books Edited	2
Papers in Refereed Journals	52
Refereed Conference Proceedings	16
Reviews	9
Published Patents	3
Numbered Extension Publications	1
Total Publications	91

Book chapters (*student co-author, #postdoc co-author)

J. R. BLOOMQUIST (2002) Agents Affecting Chloride Channels. In: *Pesticides* section of the "Handbook of Neurotoxicology" Vol. 1 (E. Massaro, Exec. Ed.) pp. 65-77, Humana Press, Totowa, New Jersey.

D. Blodgett, M. Ehrich, and J. BLOOMQUIST (2002) Miscellaneous Pesticides with Action on the Nervous System. In: *Pesticides* section of the "Handbook of Neurotoxicology" Vol. 1 (E. Massaro, Exec. Ed.) pp. 91-103, Humana Press, Totowa, New Jersey.

J. R. BLOOMQUIST (2001) GABA and Glutamate Receptors as Biochemical Sites for Insecticide Action and Resistance. In: "Biochemical Sites Important in Insecticide Action and Resistance," (I. Ishaaya, Ed.) Springer, Berlin, Germany, pp. 17-41. (peer reviewed).

J. R. BLOOMQUIST and W. H Robinson (1999) Prevalence and Magnitude of Resistance to Cyclodiene and Phenylpyrazole Insecticides in *Blattella germanica* and *Drosophila melanogaster.* In: "Proceedings of the 3rd International Conference on Insect Pests in the Urban Environment," (Wm. Robinson, F. Rettich, and G. Rambo, Eds.) Graficke zavody Hronov, Czech Republic, pp. 27-34.

J. R. BLOOMQUIST, *M. L. Kirby, K. Castagnoli, and G. W. Miller (1999) Effects of Heptachlor Exposure on Neurochemical Biomarkers of Parkinsonism. In: "Progress in Neuropharmacology and Neurotoxicology of Pesticides and Drugs," (D. J. Beadle, Ed.), Society of Chemical Industry/Royal Society of Chemistry, Cambridge, United Kingdom, pp. 195-203.

J. R. BLOOMQUIST (1996). Insecticides: Chemistries and Characteristics. 17 pp. In: E. B. Radcliffe and W. D. Hutchison [eds.], Radcliffe's IPM World Textbook, Main URL: http://ipmworld.umn.edu, University of Minnesota, St. Paul, MN.

J. R. BLOOMQUIST (1991) The Role of the $GABA_A$ Receptor in Insecticide-Induced Mammalian Neurotoxicity. In: "Pesticides and the Future: Toxicological Studies of Risks and

Benefits" (E. Hodgson, M. Roe, and N. Motoyama, Eds.), *Rev. Pestic. Tox.* 1, 107-117, North Carolina State University Press, Raleigh, North Carolina.

J. R. BLOOMQUIST (1988) Neurophysiological Assays for the Characterisation and Monitoring of Pyrethroid Resistance. In: "Neurotox '88: Molecular Basis of Drug & Pesticide Action" (G.G. Lunt, Ed.), Elsevier, Amsterdam, pp. 543-551.

Books edited (*student co-author, #postdoc co-author)

J. M. Clark, J. R. BLOOMQUIST, and H. Kawada. (2009) *ACS Symp. Ser* 1014, Advances in Human Vector Control. American Chemical Society, Washington, D.C. (in press)

M. Ehrich and J. R. BLOOMQUIST (2002) Co-editors of the *Pesticides* section (7 chapters) of the "Handbook of Neurotoxicology" Vol. 1 (E. Massaro, Exec. Ed.), pp. 3-103, Humana Press, Totowa, New Jersey.

Papers in refereed journals (*student co-author, #postdoc co-author)

*D. R. Boina and J. R. BLOOMQUIST (2009) Toxicity and Disruption of Midgut Physiology in Larvae of the European Corn Borer, *Ostrinia nubilalis*, by Anion Transporter Blockers. *Arch. Insect Biochem. Physiol.* 70, 151-161.

*D. R. Boina, E. E. Lewis, and J. R. BLOOMQUIST (2008) Nematicidal activity of anion transport blockers against *Meloidogyne incognita*, *Ceanorhabditis elegans*, and *Heterorhabditis bacteriophora. Pest. Manag. Sci.* 64, 646-653.

J. R. BLOOMQUIST, *D. R. Boina, *E. Chow, P. R. Carlier, M. Reina, and A. Gonzalez-Coloma (2008) Mode of action of the plant-derived silphinenes on insect and mammalian $GABA_A$ receptor/chloride channel complex. *Pestic. Biochem. Physiol*. 91, 17-23.

*W. J. Geldenhuys, S. F. Malan, J. R. BLOOMQUIST, and C. J. Van Der Schyf (2007) Structure-Activity Relationships of Pentacycloundecylamines at the *N*-Methyl-D-Aspartic Acid Receptor. *Bioorg. Med. Chem.* 15(3), 1525-1532.

*R. J. Cordero, J. R. BLOOMQUIST, and T. P. Kuhar (2007) Susceptibility of Two Diamondback Moth Parasitoids, Diadegma insulare (Cresson) (Hymenoptera; Ichneumonidae) and Oomyzus sokolowskii (Kurdjumov) (Hymenoptera; Eulophidae), to Selected Commercial Insecticides. *Biol. Control* 42, 48–54.

*J. Kou and J. R. BLOOMQUIST (2007) Neurotoxicity in Murine Striatal Dopaminergic Pathways Following Long-Term Application of Low Doses of Permethrin and MPTP. *Toxicol. Lett.* 171, 154-161.

*J. Kou, #J. G. Gillette, and J. R. BLOOMQUIST (2006) Neurotoxicity in Striatal Dopaminergic Pathways Following Co-application of Permethrin, Chlorpyrifos, and MPTP. *Pestic. Biochem. Physiol*. 85, 68-75.

*R. J. Cordero, T. P. Kuhar, J. Speese, III, R. R. Youngman, E. E. Lewis, J. R. BLOOMQUIST, L. T. Kok, and A. D. Bratsch (2006) Field Efficacy of Insecticides for Control of Lepidopteran Pests on Collards in Virginia. *Plant Health Prog*. An on-line journal: http://www.plantmanagementnetwork.org/sub/php/research/2006/collard/

*L. Van, #Y. X. Pan, J. R. BLOOMQUIST, K. E. Webb Jr., and E. A. Wong (2005) Developmental Regulation of a Turkey Intestinal Peptide Transporter (PepT1). *Poultry Sci.* 84, 75–82.

*D. White, J. BLOOMQUIST, T. Greenwood, *A. Downey, and J. Wolfe (2004) Synthesis and Anticonvulsant Evaluation of Some New 2-Substituted-3-Arylpyrido[2,3-d]pyrimidinones. *Bioorg. Med. Chem*. 12, 5711-7.

#W. J. Geldenhuys, S. F. Malan, T. Murugesan, C. J. Van der Schyf, and J. R. BLOOMQUIST (2004) Synthesis and Biological Evaluation of Pentacyclo[5.4.0.0^{2,6}.0^{3,10}.0^{5,9}]-undecane Derivatives as Potential Therapeutic Agents in Parkinson's Disease. *Bioorg. Med. Chem.* 12, 1799-1806.

J. R. BLOOMQUIST (2003) Mode of Action of Atracotoxin at Central and Peripheral Synapses of Insects. *Invert. Neurosci.* 5, 45-50.

#J. S. Gillette and J. R. BLOOMQUIST (2003) Differential Up-Regulation of Striatal Dopamine Transporter and α-Synuclein by the Pyrethroid Insecticide Permethrin. *Toxicol. Appl. Pharmacol*. 192, 287-293.

*E. R. Freeborn and J. R. BLOOMQUIST (2002) Inhibition of Neuronal Firing in Murine Striatal Slices by Cyclodiene Insecticides is Mediated by Release of Dopamine and Not GABA Antagonism. *Pestic. Biochem. Physiol.* 73, 59-65.

J. R. BLOOMQUIST, G. T. Payne, L. Kinne J. Lyga, D. Leong, and R. A. Nicholson (2002) Toxicity and Mode of Action of Benzhydrolpiperidines and Related Compounds in Insects. *Pestic. Biochem. Physiol.* 73, 18-26.

P. R. Carlier, *E. Chow, R. L. Barlow, and J. R. BLOOMQUIST (2002) Discovery of Non-Zwitterionic $GABA_A$ Receptor Full Agonists and a Superagonist. *Bioorg. Med. Chem. Lett.* 12, 1985-1988.

*M. L. Kirby, R. L. Barlow, and J. R. BLOOMQUIST (2002) Selective Effects of Cyclodiene Insecticides on Dopamine Release in Mammalian Synaptosomes. *Toxicol. Appl. Pharmacol.* 181, 89-92.

*H. Chen, #Y-X. Pan, E. A. Wong, J. R. BLOOMQUIST, and K. E. Webb, Jr. (2002) Cloning and Functional Expression of a Chicken Intestinal Peptide Transporter (cPepT1) in *Xenopus* oocytes and Chinese Hamster Ovary Cells. *J. Nutrition* 132, 387-393.

E. Usuki, J. R. BLOOMQUIST, *E. Freeborn, K. Castagnoli, C. J. Van Der Schyf and N. Castagnoli, JR (2002) Metabolic Studies on Haloperidol and its Tetrahydropyridinyl Dehydration Product (HPTP) in c57bl/6 Mouse Brain Preparations. *Neurotox. Res.* 4, 51-58.

#D. Karen, #W. Li, #P. Harp, #J. Gillette, and J. BLOOMQUIST (2001) Striatal Dopaminergic Pathways as a Target for the Insecticides Chlorpyrifos and Permethrin. *NeuroToxicology* 22, 811-817.

*M. L. Kirby, R. L. Barlow, and J. R. BLOOMQUIST (2001) Neurotoxicity of the Organochlorine Insecticide Heptachlor to Murine Striatal Dopaminergic Pathways. *Toxicol. Sci.* 61, 100-106.

#Y. Pan, E. Wong, J. BLOOMQUIST, and K. Webb (2001) Functional Characteristics of an Ovine Gastrointestinal Peptide Transporter (oPepT1) Expressed in *Xenopus* Oocytes. *J. Nutrition* 131, 1264-1270.

B. G. Klein, *M. L. Kirby, *E. R. Freeborn, and J. R. BLOOMQUIST (2001) Pharmacology of the MPTP Analog *trans*-1-methyl-4-[4-dimethylaminophenylethenyl]-1,2,3,6-tetrahydro-pyridine in Mouse Striatal and Cortical Synaptosomes: A Potential Visual Marker for Substrates of MPTP-Induced Neurotoxicity. *Prog. Neuro-Psychopharmacol. Biol. Psych.* 25, 591-608.

*M. L. Kirby, K. Castagnoli and J. R. BLOOMQUIST (1999) In Vivo Effects of Deltamethrin on Dopamine Neurochemistry and the Role of Augmented Neurotransmitter Release. *Pestic. Biochem. Physiol.* 65, 160-168.

*L. E. Walker and J. R. BLOOMQUIST (1999) Pharmacology of Contractile Responses in the Alimentary System of Caterpillars: Implications for Insecticide Development and Mode of Action. *Annals Entomol. Soc. Amer*. 92, 902-908. (This paper was an invited contribution to a special issue of the *Annals* in honor of Carl W. Schaefer's 25 years as editor.)

L. Meine, J. Bergh, S. Pond, J. BLOOMQUIST (1999) N. Castagnoli, Jr., S. Steyn, and C. Van der Schyf, *p*-Fluorophenylglycine in the Urine of Baboons Treated with HPTP, the Tetrahydropyridine Analog of Haloperidol. *Life Sci*. 65(5), 535-542.

G. W. Miller, *M. L. Kirby, A. I. Levey, and J. R. BLOOMQUIST (1999) Heptachlor Alters Expression and Function of Dopamine Transporters . *NeuroToxicology* 20, 631-638.

J. H. Johnson, J. R. BLOOMQUIST, K. J. Krapcho, R. M. Kral Jr., E. G. DelMar, R. Trovato, K. G. Eppler, and T. K. Morgan (1998) Novel Insecticidal Peptides from *Tegenaria agrestis* Spider Venom May Have a Direct Effect on the Insect Central Nervous System. *Arch. Insect Physiol. Biochem.* 38, 19-31.

*A. M. Wright, J. Bempong, *M. L. Kirby, R. L. Barlow, and J. R. BLOOMQUIST (1998) Effects of Haloperidol Metabolites on Neurotransmitter Uptake and Release: Possible Role in Neurotoxicity and Tardive Dyskinesia. *Brain Res*. 788, 215-222.

Y. X. Pan, E. A. Wong, J. R. BLOOMQUIST, and K. E. Webb, Jr. (1997) Poly(A)$^+$ RNA from sheep omasal epithelium induces expression of a peptide transport protein(s) in *Xenopus laevis* oocytes. *J. Animal Sci*. 75, 3323-3330.

J. R. BLOOMQUIST, H. J. Ferguson, E. D. Cox, M. S. Reddy, and J. M. Cook (1997) Mode of Action of b-Carboline Convulsants on the Insect Nervous System and Their Potential as Insecticides. *Pestic. Sci*. 51, 1-6.

J. R. BLOOMQUIST, L. P. Kinne, V. Deutsch, and S. F. Simpson (1996) Mode of action of an insecticidal peptide toxin from the venom of a weaving spider (*Diguetia canities*). *Toxicon* 34, 1072-1075.

J. C. Matthews, E. A. Wong, P. K. Bender, J. R. BLOOMQUIST, and K. E. Webb (1996) Demonstration and characterization of dipeptide transport system activity in sheep omasal epithelium by expression of mRNA in *Xenopus laevis* oocytes. *J. Animal Sci.* 74, 1720-1727.

J. BLOOMQUIST, *E. King, *A. Wright, C. Mytilineou, K. Kimura, K. Castagnoli, and N. Castagnoli, Jr. (1994) 1-Methyl-4-Phenylpyridinium-Like Neurotoxicity of a Pyridinium Metabolite Derived from Haloperidol: Cell Culture and Neurotransmitter Uptake Studies. *J. Pharm. Exp. Ther.* 270, 822-830.

J. R. BLOOMQUIST (1994) Cyclodiene Resistance at the Insect GABA Receptor/Chloride Channel Complex Confers Broad Cross Resistance to Convulsants and Experimental Phenylpyrazole Insecticides. *Arch. Insect Biochem. Physiol.* 26, 69-79.

J. R. BLOOMQUIST, J. L. Jackson, L. L. Karr, H. J. Ferguson, and R. P. Gajewski (1993) Spirosultam LY219048: A new chemical class of insecticide acting upon the GABA receptor/chloride ionophore complex. *Pestic. Sci.* 39, 185-192.

H. Lin, J. R. BLOOMQUIST, R. W. Beeman, and J. M. Clark (1993) Mechanisms Underlying Cyclodiene Resistance in the Red Flour Beetle, *Tribolium castaneum* (Herbst). *Pestic. Biochem. Physiol.* 45, 154-165.

S.-Z. Pang, S. M. Oberhaus, J. L. Rasmussen, D. C. Knipple, J. R. BLOOMQUIST, D. H. Dean, K. D. Bowman, and J. C. Sanford (1992) Expression of a Gene Encoding a Scorpion Insectotoxin Peptide in Yeast, Bacteria, and Plants. *Gene* 116, 165-172.

J. R. BLOOMQUIST (1992) Intrinsic Lethality of Chloride Channel-Directed Insecticides and Convulsants in Mammals. *Toxicol. Lett.* 60, 289-298.

J. BLOOMQUIST, R. Roush, and R. ffrench-Constant (1992) Reduced Neuronal Sensitivity to Dieldrin and Picrotoxinin in a Cyclodiene-Resistant Strain of *Drosophila melanogaster* (Meigen). *Arch. Insect. Biochem. Physiol.* 19, 17-25.

J. R. BLOOMQUIST, R. E. Grubs, D. M. Soderlund, and D. C. Knipple (1991) Prolonged Exposure to GABA Activates GABA-Gated Chloride Channels in the Presence of Channel-Blocking Convulsants. *Comp. Biochem. Physiol.* 99C, 397-402.

J. A. Ottea, G. T. Payne, J. R. BLOOMQUIST, and D. M. Soderlund (1989) Activation of Sodium Channels and Inhibition of [^{3}H]Batrachotoxinin A-20-a-Benzoate Binding by an *N*-Alkylamide Neurotoxin. *Mol. Pharmacol.* 36, 280-284.

J. R. BLOOMQUIST, D. M. Soderlund, and D. C. Knipple (1989) Knockdown Resistance to Dichlorodiphenyltrichloroethane and Pyrethroid Insecticides in the *nap*^{ts} Mutant of *Drosophila melanogaster* is Correlated with Reduced Neuronal Sensitivity. *Arch. Insect Biochem. Physiol.* 10, 293-302.

J. R. BLOOMQUIST and D. M. Soderlund (1988) Pyrethroid Insecticides and DDT Modify Alkaloid-Dependent Sodium Channel Activation and its Enhancement by Sea Anemone Toxin. *Mol. Pharmacol.* 33, 543-550.

A. M. Stuart, J. R. BLOOMQUIST, and D. M. Soderlund (1987) Pharmacological Characterization of the Voltage-Dependent Sodium Channels of Rainbow Trout Brain Synaptosomes. *Brain Res.* 437, 77-82.

D. M. Soderlund, P. M. Adams, and J. R. BLOOMQUIST (1987) Differences in the Action of Avermectin B_{1a} on the $GABA_A$ Receptor Complex of Mouse and Rat. *Biochem. Biophys. Res. Comm.* 146, 692-698.

J. R. BLOOMQUIST and T. A. Miller (1986) Neural Correlates of Flight Activation and Escape Behavior in Houseflies Recovering from Pyrethroid Poisoning. *Arch. Insect Biochem. Physiol.* 3, 551-560.

J. R. BLOOMQUIST, P. M. Adams, and D. M. Soderlund (1986) Inhibition of g-Aminobutyric Acid-Stimulated Chloride Flux in Mouse Brain Vesicles by Polychlorocycloalkane and Pyrethroid Insecticides. *NeuroToxicology* 7, 11-21.

J. R. BLOOMQUIST and T. A. Miller (1986) Sodium Channel Neurotoxins as Probes of the Knockdown Resistance Mechanism. *NeuroToxicology* 7(1), 217-224.

J. R. BLOOMQUIST and D. M. Soderlund (1985) Neurotoxic Insecticides Inhibit GABA-Dependent Chloride Uptake by Mouse Brain Vesicles. *Biochem. Biophys. Res. Comm.* 133, 37-43.

J. R. BLOOMQUIST and T. A. Miller (1985) Carbofuran Triggers Flight Motor Output in Pyrethroid-Blocked Reflex Pathways of the House Fly. *Pestic. Biochem. Physiol.* 23, 247-255.

J. R. BLOOMQUIST and D. L. Shankland (1983) The Mode of Action and Neurotoxicity of Mirex, Chlordecone, and Four Hydrogenated Mirex Analogs. *Pestic. Biochem. Physiol.* 19, 235-242.

Papers in conference proceedings (*student co-author, #postdoc co-author)

*J. M. Mutunga, #T. D. Anderson, #D. M. Wong, P. R. Carlier, and J. R. BLOOMQUIST (2009) Inhibition of *Blatella germanica* Acetylcholinesterase by *Bis*(n)-Tacrines: Prospects for the Molecular Design of a Selective Insecticide for a Household Pest. *ACS Symp. Ser.* (in press).

#T. D. Anderson, S. L. Paulson, #D. M. Wong, P. R. Carlier, and J. R. BLOOMQUIST (2009) Pharmacological Mapping of the Acetylcholinesterase Catalytic Gorge in Mosquitoes with *Bis*(n)-Tacrines. *ACS Symp. Ser.* (in press).

P. R. Carlier, #T. D. Anderson, D. M. Wong, *D. C. Hsu, E. A. Wong, #R. Choudhury, P. Lam, M. Totrov, and J. R. BLOOMQUIST (2008) Towards a species-selective acetylcholinesterase inhibitor to control the mosquito vector of malaria, *Anopheles gambiae.* Proceedings of the Ninth International Meeting on Cholinesterase Biology, Suzhou, China. *Chemico-Biological Interactions* 175, 368–375.

*J. Kou, D. C. Klorig, and J. R. BLOOMQUIST (2006) Potentiating Effect of The ATP-Sensitive Potassium Channel Blocker Glibenclamide on Complex I Inhibitor Neurotoxicity In Vitro and In Vivo. *NeuroToxicology* 27, 826-834.

#W. J. Geldenhuys, J. Klein, S. F. Malan, J. R. BLOOMQUIST, T. Murugesan, and C. J. Van Der Schyf (2004) Inhibition of Monoamine Oxidase B by Derivatives of Pentacyclo[5.4.0.$0^{2,6}$.$0^{3,10}$.$0^{5,9}$]-undecane. In: Proceedings of the 15th International Symposium on Microsomes and Drug Oxidations, F. Oesch, ed., Medimont S.r.l., Bologna, Italy, pp. 77-81.

J. R. BLOOMQUIST (2003) Chloride Channels as Tools for Developing Selective Insecticides. *Arch. Insect Biochem. Physiol.* 54, 145-156.

J. BLOOMQUIST, R. Barlow, #J. Gillette, #W. Li, and *M. Kirby (2002) Selective Effects of Insecticides on Nigrostriatal Dopaminergic Nerve Pathways. *NeuroToxicology* 23, 537-544.

D. Leong, J. BLOOMQUIST, *J. Bempong, J. Dybas, L. Kinne, J. Lyga, F. Marek, and R. Nicholson (2001) Insecticidal Arylalkylbenzhydrolpiperidines: Novel Inhibitors of Voltage-Sensitive Sodium and Calcium Channels in Mammalian Brain. *Pest Management Sci.* 57, 889-895.

*E. R. Freeborn and J. R. BLOOMQUIST (2001) Electrophysiological Studies of Dopamine Pathways in Murine Striatal Slices and Their Role in the Neurotoxic Action of Cyclodienes. In: "Agrochemical Discovery: Insect, Weed, and Fungal Control" (D. Baker and K. Umetsu, Eds.) *ACS Symp. Ser.* 774, 281-292.

J. R. BLOOMQUIST, R. ffrench-Constant, and R. Roush (1991) Excitation of Central Neurons by Dieldrin and Picrotoxinin in Susceptible and Cyclodiene-Resistant Strains of *Drosophila melanogaster* (Meigen). Proceedings of Neurotox '91, Southampton, England, *Pestic. Sci.* 32, 463-469.

D. M. Soderlund, J. R. BLOOMQUIST, G. T. Payne, and J. A. Ottea (1989) Pharmacological Characterization of Insecticide-Binding Domains of the Voltage-Sensitive Sodium Channel. In: "Insecticide Action: From Molecule to Organism" (T. Narahashi and J. Chambers, Eds.), pp. 85-97, Plenum, New York.

D. M. Soderlund, J.R. BLOOMQUIST, F. Wong, L. L. Payne, and D. C. Knipple (1989) Molecular Neurobiology: Implications for Insecticide Action and Resistance. *Pestic. Sci.* 26, 359-374.

D. C. Knipple, J. R. BLOOMQUIST, and D. M. Soderlund (1988) Molecular Genetic Approach to the Study of Target-Site Resistance to Pyrethroids and DDT in Insects. In: "Biotechnology for Crop Protection" (P. Hedin, J. Menn, and R. Hollingworth, Eds.), *ACS Symp. Ser.* 379, 199-214, American Chemical Society, Washington, D.C.

D. M. Soderlund, J.R. BLOOMQUIST, S. M. Ghiasuddin, and A. M. Stuart (1987) Enhancement of Veratridine-Dependent Sodium Channel Activation by Pyrethroids and DDT Analogs. In: "Sites of Action for Neurotoxic Pesticides" (R. Hollingworth and M. Green, Eds.), *ACS Symp. Ser.* 356, 251-261, American Chemical Society, Washington, D.C.

J. R. BLOOMQUIST, P. M. Adams, and D. M. Soderlund (1987) Neurotoxic Insecticides as Antagonists of $GABA_A$ Receptor Function. In: "Sites of Action for Neurotoxic Pesticides" (R. Hollingworth and M. Green, Eds.), *ACS Symp. Ser.* 356, 97-106, American Chemical Society, Washington, D.C.

J. R. BLOOMQUIST and T. A. Miller (1985) A Simple Bioassay for Detecting and Characterizing Insecticide Resistance. Proceedings of Neurotox '85, Bath, England, *Pestic. Sci.* 16, 611-614.

Reviews

#W. J. Geldenhuys, S. F. Malan, J. R. BLOOMQUIST, A. P. Marchand, and C. J. Van der Schyf (2005) Pharmacology and Chemistry of Polycyclic Cage-derived Compounds. *Medicinal Res. Rev*. 25, 21-48.

J. R. BLOOMQUIST (1998) Chemistry and Toxicology of the Chlorinated Cyclodienes and Lindane. *Rev. Toxicol*. 2, 333-355.

N. Castagnoli Jr., J. Rimoldi, J. BLOOMQUIST, and K. Castagnoli (1997) Potential Metabolic Bioactivation Pathways Involving Cyclic Tertiary Amines and Azaarenes. *Chem. Res. Toxicol*. 10, 924-940.

J. R. BLOOMQUIST (1996) Ion Channels as Targets for Insecticides. *Annu. Rev. Entomol.* 41, 163-190.

J. M. Clark, J. G. Scott, F. Campos, and J. R. BLOOMQUIST (1995) Resistance to Avermectins: Extent, Mechanisms, and Management Implications. *Annu. Rev. Entomol.* 40, 1-30.

J. R. BLOOMQUIST (1993) Toxicology, Mode of Action, and Target Site-Mediated Resistance to Insecticides Acting on Chloride Channels. Mini Review, *Comp. Biochem. Physiol* 106C, 301-314.

J. R. BLOOMQUIST (1993) Neuroreceptor Mechanisms in Pyrethroid Mode of Action and Resistance. *Rev. Pestic. Tox*. 2, 185-226.

D. M. Soderlund and J. R. BLOOMQUIST (1990) Molecular Mechanisms of Insecticide Resistance, in: "Pesticide Resistance in Arthropods" (R. Roush and B. Tabashnik, Eds.), pp. 58-96, Chapman and Hall, New York (refereed).

D. M. Soderlund and J. R. BLOOMQUIST (1989) Neurotoxic Actions of Pyrethroid Insecticides. *Annu. Rev. Entomol.* 34, 77-96.

Published Patents

P. Carlier, J. Bloomquist, E. Wong, and S. Paulson (2008). Insecticidal Carbamates Exhibiting Species-Selective Inhibition of Acetylcholinesterase (AChE).
Found at: http://appft1.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&u=%2Fnetahtml%2FPTO%2Fsearch-adv.html&r=1&f=G&l=50&d=PG01&s1=%22insecticidal+carbamates%22&s2=%22species-selective+inhibition%22&co1=AND&p=1&OS=%22insecticidal+carbamates%22+AND+%22species-selective+inhibition%22&RS=%22insecticidal+carbamates%22+AND+%22species-selective+inhibition%22

J. R. BLOOMQUIST (2007) Pesticidal Compositions and Methods of Use.
Found at:
http://www.wipo.int/pctdb/en/wo.jsp?IA=US2006041968&WO=2007050867&DISPLAY=STATUS

J.R. BLOOMQUIST and S. L. PAULSON (2005) Cell Culture Procedures for Inducing a Neuronal Phenotype in Insect Cells.
Found at:
http://appft1.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PG01&p=1&u=%2Fnetahtml%2FPTO%2Fsrchnum.html&r=1&f=G&l=50&s1=%2220050221475%22.PGNR.&OS=DN/20050221475&RS=DN/20050221475

Numbered extension publications

R. R. Youngman, J. R. BLOOMQUIST, J. B. Hall, S. L. Paulson, and W. D. Whittier (2006) Agricultural Animal Pest Control: A Guide for Livestock Managers in Virginia. Virginia Agricultural Experiment Station #456-215.

PAPERS PRESENTED AT PROFESSIONAL MEETINGS

Summary: Invited Presentations

Audience	Total
International	17
National	19
Regional	5
University	25
Industry	16

Total Presentations 82

International (Presenting Author, *student co-author, #postdoc co-author)

P. Carlier, J. BLOOMQUIST, D. Carlier, P. Carlier, S. Paulson, E. Wong, M. Totrov, and J. Githure. (2009) Molecular Design of Selective Anticholinesterases for Mosquito Control. Annual Meeting of the Grand Challenges in Global Health, FNIH, Arusha, Tanzania.

J. BLOOMQUIST. (2009) Ligand- and Voltage-Gated Chloride Channels/Exchangers as Targets for Natural Products. 8th Phytochemical Society of Europe Meeting on Biopesticides, La Palma, Canary Islands, Spain.

J. BLOOMQUIST, D. Carlier, P. Carlier, S. Paulson, E. Wong, M. Totrov, and J. Githure (2008) Molecular design of selective anticholinesterases for mosquito control. A research pre-proposal presentation given to the Innovative Vector Control Consortium, Liverpool School of Tropical Medicine, Liverpool, England.

J. BLOOMQUIST (2008) Anticholinesterases revisited: New routes to selective and resistance-breaking insecticides. 4th Pan-Pacific Conference on Pesticide Science, Honolulu, Hawaii.

J. BLOOMQUIST, D. Carlier, P. Carlier, S. Paulson, E. Wong, M. Totrov, and J. Githure (2008) Design of Active Ingredients. Vector Control Consultation, Bill and Melinda Gates Foundation, Seattle, July 28-30.

J. BLOOMQUIST, D. Carlier, P. Carlier, S. Paulson, E. Wong, M. Totrov, and J. Githure (2008) Molecular Design of Selective Anticholinesterases for Mosquito Control. Annual Meeting of the Grand Challenges in Global Health, FNIH, Bangkok, Thailand, October 19-22.

J. BLOOMQUIST, D. Carlier, P. Carlier, S. Paulson, E. Wong, M. Totrov, and J. Githure (2007) Molecular design of selective anticholinesterases for mosquito control. Third annual meeting of the Grand Challenges in Global Health, Cape Town, South Africa.

J. R. BLOOMQUIST (2006) Molecular Design of Selective Anticholinesterases for Mosquito Control. Annual meeting of the FNIH Grand Challenges in Global Health program, Washington, DC.

J. R. BLOOMQUIST (2005) Molecular Design of Selective Anticholinesterases for Mosquito Control. Fall 2005, Kick off meeting of the FNIH Grand Challenges in Global Health program, Seattle, WA.

J. R. BLOOMQUIST (1999) GABA Antagonism and Neurotransmitter Release in the Neurotoxic Action Of Cyclodienes. 2nd Pan-Pacific Conference on Pesticide Science, Honolulu, Hawaii.

J. R. BLOOMQUIST (1999) Prevalence and Magnitude of Resistance to Cyclodiene and Phenylpyrazole Insecticides in *Blattella germanica* and *Drosophila melanogaster.* 3rd

International Conference on Insect Pests in the Urban Environment, "ICUP '99." Prague, Czech Republic.

J. R. BLOOMQUIST, *M. L. Kirby, G. W. Miller, and A. I. Levey (1998) Effects of Insecticide Exposure on Behavioral and Neurochemical Biomarkers of Parkinsonism. International Symposium on Progress in Neuropharmacology and Neurotoxicology of Pesticides and Drugs (Neurotox '98), Oxford, England.

J. BLOOMQUIST, A. LaLoggia, M. Reddy, and J. Cook (1994) Mode of Action of b-Carboline Convulsants on the Insect Nervous System and their Potential as Insecticides. Invited Poster, 8th International Congress of Pesticide Chemistry, Washington, D. C.

R. P. Gajewski, J. L. Jackson, L. L. Karr, and J. R. BLOOMQUIST (1991) Spirosultam LY219048, A New Chemical Class of Neurotoxin Acting Upon the GABA Receptor/Chloride Ionophore Complex. International Symposium on the Molecular Basis of Drug and Pesticide Action (Neurotox '91), Invited Workshop Presentation, Southampton, England.

J. R. BLOOMQUIST, R. ffrench-Constant, and R. Roush (1991) Excitation of Central Neurons by Dieldrin and Picrotoxinin in Susceptible and Cyclodiene-Resistant Strains of *Drosophila melanogaster* (Meigen). International Symposium on the Molecular Basis of Drug and Pesticide Action (Neurotox '91), Invited Workshop Presentation, Southampton, England.

J. R. BLOOMQUIST (1990) Mammalian Neuroreceptors as Targets for Insecticide Action. US/Japan Symposium, "Pesticides and the Future: Toxicological Studies of Risks and Benefits," Sponsored by the National Science Foundation, Rockville, Maryland.

J. R. BLOOMQUIST (1988) Neurophysiological Assays for the Characterization and Monitoring of Pyrethroid Resistance. International Symposium on the Molecular Basis of Drug and Pesticide Action (Neurotox '88), Nottingham, England.

National (Presenting Author, *student co-author, #postdoc co-author)

J. BLOOMQUIST and *D. Boina (2008) Anion Channels/Transporters as Targets for New Insecticides and Nematicides. Agrochemicals Division International Award Symposium for David Soderlund, National Meeting of the American Chemical Society, Philadelphia, Pennsylvania.

J. R. BLOOMQUIST (2007) Cyclodiene-induced alterations in mammalian dopaminergic pathways as a possible cause of environmentally-induced Parkinsonism. Invited speaker, Agrochemicals Division International Award Symposium for Gerald Brooks, National Meeting of the American Chemical Society, Chicago, Illinois.

J. R. BLOOMQUIST (2004) Insecticide exposure in the MPTP-treated C57 mouse model of Parkinson's disease. International Award Symposium for Research in Agrochemicals, *The Yin and Yang of Pesticide Toxicology*, A symposium in honor of John Clark. National Meeting of the American Chemical Society, Division of Agrochemicals, Philadelphia, PA.

J. R. BLOOMQUIST (2003) Low Dose Effects of Insecticides to Dopaminergic Pathways Involved in Parkinsonism. International Award for Research in Agrochemicals, symposium for Robert M. Hollingworth, National Meeting of the American Chemical Society, New Orleans, Louisiana.

J. R. BLOOMQUIST (2002) Chloride Channels as Tools for Developing Selective Insecticides. National Meeting of the Entomological Society of America, Fort Lauderdale, Florida

J. R. BLOOMQUIST (1996) Mechanistic Studies on the Comparative Neurotoxicology of the Avermectins. Society of Environmental Toxicology and Chemistry, Washington, D.C.

N. Castagnoli, #S. Kuttab, #J. Rimoldi, A. Hall, J. BLOOMQUIST, and K. Castagnoli (1995) Dopaminergic Neurotoxicity: Chemical and Biological Requirements. Workshop on the Role of the Environment in Parkinson's Disease, National Institute of Environmental Health Sciences, Research Triangle Park, North Carolina.

J. R. BLOOMQUIST, L. Kinne, V. Deutsch, and S. Simpson (1994) Insecticidal Peptide Toxin from *Diguetia canities*: Mode of Action Studies. Division of Agrochemicals Symposium, "Synthesis and Chemistry of New and Potential Agrochemicals," National Meeting of the American Chemical Society, Washington, D.C.

J. R. BLOOMQUIST (1993) Organochlorine, Pyrethroids, and Newer Insecticides. In: Continuing Education Course "Insecticides: Mechanisms of Action, Metabolism and Toxicology in Vertebrates" (J. Chambers, Organizer), National Meeting of the Society of Toxicology, New Orleans, Louisiana.

J. R. BLOOMQUIST and L. Walker (1992) Physiological Actions of Avermectins on Insect Visceral Muscle. American Chemical Society, Division of Agrochemicals Symposium, "Mode of Action, Toxicology, and Resistance Management of the Avermectins," National Meeting, Washington, D.C.

J. R. BLOOMQUIST (1991) Antagonism of Chloride Channel Function in Insecticide Mode of Action and Resistance. American Chemical Society, Division of Agrochemicals, Young Scientist Symposium, National Meeting, Atlanta, Georgia.

J. R. BLOOMQUIST (1990) Molecular Pharmacology of Knockdown Resistance. Entomological Society of America Symposium, "Molecular Basis of Insecticide Resistance," National Meeting, New Orleans, Louisiana.

J. R. BLOOMQUIST, D. M. Soderlund, and D. C. Knipple (1988) Neuropharmacology and Molecular Genetics of Insect Nerve Insensitivity to Pyrethroids. American Chemical Society, Division of Agrochemicals Symposium, "Fundamental and Practical Approaches to Combating Resistance," National Meeting, Los Angeles, California.

D. M. Soderlund, J. R. BLOOMQUIST, G. T. Payne, and J. A. Ottea (1988) Pharmacological Characterization of the Insecticide Binding Domain of the Voltage-Sensitive Sodium Channel.

American Chemical Society, Division of Agrochemicals Symposium, "Insecticide Action: From Molecule to Organism," National Meeting, Los Angeles, California.

D. M. Soderlund and J. R. BLOOMQUIST (1988) Insecticide Actions at the GABA Receptor-Chloride Ionophore Complex: Application of Functional Assays. American Chemical Society, Division of Agrochemicals Symposium, "Biochemical and Molecular Toxicology of Pesticides," (in honor of Professor Fumio Matsumura), National Meeting, Los Angeles, California.

D. C. Knipple, J. R. BLOOMQUIST, and D. M. Soderlund (1987) Molecular Genetics of Nerve Insensitivity Resistance to Insecticides. American Chemical Society, Division of Agrochemicals Special Conference III: "Biotechnology in Crop Protection," Snowbird, Utah.

D. M. Soderlund and J. R. BLOOMQUIST (1986) Pyrethroids and DDT Enhance Sodium Channel Activation in Mouse Brain Synaptosomes. American Chemical Society, Division of Agrochemicals Symposium, "The Search for Novel Insecticides: Toxicants Affecting GABA, Octopamine and Other Neuroreceptors in Invertebrates," National Meeting, New York, New York.

J. R. BLOOMQUIST and D. M. Soderlund (1986) Neurotoxic Insecticides as Inhibitors of GABA-Dependent Chloride Uptake by Mouse Brain Vesicles. American Chemical Society, Division of Agrochemicals Symposium, "The Search for Novel Insecticides: Toxicants Affecting GABA, Octopamine and Other Neuroreceptors in Invertebrates," National Meeting, New York, New York.

J. R. BLOOMQUIST and D. M. Soderlund (1985) Physiological and Pharmacological Characteristics of Knockdown Resistance. Entomological Society of America Symposium, "Research Needs and Advances in Insecticide Target Sites and Target Site Resistance," National Meeting, Hollywood, Florida.

Regional (Presenting Author, *student co-author, #postdoc co-author)

J. R. BLOOMQUIST. (2009) Reduced Expression of Voltage-Gated Chloride Channel Genes in *Caenorhabditis elegans* by RNAi: Implications for the Mode of Action of Chloride Channel-Directed Toxicants. USDA/ARS Center for Medical, Agricultural, and Veterinary Entomology, Gainesville, FL.

J. R. BLOOMQUIST. (2009) Molecular Design and Semi-Field Performance of Monovalent and Bivalent Inhibitors of Acetylcholinesterase for Control of Malaria. USDA/ARS Natural Products Utilization Research Unit, Oxford, MS.

J. R. BLOOMQUIST (2001) Pesticides and Parkinsonism: Military Insecticide Exposures and Its Relevance to the General Public. Capital Chapter of the National Parkinson Foundation, Parkinson's Community Support Group, Fairfax, Virginia.

J. R. BLOOMQUIST (1999) Mechanism of Action and Resistance to Cyclodiene and Related Insecticides. 70th Annual Meeting of the Eastern Branch of the Entomological Society of America. Virginia Beach, Virginia.

J. R. BLOOMQUIST (1991) The Role of Chloride Channels in Insecticide Mode of Action and Resistance. Pesticide Mode of Action Symposium, Division of Agricultural and Food Chemistry, Regional Meeting of the American Chemical Society, Indianapolis, Indiana.

University (Presenting Author, *student co-author, #postdoc co-author)

J. R. BLOOMQUIST (2009) Molecular Design and Performance of Monovalent and Bivalent Inhibitors of Acetylcholinesterase for Control of Malaria. Department of Entomology and Nematology, University of Florida, Gainesville, FL.

J. R. Bloomquist. (2009) Invited lecture, John V. Osmun Alumni Professional Achievement Award in Entomology, Purdue University, W. Lafayette, IN.

J. BLOOMQUIST (2008) Novel and Selective Anticholinesterases for Control of the Malaria Mosquito, *Anopheles gambiae*. Paul Dahm Memorial Lecture, Dept. of Entomology, Iowa State University, Ames, Iowa.

J. BLOOMQUIST (2008) Selective Anticholinesterases for Control of the Malaria Mosquito, *Anopheles gambiae*: Mission Impossible? Department of Entomology, University of California, Riverside, California.

J. BLOOMQUIST (2008) Working with Private Foundations. CALS Panel Discussion on Research Funding, Virginia Tech, Campus.

P. Carlier, J. BLOOMQUIST, S. Paulson, E. Wong, M. Totrov, and J. Githure (2008) Molecular design of selective anticholinesterases for mosquito control. School of Pharmacy and Pharmaceutical Sciences, University of California, San Diego, California.

J. R. BLOOMQUIST (2007) Research into Control of the Malaria Mosquito, Anopheles gambiae, Using Novel Anticholinesterases. Dept. of Entomology, Michigan State University, East Lansing, Michigan.

J. R. BLOOMQUIST (2007) Bivalent Anticholinesterases: New Chemistry for an Old Target. Dept. of Entomology, Cornell University, Ithaca and Geneva, New York.

J. R. BLOOMQUIST (2006) Research in Medical Entomology at Virginia Tech. Department of Entomology, presentation for potential CALS donors. Campus.

J. BLOOMQUIST, P. Carlier, E. Wong, and S. Paulson (2006) Novel anticholinesterases for control of the malaria mosquito, *Anopheles gambiae*. Vector-Borne Disease Research: The Road Ahead, October 13-15, 2006, Blacksburg, Virginia.

J. R. BLOOMQUIST (2005) Research in Medical Entomology at Virginia Tech. Department of Entomology, presentation for Agriculture Secretary Bloxom's visit, Campus.

J. R. BLOOMQUIST (2005) Impact of Insecticide exposure in the MPTP-treated C57 mouse model of Parkinson's disease. University of Massachusetts, Department of Veterinary and Animal Science, Biomedicine and Biotechnology Program, Amherst, MA.

J. R. BLOOMQUIST (2003) Actions of Organophosphorus and Pyrethroid Insecticides on Dopaminergic Pathways Involved in Parkinsonism. School of Pharmacy, Dept. of Pharmaceutical Science, Texas Tech University Health Sciences Center, Amarillo, Texas.

J. R. BLOOMQUIST (2001) Insecticide Exposure, Dopamine Neurotoxicity, and Parkinson's Disease. Guest Speaker, Department of Entomology, University of California, Riverside, California.

J. R. BLOOMQUIST (2001) Insecticide Exposure, Dopamine Neurotoxicity, and Parkinson's Disease. Guest Speaker, Department of Entomology, University of California, Davis, California.

J. R. BLOOMQUIST (2001) Physiology and Pharmacology of Ligand-Gated Chloride channels in Insects. Guest Speaker, Department of Entomology, Auburn University, Auburn, Alabama.

J. R. BLOOMQUIST (2001) Pesticides and Parkinsonism in Gulf War Syndrome. Guest Speaker, Department of Toxicology, North Carolina State University, Raleigh, North Carolina.

J. R. BLOOMQUIST (2001) Exploiting Patterned Motor Output in Insects: Getting an American Cockroach to Drive a Car. Ecology, Evolution, and Systematics Seminar, Department of Biology, Virginia Tech.

J. R. BLOOMQUIST (1999) Applications of Neuroscience Research: Automotive Cockroaches and Neurotoxicology. Department of Biological Systems Engineering, Virginia Tech.

J. R. BLOOMQUIST (1996) Overview of Neurotoxicity Studies in the Entomology Department. Toxicology Roundtable, Department of Biomedical Sciences & Pathobiology, VMRCVM, Virginia Tech.

J. R. BLOOMQUIST (1994) Bugs, Drugs, and Neuroscience. Sigma Xi Lecture, Virginia Tech.

J. R. BLOOMQUIST (1993) Resistance Profile and Neuropharmacology of Chloride Channel-Directed Insecticides. Department of Entomology, Louisiana State University.

J. R. BLOOMQUIST (1992) Action of Insecticides on Inhibitory Neurotransmission and Chloride Channels. Department of Entomology, University of Maryland.

J. R. BLOOMQUIST (1992) Physiology and Pharmacology of Chloride Channels in Susceptible and Insecticide-Resistant Insects. Department of Entomology, Clemson University.

J. R. BLOOMQUIST (1987) The Role of the Voltage-Sensitive Sodium Channel in Knockdown Resistance to Pyrethroids. Department of Entomology Seminar, Cornell University, New York State Agricultural Experiment Station, Geneva, New York.

Industry (Presenting Author, *student co-author, #postdoc co-author)

J. R. BLOOMQUIST (2007) Current and Emerging Insecticide/Nematicide Modes of Action. Scynexis Corp., Animal Health Dept., Research Triangle Park, North Carolina.

J. R. BLOOMQUIST (2007) Induction of a "Neuronal" Phenotype in Sf21 Insect Cells. DuPont Crop Protection, Stine-Haskell Research Center, Newark, Delaware.

J. R. BLOOMQUIST (2004) Natural and Synthetic Chemical Probes of the $GABA_A$ Receptor/Chloride Channel Complex. DuPont Agrochemicals, Wilmington, DE.

J. R. BLOOMQUIST (2003) Review of Current and Emerging Modes of Insecticide Action. BASF Corp. Research Triangle Park, North Carolina.

J. R. BLOOMQUIST (2000) New Target Sites and Chemistries for Insecticides. FMC Corporation, Princeton, New Jersey.

J. R. BLOOMQUIST (2000) Pharmacological/Electrophysiological Studies of Omega-Atrachotoxin, as Insect-Selective Calcium Channel Toxin. FMC Corporation, Princeton, New Jersey.

J. R. BLOOMQUIST (1995) Involvement of Neurotransmitter Transporters in the Action of Neurotoxicants. Rhone-Poulenc Rorer, Inc., Collegeville, Pennsylvania.

J. R. BLOOMQUIST (1993) Neurophysiological Approaches for Defining the Mode of Action of New Insecticides. FMC Corporation, Princeton, New Jersey.

J. R. BLOOMQUIST (1993) Principles of Excitable Membrane Physiology in Insects. FMC Corporation, Princeton, New Jersey.

J. R. BLOOMQUIST (1993) Actions of Experimental Insecticides and Fluorescence Measurements in Insect Neurons. FMC Corporation, Princeton, New Jersey.

J. R. BLOOMQUIST (1992) Calcium Channels And Cholinergic Receptors as Potential Sites for New Insecticide Development. FMC Corporation, Princeton, New Jersey.

J. R. BLOOMQUIST (1991) Involvement of Ion Channels in Insecticide Mode of Action and Resistance. FMC Corporation, Princeton, New Jersey.

J. R. BLOOMQUIST (1991) Physiological Mode of Action of the Polypeptide FMCTX. Natural Product Sciences and FMC Corporation, Princeton, New Jersey.

J. R. BLOOMQUIST (1991) Interactions of Insecticides with Chloride Channels of Nerve and Muscle Cells. Merck, Sharp & Dohme Research Laboratories, Three Bridges, New Jersey.

J. R. BLOOMQUIST (1988) Mode of Action of Insecticides on the Mammalian $GABA_A$ Receptor and Voltage-Sensitive Sodium Channel. Eli Lilly Research Laboratories, Greenfield, Indiana.

J. R. BLOOMQUIST (1984) Insecticide Knockdown and the kdr Mechanism in the House Fly. Zoecon Corporation, Palo Alto, California.

Summary: Volunteered Presentations

Audience	Total
International	26
National	71
Regional	5
University	33
Total Presentations	135

International (Presenting Author, *student co-author, #postdoc co-author)

P. Carlier, *L. Williams, #M. Ma, J. BLOOMQUIST, #T. Anderson, E. Wong, #R. Choudhury, M. Totrov, P. Lam. (2009) Redesign of Tacrine to Achieve Potent and Selective Inhibition of *Anopheles gambiae* Acetylcholinesterase. International Meeting on Cholinesterases, Sibenik, Croatia.

P. Carlier, *J. Hartsel, #M. Ma, #D. Wong, J. BLOOMQUIST, #T. Anderson, S. Paulson, A. Wysinski, E. Wong, #R. Choudhury, M. Totrov, P. Lam. (2009) Discovery of Highly Species-Selective, Contact Toxic Aryl Carbamates to Control *Anopheles gambiae*, the Mosquito Vector of Malaria. International Meeting on Cholinesterases, Sibenik, Croatia.

#D. Wong, *D. Swale, *J. Hartsel, #M. Ma, P. Carlier, P. Lam, M. Totrov, J. BLOOMQUIST. (2009) Mosquito-Selective Acetylcholinesterase Inhibitors to Control the Malaria Vector, *Anopheles gambiae*: experimental evidence for allosteric solvent effects and antagonism of inhibition. International Meeting on Cholinesterases, Sibenik, Croatia.

*D. Swale, *J. Hartsel, #M. Ma, P. Carlier, #T. Anderson, J. BLOOMQUIST. (2009) Assessment of Enzyme Inhibition and Toxicity of Newly Designed *Anopheles gambiae* Selective Carbamates Against Other Mosquito Vectors and Agricultural Pests. Fifth MIM Pan-African Malaria Conference. Nairobi, Kenya.

*L. Jenson, S. Paulson, and J. BLOOMQUIST. (2009) Induction and Characterization of Ion Channels in *Anopheles gambiae* Cells. 5th MIM Pan-African Malaria Conference, Nairobi Kenya.

*J. Mutunga, #T. Anderson, *B. Jackson, #D. Wong, *J. Hartsel, S. Paulson, M. Totrov, P. Carlier and J. Bloomquist (2009). Highly Selective Carbamates Towards the Malaria Mosquito, Anopheles gambiae: Design, Synthesis, Potency and Toxicity Testing. 5th MIM Pan- African Malaria Conference. KICC, Nairobi, Kenya.

*J. Mutunga, #T. Anderson, #D. Wong, *J. Hartsel, S. Paulson, M. Totrov, P. Carlier and J. Bloomquist (2009). Novel carbamates for malaria vector control: Impact of recent developments and the future of insecticide use in malaria mosquito control. 2nd Kenya Scholars and Studies Association annual conference, Bowling Green State University, OH.

P. R. Carlier, J. R. Bloomquist, #D. M. Wong, *L. D. Williams, *N. Deora, #T. Anderson, S. Paulson, A. Wysinski, E. Wong, #R. Choudury, M. Totrov, and P. Lam (2007) Development of

a mosquito-selective AChE inhibitor to control the malaria vector, *Anopheles gambiae*. Ninth International Meeting on Cholinesterase Biology, Suzhou, China.

*J. M. Mutunga, #T. D. Anderson, and J. R. Bloomquist (2007) Exploring the insect acetylcholinesterase (AChE) active site gorge: Toxicokinetic and AChE sequence analysis as prospects to molecular design of selective insecticides. Bioinformatics for Africa Conference and Workshop, Nairobi, Kenya.

J. R. BLOOMQUIST, D. C. Klorig, D. Wong, and P. R. Carlier (2006) Bivalent anticholinesterases as structural probes in the development of selective mosquitocides. Poster; 11TH IUPAC International Congress of Pesticide Chemistry, Kobe, Japan.

J. R. BLOOMQUIST and *D. R. Boina (2006) Analogs of a Bacterial Stilbene as New Insecticides/Nematicides. Poster; 11TH IUPAC International Congress of Pesticide Chemistry, Kobe, Japan.

*J. Kou and J. R. BLOOMQUIST (2005) Potentiating Effect of the K^+_{atp} Channel Blocker Glibenclamide on the Neurotoxicity of Complex I Inhibitors. Poster, 22nd International Neurotoxicology Conference; Environment and Neurodevelopmental Disorders, Research Triangle Park, North Carolina.

#W. J. Geldenhuys, J. Klein, S. F. Malan, J. R. Bloomquist, T. Murugesan, and C. J. Van Der Schyf (2004) Inhibition of Monoamine Oxidase B by Derivatives of Pentacyclo[5.4.0.$0^{2,6}$.$0^{3,10}$.$0^{5,9}$]-undecane. Poster, Microsomes and Drug Oxidation 2004. Chemical Biology in the Postgenome Era-New Approaches and Applications. Mainz, Germany.

*W. J. Geldenhuys, *K. Steelman, J. R. BLOOMQUIST, C. J. Van Der Schyf, and S. F. Malan (2003) Pharmacological Evaluation of Pentacyclo-undecylamine Derivatives as Novel Noncompetitive N-methyl-*D*-aspartate Receptor Antagonists. South African Academy of Pharmaceutical Sciences 24th Annual Congress, Durban, South Africa.

J. BLOOMQUIST *C. Hild, *B. Monaco, *E. Chow, P. Carlier, and A. Gonzalez-Coloma (2002) Mode of Action of the Plant-Derived Silphinenes on Insect and Mammalian GABA Receptor/Chloride Channel Complex. 10th International Congress of Pesticide Chemistry, Basel, Switzerland.

J. R. BLOOMQUIST (2001) Impact of Organochlorine, Pyrethroid, and Organophosphate Insecticides on Striatal Neurochemistry. 19th International Neurotoxicology Conference: Parkinson's Disease, Environment and Genes, Colorado Springs, Colorado.

R. A. Nicholson, D. Leong, J.R. BLOOMQUIST, *J. Bempong, J. A. Dybas, L. P. Kinne, J. W. Lyga, and F. L. Marek (2000) Action of Insecticidal Arylalkylbenzhydrolpiperidines (BZPs) on Mammalian Brain in Vitro. Insect Toxicology 2000, Berkeley, California.

J. R. BLOOMQUIST (1993) Resistance Profile and Neuropharmacology of Experimental Chloride Channel-Directed Insecticides. 2nd International Symposium on Molecular Insect Science, Flagstaff, Arizona.

R. P. Gajewski, J. L. Jackson, L. L. Karr, and J. R. BLOOMQUIST (1991) Spirosultam LY219048, A New Chemical Class of Neurotoxin Acting Upon the GABA Receptor/Chloride Ionophore Complex. International Symposium on the Molecular Basis of Drug and Pesticide Action (Neurotox '91) Poster, Southampton, England.

J. R. BLOOMQUIST, R. ffrench-Constant, and R. Roush (1991) Excitation of Central Neurons by Dieldrin and Picrotoxinin in Susceptible and Cyclodiene-Resistant Strains of *Drosophila melanogaster* (Meigen). International Symposium on the Molecular Basis of Drug and Pesticide Action (Neurotox '91) Poster, Southampton, England.

D. B. Gant, J. R. BLOOMQUIST, H. M. Ayad, and A. E. Chalmers (1990) A Comparison of Mammalian and Insect GABA Receptor Chloride Channels. 7th International Congress of Pesticide Chemistry, Hamburg, Germany.

L. L. Payne, J. R. BLOOMQUIST, L. A. Pitifer, P. Marsella-Herrick, D. Sun, F. Wong, D. M. Soderlund, and D. C. Knipple (1989) Development of Probes for the Isolation of Presumptive Voltage-Sensitive Sodium Channel Genes From Insects. 1st International Symposium on Molecular Insect Science, Tucson, Arizona.

J. R. BLOOMQUIST and D. M. Soderlund (1988) The DDT/Pyrethroid Recognition Site of the Voltage-Sensitive Sodium Channel: Interactions with Alkaloid Activators and Sea Anemone Toxin. Poster, International Symposium on the Molecular Basis of Drug and Pesticide Action (Neurotox '88), Nottingham, England.

J. R. BLOOMQUIST and D. M. Soderlund (1986) Isotopic Flux Assays as Probes of Insecticide Action on Neuronal Ion Channels. 6th International Congress of Pesticide Chemistry, Ottawa, Ontario, Canada.

J. R. BLOOMQUIST and T. A. Miller (1985) A Simple Bioassay for Detecting and Characterizing Insecticide Resistance. International Meeting on Neuropharmacology and Pesticide Action (Neurotox '85), Bath, England.

J. R. BLOOMQUIST and T. A. Miller (1984) Molecular Mechanisms in the House Fly Nervous System Conferring Insensitivity to Pyrethroids and Alkaloid Neurotoxins. 3rd International Conference on Neurotoxicology of Selected Chemicals, Little Rock, Arkansas.

National (Presenting Author, *student co-author, #postdoc co-author)

#D. M. Wong, P. R. Carlier, P. C.-H. Lam, M. M. Totrov, J. R. BLOOMQUIST. (2009) Development of Mosquito-Selective Acetylcholinesterase Inhibitors to Control the Malaria Vector, Anopheles Gambiae: Comparative Sequence and Structure Approach. National Meeting of the American Chemical Society, Washington, DC.

J. R. BLOOMQUIST, #T. D. Anderson, P. R. Carlier, J. Githure, *J. A. Hartsel, P. Lam, #M. Ma, H. Manda, *J. M. Mutunga, S. L. Paulson, M. Totrov, #D. M. Wong, and E. Wong. 2009. Molecular Design and Semi-Field Performance of Highly Selective Carbamates For Control of

the Malaria Mosquito, *Anopheles gambiae.* National Meeting of the American Chemical Society, Washington, DC.

*D. Swale, #T. Anderson, *J. Hartsel, #M. Ma, P. Carlier, and J. BLOOMQUIST. (2009) Assessment of Enzyme Inhibition and Toxicity of Newly Designed Anticholinesterases on Mosquito Vectors and Agricultural Pests. National Meeting of the American Chemical Society, Washington, DC.

*Y. Jiang, F. Ekström, P. Carlier, *J. Hartsel, #M. Ma, and J. R. BLOOMQUIST. (2009) Safety Evaluation of Newly Developed Carbamates. National Meeting of the American Chemical Society, Washington, DC.

*L. J. Jenson, S. L. Paulson, and J. R. BLOOMQUIST. (2009) Induction and Characterization of Ion Channels in Sf21 Insect Cells. National Meeting of the American Chemical Society, Washington, DC.

*J. Mutunga, *J. Hartsel, #M. Ma, #L. Srigiriraju, #D. Wong, *B. Jackson, #T. Anderson, S. Paulson, P. Carlier, and J. BLOOMQUIST. (2009) Highly Selective Carbamates for Anopheles Gambiae Acetylcholinesterase: Effects of Pharmacokinetics on Toxicity to Mosquitoes. National Meeting of the American Chemical Society, Washington, DC.

P. R. Carlier, *L. D. Williams, J. R. BLOOMQUIST, #T D. Anderson, S. L. Paulson, and A. Wysinski (2008) Bump-hole reoptimization of the tacrine pharmacophore achieves selective inhibition of *Anopheles gambiae* acetylcholinesterase. National Meeting of the American Chemical Society, New Orleans, LA.

#L. Srigiriraju, P. J. Semtner, #T. D. Anderson, I. V. Sharakhov, and J. R. BLOOMQUIST. (2008) Esterase-based resistance in the tobacco adapted form ofthe green peach aphid, *Myzus persicae* (Sulzer) in the eastern United States. National Meeting of the American Chemical Society, Philadelphia, PA.

#T. D. Anderson, *D. C. Hsu, P. R. Carlier, P. Lam, M. M. Totrov, and J. R. BLOOMQUIST (2008) Biochemical characterization of a putative insecticide target site in the acetylcholinesterase catalytic gorge of green peach aphid. Poster, National Meeting of the American Chemical Society, Philadelphia, PA.

#T. D. Anderson, *J. Hartsel, #M. Ma, *J. Mutunga, #D. Wong, A. Wysinski, *B. Jackson, S. Paulson, P. R. Carlier, and J. R. BLOOMQUIST (2008) Biochemical and toxicological characterization of highly-selective anticholinesterases developed for malarial mosquito control. Poster, National Meeting of the American Chemical Society, Philadelphia, PA.

*J. M. Mutunga, #T. D. Anderson, #D. Wong, P. R. Carlier, and J. R. BLOOMQUIST (2008) Differential potency of bivalent anticholinesterases as a model for the molecular design of selective insecticides. Poster, National Meeting of the American Chemical Society, Philadelphia, PA.

*L. J. Jenson, *D. C. Klorig, and J. R. BLOOMQUIST (2008) Induction of Neuronal Phenotype in Sf21 Insect Cells. Poster, National Meeting of the American Chemical Society, Philadelphia, PA.

P. R. Carlier, *J. Hartsel, #M. Ma, #D. Wong, J. R. BLOOMQUIST, #T. D. Anderson, S. L. Paulson, A. Wysinski, E. Wong, #R. Choudhury (2008) Highly species-selective acetylcholinesterase inhibitors for control of *Anopheles gambiae*, the mosquito vector of malaria. National Meeting of the American Chemical Society, Philadelphia, PA.

H. A. Bustamante, *C. A. Dodd, J. R. BLOOMQUIST, K. L. Wong, and B. G. Klein (2008) The potassium-sensitive ATP channel in Parkinson's disease: Bioactivation and metabolism of MPTP in mice exposed to the type 2 diabetes drug glibenclamide. Poster, National Meeting of the Society for Neuroscience, Washington, D. C.

*C. A. Dodd, J. R. Bloomquist, B. S. Jortner, and B. G. Klein (2008) The effect of manganese upon MPTP-induced toxicity of the mouse dopaminergic mesocortical pathway: Western blot analysis of alpha synuclein, dopamine transporter and synaptophysin in frontal cortex. Poster, National Meeting of the Society for Neuroscience, Washington, D. C.

*J. M. Mutunga, #T. D. Anderson, A. Wysinski, *B. T. Jackson, *J. A. Hartsel, S. L. Paulson, P. R. Carlier, and J. R. BLOOMQUIST (2008) Toxicity of Highly Selective Carbamates Towards the Malaria Mosquito, *Anopheles gambiae.* National meeting of the American Society of Tropical Medicine and Hygiene, New Orleans LA.

*S. A. Casterlow, D. Wong, R. Choudhury, P. Carlier, J. BLOOMQUIST, S. Paulson, and E. Wong (2008) Purification of Recombinant Anopheles gambiae Acetylcholinesterase as an Instrument for Novel Insecticide Development for Malaria Control. Annual Biomedical Research Conference for Minority Students (ABRCMS). Orlando, FL.

*J. M. Mutunga, #T. D. Anderson, *B. T. Jackson, *J. A. Hartsel, S. L. Paulson, P. R. Carlier, and J. R. BLOOMQUIST (2008) Toxicity of highly selective carbamates towards the malaria mosquito, *Anopheles gambiae*. National meeting of the Entomological Society of America, Reno, Nevada.

#T. D. Anderson, D. C. Klorig, #D. Wong, P. R. Carlier, S. L. Paulson and J. R. BLOOMQUIST (2007) Biochemical and molecular characterization of bivalent anticholinesterases to the malarial mosquito. Poster, National Meeting of the American Chemical Society, Chicago, Illinois.

*D. Boina and J. R. BLOOMQUIST (2007) Toxicity and mode of action of the anion transporter blockers against the European corn borer. Poster, National Meeting of the American Chemical Society, Boston, Massachusetts.

#T. D. Anderson, D. C. Klorig, #D. Wong, P. R. Carlier, S. L. Paulson and J. R. BLOOMQUIST (2007) Biochemical and molecular characterization of bivalent anticholinesterases to the malarial mosquito. Poster, National Meeting of the Entomological Society of America, San Diego, California.

J. R. BLOOMQUIST and *D. R. Boina (2006) Blockers of Anion Transporters as Nematicidal Alternatives to Methyl Bromide. Symposium speaker; National Meeting of the American Chemical Society, Division of Agrochemicals, San Francisco, California.

*D. R. Boina and J. R. BLOOMQUIST (2006) Lethal and sublethal effects of anion transport blockers against larvae of European corn borer, *Ostrinia nubilalis* (Hubner). Poster, National Meeting of the Entomological Society of America, Indianapolis, Indiana.

#T. D. Anderson, D. C. Klorig, *D. R. Boina, D. Wong, P. R. Carlier, S. L. Paulson and J. R. BLOOMQUIST (2006) Bivalent anticholinesterases as structural probes in the development of selective mosquitocides. Poster, National Meeting of the Entomological Society of America, Indianapolis, Indiana.

J. Kozuska, P. Carlier, I. Paulsen, E. Clement, J. BLOOMQUIST, S. Dunn, and W. Dreyden (2006) Superagonism at the $GABA_AR$ Explained by Changes in Desensitization Kinetics. Poster, National Meeting of the Society for Neuroscience, Atlanta, Georgia.

J. R. BLOOMQUIST, *E. Chow Clement, *Y. Zhang, and P. R. Carlier (2005) Synthesis and Pharmacology of New Dimeric Amides and ZAPA Analogs at the Murine $GABA_A$ Receptor-Chloride Channel Complex. Poster, National Meeting of the Society for Neuroscience, Washington, D.C.

#W. J. Geldenhuys, *D. C. Klorig, S. F. Malan, J. R. BLOOMQUIST, and C. J. Van der Schyf (2005) Pharmacological Evaluation of Adamantane Amines that Bind to the PCP and Not the MK-801 Binding Site in the *N*-Methyl-D-Aspartate (NMDA) Receptor. Poster, National Meeting of the Society for Neuroscience, Washington, D.C.

*J. Kou, and J. R. BLOOMQUIST (2004) Interactions on striatal dopaminergic pathways following co-application of permethrin, chlorpyrifos, and MPTP. Poster, National Meeting of the Society for Neuroscience, San Diego, CA.

#W. J. Geldenhuys, T. Murugesan, S. F. Malan, J. R. BLOOMQUIST, and C. J. Van der Schyf (2004) Molecular Modeling Studies on the Inhibition of Monoamine Oxidase B by Pentacyclo-undecylamines. Poster, National Meeting of the Society for Neuroscience, San Diego, CA.

#W. J. Geldenhuys, *K. Steelman, S. F. Malan, J. R. BLOOMQUIST, and C. J. Van Der Schyf (2003) Pharmacological Evaluation of Pentacyclo-undecylamine Derivatives as Novel Noncompetitive N-methyl-*D*-aspartate Receptor Antagonists. Poster, National Meeting of the Society for Neuroscience, New Orleans, LA.

*W. Geldenhuys, S. Malan, C. Van der Schyf, and J. BLOOMQUIST (2002) Interaction of Trishomocubane Analogs of Amantadine with the Dopamine Transporter. National Meeting of the Society for Neuroscience, Orlando, Florida.

*J. Kou and J. BLOOMQUIST (2002) Synergistic Interaction of Parkinsonian Neurotoxins and Blockers of ATP-Dependent Potassium Channels. National Meeting of the Society for Neuroscience, Orlando, Florida.

P. Carlier, *E. Chow, R. Barlow, and J. BLOOMQUIST (2002) Discovery of Non-Zwitterionic GABA(A) Agonists and a Superagonist. National Meeting of the American Chemical Society, Boston, Massachusetts.

#J. S. Gillette and J. R. BLOOMQUIST (2002) Modulation of Murine Striatal Dopamine Transporter Expression by the Pyrethroid Insecticide Permethrin. National Meeting of the Society of Toxicology, Nashville, Tennessee.

#Y. X. Pan, H. Chen, L. Van, E. A. Wong, J. R. BLOOMQUIST, and K. E. Webb, Jr. (2001) Functional Expression of a Cloned Chicken Intestinal Peptide Transporter (cPepT1) in *Xenopus* Oocytes. National Meeting of the Federation of American Societies of Experimental Biology, Orlando, Florida.

#D. Karen, #P. Harp, #W. Li, #J. Gillette, and J. BLOOMQUIST (2001) Effects of Subchronic Exposures of Chlorpyrifos or Permethrin on Behavior and Striatal Cholinergic Biomarkers in C57BL/6 Mice. National Meeting of the Society of Toxicology, San Francisco, California.

#D. Karen, #W. Li, #P. Harp, #J. Gillette, B. Klein, and J. BLOOMQUIST (2001) Striatal Dopaminergic Pathways as Targets of Chlorpyrifos or Permethrin Exposures: Comparison with the Parkinsonian Neurotoxin MPTP. National Meeting of the Society of Toxicology, San Francisco, California.

#D. Karen, #P. Harp, #W. Li, and J. BLOOMQUIST (2000) Effects of Multiple Exposures of Chlorpyrifos or Permethrin on Murine Behavior and Striatal Cholinergic Biomarkers. National Meeting of the Society for Environmental Toxicology and Chemistry, Nashville, Tennessee.

W. Li, #D. Karen, #P. Harp, B. Klein, and J. BLOOMQUIST (2000) Murine Dopaminergic Pathways as Targets of Multiple Chlorpyrifos or Permethrin Exposures. National Meeting of the Society for Environmental Toxicology and Chemistry, Nashville, Tennessee.

J. BLOOMQUIST, #P. Harp, #D. Karen, and #W. Li (2000) Insecticide Action on Behavior and Striatal Cholinergic Biomarkers. National Meeting of the Society for Neuroscience, New Orleans, Louisiana.

W. Li, #P. Harp, #D. Karen, B. Klein, and J. BLOOMQUIST (2000) Striatal Dopaminergic Pathways as Target for the Insecticides Permethrin and Chlorpyrifos. National Meeting of the Society for Neuroscience, New Orleans, Louisiana.

*H. Chen, #Y. X. Pan, E. A. Wong, J. R. BLOOMQUIST, and K. E. Webb, Jr. (2000) Molecular Cloning and Functional Expression of a Chicken Intestinal Peptide Transporter (cPepT1) in *Xenopus* Oocytes and CHO Cells. National Meeting of the Poultry Science Association, Montreal, Canada.

#Y. X. Pan, E. A. Wong, J. R. BLOOMQUIST, and K. E. Webb, Jr. (2000) Molecular Cloning, In Vitro Expression, and Functional Characterization of an Ovine Gastrointestinal Peptide Transporter (oPepT1). National Meeting of the American Society of Animal Science, Baltimore, Maryland.

*H. Chen, #Y. Pan, E. A. Wong, J. R. BLOOMQUIST, K. E. Webb, Jr. (2000) Transport of Peptides in CHO Cells Expressing the Cloned Ovine Gastrointestinal Peptide Transporter (oPepT1). National Meeting of the American Society of Animal Science, Baltimore, Maryland.

*E. R. Freeborn, R. Barlow, *M. L. Kirby, and J. R. BLOOMQUIST (1999) Relative contribution of transmitter release and GABA antagonism in the actions of cyclodienes on the murine nigrostriatum. 38th Annual Meeting of the Society of Toxicology, New Orleans, Louisiana.

B. Klein, D. Jones, K. Fuhrman, and J. BLOOMQUIST (1998) *t*-THP: A potential visual marker for substrates of MPTP-induced neurotoxicity that is not a dopaminergic neurotoxin. 28th annual meeting of the Society for Neuroscience, Los Angeles, California.

T. D. Greenwood, J. R. BLOOMQUIST, M. D. Demers, D. C. White, and J. F. Wolfe (1998) Synthesis and comparison of the anticonvulsant activities of 3-aryl-2-substituted-4(3H)quinazolones and their pyrido[2,3-D]-4(3H)pyrimidone analogs. 26th National Medicinal Chemistry Symposium, Richmond, Virginia.

B. G. Klein, *M. L. Kirby, *E. R. Freeborn, N. Castagnoli, and J. R. BLOOMQUIST (1997) Monoamine Oxidase (MAO)-Mediated Fluorescence of an MPTP Analog in Mouse Striatal Synaptosomes: A Potential Visual Marker for Susceptibility to MPTP-Induced Neurotoxicity. National Meeting of the Society for Neuroscience, New Orleans, Louisiana.

*M. L. Kirby and J. R. BLOOMQUIST (1997) Behavioral and Neurochemical Actions of the Insecticide Heptachlor and Their Relation to Environmentally-Induced Parkinsonism. National Meeting of the Society for Neuroscience, New Orleans, Louisiana.

G. W. Miller, *M. L. Kirby, J. R. BLOOMQUIST, and A. I. Levey (1997) Heptachlor Increases Dopamine Transporter Protein Expression: Possible Mechanism of Increased Risk of Parkinson's disease by Pesticides. National Meeting of the Society of Toxicology, Cincinnati, Ohio.

*M. L. Kirby and J. R. BLOOMQUIST (1997) Neurotoxicity of the Organochlorine Insecticide Heptachlor and its Role in Parkinsonism. National Meeting of the Society of Toxicology, Cincinnati, Ohio.

*M. L. Kirby and J. R. BLOOMQUIST (1996) Exposure to Organochlorine Insecticides and Parkinsonism. National Meeting of the Society for Neuroscience, Washington D.C.

*Y. X. Pan, J. R. BLOOMQUIST, E. A. Wong, and K. E. Webb, Jr. (1996) Expression of Sheep Omasal Peptide Transporters in *Xenopus laevis* Oocytes. National Meeting of the American Society of Animal Science, Rapid City, South Dakota.

K. Krapcho, J. Johnson, R. Kral, E. Delmar, L. Hirning, J. BLOOMQUIST, J. Busby, R. Trovato, and H. Jackson (1995) Insecticidal and Mammalian Active Toxins from the Medically

Important Agenelid Spider, *Tegenaria agrestis*. National Meeting of the Society for Neuroscience, San Diego, California.

J. R. BLOOMQUIST and *M. L. Kirby (1995) Pyrethroid and Organochlorine Insecticides as Causal Agents of Parkinsonism. Workshop on the Role of the Environment in Parkinson's Disease, National Institute of Environmental Health Sciences, Research Triangle Park, North Carolina.

*J. C. Matthews, E. A. Wong, P. K. Bender, J. R. BLOOMQUIST, and K. E. Webb (1995) Demonstration of Dipeptide Transport System Activity in the Omasal Epithelium of Sheep by Expression of mRNA in *Xenopus laevis* Oocytes. National Meeting of the American Society of Animal Science, Orlando, Florida.

J. R. BLOOMQUIST, *A. M. Wright, and *J. Bempong (1995) *In vitro* Neurotoxicity Assessment of Oxidative and Reductive Metabolites of Haloperidol. National Meeting of the Society of Toxicology, Baltimore, Maryland.

*M. Kirby, K. Castagnoli, and J. R. BLOOMQUIST (1995) Evaluation of the Pyrethroid Insecticide Deltamethrin in the MPTP/C57 Black Mouse Model of Parkinsonism. National Meeting of the Society of Toxicology, Baltimore, Maryland.

J. BLOOMQUIST, *E. King, *A. Wright, C. Mytilineou, and N. Castagnoli, Jr. (1993) MPP^+-Like Neurotoxicity of a Pyridinium Metabolite of Haloperidol. National Meeting of the Society for Neuroscience, Washington, D.C.

J. R. BLOOMQUIST (1992) Experimental Phenylpyrazole Insecticides as Antagonists at the GABA Receptor/Chloride Channel complex. National Meeting of the Entomological Society of America, Baltimore, Maryland.

*D. N. Judge, H. J. Ferguson, and J. R. BLOOMQUIST (1992) Neurophysiological Characterization and Lipid Composition of Nerves in Susceptible and Insecticide-Resistant Insects. National Meeting of the Entomological Society of America, Baltimore, Maryland.

*H. J. Ferguson, A. J. LaLoggia, J. M. Cook, and J. R. BLOOMQUIST (1992) Action of b-Carboline Convulsants on the Nervous System of *Drosophila melanogaster* (L.). National Meeting of the Entomological Society of America, Baltimore, Maryland.

*L. E. Walker and J. R. BLOOMQUIST (1992) Pharmacology of the Alimentary System of the Imported Cabbageworm, *Peiris rapae* (L.). National Meeting of the Entomological Society of America, Baltimore, Maryland.

J. A. Ottea, G. T. Payne, J. R. BLOOMQUIST, and D. M. Soderlund (1989) Action of N-Alkylamides at a Novel Insecticide Binding Site on Voltage-Sensitive Sodium Channels. National Meeting of the Entomological Society of America, San Antonio, Texas.

G. T. Payne, J. A. Ottea, J. R. BLOOMQUIST, and D. M. Soderlund (1989) Action of N-Alkylamides on Voltage-Sensitive Sodium Channels. National Meeting of the American Chemical Society, Miami, Florida.

J. A. Ottea, G. T. Payne, J. R. BLOOMQUIST, and D. M. Soderlund (1988) Interaction of an Insecticidal Isobutylamide with Voltage-Sensitive Sodium Channels. National Meeting of the Society for Neuroscience, Toronto, Canada.

J. R. BLOOMQUIST, R. E. Grubs, K. Vega, and D. M. Soderlund (1987) Resistance to Pyrethroid Insecticides in Temperature-Sensitive Paralytic Mutants of *Drosophila melanogaster*. National Meeting of the Entomological Society of America, Formal Conference on Genetics and Molecular Biology, Boston, Massachusetts.

J. R. BLOOMQUIST and D. M. Soderlund (1987) Pyrethroid Insecticides and DDT Modify Alkaloid-Dependent Activation of the Voltage-Sensitive Sodium Channel. National Meeting of the Society for Neuroscience, New Orleans, Louisiana.

J. R. BLOOMQUIST, P. M. Adams, and D. M. Soderlund (1986) Neurotoxic Insecticides Antagonize Chloride Uptake at the Mammalian $GABA_A$ Receptor-Chloride Channel Complex. National Meeting of the Society for Neuroscience, Washington, D.C.

J. R. BLOOMQUIST, T. A. Miller, and L. B. Jones (1983) Physiology of Flight and Escape Response in the Housefly During Insecticide Poisoning. National Meeting of the American Chemical Society, Washington, D.C.

J. R. BLOOMQUIST and D. L. Shankland (1981) The Mode of Action and Neurotoxicity of Mirex, Kepone, and Four Hydrogenated Analogs. National Meeting of the Entomological Society of America, San Diego, California.

Regional (Presenting Author, *student co-author, #postdoc co-author)

*D. Boina and J. BLOOMQUIST (2006) Toxicity of Voltage-Sensitive Chloride Channel Blockers Against Insects and Nematodes. Poster; Regional meeting of the Eastern Branch of the Entomological Society of America, Charlottesville, Virginia.

*E. Chow Clement, J. R. BLOOMQUIST, Y. Zhang, and P. R. Carlier (2004) Synthesis and Evaluation of New GABA Amides: Further Study of Tether-length Dependence and Discovery of Six New Competitive GABAAR Antagonists. Southeast Regional Meeting of the American Chemical Society, Research Triangle Park, North Carolina.

J. R. BLOOMQUIST, *D. Dabbs, and R. D. Fell (1993) Characterization of the Biological Activity of Hemipteran Salivary Toxins. 65th Annual Meeting of the Eastern Branch Meeting of the Entomological Society of America, Williamsburg, Virginia.

J. R. BLOOMQUIST and *H. J. Ferguson (1991) Pharmacological Profile of Neuronal GABA Receptors in Cyclodiene-Resistant Insects. 63rd Annual Meeting of the Eastern Branch of the Entomological Society of America, Richmond, Virginia.

J. R. BLOOMQUIST and T. A. Miller (1984) The Use of Simple Reflex Pathways for the Study of Insecticide Poisoning in the House Fly. 20th Regional Meeting of the Western Nerve Net, Los Angeles, California.

University (Presenting Author, *student co-author, #postdoc co-author)

*D. Swale, #T. Anderson, *J. Hartsel, #M. Ma, P. Carlier, and J. BLOOMQUIST. (2009) Assessment of Enzyme Inhibition and Toxicity of Newly Designed Anticholinesterases on Mosquito Vectors and Agricultural Pests. Virginia Tech Graduate Student Assembly: Research Symposium. Blacksburg, Virginia.

*Y. Jiang, F. Ekström, P. Carlier, *J. Hartsel, M. Ma, and J. R. BLOOMQUIST. (2009) Safety Evaluation of Newly Developed Carbamates. Virginia Tech Graduate Student Assembly: Research Symposium. Blacksburg, Virginia.

*L. J. Jenson, S. L. Paulson, and J. R. BLOOMQUIST. (2009) Induction and Characterization of Ion Channels in Sf21 Insect Cells. Virginia Tech Graduate Student Assembly: Research Symposium. Blacksburg, Virginia.

*J. M. Mutunga, #T. D. Anderson and J. R. BLOOMQUIST (2008) Differential Bivalence-Dependent Potency of Anticholinesterases as a Model for the Molecular Design of Selective Insecticides. 24th GSA Research Symposium, Virginia Tech, Blacksburg, VA.

*L. J. Jenson, D. C. Klorig, and J. R. BLOOMQUIST (2008) Induction of Neuronal Phenotype in Sf21 Insect Cells. 24th GSA Research Symposium, Virginia Tech, Blacksburg, VA.

#D. M. Wong, P. R. Carlier, #T. D. Anderson, *D. C. Hsu, E. A. Wong, #R. Choudhury, P. Lam, M. Totrov, and J. R. BLOOMQUIST (2008) Towards a species-selective acetylcholinesterase inhibitor to control the mosquito vector of malaria, *Anopheles gambiae.* 3rd Annual Virginia Tech Structural Biology Symposium, Blacksburg, VA.

P. R. Carlier, *J. Hartsel, #M. Ma, #D. Wong, J. R. BLOOMQUIST, #T. D. Anderson, S. L. Paulson, A. Wysinski, E. Wong, R. Choudhury (2008) Highly species-selective acetylcholinesterase inhibitors for control of *Anopheles gambiae*, the mosquito vector of malaria. Dean's Forum on Infectious Disease, Virginia Tech, Blacksburg, VA.

P. R. Carlier, *L. D. Williams, #M. Ma, J. R. BLOOMQUIST, #T. D. Anderson, #L. Srigiriraju, S. Paulson, A. Wysinski, E. A. Wong, and #R. Choudhury (2008) Bump-hole reoptimization of the tacrine pharmacophore achieves selective inhibition of *Anopheles gambiae* acetylcholinesterase. Dean's Forum on Infectious Disease, Virginia Tech, Blacksburg, VA.

P. R. Carlier, #T. D. Anderson, #D. M. Wong, *D. C. Hsu, *J. Hartsel, #M. Ma, E. A. Wong, #R. Choudhury, P. Lam, M. M. Totrov, J. R. BLOOMQUIST (2008) Towards a Species-Selective Acetylcholinesterase Inhibitor to Control the Mosquito Vector of Malaria, *Anopheles gambiae*. Dean's Forum on Infectious Disease, Virginia Tech, Blacksburg, VA.

*J. M. Mutunga, #T. D. Anderson, #D. M. Wong, P. R. Carlier, and J. R. BLOOMQUIST (2008) Differential Potency of Bivalent Anticholinesterases as a Model for the Molecular Design of Selective Insecticides. Dean's Forum on Infectious Disease, Virginia Tech, Blacksburg, VA.

*J. Mutunga, #T. D. Anderson, and J. R. BLOOMQUIST (2007) Inhibition of German Cockroach (*Blattella germanica*) acetylcholinesterase by dimeric tacrines. Graduate Research Symposium, Virginia Tech, Campus.

*D. Boina and J. R. BLOOMQUIST (2007) Effects of anion transport blockers on growth, development and survival of European corn borer, *Ostrinia nubilalis* (Hübner). Graduate Research Symposium, Virginia Tech, Campus.

J. R. BLOOMQUIST (2007) Comparative analysis of the acetylcholinesterase (AChE) active site gorge in medically-important insects. Vector Borne Disease Symposium, Virginia Tech, Campus.

*J. M. Mutunga, T. D. Anderson and J. R. BLOOMQUIST (2007) Exploring the Insect Acetylcholinesterase (AChE) Active Site Gorge: Toxicokinetic and AChE Sequence Analysis as Prospects to Molecular Design of Selective Insecticides for the Control of Disease Vectors. Vector Borne Disease Symposium, Virginia Tech, Campus.

*D. Boina and J. R. BLOOMQUIST (2007) Effects of anion transporter blockers on insects. The Dean's forum on health, food, and nutrition, Virginia Tech, Campus.

*J. M. Mutunga, #T. D. Anderson and J. R. BLOOMQUIST (2007) Exploring the Insect Acetylcholinesterase (AChE) Active Site Gorge: Toxicokinetic and AChE Sequence Analysis as Prospects to Molecular Design of Selective Insecticides for the Control of Disease Vectors. Vector Borne Disease Symposium, Virginia Tech, Campus.

*D. Boina and J. BLOOMQUIST (2006) Toxicity of Voltage-Sensitive Chloride Channel Blockers Against Insects and Nematodes. Poster; 22nd Annual Graduate Student Assembly Research Symposium, Virginia Tech, Campus.

#T. D. Anderson, D. C. Klorig, *D. R. Boina, D. Wong, P. R. Carlier, S. L. Paulson and J. R. BLOOMQUIST (2006) Bivalent anticholinesterases as structural probes in the development of selective mosquitocides. Poster; Vector-Borne Disease Research: The Road Ahead. October 13-15, Virginia Tech, Blacksburg, Virginia.

#W. J. Geldenhuys, S. F. Malan, *D. C. Klorig, J. R. BLOOMQUIST, and C. J. Van der Schyf (2005) Design of an Adamantane Amine that Binds to the PCP Binding Site of the NMDA Receptor. Poster; Texas Tech University Health Sciences Center, School Of Pharmacy, Fourth Annual Research Days, Amarillo, Texas.

J. R. BLOOMQUIST (2005) New Anticholinesterases for Malaria Control. Department of Entomology, Virginia Tech.

J. R. BLOOMQUIST (2003) Physiology and Pharmacology of Ligand-Gated Chloride Channels in Insects and Mammals. Department of Entomology Seminar, Virginia Tech.

J. R. BLOOMQUIST (2003) Dopaminergic Neurotoxicity of Insecticides. Interdisciplinary Neuroscience Seminar Series, Virginia Tech.

#W. Geldenhuys, K. Steelman, S. Malan, J. BLOOMQUIST, and C. Van der Schyf (2003) Pharmacological Evaluation of Pentacyclo-Undecylamine Derivatives as Novel Uncompetitive N-Methyl-D-Aspartate (NMDA) Receptor Antagonists. School of Pharmacy, Dept. of Pharmaceutical Science, Texas Tech University Health Sciences Center, Amarillo, Texas.

*J. Kou and J. R. BLOOMQUIST (2002) Effect of the Two Pharmacological Agents Reserpine and Glibenclamide and the Pesticide Rotenone on Dopamine Release in the ICR Mouse. Virginia Tech Graduate Student Assembly Symposium.

*C. V. Hild and J. R. BLOOMQUIST (2002) What Effect do Silphinenes have on *Drosophila* CNS? Virginia Tech Graduate Student Assembly Symposium.

*A. L. Bowie and J. R. BLOOMQUIST (2000) The Role of Calcium Channels in the Effects of Pesticides in the Central Nervous System. Medical Student Research Day, University of Maryland School of Medicine, Baltimore, Maryland.

*A. L. Bowie and J. R. BLOOMQUIST (2000) The Role of Calcium Channels on the Effects of Pesticides in the Central Nervous System. 16th Annual Research Symposium of Virginia Tech.

*Y. X. Pan, E. A. Wong, J. R. BLOOMQUIST, and K. E. Webb, Jr. (1997) Poly(A)$^+$ RNA from Sheep Omasal Epithelium Induces Expression of a Peptide Transport Protein(s) in *Xenopus laevis* Oocytes. 13th Annual Research Symposium of Virginia Tech.

*M. L. Kirby and J. R. BLOOMQUIST (1997) Neurotoxicity of the Organochlorine Insecticide Heptachlor and its Role in Parkinsonism. 13th Annual Research Symposium of Virginia Tech. (This was the only graduate student presentation from our Department).

*S. Bathiche and J. R. BLOOMQUIST (1997) Neural Control: Getting an American Cockroach to Drive a Car. 13th Annual Research Symposium of Virginia Tech.

J. R. BLOOMQUIST (1994) Adventures in Neuroscience with Cockroaches, Flies, and Caterpillars: The Rest of the Story. Department of Entomology, Virginia Tech.

D. Soderlund, J. BLOOMQUIST, and D. Knipple (1988) Expression of Neurotransmitter Receptors and Ion Channels in *Xenopus* Oocytes. Cornell Biotechnology Program Symposium, Ithaca, New York.

D. M. Soderlund, D.C. Knipple, and J.R. BLOOMQUIST (1987) Molecular Genetics of Nerve Insensitivity Resistance to Insecticides Cornell Biotechnology Program Symposium, Ithaca, New York.

Other Papers and Reports

In 2003, provided an invited chapter for the *Encyclopedia of Chemistry*, published by MacMillan and Co. It was written at the advanced high school level, was titled, "Insecticides" and was approximately 1500 words in length.

CURRENT POSITIONS OF FORMER GRADUATE STUDENTS AND POSTDOCS

Graduate students

Alesia Wright M.S.	Neurotoxicology of haloperidol metabolites (1992-94), enrolled at the Eastern VA Medical College, now an M.D. in private practice in VA
Mike Kirby Ph.D.	Parkinsonian actions of organochlorines (1994-98) multiple postdocs, now a community college instructor, Des Moines, IA
Ethan Freeborn M.S.	Effects of organochlorines in murine striatal brain slices (1997-1999), then University of Virginia Medical School, Intern at Wake Forest Medical Center, now an E.R. physician, Carillion Med Center, Radford, VA
Jinghong, Kou Ph.D.	Mechanism of release of DA by neurotoxins, role of K_{ATP} channels in Parkinson's Disease (2001-2005) Postdocs at LSU Vet School (2006) and Bradley University Med School (2007-present)
Werner Geldenhuys Ph.D.	Mode of action of cage amines (2001-2003) Postdoc at Texas Tech Univ Health Sciences Center (2004-6) Asst. Prof. of Pharmaceutical Sci., Northeast Ohio College of Medicine (2007)
DhanaRaj Boina Ph.D.	Voltage-sensitive chloride channel studies (2004-2008) Postdoc, Univ of FL, Department of Entomology (2008-present)

Postdoctoral scientists

Dr. Paul Harp (NE LSU)	Biochemical and behavioral assays on Army grant (1/99-9/99) State toxicologist's office, New Hampshire (2000), now a staff scientist at Phillip-Morris, Inc., Winston-Salem, NC
Dr. Wen Li (NIH)	Biochemical and behavioral assays on Army grant (3/99-5/00) Laboratory Specialist, Virginia-Maryland Regional College of Vet. Med.
Dr. Daniel Karen (Clemson)	Biochemical and behavioral assays on Army grant (1/00-10/00) Software salesman/distributor for the Karen family company
Dr. Jeff Gillette (NC State)	Biochemical and behavioral assays on Army grant (8/00-1/03), instructor at VA Western Community College, Roanoke, VA
Dr. Yuanxiang Pan	Sheep and chicken peptide transporter functional analysis (9/99-8/01)

(Virginia Tech)	Second postdoctoral appointment at Univ. of FL Med. School, now Asst. Prof of Nutritional Sci., University of Illinois, Urbana-Champaign
Dr. Troy Anderson (Kansas State)	FNIH mosquito project (5/06-7/08) Assistant professor of Biology, Univ. of Texas at Tyler, TX
Dr. Pathi Srigiriraju (Virginia Tech)	FNIH mosquito project (5/08-3/09) Postdoctoral scientist, USDA Natural Products Laboratory, Oxford, MS

OTHER RECOGNITION (last 10 years)

Awards Received by Dr. Bloomquist's Students and Postdoctoral Scientists

Daniel Swale (First Place) and James Mutunga (Second Place) were recognized in the graduate student poster competition in the agrochemicals Division of the American Chemical Society in Washington, D.C. in August 2009. The first place award consisted of $400 and the second place award was $300.

Daniel Swale and Lacey Jenson each received $300 travel awards from the Gladys and Clarence Hill Travel Scholarship Fund as well as $400 each from the W.B. Alwood Entomological Society, to attend the 5th MIM Pan-African Malaria Conference in Nairobi, Kenya, 2009.

Lacey Jenson won a 3rd place award in the 2009 Virginia Tech Graduate Student Assembly Research Symposium, Blacksburg, Virginia.

Lacey Jenson was also awarded a $400 grant by the 2009 Virginia Tech Graduate Research Development Program, Blacksburg, Virginia.

Daniel Swale, Lacey Jenson, and James Mutunga were each given a student travel award to attend the national meeting of the American Chemical Society in Washington, D.C. in August 2009. The award consisted of $600 for your travel, $170 for meeting registration (ACS member student registration rate), and a $70 ACS grad student membership fee, for a total reimbursement of $840 each.

Mr. James Mutunga (Ph.D. student) and Ms. Lacey Jenson (M.S. student) were each awarded a $600 travel grant to participate in the graduate student research poster symposium at the 2008 national meeting of the American Chemical Society in Philadelphia, PA.

James Mutunga's poster "Differential Potency of Bivalent Anticholinesterases as a Model for the Molecular Design of Selective Insecticides" was chosen as the first place award winner in the student competition in the Division of Agrochemicals, national meeting of the American Chemical Society in Philadelphia, PA (2008).

Mr. James Mutunga (Ph.D. student) and Ms. Lacey Jenson (M.S. student) received $600 and $200 GSA Research Awards, respectively, to support their graduate research (2008).

Mr. James Mutunga (Ph.D. student) was awarded a travel grant to participate in the 2008 national meeting of the American Society of Tropical Medicine and Hygiene in New Orleans LA. The award included airfare, complimentary registration and $800.

At the 23rd Graduate Students Assembly Annual Research Symposia (Spring, 2007), James Mutunga tied for 2nd place in poster presentations under the Agriculture, Natural and Life Sciences group. A certificate of participation and a $225 cash prize were issued.

Raj Boina was awarded a $600 travel grant to participate in the graduate student research poster symposium at the 2007 national meeting of the American Chemical Society in Boston, MA. At the meeting, he placed third in the graduate student poster competition and won a $100 prize.

Raj Boina was selected to receive the first Graduate Research Fellowship from the David W. and Lillian Francis Scholarship fund. The research fellowship is for Fall '06 - Spring '07.

Mr. Boina also received a $400 travel grant from the VT Graduate Student Assembly to attend the national meeting of the Entomological Society of America, Indianapolis, IN, 2006.

Jinghong Kou won first prize in a student research competition (category of general neurotoxicity) at the 22nd International Neurotoxicology Conference, held at Research Triangle Park, NC, 9/11-9/13, 2005. She was awarded a plaque, $300, and a year's free subscription to the journal *NeuroToxicology*. The title of her poster was: "Potentiating Effect of the K^+_{ATP} Channel Blocker Glibenclamide on the Neurotoxicity of Complex I Inhibitors."

Raj Boina applied for and was awarded a $500 grant from the Virginia Tech Graduate Research Development program to support his dissertation research (2005).

Dr. Jeffrey Gillette, a post-doctoral fellow working in my laboratory, was selected as the second place winner in the recent Neurotoxicology Specialty Section poster competition held at the annual Society of Toxicology meeting in Nashville, spring 2002. The award consisted of a check in the amount of $300 and an award certificate.

Dr. Jeff Gillette was awarded a $610 postdoctoral travel grant from Research and Graduate Studies, VPI&SU, to present two posters at the Society of Toxicology national meeting held in San Francisco, March of 2001.

Ethan Freeborn (M.S. student) was awarded a $500 travel grant from the National Capitol Area Chapter of the Society of Toxicology to attend the national meeting in New Orleans in March, 1999.

INTERNATIONAL RESEARCH COLLABORATIONS (last 10 years)

Invited participant and platform speaker, at a Vector Control Consultation, sponsored by the Bill and Melinda Gates Foundation. The meeting was held in Seattle, Washington 7/28/08-7/30/08, in order to establish a consensus on research needs to address this disease.

I hosted the campus visit of Dr. Janet Hemingway, Director of the Liverpool School of Tropical Medicine (Feb, 2007). Dr. Hemingway is a world authority on vector control and C.E.O. of the Innovative Vector Control Consortium (IVCC), funded by a $51 million dollar grant from the Bill and Melinda Gates Foundation. In the course of her visit, she delivered the following seminar: "An Innovative Vector Control Consortium: A Major New Initiative in Vector Biology."

At Dr. Hemingway's invitation, I agreed to serve as a proposal reviewer for the IVCC program starting in March, 2007, and was named a full member of the IVCC's External Scientific Advisory Committee in May of 2007. These activities occurred during 2 visits to Liverpool, England.

Invited participant at a Malaria Forum, sponsored by the Bill and Melinda Gates Foundation. The meeting was held in Seattle, Washington 11/16-11/18, in order to establish a consensus on research needs to address this disease.

I hosted the campus visit of Dr. John Githure, Head of the Human Health Division of the International Center for Insect Physiology and Ecology (ICIPE), Nairobi, Kenya. Dr. Githure is a collaborator on our Grand Challenges in Global Health project, and was here to familiarize himself with our research group and our capabilities. In the course of his visit, he delivered the following seminar: "Towards Integrated Vector Management for Malaria Control in Africa." Enhanced collaborations between ICIPE and VT CALS are expected, including student exchange programs to be covered in a new Memorandum of Understanding. I accepted one of Dr. Githure's students, James Mutunga, as a Ph.D. student in my laboratory, starting in 2007, as a beginning to what we hope will be a long and fruitful collaboration with ICIPE.

Collaboration with Dr. Azucena Gonzalez-Coloma and her colleagues at the Center for Environmental Sciences, Madrid, Spain, used funding from the Ministry of Science and Technology of Spain, they provided us pure samples of silphinenes, plant compounds with lethal and antifeedant activity in insects. My laboratory characterized the activity of silphinenes on GABA receptors of insects and mammals. A poster on this work was given at the 10th International Congress of Pesticide Chemistry, Basel, Switzerland, 2002, and in a symposium, "Biorational Insecticides – Mechanism and Application," held at the national meeting of the Entomological Society of America (2002). A paper was published as part of the refereed proceedings of this symposium, and appeared in *Archives of Insect Biochemistry and Physiology* (2003). The full research paper was published in *Pesticide Biochemistry and Physiology* in 2008.

Collaboration with the laboratory of Dr. Russell Nicholson (Simon Fraser University, Dept. of Biology, Burnaby, British Columbia) on industry-sponsored studies of the mode of action of new benzhydrolpiperidine insecticides. These studies resulted in a presentation at Insect Toxicology 2000, held the summer of 2000 at the University of California, Berkeley (given by Dr. Nicholson). Two refereed journal articles also resulted from this work that appeared in 2001 and 2002.

PROFESSIONAL SERVICE RELATED TO RESEARCH (last 10 years)

Service as an officer of an academic or professional association

Elected Member-at-Large to the Executive Committee, American Chemical Society, Division of Agrochemicals (2004-2006).

Other service to one's profession or field

I was an external reviewer of the promotion to full professor applications of Dr. Kun Yan Zhu of Kansas State University and Dr. Ke Dong of Michigan State University (2006).

In Spring 2003, I was an invited participant in an organized Think Tank on mare reproductive loss syndrome (MRLS). The initial meeting was held in Lexington, Kentucky in January, and was organized by a consortium of concerned organizations, including Rood and Riddle Equine Hospital, Hagyard-Davidson-McGee and Associates, Kentucky Thoroughbred Association, and the Kentucky Association of Equine Practitioners. My role was to serve as a toxicologist on a panel discussion (about 25 members) to review data on MRLS and suggest future research. A follow-up meeting, that I also attended, was held in March where funding decisions were made.

In fall 2003, I reviewed two symposium book proposals submitted to the American Chemical Society by Dr. John Marshall Clark, University of Massachusetts, and Hideo Ohkawa, Kobe University in Japan.

Outside tenure evaluator for Dr. Nannan Liu, Dept. of Entomology, Auburn University (2002).

Outside faculty evaluator of Dr. Karin Dyason from the Department of Physiology at Potchefstroom University in South Africa. Dr. Dyason is an electrophysiologist working on the actions of scorpion toxins. This faculty review was made at the request of the South African National Research Foundation (2002).

Outside evaluator for Dr. David Soderlund, who was nominated for the Entomological Society of America Recognition Award in Insect Physiology, Biochemistry, and Toxicology, sponsored by Rohm and Haas Company (2000).

I was invited by the Michael J. Fox Parkinson's Foundation to give a short presentation of our Parkinson's/insecticide research and to participate as a member of a plenary panel discussing the Dept. of Defense's investment in Parkinson's research, Washington, D.C., June (2000).

Meetings, panels, workshops, etc., led or organized

Organized an award symposium for Dr. David Soderlund, recipient of the International Award in Agrochemicals, American Chemical Society. The symposium had 13 speakers and was held at the national meeting of the American Chemical Society, Philadelphia, PA, August, 2008. The proceedings of the symposium will be published as a special edition of *Pesticide Biochemistry and Physiology.*

I was one of three co-organizers (along with John Clark of the University of Massachusetts and Hitoshi Kawada of Nagasaki University) of a vector control symposium, held in conjunction with Pan Pac 2008- the Pan Pacific Conference on Pesticide Chemistry, Honolulu, HI, June 1-5, 2008.

Organized a workshop, "Recent Advances in Insecticide Mode of Action", held at the 10th International Congress of Pesticide Chemistry, Basel, Switzerland (August, 2002). An international panel of six experts participated in the program.

Member of the organizing committee for a U. S. Army-sponsored symposium for investigators of Parkinson's Disease. This meeting was national in scope and was designed to bring together scientists funded by the Army's Neurotoxin Exposure Research Program with leading researchers on all aspects of Parkinson's disease. The meeting was held in Potomac, Maryland, March (2001).

Manuscripts and Grant Proposals Reviewed (number of papers/proposals, last 10 Years)

Manuscripts

American Chemical Society Symposium Series (2)
American Journal of Physiology - Gastrointestinal and Liver Physiology (1)
Apidologie (1)
Archives of Insect Biochemistry and Physiology (5)
Biochemica et Biophysica Acta (1)
Biochemical Pharmacology (2)
Comparative Biochemistry and Physiology (1)
Developmental Brain Research (1)
Environmental Science and Technology (1)
Insect Biochemistry and Molecular Biology (4)
Invertebrate Neuroscience (1)
Journal of Biochemical Toxicology (2)
Journal of Economic Entomology (4)
Journal of Insect Physiology (1)
Journal of Neurobiology (1)
Journal of Pharmacology and Experimental Therapeutics (2)
Life Science (2)
Neurochemistry International (1)
Neuroscience (1)
NeuroToxicology (3)
Pest Management Science (3)
Pesticide Biochemistry and Physiology (7)
Proceedings of the National Academy of Sciences USA (1)
Toxicological Sciences (2)
Toxicology and Applied Pharmacology (1)
Toxicology Letters (4)

Grant proposals

Reviewer (2008) for the Innovative Vector Control Consortium, Liverpool School of Tropical Medicine, sponsored by the Bill and Melinda Gates Foundation (15)
Reviewer (2007) for the Innovative Vector Control Consortium, Liverpool School of Tropical Medicine, sponsored by the Bill and Melinda Gates Foundation (14)

Reviewer (2007) for the Vector Biology Study Section, Infectious Disease and Microbiology Integrated Review Group, NIH (1)
Reviewer (2006) for the Hatch project of Zach Adelman, Dept. of Entomology, Virginia Tech (1)
Reviewer (2006) for the Hatch project of Mike Klemba, Dept. of Biochemistry, Virginia Tech (1)
Reviewer (2006) of an insect control proposal for the Kentucky Thoroughbred Owners and Breeders Foundation, Inc. I was paid an honorarium for this review as well (1)
Reviewer for the Virginia Tech Graduate Research Development Project, that supplies small grant awards to support graduate research. (3)
Reviewer (2006) for the Vector Biology Study Section, Infectious Disease and Microbiology Integrated Review Group, NIH (3)
Reviewer (2006) for the Hatch project of John Clark, Dept. of Entomology, Univ. of Mass. (1)
Reviewer (2005) of an Innovational Research Incentives proposal for the Netherlands Organization for Scientific Research, "Neurotoxic Modulation of Dopaminergic Neurotransmission by Pesticides" by Dr. R. Westerink. (1)
Internal Reviewer (2005) for Hatch proposals, Virginia Ag Experiment Station (2)
Ad hoc reviewer (2004) USDA National Research Initiative Competitive Grants Program, Integrative Biology of Arthropods and Nematodes Program (1)
Internal Reviewer (2004) for a Hatch proposal, Virginia Ag Experiment Station (1)
Internal Reviewer (2001) for a Hatch proposal, Virginia Ag Experiment Station (1)
Ad Hoc Reviewer (2000) of a BARD final grant report (1)
Ad Hoc Reviewer (2000) for Israel Science Foundation (1)
Panel Reviewer (2000) USDA National Research Initiative Competitive Grants Program, Entomology Suborganismal Section, Washington D.C. (27)
Ad Hoc Reviewer (2000) Virginia Tech, BSI Undergraduate Research Support Program (1)
Panel Reviewer (1999) USDA National Research Initiative Competitive Grants Program, Entomology Suborganismal Section, Washington D. C. (26)