Drion G. Boucias

Professor

Contact

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(90% Research, 10% Teaching)

Education

- B.S. in Biology, 1972, University of Maine
- M.S. 1974, University of Maine
- Ph.D. 1978, University of Kentucky

Relevant Employment History (Since Ph.D.)

- University of Florida, Professor, 1992-present
- IAEA Seibersdorf, Austria Consultant 2011-2012 (sabbatical leave)
- AgResearch Senior Research Scientist Fellowship (sabbatical leave) 2004
- AgResearch Ltd, Fulbright Senior Research Scholar (sabbatical leave) 1997
- University of Florida, Associate Professor, 1989-1992
- Pasteur Institute, Paris, France 1989 (sabbatical leave)
- University of Florida, Associate Professor, 1986-1989
- University of Florida, Research Associate, 19791980
- University of Florida, Assistant Professor, 19811986
- University of Maine, Assistant Professor, 19801981

Research Responsibilites

The overall objective of our research program is to elucidate the mechanisms regulating the development of invertebrate pathogens. This research, utilizing various pathogen-insect models, is directed at defining cellular/subcellular interactions which allow microbes to invade and to kill insect hosts. Additionally, our research is addressing those mechanisms that confer disease resistance to selected host insects. Our applied research program is directed at understanding how these pathogens operate to suppress host populations and to assist in the implementation of insect pathogens as microbial control agents. In addition , an active program designed to isolate novel metabolites from insect affiliated microbes has been established in collaboration with industrial partners.

Granting Agencies:

- NSF Cell Biology; 1986-1989
- NATO 1987-1990; NATO 1991-1993
- Co-PI - USDA CBAG 1988-1991
- USDA Collaborative projects; 1988-1995
- NSF Cell Biology 1989-1991
- FMC 1989; USDA 1990-1995
- USDA NRICGP 1991-1995
- S.C. Johnson 1992-1993
- NSF Cell Biology 1992-1994
- Bayer Corporation 1994-1996
- Syngenta Corporation 1998-2004
- NSF Cell Biology 2002-2005
- USDA (special grants-Pierces Disease) 2002-2004
- USDA NRICGP 2007-2010; 2010-2013 (Co-PI)
- NIH 2007-2009

Teaching Responsibilities

My major teaching responsibility is to teach the undergraduate course Principles of Entomology. Secondly, our laboratory offers a graduate level course in Insect Pathology. Additionally, our laboratory staff provides training in insect pathology to various graduate and undergraduate students.

Accomplishments over the past 5 years have been:

1. Discovery and molecular analysis of Helicosporidia a unique clade of insect pathogenic algae.
2. Analysis of the population genetics of *Nomuraea rileyi*.
3. Elucidation of the involvement of humoral lectins insect recognition of nonself.
4. Detection and analysis of novel fungal insecticidal toxins.
5. Development of insects as microbial miners of producing bioactive metabolites.
6. Cloning and sequencing of various fungal hydrolases, toxins, and cell-wall related synthases.

International Experience

- Consultant to EMBRAPA on IICA contract. Development of Anticarsia gemmatalis nuclear polyhedrosis virus as a biocontrol agent against soybean defoliators.
- Consultant to AID Project IPM in Honduras and Ecuador. Assisted in development of teaching module and in Microbial control of Insect Pests.
- Collaborative research with Pasteur Institute, Paris, France (NATO project), and the Comparative Pathology of Invertebrate Laboratory, St. Christol, France (NATO projects)
- Collaborative NSF project with EMBRAPA in Londrina and CENERGEN
- Collaborative program with AgResearch New Zealand on physiology of insect digestion
- Collaborative project with Mahidol University and Kasasart University Bangkok, Thailand Analysis of the Chitinase Gene of *Nomuraea rileyi* and HtA toxin in *Hirsutella thompsonii*
- Collaborative program with University of Colima "Pathology of *Hirsutella thompsonii* to Spider Mites"

Patents

- Joint patent with Pasteur Institute entitled Fungal Exopolysaccharides Having Immunostimulatory Activity, Procedure for Production, Extraction and Evaluation.

Graduate Education:

- Served as chairperson for 12 students
- Served on 20 graduate student committees
- Teach undergraduate Principles of Entomology
- Teach graduate level courses in Insect Pathology and Insect Physiology

Other Activities:

- Chairperson - S-135 Regional USDA Project, Development of Microbial Agents for Use in Integrated Pest Management Systems
- Consultant - FMC Corp. Development of Fungal Toxins as Microbial Insecticides
- Co-organizer - NATO Workshop. Fungal Cell and Immune Response
- Editorial Board - Journal of Invertebrate Pathology (1989 to 1993)
- Peer Reviewer - USDA, EPA, NSF, Can. Res. Council, IFS and various journals.
- Fulbright review panel 2001-2003
- USDA NRI panel (spring 2005; spring 2006)
- NIH panel (spring 2008)
- IAEA consultant (2006-present)

Presentations:

- Over the past 30 years I have presented 50 symposia and over 85 papers at various scientific meetings.

Career Publications:

- Books 1; Books (co-editor) 2; chapters in books 7; scientific papers 149; miscellaneous publications: 6

Books:

- Boucias, D.G. and J.C. Pendland. 1998. Principles of Insect Pathology. Klewer Academic Publishers, Boston 537 p
- Latge, J. P., and D. G. Boucias (co-editors). 1991. Fungal Cell Wall and Immune Response (NATO ASI Series), Springer-Verlag.
- McCoy, C.W., R. Samson, D.G. Boucias, L.S. Osborne, J.E. Pena, and L.J. Buss. 2009. Pathogens of Insects and Mites in Citrus. Friends of Microbes LLC, Winter Park, FL. 193 pp

Book Chapters, Reviews, and Published Proceedings

- Boucias, D. G., and J. C. Pendland. 1984. Host recognition and specificity of entomopathogenic fungi. In: "Infection Processes of Fungi" (J. Aist and D. W. Roberts eds.). Rockefeller Foundation Study, Bellagio, Italy.
- Faulkner, P., and D. G. Boucias. 1985. Genetic improvement of insect pathogens: emphasis on the use of baculoviruses. In: "Integrated Pest Management of Insects" (M. Hoy and D. C. Herzog, eds.). Academic Press, NY.
- Herzog, D. C., J. L. Stimac, D. G. Boucias, and V. H. Waddill. 1984. Compatibility of biological control in soybean insect management. In: "Proceedings of the Chinese Academy of Sciences, United State National Academy of Sciences and Joint Symposium on Biological Control of Insects" (P. L. Adkisson and S. Ma, eds.). pp. 3760.
- McCoy, C. W., R. A. Samson, and D. G. Boucias. 1988. Entomogenous fungi. In: "CRC Microbial Insecticides" (C. Ignoffo, ed.). CRC press, Orlando, FL. pp. 156236.
- Boucias, D. G., and J. P. Latge. 1988. Invertebrate Fungal Elicitors. In: "Fungal Antigen Isolation, Purification, and Detection" (E. Drouhet, G. T. Cole, L. DeRepentigny, J. P. Latge and B. Dupont, eds.) Plenum Press, NY. pp. 121-137.
- Boucias, D. G., and J. C. Pendland. 1991. Attachment of mycopathogens to cuticle: The initial event of mycosis in arthropod hosts. In: "Fungal Spore and Disease Initiation in Plants and Animals" (G. T. Cole and H. C. Hoch, eds.). Plenum Press, NY. pp. 101-127.
- Boucias, D. G., and J. C. Pendland. 1991. The fungal cell wall and its involvement in the pathogenic process in insect hosts. In: " Fungal Cell Wall and Immune Response" (J. P. Latge and D. G. Boucias, eds.), NATO-ASI Publication, Springer-Verlag, NY. pp. 303- 316.
- Boucias D. G, J.M. Meyer, S. Popoonsak, and S. E. Breaux 2007. The Genus Hirsutella: A Polyphyletic Group of Fungal Pathogens Infecting of Mites and Insects. In Use of Entomopathogenic Fungi in Biological Pest Management, eds. S. Ekesi and N.K. Maniania p.1-34.
- Abd-Alla, A., Boucias, D.G. and Bergoin, M. 2010 Hytrosaviridae in Insect Virology (eds) S. Asgari & K. Johnson, Horizon Scientific Press and Caister Academic Press, Norwich, United Kingdom.
- Boucias, D. G., Verena Lietze, and Peter Teal 2012. Chemical Signals that Mediate Insect- Fungal Interactions G. In Biocommunication of Fungi Witzany (ed.). Springer Science.

Referred Publications in Last Ten Years (student authors in italics):

- Maimala, S., Tartar, A., Boucias, D., and Chandrapatya, A. 2002. Detection of the toxin Hirsutellin A from *Hirsutella thompsonii*. J. Invertebr. Pathol. 80:112-126.
- Kanga, L.H.B., James, R.R., and Boucias, D.G. 2002. *Hirsutella thompsonii* and *Metarhizium anisopliae* as potential microbial controls of *Varroa destructor*, a honey bee parasite. J. Invertebr. Pathol. 81:175-184.

- Acevedo J., D. Boucias, R. Lezama and A. Pescador 2003. Novel Metabolites of Hirsutella thompsonii FISHER Inhibits Oviposition by the Two-Spotted Spider Mites *Tetranychus urticae* KOCH Applied and Experimental Acarology 29:213-225
- Tartar, A., D. G. Boucias, B. J. Adams and J. J. Becnel. 2003. Comparison of plastid 16S rDNA (rrn16) genes from *Helicosporidium* spp.: evidence supporting the reclassification of Helicosporidia as green algae (Chlorophyta). International J. System. Evol. Microbiol. 53:1719-1723.
- Hay-Roe, M.M., A.M. Shapiro, J.J. Becnel, and D.G. Boucias . 2003. A newly-discovered baculovirus induces reflex bleeding in the butterfly *Heliconius himera* (Nymphalidae: Heliconiinae). J. Invertebr. Pathol. 84:59-61.
- Ulrike Blüske, V.and D. G. Boucias 2004. Influence of *Helicosporidium* sp. (Chlorophyta: Trebouxiophyceae) infection on development and survival of three noctuid species. Environ. Entomol. 33(1):54-61.
- Wattanalai, R., D. Boucias, A. Tartar, and C. Wiwat 2004. Chitinase gene of the dimorphic mycopathogen, *Nomuraea rileyi*. J Invertebr. Pathol. 85:54-57.
- Tartar, A. and D. G. Boucias 2004. A pilot-scale expressed sequence tag analysis of *Beauveria bassiana* gene expression reveals a tripeptidyl peptidase that is differentially expressed in vivo. Mycopathologia 158:201-209.
- Tartar, A and D. G. Boucias 2004. Analysis of the nuclear and plastid genomes of the non -photosynthetic, pathogenic green algae *Helicosporidium* sp. FEMS Microbiol. Lett. 233:153-157.
- Magalhães, B. P. and D.G. Boucias 2004.The effects of drying on the survival of *Metarhizium anisopliae* var. *acridum* Driver & Milner conidiospores. J. Orthopteran Res. 2004,13(1): 155-159.
- de Koning A. P, Tartar A., Boucias, D. G., and Keeling, P. J. 2005. Expressed sequence tag (EST) survey of the highly adapted green algal parasite, *Helicosporidium*. Protist 156:181- 190.
- Sims, K., J. Funderburk, and D. Boucias 2005. The biology of Thripinema fuscum (Tylenchida: Allantonematidae), and effects on the host *Frankliniella fusca* (Thysanoptera: Thripidae) in peanut. J. Nematol. 37(1): 4-11.
- Tartar, A., A. M., Shapiro; D. W. Scharf; D. G. Boucias, 2005 Differential expression of chitin synthase (CHS) and glucan synthase (FKS) Genes Correlates with the Formation of a modified, thinner cell wall in in vivo-produced *Beauveria bassiana* cells. Mycopathologia 160: 303-314.
- Suwannakut S., D. Boucias, and C. Wiwat. 2005 Genotypic Analysis of *Nomuraea rileyi* collected from various noctuid hosts. J. Invertebr. Pathol. 90:169-176.
- Ulrike-Blüske, V. and Boucias, D.G., 2005. Pathogenesis of *Helicosporidium* spp. (Chlorophyta: Trebouxiophyceae) in susceptible noctuid larvae. J. Invertebr. Pathol. 90:161-168.
- Magalhães, B. P., J., Rodrigues, C.V., Boucias D. G., and C. C. Childers 2005. Pathogenicity of *Metarhizium anisopliae* var *acridum* to the flat mite *Brevipalpus phoenicis* (Acari: Tenuipalpidae) Florida Entomol. 88(2):195-199.
- Conklin, T., Blaske, V., Becnel, J., Boucias, D.G., 2005. Infectivity of two isolates of *Helicosporidium* spp. (Chlorophyta: Trebouxiophyceae) in heterologous host insects Florida Entomol. 88(4):431-440.
- Blaeske-Leitze,V., M. A. Shapiro, J. Denton, M. Botts, J. Becnel, and D. Boucias. 2006. Development of the insect pathogenic alga *Helicosporidium*. J. Eukaryotic Biol. 53(3):165- 176.
- Kalkar, Ö., G. R. Carner, D. Scharf, and D. G. Boucias. 2006. Characterization of an Indonesian isolate of Paecilomyces reniformis. Mycopathologia 161: 109-118.
- Tigano M. S., B. Adams, S, Maimala, and D. Boucias 2006. Genetic diversity of Hirsutella thompsonii isolates from Thailand at the sequence of partial B-tubulin gene and AFLP analyses. Genetics and Mol. Biol. 29:715-721.

- Cho E., D. Boucias, and N. O. Keyhani. 2006. Gene expression in the entomopathogenic fungus *Beauveria (Cordyceps) bassiana*: II. EST analysis of cDNA libraries constructed from fungal cells sporulating on chitin and producing oosporein. Microbiology 152: 2855- 2864.
- Boucias, D.G., Scharf, D.W., Breaux S.E., Purcell, D.H., and Mizell, R.F. 2007. Studies on the fungi associated with the glassy-winged sharpshooter Homalodisca coagulata with emphasis on a new species *Hirsutella homalodisca*. BioControl 52(20):231-258.
- Meyer, J. M., M. A. Hoy, D. G. Boucias, R. Singh and M. E. Rogers 2007. "Friendly Fungi" Killing Psyllids in Florida's Citrus. Citrus industry May 23-24.
- Meyer J. M, Hoy M. A., and Boucias D. G. 2007. Morphological and molecular characterization of a Hirsutella species infecting the Asian citrus psyllid, *Diaphorina citri* Kuwayama (Homoptera: Psyllidae), in Florida. J Invertebr. Pathol: 95:101-109.
- Lietze V., C J. Geden, P. Blackburn, and D. G. Boucias 2007. Effects of *Md*SGHV infection on the reproductive behavior of the house fly, *Musca domestica*. Ap[plied and Environ. Microbial. 73:6811-65818.
- Torto B., D. G. Boucias, R.T. Arbogast, J. H. Tumlinson and P.E.A. Teal. 2007. Honeybee alarm pheromone facilitates success of an invasive parasite. PNAS 104: 8374-8378.
- Torto, B., Arbogast, RT., vanEngelsdorp, D., Willms, S., Purcell, D., Boucias, DG., Tumlinson, JH., and Teal, PEA. 2007. Trapping of *Aethina tumida* Murray (Coleoptera: Nitidulidae) from *Apis mellifera* L. (Hymenoptera: Apidae) colonies with an in-hive baited trap. Environ. Entomol. 36:1018-1024.
- Torto, B., R.T. Arbogast, H. Alborn, A. Suazo, D. vanEngelsdorp, D. Boucias, J.H. Tumlinson, P.E.A. Teal 2007. Composition of volatiles from fermenting pollen dough and attractiveness to the small hive beetle *Aethina tumida*, a parasite of the honeybee *Apis mellifera*. Apidologie 38: 380-389.
- Geden, CJ., Lietze, V., and Boucias, DG. 2008. Seasonal prevalence and transmission of salivary gland hyperplasia virus of house flies, *Musca domestica* L. (Diptera:Muscidae). J. Med. Entomol. 45(1): 42-51.
- Herrero-Galá, E., J. Lacadena, á. Martínez del Pozo1, D. G. Boucias, N. Olmo, M. Oñaderra and J. G. Gavilanes 2008. The insecticidial protein hirsutellin A from the mite fungal pathogen *Hirsutella thompsonii* is a ribotoxin. PROTEINS: Structure, Function, and Bioinformatics 2008; 72:217-228.
- Meyer, .M., Hoy, M.A., Boucias, D.G. 2008. Isolation and characterization of an *Isaria fumosorosea* isolate infecting the Asian citrus psyllid in Florida. J. Invertebr. Pathol. 99:96- 102.
- Benda, N., Boucias, D., Torto, B., and Teal, P. 2008. Detection and characterization of *Kodamaea ohmeri* associated with small hive beetle *Aethina tumida* infesting honeybe hives. Journal of Apicultural Research and Bee World 47:194-201
- Marshall, S., Gatehouse, L. N, Anette Becher, S., Christeller, J. T., Gatehouse, H. S., M. Hurst, R.H., Boucias, D.G., and Jackson, T. A. 2008. Serine proteases identified from a *Costelytra zealandica* (White) (Coleoptera: Scarabaeidae) midgut EST library and their expression through insect development. Insect Mol. Biol. 17:247-259..
- Prompiboon ,P., Bhumiratana, A., Ruchirawat S., Boucias, D. G., and Wiwat, C. 2008 Isolation of ergosterol peroxide from *Nomuraea rileyi* infected larvae of tobacco cutworm. World J. Microbiol. Biotechnol. 24:2909-2917.
- Garcia-Maruniak, A., Maruniak, J.E., Farmerie, W., and Boucias, D. G 2008. Sequence analysis of a non-classified, non-occluded DNA virus that causes salivary gland hypertrophy of *Musca domestica*, *Md*SGHV. Virology 377:184-196.
- Garcia-Maruniak, A., Abd-Alla, A. M. M., Salem, T. Z., Parker, A.G., Lietze,V., van Oers, M. M., Maruniak, J .E., Kim, W.,. Burand, J.P, Cousserans F., Robinson, A. S., Vlak J. M., Bergoin, M and. Boucias, D. G. 2009. Comparative analysis of two viruses that cause salivary gland hypertrophy in *Glossina pallidipes* and *Musca domestica*. J. Gen.Virol 90: 334 - 346

- Salem, T. Z., A. Garcia-Maruniak, V.-U. Lietze, J. E. Maruniak, and D. G. Boucias. 2009 Analysis of transcripts from predicted ORFs of the *Musca domestica* salivary gland hypertrophy virus (*Md*SGHV). J. General Virology 90:1270-1280.
- Abd-Alla, A. M. M., J. M. Vlak, M. Bergoin, J. E. Maruniak, A. Parker, J. P. Burand, J. A. Jehle,. and D. G. Boucias 2009. Hytrosaviridae: a proposal for classification and nomenclature of a new insect virus family. Archives of Virology 154:909-918.
- Sims, K.R., Funderburk, J.E., Reitz, S.R., and Boucias, DG 2009 The Impact of a Parasitic nematode Thripinema fuscum on the feeding behavior and vector competence of *Frankliniella fusca* (Thysanoptera: Thripidae). Acta Entomologica Applicata 132: 200-208.
- Tartar A, Wheeler, M.M., Zhou, X., Coy, M. R., Boucias, D G., and Scharf, M. E. 2009. Parallel meta-transcriptome analyses of host and symbiont gene expression in the gut of the termite *Reticulitermes flavipes*. Biotechnology for Biofuels 2:25(19 p)
- Lietze,V-U., Sims, K, Salem, TZ,. Geden, CJ, and. Boucias, DG. 2009. Transmission of *Md*SGHV among adult house flies, *Musca domestica* (Diptera: Muscidae), via salivary secretions and excreta. J. Invertebr Pathol. 101:49-55.
- Denton, J. S. S., Lietze, V-U., and Boucias, D.G. 2009. Host age and pathogen dosage impact cyst morphogenesis in the invertebrate pathogenic alga *Helicosporidium* sp. (Chlorophyta; Trebouxiophyceae). J Invertebr. Pathol. 102:36-39.
- Scharf, M.E., and D.G. Boucias. 2010. Potential of termite-based biomass pre-treatment strategies for use in bioethanol production. Insect Science 17: 1-9.
- Prompiboon, P., V.-U. Lietze, J.S.S. Denton, C.J. Geden, T. Steenberg, and D.G. Boucias. 2010. The *Musca domestica* salivary gland hypertrophy virus: An insect virus that globally infects and sterilizes female house flies. Applied and Environmental Microbiology 76: 994- 998.
- Lietze,V.-U., G. Schneider, P. Prompiboon, and D.G. Boucias. 2010. The detection of *Bacillus thuringiensis* in mass rearing of *Cactoblastis cactorum* (Lepidoptera: Pyralidae). Florida Entomologist 93:385-390.
- Zhou, X., E.S. Kovaleva, D. Wu-Scharf, J.H. Campbell, G.W. Buchman, D.G. Boucias, and M.E. Scharf. 2010. Production and characterization of two recombinant beta-1,4- endoglucanases (GHF9) from the termite *Reticulitermes flavipes*. Archives of Insect Biochemistry and Physiology 74 (3) 147-162
- Coy, M.R., T.Z. Salem, J.S. Denton, E. Kovaleva, Z. Liu, J.H. Campbell, D.C. Davis, G.W. Buchman, D.G. Boucias, and M.E. Scharf. 2010. Phenol-oxidizing laccases from the termite gut. Insect Biochemistry and Molecular Biology 40:723-732
- Scharf, M.E., E.S. Kovaleva, S. Jadhao, J.H. Campbell, G.W. Buchman, and D.G. Boucias. 2010. Functional and translational analyses of a beta-glucosidase gene (glycosy hydrolase family 1) isolated from the gut of the lower termite *Reticulitermes flavipes*. Insect Biochemistry and Molecular Biology 40: 611-620.
- Lietze,V.-U., T.Z. Salem, P. Prompiboon, and D.G. Boucias. 2011. Tissue tropism of the *Musca domestica* salivary gland hypertrophy virus. Virus Research 155:20-27.
- Abd-Alla, A., T. Salem, A.G. Parker, Y. Wang, J.A. Jehle, M.J.B. Vreysen, and D. Boucias. 2011. Universal primers for rapid detection of hytrosaviruses. Journal of Virological Methods 171: 280-283.
- Lietze, V-U., A. M. M. Abd-Alla, Vreysen, M. J.B., Geden, C. J., and D.G. Boucias. 2011. Salivary gland hypertrophy viruses (SGHVs): a novel group of insect pathogenic viruses. Ann. Rev. Entomol. 56:63-80.
- Szelei, J., J. Woodring, M.S. Goettel, G. Duke, X.-F. Jousset, K.Y. Liu, Z. Zadori, Y. Li, E. Styer, D.G. Boucias, R.G. Kleespies, M. Bergoin, and P.Tijssen. 2010. Susceptibility of North American and European crickets to *Acheta domesticus* densovirus (AdDNV) and outbreaks of epizootics. Journal of Invertebrate Pathology 106:394-399.

- Geden, C.J., T. Steenberg, V. Lietze, and D. Boucias. 2011. Salivary gland hypertrophy virus of house flies in Denmark: Prevalence, host range, and comparison with a Florida isolate. Journal of Vector Ecology 36 (2): 231-238.
- Lietze,V-U., R. F.Mizell, and D.G. Boucias 2010.Transmission of the mycopathogen, *Hirsutella spp*., to nymphs and adults of the glassy-winged sharpshooter, *Homalodisca vitripennis (=coagulata)*, in the greenhouse. Florida Entomol. 94(1): 106-108.
- Graham, J.R., J.D. Ellis, N.D. Benda, and D.G. Boucias. 2011. The presence of *Kodamaea ohmeri* (Ascomycota: Saccharomycetaceae) in commercial Bombus impatiens (Hymenoptera: Apidae) colonies and the resulting ecological ramifications. Apiculture 50(3): 218-226.
- Geden, C., A. Garcia-Maruniak, V.-U. Lietze, J. Maruniak, and D. G. Boucias 2011. Impact of house fly salivary gland hypertrophy virus (*Md*SGHV) on a heterologous host, stable fly (*Stomoxys calcitrans*). J. Medical Entomology. 48(6): 1128-1135.
- Scharf, M.E., Z.J. Karl, D. G. Boucias 2011. Multiple levels of synergistic collaboration in lignocellulose digestion by a termite. PLOS one 6(7).doi:10.1371/journal.pone.002170.
- Lietze, V., A.M. M. Abd-Alla, and D. G. Boucias 2011. Two hytrosaviruses, *Md*SGHV and GpSGHV, induce distinct cytopathologies in their respective host insects. J. Invertebr. Pathol. 107 (2011) 161-163.
- Lietze, Verena-Ulrike, Christopher J. Geden, Melissa Doyle, and Drion G. Boucias 2011. Transmission dynamics and persistence of *Md*SGHV in laboratory house fly (*Musca domestica*) populations. Appl. Environ. Microbiol. 78(2):311 DOI: 10.1128/AEM.06500-11.
- Scharf, M. E., Z. J. Karl, A. Sethi,R. Sen, R. Ray Choudhury and D. G. Boucias 2011. Defining host-symbiont collaboration in termite lignocellulose digestion: the view from the tip of the iceberg. Communicative and Integrative Biology 4(6):761-3.
- D. G. Hall, M. Hentz, G. Meyer, J. M. and Boucias, D. G. 2012. Observations on the entomopathogenic fungus *Hirsutella citriformis* attacking adult *Diaphorina citri* (Hemiptera: Psyllid) in a managed citrus grove. Biological Control DOI 10.1007/s10526- 012-9448-0
- Boucias, Drion G., Alejandra Garcia-Maruniak, Ron Cherry, Huangjun Lu, James E. Maruniak, and Verena-Ulrike Lietze 2012. Detection and characterization of bacterial symbionts in the heteropteran, *Blissus insularis*. FEMS Microbiology Ecology p 1-13
- Lietze, Verena-Ulrike, James E. Keesling, Jo Ann Lee, Celeste R. Vallejo, Christopher J. Geden, and Drion G. Boucias 2012. Muscavirus (*Md*SGHV) disease dynamics in house fly populations - How is this virus transmitted and has it potential as a biological control agent? J. Invertebrate Pathol (in press).
- Mancera, Norberto, Lauren G. Douma, Sheldon James, Stephanie Liu, Amy Van, Drion G. Boucias, Aurelien Tartar 2012. Detection of *Helicosporidium* spp. in metagenomic DNA JInvertebrate Pathology 111 (2012) 13-19.
- Boucias, D. G. F. Deng, Z. Hu, A. Garcia-Maruniak, and V.-U. Lietze 2012. Analysis of the structural proteins from the *Musca domestica* Hytrosavirus with an emphasis on the major envelope protein J. Invertebrate Pathology (in press).
- Gratian N. Mutika, Carmen Marin, Andrew G. Parker, Drion G. Boucias, Marc J.B. Vreysen, Adly M. M. Abd-Alla 2012. Impact of salivary gland hypertrophy virus infection on the mating success of male *Glossina pallidipes*: consequences for the sterile insect technique. PLOS one 7(8): e42188. doi:10.1371/journal.pone.0042188.
- Adly Abd-Alla, Max Bergoin, Andrew G. Parker, Nguya K. Maniania, Just M. Vlak, Kostas Bourtzis, Drion. G. Boucias and Serap Aksoy 2012. Improving Sterile Insect Technique (SIT) for tsetse flies through research on their symbionts and pathogens. J. Invertebr. Pathol.(in press)

- Raychoudhury, Rhitoban, Ruchira Sen, Y. Cai, Yijun Sun, Verena Ulrike-Lietze, Drion G. Boucias and Michael E. Scharf 2012 Comparative metatranscriptomic signatures of wood and paper feeding in the gut of the termite *Reticulitermes flavipes* (Isoptera: Rhinotermitidae). Insect Molecular Biology (in press).