**Gene E. Robinson**

*Curriculum Vitae*

Interim Dean, College of Liberal Arts & Sciences

Director, Carl R. Woese Institute for Genomic Biology

Swanlund Chair

Center for Advanced Study Professor of Entomology and Neuroscience

University of Illinois at Urbana-Champaign

1206 West Gregory Drive

Urbana, Illinois, 61801

(217) 265-0309

generobi@illinois.edu

**Short Biography**

**Gene E. Robinson** obtained his Ph.D. from Cornell University in 1986 and joined the faculty of the University of Illinois at Urbana-Champaign in 1989. He holds a University Swanlund Chair and Center for Advanced Study Professorship, is interim dean of the College of Liberal Arts & Sciences, director of the Carl R. Woese Institute for Genomic Biology (IGB) and director of the Bee Research Facility, and is a former director of the campus Neuroscience Program. Robinson pioneered the application of genomics to the study of social behavior, led the effort to sequence the honey bee genome, authored or co-authored over 325 publications, and has trained 35 postdoctoral associates and 25 doctoral students, about half with faculty positions in academia. He served on the NIH National Institute of Mental Health Advisory Council, provided Congressional testimony, and has past and current appointments on scientific advisory boards for companies and foundations with significant interests in genomics. Dr. Robinson’s honors include: Fellow and Founders Memorial Award, Entomological Society of America; Fellow and Distinguished Behaviorist, Animal Behavior Society; Distinguished Scientist Award, International Behavioral Genetics Society; Guggenheim Fellowship; Fulbright Fellowship; NIH Pioneer Award; Honorary Doctorate, Hebrew University; Fellow, American Academy of Arts & Sciences; Wolf Prize in Agriculture; member, US National Academy of Sciences; and member US National Academy of Medicine.

Revised November, 2020

**TABLE OF CONTENTS**

I. PERSONAL INFORMATION 3

II. EDUCATION 3

III. ACADEMIC POSITIONS 3

IV. OTHER CAMPUS APPOINTMENTS 3

V. AWARDS AND HONORS 3

VI. GRANTS 5

VII. LECTURES AND OTHER ORAL PRESENTATIONS 7

VIII. BOARD OF ADVISORS 13

IX. SCIENCE AND PUBLIC POLICY 13

X. NATIONAL AND INTERNATIONAL SERVICE……………………………………………………………………………………………………. 14

Xi. UNIVERSITY SERVICE…………………………………………………………………………………………………….…………….……………….. 17

XII. STUDENTS AND POSTDOCTORAL ASSOCIATES TRAINED 21

XIII. PUBLICATIONS……………………………………………………………………………………………………………………………………………… 25

**GENE E. ROBINSON**

# **PERSONAL INFORMATION**

# 

# DATE OF BIRTH:January 9, 1955

# FAMILY:Spouse (Julia) and 3 children

# **EDUCATION:**

1977 Cornell University B.S. Life Sciences

1982 Cornell University M.S. (1980-1982) Entomology

1986 Cornell University Ph.D. (1982-1986) Entomology (Roger A. Morse)

# **ACADEMIC POSITIONS:**

2020-2021 Interim Dean, College of Liberal Arts & Sciences, University of Illinois at Urbana-Champaign (UIUC)

2012-present Director, Carl R. Woese Institute for Genomic Biology (IGB), UIUC (reappointed, 2016)

2011-2012 Interim Director, IGB

2009-present Center for Advanced Study Professor, UIUC

2008-present Swanlund Chair of Entomology, UIUC (reappointed 2013)

2004-2011 Theme Leader and Professor, IGB

2003-2008 G. William Arends Professor of Integrative Biology, UIUC

2001-2011 Director, Neuroscience Program, UIUC

1997-current Professor, Department of Entomology, UIUC

1994-1997 Associate Professor, Department of Entomology, UIUC

1989-1994 Assistant Professor, Department of Entomology, UIUC

1986-1989 Postdoctoral Research Associate, Department of Entomology, Ohio State University (Robert E. Page, Jr.)

# **OTHER CAMPUS APPOINTMENTS:**

2016-present Chair, Council of Institute Directors, UIUC 2016-present

1996 Fulbright Senior Research Fellow, Visiting Professor, Hebrew University

1995-1996 Fellow, Center for Advanced Study, UIUC

Affiliate: NeuroTech Group, Beckman Institute; Department of Cell & Developmental Biology; Department of Animal Biology; Informatics Ph.D. Program; Department of Political Science; Department of Computer Science; Carle Illinois College of Medicine

# **AWARDS AND HONORS**

##### Member, National Academy of Medicine, 2018

##### Wolf Prize for Agriculture, 2018

##### Distinguished Scientist Award, International Behavioral Genetics Society, 2016

##### Honorary Doctorate, Hebrew University, Israel, 2015

##### iCON Innovator Award winner, iBIO Institute, 2013

##### Distinguished Animal Behaviorist, Animal Behavior Society, 2013

##### Bingzhi Forum Professorship, Chinese Academy of Science, Institute of Zoology, 2011

##### NIH Director's Pioneer Award, 2009

##### Fellow, Entomological Society of America (ESA), 2009

##### Member, Center for Advanced Study (UIUC), 2009

##### Swanlund Chair of Entomology and Neuroscience, 2008-2012, 2013-present

##### Fellow, Animal Behavior Society, 2006

##### Excellence in Graduate Teaching Award, Honorable Mention (UIUC), 2006

##### Thomson-ESI Highly Cited Researcher (top 1%), 2005

##### Member, National Academy of Sciences (NAS), 2005

##### Recognition Award in Insect Physiology, ESA, 2004

##### Fellow, American Academy of Arts & Sciences, 2004

##### Founding Chair, Gordon Conference, Genes and Behavior, 2004

##### G. William Arends Professor in Integrative Biology, 2003-2008

##### Guggenheim Fellowship, 2003

##### Founders Memorial Award, Entomological Society of America (ESA), 2003

##### Burroughs Wellcome Innovation Award in Functional Genomics, 2000

##### Certificate of Distinction, International Congress Entomology, Brazil, 2000

##### List of Teachers Ranked Excellent by Their Students, 1997, 1998, 2000, 2002, 2007, 2013

##### Fellow, American Association for the Advancement of Science, 1996

##### Fulbright Senior Research Fellowship, 1995-1996

##### Beckman Associate, Center for Advanced Studies (UIUC), 1995-1996

##### University Scholar (UIUC award for research excellence), 1993-1996

##### Hambleton Award for Outstanding Research, EAS, 1993

##### Beckman Award for Outstanding Research Promise, UIUC, 1990

##### NSF Environmental Biology Postdoctoral Fellowship, 1988-1990

##### NIMH NRSA Postdoctoral Fellowship (declined), 1986

##### Ohio State Postdoctoral Fellowship, 1986

##### First Prize, Sigma Xi-Cornell Popular Science Writing Contest, 1986

##### Griswold Award, Cornell University, (graduate student award), 1985

##### Student Award, Eastern Apicultural Society (EAS), 1985

##### Lady Davis Graduate Fellowship, Hebrew University, Israel, 1982-1983

Honorific lectures

##### Keynote, Apimondia 46th International Apiculture Congress, Montreal, 2019

##### Svedburg Lecture, Uppsala University, Sweden, 2019

##### Distinguished Speaker Series, Brain and Behavior Initiative, University of Maryland, 2018

##### Keynote, National Courts and Science Institute Boot Camp Seminar: Scientific Method, Tools and Measures for 2018-19 Resource Judges, Washington DC, 2018

##### Wolf Prize Laureate Lecture, Rehovot, Israel, 2018

##### Carl Friedrich von Siemens Foundation Lecture, 2018

##### Featured Speaker, Frontiers in Genomics Symposium, 10th anniversary of the University of Maryland Institute for Genome Sciences, 2017

##### Featured Speaker, Institute for Systems Genetics Inaugural Symposium, New York University School of Medicine, 2017

##### Birkenmeier Lecture, Jackson Laboratory, Bar Harbor, Maine, 2017

##### Franz Huber Lecture, International Congress of Neuroethology, Montevideo, Uruguay, 2016

##### Distinguished Behaviorist Award Lecture, Animal Behavior Society, Boulder, CO, 2013

##### Postdoctoral Scholars Society, UIUC, 2014

##### Integrative Center for Neurogenetics Inaugural Symposium, UCLA, 2013

##### Featured Speaker, Darwin Days, Eastern Illinois University, 2013

##### BIG Lecture, Department of Ecology and Evolution, Lausanne, Switzerland, 2012

##### Keynote, Evolution of Eusociality Symposium, Hebrew University, Jerusalem, 2012

##### Keynote, Arthropod Genomics Consortium Annual Meeting, Kansas City, 2012

##### University Lecturer, Cornell University, 2011

##### Charles Chesley Doane Distinguished Lecture, University of Wisconsin-Madison, 2011

##### Keynote, Bioengineering Day, College of Engineering, UIUC, 2011

##### Keynote, International Social Insect Genomics Research Conference, Beijing Genome Institute, China, 2011

##### Bin Zhi Forum Lecture, Chinese Academy of Sciences, 2011

##### Tinbergen Lecture, British Association for the Study of Animal Behaviour, 2011

##### Storer Lecture, University California at Davis, Davis, CA, 2011

##### Konishi Lecture, Woods Hole Marine Biological Laboratory, 2010

##### Keynote, Annual Postdoc Symposium, Washington University, St. Louis, MO, 2010

##### Keynote, 15th International Union for the Study of Social Insects (IUSSI) International Congress, Copenhagen, 2010

##### Distinguished Speaker, Department of Integrative Biology, University Texas, Austin, 2009

##### Blaffer Distinguished Speaker, M.D. Anderson Cancer Center, 2009

##### Keynote, UIUC Graduate Symposium on Interdisciplinary Science, 2009

##### NIMH Director’s Innovation Speaker, 2009

##### Keynote, Ecological & Evolutionary Genomics Gordon Research Conference, New Hampshire, 2009

##### Keynote, Barbara Stay Festschrift, University Iowa, 2008

##### Keynote, Genes & Behavior Gordon Research Conference, Italy, 2008

##### 50 Year Anniversary Lecture, NC State University Department of Genetics, 2008

##### Bauer Lecture, Brandeis University, 2007

##### Boyce Lecture, University California at Riverside, 2007

##### Givaudan Lecture, American Chemical Society, 2007

##### LeConte Lecture, Georgia Southern University, 2006

##### Keynote, Brains and Behavior Program Retreat, Georgia St. University, 2006

##### K.C. Fisher Lecture, University Toronto, 2005

##### Hopkins Lecture, Kansas State University, 2004

##### Founders Memorial Lecture, ESA, Cincinnati, OH, 2003

##### Miller Lecture, Iowa State University, 2002

##### Distinguished Lecturer, University of Puerto Rico, 2002

##### Kenneth Roeder Lecture, Tufts University, 1999

##### Charles D. Michener Lecture, University Kansas, 1997

# **GRANTS**

# Extramural: Current

##### “Brain2Bee,” ERC Horizon 2020, 1.8M Euros (J. Cook, PI) (2018-2023)

##### “NeuroNex: Simplifying genome engineering to empower model system diversity in Systems Neuroscience,” NSF, $2.6M (Y. Ben-Shahar, PI) (2017-2020)

##### “Protecting the Nation’s Food Supply with Advanced Bio-Manufacturing,” DARPA, $4.2M (H. Zhao, Co-PI) (2016-2021)

##### “Honey Bee Social Networks in Health and in Sickness,“ Christopher Family Foundation, $300,000 (2019-2021)

# 

# Extramural: Past

##### “Emergence of collective multi-level network dynamics in a model society: From brain transcriptome to social behavior,” NIH, $1.3M (N. Goldenfeld, Co-PI) (2016-19)

##### “Asynchronous Communication, Self-organization, and Differentiation in Human and Insect Networks”, NSF INSPIRE Program, $1M (H. Dankowicz, PI, G. Robinson, W. Tabor, Co-PIs) (2012-15)

##### “Tradeoffs between collective function and disease spread in an animal society,” National Academies-

##### Keck Futures Initiative, $100,000 (T. Gernat, PI) (2015-16)

##### “Dynamic and stable regulation of aggression through DNA methylation,” NIH, $430,000 (2015-17)

##### “Brain Metabolic Plasticity and Aggression,” NSF, $662,000 (N. Price, Co-PI) (2013-17)

##### “Molecular Roots of the Social Brain,” Simons Foundation, $3M (L. Stubbs, Co-PI, A. Bell, J. Ma, S. Sinha, Y. Oono, Co-Is) (2013-17)

##### Training Grant: “Vertically Integrated Training with Genomics,” NSF Integrative Graduate Education and Research Training (IGERT), $3.5M (2012-17). (A. Suarez, PI, G. Robinson, C. Caceres, S. Rodriguez-Zas, Co-PIs)

##### “Genetics and Genomics of Social Behavior,” NSF Research Coordination Network, $621,000 (W. Wilczynski, PI) (2013-19)

##### “Insect Transgenic Techniques,” NSF Research Coordination Network, $600,000 (D. O’Brochta, PI) (2013-18)

##### “Johnny Bee Good: Bees as models for hijacking the reward system,” NIH Director’s Pioneer Award, $4M (2009-2015)

##### “Illinois Neuroproteomics Center on Cell-Cell Signaling,” NIH-NIDA, $5M (J. Sweedler, PI, with D. Clayton, M. Gillette, P. Gold, H. Gutstein, W. Greenough, N. Kelleher, L. Moroz, S. Rodriguez), renewed $7M (2009-15)

##### "Functional genomics of reproduction and division of labor of a key non-Apis pollinator,” US-Israel USDA-BARD, $280K (with G. Bloch) (2011-15)

##### “Bee Individuality: A New Frontier”, Christopher Family Foundation, $100K (2012-13)

##### “Effects of High Fructose Corn Syrup on Gene Expression in Honey Bee Fat Bodies,” North Central IPM

##### Center (NCIPMC), USDA-NIFA, $7695 (2013-14)

##### “Modeling the evolution of gene regulatory modules for complex traits,” NSF, $650,000 (S. Zhong, PI) (2010-13)

##### “Regulation of stable weight loss in a model system,” NIH-NIDDK, $1.5 M (with S. Zhong and C. Mizzen) (2009-11)

##### “Comparative genomics, molecular evolution, and the evolution of bee society,” NSF, $515,000 (with M. Hudson) (2008-11)

##### “Tools for 21st Century Biology,” NSF Conference Grant, $79,250 (2009)

##### “Addressing Colony Collapse Disorder: Initial Response,” USDA-CSREES, $60,000 (with M. Berenbaum and S. Ratcliffe) (2007-08)

##### “Comparative genomics and the evolution of social behavior,” NSF, $300,000 (with J. Hunt, M. Henshaw, M. Hudson) (2007-10)

##### “Muscarinic regulation of plasticity in the brain,” NIH-NIGMS, $1.5M (with S. Fahrbach) (2006-10)

##### “BeeSpace: An interactive environment for analyzing nature and nurture in societal roles,” NSF Frontiers in Biological Research, $5M (B. Schatz, PI, with C. Bruce, S. Fahrbach, S. Rodriguez, C. Zhai) (2004-9)

##### “Illinois Neuroproteomics Center on Cell-Cell Signaling,” NIH-NIDA, $5M (J. Sweedler, PI, with D. Clayton, M. Gillette, P. Gold, H. Gutstein, W. Greenough, N. Kelleher, L. Moroz, S. Rodriguez) (2005-09)

##### “Microarray analyses of pheromone-mediated gene expression in honey bees,” USDA, $225K (2003-07)

##### “Pheromone regulation of gene expression in the brain,” NIH-NIDCD, $1.3M (with T. Lee) (2004-07)

##### “Neuromodulation of excessive reward-directed behavior,” NIH-NIDA, $306,000 (2005-07).

##### “Molecular mechanisms of queen bee longevity,” NIH-NIA, $1.2M (2003-07)

##### “Mathematical descriptions of multifactorial gene expression in social behavior,” NIH-NSF, $1.1M, (Sandra Rodriguez-Zas, PI) (2003-07)

##### “Development of a whole genome honey bee array,” USDA, $1M (with M. Band, J. Evans, G. Hoffman, K. White) (2003-06)

##### Lead author, White Paper to Sequence the Honey Bee Genome, NHGRI (accorded high priority status; project managed and performed by Baylor Coll. Med. Human Genome Sequencing Center, ca. $7M) (2003-05)

##### “Organization of behavioral plasticity by neurochemicals,” NSF Behavioral Endocrinology and Animal Behavior, $450K (2002-05)

##### “Sociogenomics: Analyses of social behavior with microarrays, Burroughs Wellcome Fund Innovation Award in Functional Genomics, $400K + Univ. matching funds ($100K) (2000-03)

##### “Octopamine-mediated behavioral development in honey bees: Social and endocrine regulation of the tyramine beta-hydroxylase gene,” NSF Behavioral Endocrinology and Animal Behavior, $450K (H. Lehman PI) (2002-04)

##### "Social and neuroendocrine regulation of *period* gene expression,” NIH-NIGMS, $1M (2000-03)

##### “Biogenic amines and division of labor in honey bee colonies,” NSF Behavioral Neuroscience and Animal Behavior, $256K (2000-02)

##### "Neuroanatomical basis of endocrine-mediated behavioral development in honey bees,” NSF Behavioral Neuroendocrinology, $300K (S. Fahrbach PI) (1999-2002)

##### “Manipulation of honey bee gene expression by RNAi,” NSF Animal Behavior, $75K (1999-2000)

##### “Biogenic amines and division of labor in honey bee colonies,” NSF REU Supplement, $5,000 (2000)

##### “Biogenic amines and division of labor in honey bee colonies,” NSF Behavioral Neuroscience and Animal Behavior, $70K (1999-2000)

##### "Pheromone control of behavioral development in a model system,” NIH-NIDCD, $900K (1996-99)

##### "Period gene expression and endocrine-mediated behavioral development,” NSF Exploratory Grant, $50K (1996-97)

##### "Neuroanatomical basis of endocrine-mediated behavioral development in honey bees,” NSF Behavioral Neuroendocrinology, $300K (S. Fahrbach PI) (1995-98)

##### "Hormonal and pheromonal regulation of reproduction in the bumble bee *Bombus terrestris*.” US-Israel USDA-BARD, $300K (with A. Hefetz) (1994-97)

##### "Honey bee behavior and neurobiology program,” NSF REU Site, $60K (S. Fahrbach PI) (1994-96)

##### "Mechanisms of behavioral plasticity in a model system,” NIMH FIRST award, $525K (1991-96)

##### "Endocrine basis of differences in behavior between Africanized and European honey bees,” USDA, $120K (1994-96)

##### "Neuroanatomical basis of endocrine-mediated behavioral development in honey bees,” NSF Behavioral Neuroendocrinology, $90K (with S. Fahrbach) (1992–94)

##### "Effects of increased UV radiation on plant-pollinator interactions,” USDA, $200K (with J. Conner & J. Cane) (1993-96)

##### NIMH, Supplement for Underrepresented Minorities, $22K (1993-95)

##### "Honey bee behavior and neurobiology program,” NSF Research Experiences for Undergraduates (REU) Site, $30K (S. Fahrbach PI) (1992-93)

##### "Genetic and physiological determinants of honey bee division of labor,” USDA, $100K (1992-94)

##### "Neuroanatomical basis of endocrine-mediated behavioral development,” NSF REU Supplement, $5,000 (with S. Fahrbach) (1993)

# 

# Intramural

##### “Comparative transcriptomic approach to identify genes involved in sperm storage and fertility in females,” $60K, College of ACES Seed Funding (D. Miller, PI)

##### “Nutritional influences on division of labor in honey bee colonies,” $16K, UIUC Research Board (2002-03)

##### “Honey Bee Brain EST Project,” UIUC Critical Research, $200K (1999-2001)

##### “Socioneurogenetic analyses of the *period* gene,” $15K, UIUC Research Board (1998-99)

##### "Radar tracking of honey bees,” UIUC Research Board, $7500 (with S. Fahrbach) (1997-98)

##### "Implementation of Cyberprof for Biology 346, "Animal Behavior,” $10K (with S. Beshers) (1997-98)

##### "Division of labor in carpenter ant colonies,” UIUC Research Board, $5000 (with S. Beshers) (1996-97)

##### "Effect of PCBs and TCDD on honey bees,” UIUC Research Board, $7500 (with S. Fahrbach) (1996-97)

##### "Molecular genetic analyses of plasticity in behavioral development, UIUC Research Board, $8000 (1995)

##### International Program Development Travel Fund, Midwest Universities (1994)

##### "Molecular genetic analyses of plasticity in behavioral development,” UIUC Research Board, $11,000 (1993-94)

##### "Effect of social interaction on plasticity in endocrine-mediated behavioral plasticity,” UIUC Research Board, $5000 (1991-92)

##### "Endocrine and genetic basis of behavioral plasticity in a model system,” UIUC Biomedical Research Support Grant, $12,000 (1990-91)

##### "Mechanisms of behavioral plasticity in the honey bee,” Beckman Research Award, UIUC Research Board, $15,000 (1990-1991)

##### International Program Development Travel Fund, Midwest Universities Consortium for International Activities, $500 (1990)

# **LECTURES AND OTHER ORAL PRESENTATIONS**

Plenary and Keynote Lectures

##### International Congress of Entomology, Helsinki, 2020 (postponed to 2021)

##### Kavli Brain and Behavior Distinguished Lecture, University of Maryland, 2018

##### Plenary Lecture, International Society for Behavioral Ecology, Minneapolis, MN, 2018

##### Frontiers in Biology Series, Department of Biology, Wake Forest University, Winston-Salem, NC, 2018

##### Department of Molecular, Cellular and Developmental Biology Symposium, University of Colorado, Boulder, 2017

##### Neurobehavioral Genetics Retreat, UCLA, 2017

##### Behaviour 2017, International Ethological Conference and Association for the Study of Animal Behaviour, Estoril, Portugal, 2017

##### Sponsored Programs and Research Coordination Retreat, UIUC, 2015

##### Social Insect Genomics Meeting, Cold Spring Harbor Laboratory, 2015

##### Society for Evolutionary Analysis in Law XV Annual Scholarship Conference, UIUC, 2014

##### Annual Meeting of the Society for Molecular Biology and Evolution, Chicago, IL, 2013

##### Annual Meeting of the Animal Behaviour Society, Boulder, CO, 2013

##### Society for Social Neuroscience Inaugural Meeting, San Diego, CA, 2010

##### UIUC Beckman Institute 20th Anniversary, “Vision for the Future,” UIUC, 2009

##### University UIUC Undergraduate Symposium, Urbana, IL, 2009

##### Genetic Society of America, “Genetic Analysis: Model Organisms to Human Biology,” San Diego, CA, 2008

##### German Science Foundation, Symposium on Mechanisms and Evolution of Insect Behavior, University Würzburg, 2002

##### Japanese Society for Neuroscience, Minibrain Meeting, Sapporo, Japan, 2001

##### 12th International Genome Sequencing and Analysis Conference, Miami, FL, 2000

##### 26th Gottingen Neurobiology Conference, Goettingen, Germany, 1998

##### Museum of Natural History Symposium, Hebrew University, Jerusalem, 1996

##### 5th International Congress of the Society for Neuroethology, San Diego, 1998

##### 11th International Congress, IUSSI, Paris, France, 1993

##### IUSSI German Section, Blauberen, Germany, 1992

Public Lectures

##### 11th Annual Bee Forum: Bee Science – From the Lab to your Beehive. Garfield Park Conservatory Alliance, 2020

##### Rheticus Forum, St. Andrew’s Lutheran Campus Center, Champaign, IL, 2016

##### Chancellor’s Colloquium Speaker Series, University of California at Davis, 2016

##### Panel Member, The Black Death Forum, UIUC, 2015

##### Conversations, Donald Danforth Plant Center, 2015

##### Illinois Advanced Judicial Academy, 2015

##### Center for Advanced Study Annual Lecture, UIUC, 2014

##### National Centre for Biological Sciences, Tata Institute for Research, Bangalore, India, 2013

##### Google Inc., Mountain View, CA, 2011

##### Keynote Speaker, BioScience Day, University Maryland, 2010

##### TEDx speaker, UIUC, 2010

##### Plenary Speaker, Chicago Humanities Festival, Chicago, IL, 2010

##### Inaugural Speaker, Chancellor's Center for Advanced Study Special Lecture Series, UIUC, 2005

Meetings and Symposia Organized

##### Functional Genomics, National Academies of Science, Engineering and Medicine, Washington DC, 2020

##### “cis-Regulatory Evolution in Development and Behavior,” NSF Genetics and Genomics of Social Behavior Research Coordination Network, 2018

##### “Mechanisms of Social Evolution: A Tribute to Robert E. Page, Jr.,” Arizona State University, Tempe, AZ (with J. Gadau), 2016

##### “8th Annual Arthropod Genomics Symposium,” Urbana (with H. Robertson), 2014

##### “Social and Behavioral Sciences Brown Bag Series,” UIUC (with R. Mendenhall and B. Roberts), 2012-13

##### “Computing and Genomics,” Tata Institute for Research – Illinois Workshop, Bangalore, (with R. Iyer, S. Lumetta and R.K. Shyamasundar), 2013

##### “Biological Embedding of Early Social Adversity: From Fruit Flies to Kindergartners,” NAS Sackler Colloquia, (with T. Boyce and M. Sokolowski), 2011

##### “New Perspectives on Organismal Biology,” NSF, 2011

##### “Tools for 21st Century Biology,” NSF, 2009

##### “Honey Bee Genomics and Biology,” Cold Spring Harbor, 2007

##### “Genetics and Genomics of Social Behavior,” NIH-NIDA/NIMH Workshop, 2007

##### “Genes and Behavior,” Gordon Research Conference, Chair, 2004

##### “Genetics of Social Behavior,” International Congress Genetics, Melbourne, Australia (with R. Crozier), 2003

##### “Chemical Ecology in a Post-Genomic World,” NAS Sackler Colloquia (with M. Berenbaum), 2003

##### “Genetics and Social Behavior,” Society for Neuroscience (with T. Insel), 2002

##### “Comparative Insect Genomics,” USDA International Workshop (member, steering committee), 2001

##### “Building a Community to Foster New Approaches to the Study of Genes, Brain, and Behavior with Honey Bees,” Rockefeller Foundation, Bellagio, Italy, 2000

##### “Bees, Beekeeping, and 40 Years of Graduate Education: Roger A. Morse,” Informal Conf., ESA National Meeting, Las Vegas, NV (with T. Seeley), 1996

##### “Development and Evolution of Brain Centers for Learning,” Nalbandov Symposium, UIUC (with S. Fahrbach), 1995

##### “Insects as Models in Behavioral Neuroscience,” Program Symposium, ESA National Meeting, Indianapolis, IN (with S. Fahrbach), 1993

##### "Physiology of Insect Colonies," Program Symposium, ESA National Meeting, New Orleans, LA (with M. Winston), 1990

Invited Symposium Talks

##### “Regulation of Brain Gene Regulatory Networks by Juvenile Hormone,” ESA National Meeting, Vancouver BC, 2018 (with A. Hamilton)

##### “From Me to We: Searching for the Genetic Roots of Sociality” GoldLab Foundation Annual Symposium, Boulder, CO, 2016

##### Panel Member, "Models for Stimulating Research and Creative Collaborations," CIC-ALP, Chicago, 2016

##### “Evolution of insect sociality: From theory to genomes and back again,” International Congress of Entomology, Orlando, FL 2016 (with B. Jones)

##### “Behavioral Epigenetics: Conserved Mechanisms in Diverse Model Systems,” Janelia Farms, Howard Hughes Medical Institute, 2015 (with M. Shook)

##### “Modulation of Neural Circuits and Behavior,” Gordon Conference, Hong Kong, 2015

##### “Building the brain: from genes to circuits and cognition,” Genetic Society, Royal Society, London, 2015

##### “Life in the Aggregate: Mechamisms and Features of Social Dynamics”, Janelia Farm, Howard Hughes Medical Institute, 2014

##### Moderator, National Academy of Sciences Expert Meeting on Assessing and Encouraging Interaction between Genetic and Social-Behavioral Models, Washington, DC, 2014

##### “Sociogenomics Research Consortium,” NSF Research Coordination Network, 2014

##### “Structure and Function of the Mushroom Body, Janelia Farm, Howard Hughes Medical Institute, 2014

##### Social Behavior, Canadian Institute for Advanced Research Child & Brain Development, Vancouver, 2013

##### “Computing and Genomics,” Tata Institute for Research – UIUC Workshop, Bangalore, 2013

##### Program Symposium, ESA National Meeting, San Antonio, TX, "Native Bee Ecology, Evolution And Conservation In The 21st Century" (with K. Kapheim), 2013

##### “Honey Bee Microbiomes and Health,” ESA National Meeting, Austin, TX, 2013 (with K. Kapheim, V. Rao, C. Yeoman, B. White, N. Goldenfeld)

##### Neuroscience Initiative Symposium, UCLA, 2013

##### “Multidisciplinary Research in the University: The Experiment at the Institute for Genomic Biology,” Society for College and University Planning, UIUC, 2012

##### “Future Trends in Genomics,” State Farm Executive Training Program, UIUC, 2012

##### University Foundation Lecture, Santa Barbara, CA, 2012

##### “Social Evolution: William D. Hamilton’s 50-Year Legacy,” Animal Behavior Society Presidential Symposium, Boulder, CO, 2013

##### Silicon Valley Roundtable, Palo Alto, CA, 2012

##### NIH Pioneer Investigators Symposium, Washington, DC, 2012

##### Genes and Behavior Gordon Conference, Galveston, TX, 2012

##### “Biological Embedding of Early Social Adversity: From Fruit Flies to Kindergartners,” NAS Sackler Colloquia, (with T. Boyce and M. Sokolowski) 2011

##### NIH Pioneer Investigators Symposium, Washington, DC, 2011

##### Thomas Eisner Memorial Symposium, ESA National Meeting, Reno, NV, 2011

##### “Genomic and Systems Biology analyses of Social Behavior, Joint Genome Institute (JGI), Walnut Creek, CA, 2011

##### “The Evolution of Cooperation and Conflict,” NAS Sackler Colloquia, 2010

##### Vision Talk, Beckman Institute 20th Year Anniversary Symposium, UIUC, 2009

##### “Modeling Social Behavior,” NIH-NIGMS Workshop, 2008

##### USDA-NRI Grantholders Symposium, ESA National Meeting, San Diego, 2008

##### “Genetics and Genomics of Social Behavior,” NIH-NIDA/NIMH Workshop, 2007

##### “Social Insect Genomics,” ESA, National Meeting, Indianapolis (with A. Toth), 2006

##### “Molecular Insect Science,” Student-Selected Symposium, ESA National Meeting, Indianapolis, 2006

##### Symposium in honor of Rüdiger Wehner, University Zurich, Switzerland, 2005

##### “Phenotypic Diversity and Evolution,” Wenner-Gren Foundation, Stockholm, Sweden, 2005

##### “Behavioral Genomics,” UK Genetics Society, Edinburgh, Scotland, 2005

##### Understanding Complex Systems: Networks,” UIUC, 2004

##### “Hymenopteran Semiochemicals: In Honor of Keith Slessor,” International Society Chem. Ecol., Ottawa, Canada, 2004

##### “Neuromodulation,” International Congress of Neuroethology, Denmark (with A. Barron), 2004

##### “Advances in Insect Endocrinology,” ESA National Meeting, Salt Lake City, Utah, 2004

##### Japan Molecular Biology Meeting (with M. Sokolowski & Y. Ben-Shahar), 2003

##### Mitchell Conference, Department of Human Genetics, University Chicago, 2003

##### “Behavioural Endocrinology,” Society for Integrative and Comparative Biology, Toronto (with C. Grozinger), 2003

##### “Genetics of Behaviour,” Society for Integrative and Comparative Biology, Toronto (with M. Sokolowski and Y. Ben-Shahar), 2003

##### “Genetics of Social Behaviour,” International Congress Genetics, Melbourne, AU, 2003

##### “Emerging Genomes,” Advances in Genome Biology & Technology, Marco Is., FL, 2003

##### “Genes and Social Behavior,” Society for Neuroscience, Orlando, 2002

##### “Chemical Communication,” IUSSI, International Congress, Saporro, Japan (with A. Barron & D. Schulz), 2002

##### “Mechanisms of Social Behavior,” IUSSI, International Congress, Saporro, Japan (with Y. Ben-Shahar), 2002

##### “Mechanisms of Social Behavior,” IUSSI, International Congress, Saporro, Japan (with A.M. Cziko & S. Fahrbach), 2002

##### “Chemical Ecology in a Post-Genomic World,” Sackler Colloquia, National Acad. Sci., 2001

##### “Comparative Biology of Aging,” NIH Symposium, 2001

##### “Evolutionary Neuroscience,” Simpson Science Symposium, UI Chicago, 2001

##### “Genomics,” ESA National Meeting, Program Symposium, San Diego, 2001

##### “Proximate and Ultimate Mechanisms of Caste Differentiation,” ESA National Meeting, San Diego, 2001

##### “Neuromodulation,” Neuroethology International Congress, Bonn (with D. Schulz), 2001

##### “New Directions in Behavior Genetics,” Animal Behavior Society Meeting, Corvalis, OR, 2001

##### “Growing Points in Insect Sociobiology,” IUSSI, International Congress, Sapporo, Japan, 2000

##### “Insect Chemical Ecology in the Molecular Era,” Max-Planck, Germany, 2000

##### “Gene Expression,” International Congress Entomology, Brazil, 2000

##### Neuroethology Gordon Conference, Session Co-Chair, Oxford University UK, 1999

##### “Ecological and Evolutionary Genomics,” University of Lausanne, Switzerland (with C. Whitfield), 1999

##### “Workshop on organisms with negligible senescence,” University of Southern California, CA, 1999

##### “Neuroethology: behavior, evolution, and neuroscience,” Gordon Conference, Oxford, UK, 1999

##### “Biotechnology and Animal Behavior” NSF Workshop, Washington, DC, 1999

##### “The Insect Societies-100 years of contributions to the biological sciences,” ESA National Meeting. Program Symposium, Atlanta, 1999

##### “Self-organization and the evolution of social behavior,” Santa Fe Institute, 1999

##### Neuroethology Gordon Conference, Oxford University, UK, 1999

##### Chronobiology Gordon Conference, Rhode Island, 1998

##### “Biological Rhythms,” International Congress Entomology, Brazil, 1998

##### “Forty Years of Bees, Beekeeping and Graduate Education: A Tribute to Roger A. Morse,” ESA National Meeting, Las Vegas, 1998

##### “Genetic Analysis of Behaviour,” Zoological Society of London, 1998

##### “Lifespan Actions of Developmental Hormones,” Behavioral Neuroendocrinology Society National Meeting, Atlanta, 1998

##### “From Mechanism to Evolution,” Animal Behavior Society National Meeting, Carbondale, IL 1998

##### “Behavioral Modulation,” International Society Neurochemistry, Israel (with D. Schulz), 1997

##### “Evolution of Insect Societies,” International Congress Evolutionary Biology, Budapest, 1996

##### “From Behavior to Genes,” ESA National Meeting, Las Vegas (with T. Giray), 1995

##### “Juvenile Hormone Revisited: Dynamics of its Involvement in Insect Reproduction,” ESA National Meeting, Las Vegas, 1995

##### "Insect Colonies: Adaptive Design and Self-Organisation" Symposium, IUSSI, 12th International Congress, Paris (with Z. Huang), 1994

##### "Caste Ergonomics," Section Symposium, ESA National Meeting, Indianapolis (with S. Trumbo), 1993

##### "Insects as Models in Behavioral Neuroscience,” Program Symp., ESA Nat. Meeting., Indianapolis (with S. Fahrbach & G. Withers), 1993

##### “Integrative Mechanisms of Division of Labor in Insect Colonies,” ESA National Meeting, Baltimore, 1992

##### “Socioethology of Honey Bees" 3rd International Neuroethology Congress, Montreal, 1992

##### “Physiology of Insect Colonies" Program Symposium, ESA National Meeting, New Orleans, 1990

##### “Behaviour and Physiology of the Honeybee” Colloquium Royal Entomological Society, London, 1990

##### “Sociogenesis: Behavioral Ontogeny in Insect Colonies,” IUSSI, 11th International Congress,

##### Bangalore, India, 1990

##### “Behavioral Genetics,” IUSSI, 11th International Congress, Bangalore, India, 1990

##### Workshop Discussant, International Congress of Endocrinology, Spain, 1989

##### “Competition and Cooperation in Insect Colonies” Program Symposium, ESA National Meeting, Lexington, KY (with R. Page), 1988

##### “The Genetics of Social Evolution” Program Symposium, ESA National Meeting, Boston, 1987

##### "Neurobiology and Behavior of Honey Bees,” IUSSI, 10th International Congress, Munich, 1986

##### "Hormonal Regulation of Insect Behavior,” ESA Eastern Branch Meeting, Williamsburg, VA, 1985

Invited Seminars

##### Department of Ecology and Evolutionary Biology, Michigan State University, 2020

##### Carle Illinois College of Medicine, Grand Rounds, 2020

##### Department of Biology, Duke University, 2020

##### Department of Ecology and Evolution, University of Arizona, 2019

##### Department of Biology, Duke University, 2020

##### Karolinska Institute, Stockholm, Sweden, 2019

##### Center for Brain Science, Harvard University, 2019

##### Department of Entomology, Texas A&M University, 2019

##### Inaugural Lecture, Center for The Economics of Human Development, University of Chicago, 2018

##### Lewis-Sigler Institute, Princeton University, 2017

##### University of Chicago, 2016

##### Swarthmore College, 2016

##### Harvard University, 2015

##### Institute of Life Sciences, Hebrew University, 2015

##### Department of Biology, Boston University, 2014

##### BioDirect Division, Monsanto Inc., St. Louis, 2014

##### Department of Biology, State University of New York at Buffalo, 2014

##### Rockefeller University, 2014

##### Neuroscience Program, UIUC, 2013

##### Department of Neuroscience, University of California at Berkeley, 2013 (student selected speaker)

##### Department of Neuroscience, Columbia University, 2013

##### Integrative Immunology Seminar, Department of Animal Sciences, UIUC, 2012

##### Departments of Human Genetics and Neuroscience, University of Chicago, 2012

##### Department of Biology, University of Kentucky (student selected), 2012

##### State Farm Executive Training Seminar, College of Business, 2012

##### Department of Molecular Biology, Cornell University, 2011

##### Department of Political Science, University of Nebraska, 2011

##### Genome Center, University of Pennsylvania, 2011

##### “The Blind Men and the Elephant:  Genes & Behavior, Neurons & Behavior,” Friday on the Brain Seminars, Beckman Institute, UIUC, 2011

##### The Politics of Perception: Science, Art, Politics, Center for Advanced Study, UIUC, 2010

##### Riken Omics Science Center, Yokohama, Japan, 2009

##### Lecturer, Riken Brain Sciences Institute Summer Course, Wako, Japan, 2009

##### Department of Developmental Biology, Harvard University Medical School, 2009

##### Department of Biology, Indiana University (student selected), 2009

##### Department of Entomology, University Maryland, 2008

##### Special Lecture, Department of Ecology and Evolution Biology, University California at San Diego, 2008

##### Nutrition Program, UIUC, 2007

##### Department of Biology, St. Louis University, St. Louis, MO, 2007

##### School of Life Sciences, Ariz. St. University, Tempe, AZ, 2007

##### Human Genetics Forum, Northwestern School of Medicine, 2006

##### Department of Natural Resources and Environmental Sciences, UIUC, 2006

##### Department of Entomology, Pennsylvania State University, University Park, PA, 2006

##### Center for Brain Behavior and Evolution, Bucknell University, Lewisburg, PA, 2006

##### Department of Neuroscience, Washington University in St. Louis (student selected), 2006

##### Department of Biology, Southern Cal. University, CA, 2005

##### Department of Biology, University Georgia, Athens, GA, 2005

##### Department of Ecology and Evolutionary Biology, Princeton University, Princeton, NJ, 2005

##### BioMath, UIUC, 2004

##### Department of Cell & Structural Biology, UIUC, 2003

##### Program in Ecology & Evolutionary Biology, UIUC, 2003

##### Department of Organismic and Evolutionary Biology, Harvard University, 2003

##### EcoLunch, UIUC, 2003

##### Department of Human Genetics, Johns Hopkins University, Baltimore, MD, 2003

##### Neuroscience Program, Yale University, New Haven, CT, 2003

##### Ctr. Insect Sci., University Arizona, Tucson (postdocs’ choice), 2003

##### Department of Biology, University Virginia, Charlottesville, VA, 2002

##### Department of Neurobiology & Behavior, Cornell University, 2002

##### Department of Biology, Stanford University (student selected), 2002

##### Department of Biology, Simon Fraser University, Vancouver, 2002

##### Genomics Workshop, Iowa State University, Cedar Rapids, IA, 2002

##### Department of Biology, Florida State University, Tallahassee, FL, 2002

##### Center for Behavioral Neuroscience, Emory University, Atlanta, GA, 2002

##### Celera Inc., Rockville, MD, 2001

##### Division of Integrative Biology, University of Texas, Austin, TX, 2001

##### Genome Sciences Department, Lawrence Berkeley Nat. Lab, Berkeley, CA, 2001

##### Department of Entomology, Cornell University, Geneva, NY, 2001

##### Department of Genetics & Development, Cornell University, Ithaca, NY, 2001

##### Department Entomology, UIUC, 2001

##### Neuroscience Program Graduate Recruitment Weekend, UIUC, 2000

##### Department of Biology, University of Toronto, 2000

##### Department of Physics, UIUC, 1999

##### Neuroscience Institute, University of Oregon, Eugene (student selected), 1999

##### Department of Ecology, Ethology and Evolution, University of Minnesota, St. Paul, MN, 1999

##### Keck Program in Behavioral Biology, North Carolina State University, Raleigh, NC, 1998

##### Department of Biological Sciences, Stanford University, CA, 1997

##### Department of Biology, Brandeis University, Waltham, MA, 1997

##### Neuroscience Program, UIUC, 1997

##### Neuronal Pattern Analysis Group, Beckman Institute, UIUC, 1997

##### Center for Advanced Study, UIUC, 1997

##### Department of Entomology, University of Georgia, Athens, GA, 1997

##### Department of Ecology, University of Kansas, Lawrence, KS, 1997

##### Department of Entomology, University of Kansas, Lawrence, KS, 1997

##### Department of Entomology, Iowa State University, Ames, IA, 1997

##### Department of Zoology, Arizona State University, Tempe, AZ, 1997

##### Center for Insect Science, University of Arizona, Tucson, AZ, 1997

##### Department Entomology, Cornell University, Geneva, NY, 1996

##### Department of Parasitology, Hadassah Medical School, Jerusalem, 1996

##### Brain Research Center, Weizmann Institute, Rehovot, Israel, 1996

##### Department of Entomology, Hebrew University, Rehovot, Israel, 1996

##### Department of Cell and Animal Biology, Hebrew University, Jerusalem, 1996

##### Department of Biological Chemistry, Hebrew University, Jerusalem, 1996

##### Department of Zoology, Tel Aviv University, Tel Aviv, Israel, 1996

##### Department of Entomology, Purdue University, West Lafayette, IN, 1995

##### Department of Psychology, University of Maryland, College Park, MD, 1995

##### Behavior Club, Harvard University Medical School, 1995

##### Department of Organismic Biology, Harvard University, Cambridge, MA, 1995

##### Department of Biology, Boston University, Boston, MA, 1995

##### Department of Entomology, University of Mass., Amherst, MA, 1995

##### Department of Entomology, Cornell University, Ithaca, NY, 1995

##### Department of Animal Sciences, UIUC, 1995

##### Center for Population Biology, University of California, Davis, CA, 1995

##### Department of Zoology, University of Washington, Seattle, WA, 1994

##### Department of Biology, Indiana University, 1994

##### Department of Zoology, Eastern Illinois University, Charleston, IL, 1994

##### Department of Entomology, University of Minnesota, St. Paul, MN, 1994

##### Rockefeller University, New York, NY, 1993

##### Department of Zoology, Michigan State University, E. Lansing, MI, 1993

##### Department of Biology, University of Iowa, Iowa City, IA, 1993

##### Department of Organismic Biology, University of Chicago, Chicago, IL, 1993

##### Department of Cell and Structural Biology, UIUC, 1992

##### Learning and Memory Seminar; Beckman Institute, UIUC, 1992

##### Center for Complex Systems, Beckman Institute, UIUC, 1992

##### Department of Biology, Lake Forest College, Lake Forest, IL, 1992

##### Department of Environmental, Population and Organismal Biology, University of Colorado, Boulder, CO, 1992

##### Department of Molecular and Cellular Biology, Colorado State University, Ft. Collins, CO, 1992

##### Invertebrate Physiology Institute, CNRS, Marseille, France, 1992

##### Center of Ethology and Sociobiology, University Paris, 1992

##### Comparative Neurobiology Institute, CNRS, Bures Sur Yvette, France, 1992

##### Neurobiology Institute, Freie University, Berlin, Germany, 1992

##### Zoology Institute, University of Würzburg, Germany, 1992

##### Department of Biology, Illinois State University, Normal, IL, 1992

##### Center for Economic Entomology, Illinois Natural History Survey, 1992

##### Department of Entomology, University of Wisconsin, Madison, WI, 1991

##### Department of Biology, University of Wisconsin, Kenosha, WI, 1991

##### Neuroscience Program, UIUC, 1991

##### Department of Biology, Northern Illinois University, Dekalb, IL, 1990

##### Section of Neurobiology & Behavior, Cornell University, Ithaca, NY, 1990

##### Department of Biology, Indiana University (student selected), 1990

##### Department of Physiology and Biophysics, UIUC, 1990

##### Department of Entomology, Ohio State University Wooster, OH, 1989

##### Department of Entomology, University of California, Riverside, CA, 1989

##### Department of Entomology, UIUC, 1989

##### Department of Biological Sciences, Simon Fraser University, Canada, 1988

##### Department of Entomology, University of California, Davis, CA, 1988

##### Department of Entomology, Ohio State University, Columbus, OH, 1986

##### Section of Neurobiology and Behavior, Cornell University, Ithaca, NY, 1986

##### Student Award Lecture, Eastern Apicult. Society, Lancaster, PA, 1985

##### Department of Environmental Biology, University of Guelph, Ontario, Canada, 1984

##### Department of Entomology, Hebrew University, Rehovot, Israel, 1983

##### Weizmann Institute of Science, Rehovot, Israel, 1982

##### Rocky Mountain Biological Lab., Colorado, 1982

##### Department of Entomology, Cornell University, Ithaca, NY, 1982

# **BOARD OF ADVISORS**

##### 

##### SimbioSys, 2019-present

##### Dalan Animal Health, 2019-present

##### Cavendish Impact Foundation, 2017-2019

##### Beckman Institute, UIUC, 2018-present

##### NIH NIMH National Advisory Mental Health Council, 2013-2017

##### BGI International Conference on Genomics, 2015-2018

##### Monsanto Inc. Honey Bee Advisory Council, 2016-2019

##### Science Advisory Board, National Courts and Sciences Institute, 2015-present

##### National Advisory Mental Health Council Working Group on Behavioral and Social Science Research, 2014-2017

##### Network Science Institute, Indiana University, 2015-present

##### Intelligence Science and Technology Experts Group, The National Academies of Science, Engineering and Medicine, 2015-2019

##### Steering Committee, Committee on Population, The National Academies of Science, Engineering and Medicine, 2014-2015

##### Monsanto Inc. BioDirect Division, 2012-2015

##### Beeologic Ltd., 2008-2011

##### University Laboratory High School, UIUC, 2012-present

##### NIH Big Data to Knowledge (BD2K) Working Group, 2014-present

##### Canadian Institute for Advanced Research (CIFAR), Experience Based Brain and Biological Development Programme, 2009-2013 and Child and Brain Development Programme 2013-present (3rd term)

##### Whitney Laboratory for Marine Bioscience, University Florida, 2009-2014

##### Max Planck Institute for Chemical Ecology, Jena, Germany, 2009-2013

##### NSF Center for Behavioral Neuroscience, Emory University, 2002-2006

### **IX. SCIENCE AND PUBLIC POLICY**

##### Creator, World of Genomics public engagement event; partnerships with Field Museum of Chicago, St. Louis Science Center, National Academy of Sciences, Orpheum Science Center

##### Creator, Genomics forTM professional training programs for judges, state’s attorneys, police officers, physicians, journalists (in partnership with the American Association for the Advancement of Science), CEOs, PR executives and Hollywood producers and script writers (the latter in partnership with the NAS Science and Entertainment Exchange)

##### Advisory Board, Illinois-IBM Collaboratory, 2016-present

##### Co-organizer, Genes and Social Science Meeting, NIH Research Network on the Determinants of Life Course Capabilities and Outcomes (J. Heckman, PI), Chicago, 2016

##### Moderator, AAAS-Illinois Program on Visionary Frontiers of Engineering, Medicine and Biology, 2015

##### Reviewer, “Advances in BioDemography: Cross-Species Comparisons of Social Environments, Social Behaviors, and their Effects on Health and Longevity: A Workshop,” NAS-NRC Committee, 2014

##### “Frontiers in Brain Research,” Testimony, House Subcommittee on Research and Technology, 2013

##### Co-organizer, “New Perspectives on Organismal Biology,” NSF Workshop, 2011

##### Co-organizer, “Tools for 21st Century Biology,” NSF Workshop, 2009

##### Reviewer, “A New Biology for the 21st Century,” NAS-NRC Committee, 2009

##### Reviewer, “Theory in Biology,” NAS-NRC Committee, 2008

##### Member, “Status of Pollinators in North America,” National Academy of Sciences (NAS)-NRC Committee, 2005-2006

### **X. SERVICE**

### National and International Service

##### Invited Participant, NASEM Board on Life Sciences Strategic Planning Meeting, 2020

##### Planning Committee, National Academy of Medicine 50th Anniversary Regional Scientific Symposium, University of Chicago, 2020

##### Working Group, National Council on Competitiveness, 2019-2020

##### Chair, “Functional Genomics Workshop,” National Academy of Sciences, 2019-2020

##### Reviewer, “Fostering the Culture of Convergence in Research” workshop proceedings, National Academies of Sciences, Engineering and Medicine, 2019

##### Mentor, Dr. Eyal Maori, Fellow, Department of Biochemistry, Cambridge University, Henry Dale Career Development Fellowship applicant, 2019 - present

##### Associate, Center for the Economics of Human Development, University of Chicago, 2018-present

##### Co-Chair, Earth BioGenome Project, 2014-present

##### Collaborator and Mentor, Dr. Jennifer Cook, Birmingham Fellow, School of Psychology, University of Birmingham, EU Horizon 2020 grant, “Brain2Bee,” 2017 – present

##### Chair, Section 27 (Evolutionary Biology) National Academy of Sciences, 2017-present

##### National Academies of Sciences, Engineering and Medicine Convergence Advisory Group, 2017-

##### National Academy of Sciences National Pollinator Week Facebook Post, 2017

##### Expert, REDDIT, Ask Me Anything, 2017

##### Membership Panel, American Academy of Arts and Sciences Class II, Section 4 (Evolutionary and Population Biology and Ecology), 2016-2017

##### Review Committee, University of Texas Center for Computational Biology and Bioinformatics, 2016

##### Selection Committee, National Academy of Sciences Richard Lounsbery Award, 2014-2015

##### Chair, National Academy-Keck Futures Initiative on Social Behaviors, 2014-2015

##### Membership Panel, American Academy of Arts and Sciences Class II, Section 4 (Evolutionary and Population Biology and Ecology), 2012-2013

##### Chair, Selection Committee, John J. Carty Award for the Advancement of Science, National Academy of Sciences, 2014

##### Founder, i5K: An initiative to sequence the genomes of 5000 insects, 2011 (Member, Coordinating Group, 2012-present)

##### ESA Fellows Selection Panel, 2011-2014

##### Selection Committee, ESA Early Career Innovation Award, 2008, 2009, 2010

##### Program Committee, 16th International Congress of IUSSI, 2008-2010

##### Council Member at Large, Gordon Research Conferences Council, 2007-2009

##### Reviewer, National Academy of Sciences-National Research Council Report, 2007

##### Consultant, NIH-NIA Social Neuroscience Initiative, 2007

##### Program Committee, “Cholinergic Signaling: from Gene to Environment,” Symposium in honor of Hermona Soreq, Hebrew University, Jerusalem, 2006

##### Reviewer, Elsevier Press, 2006

##### Ad hoc Advisory Committee, Center for Brain Science, Harvard University, 2005

##### Program Committee, 15th International Congress of IUSSI, 2004-2006

##### Council Representative, Gordon Research Conferences, 2004-2006

##### Reviewer, Indiana 21st Century Research & Technology Fund, 2004

##### Consultant, Songbird Genomic Initiative, 2003-2010

##### Leader, Honey Bee Genome Sequencing Consortium, 2000-present

##### President-Elect and President, IUSSI North American Chapter, 2000-2002

##### Judge, Student Competition, ESA, 2000

##### Reviewer, Sinauer Associates Publisher, 2000

##### Travel Support Committee, IUSSI North American Chapter, 1988-1989

##### Referee, Killiam Program, Canada Council for the Arts, 1998

##### Travel Grant Awards Committee, IUSSI, 1998

##### Member, Beckman Scholars National Advisory Panel, 1998

##### Nominating Committee, IUSSI North American Chapter, 1987–1988, 2005-6

##### Conference Organizing Committee, IUSSI North American Chapter, 1997

##### Chairperson, Sub-section Cb, ESA, 1995

##### Referee, Humboldt Foundation, 1994, 1995, 2002

##### Reviewer, John Simon Guggenheim Memorial Foundation, 1994

##### Panel Member, USDA Competitive Grants Program, Entomology, 1994

##### Travel Grant Award Selection Committee, IUSSI North American Chapter, 1994

##### Outside Member of Doctoral Committee, Gui Deng, University of Miami, 1993-1995

##### Awards Committee, Eastern Apicultural Society, 1993–2000

##### Reviewer, Princeton University Press, 1993

##### Secretary, Chair-elect, Chair, Sub-section Cb, ESA, 1993-1995

##### Editorial Board Member

##### *Proceedings of the National Academy of Sciences*, 2009-2015, reappointed 2016, reappointed 2018

##### Encyclopedia of Social Insects, Springer, 2018-2020

##### Associate Editor, *Annual Review of Entomology*, 1998-2018

##### *Journal of Insect Physiology*, 1998-2015

##### *Journal of Insect Biology,* 1998-2014

##### *Genes, Brain, and Behavior,* 2001-present

##### *Journal of Experimental Zoology,* 2005-2016

##### *Gene Regulation and Systems Biology,* 2009-present

##### *Molecular and Developmental Evolution,* 2013-present

##### *Current Opinion in Insect Science, 2013-2016*

### Professional Affiliations

##### American Association for the Advancement of Science

##### American Association for Behavioral Neuroendocrinology

##### Animal Behavior Society

##### Entomological Society of America

##### International Bee Research Association

##### International Society for Neuroethology

##### International Union for the Study of Social Insects

##### Sigma Xi

##### Society for Neuroscience

##### International Behavioural and Neural Genetics Society

### Outreach and Public Engagement

##### Speaker, Genomics for Marketing, CGLife-IGB, 2020

##### Speaker, Genomics for Journalists, AAAS-IGB, 2019

##### Speaker, National Courts and Science Institute-IGB Genomics for Judges, 2019

##### Speaker, National Courts and Science Institute-IGB Genomics for Judges, 2018

##### Discussant, “Gattaca” film screening, Art Theater, 2018

##### Speaker, Genomics for Clinicians, Carle Foundation, 2016

##### Lecture and honey tasting, Sweet Beginnings, Chicago, 2016

##### Speaker, Genomics for CEOs, Young President Organization, Windy City Chapter, Chicago, 2015

##### Speaker, Windsor of Savoy Nursing Home, 2015

##### Interviewee, US Government Accountability Office, 2015

##### Speaker, Kiwanis Club of Champaign-Urbana, 2015

##### Speaker, Social Science Club of Champaign-Urbana, 2015

##### People Behind the Science Podcast, 2014

##### Speaker, Genomics for Teachers, 2014

##### Speaker, Genomics for State’s Attorneys, 2014

##### Interviewed, WBEZ Chicago, 2014

##### Science 2034 Podcast Blog, The Science Coalition, 2014

##### Speaker, Genomics for Judges, 2013

##### Panel Discussant, “Future Shock,” National Center for Super Computing Applications Private Sector Program, 2014

##### Speaker, Genomics for Judges, 2013

##### Creator, “Genomics for” continuing education professional training courses, 2013-present

##### Creator, Genome Day public outreach event, Orpheum Museum, 2013-present

##### Film Discussant, Art Theater, 2013

##### Pollination Fascination Talk, UIUC Pollinatarium, 2012, 2014

##### Interviewed, BBC, 2012

##### Interviewed, Saskatchawan Public Radio, 2012

##### Interviewed, Albany Public Radio, 2012

##### Interviewed, Minnesota Public Radio, 2012

##### University High School Advisory Board, 2012-2017

##### Speaker, Sheboygan County Beekeepers Association, 2011

##### Advisor to University High School team, Toshiba/National Science Teachers Association ExploraVision competition, 2011

##### Presentation, Champaign Rotary Club, 2010

##### Presentation, Thomas Paine Elementary School, 2010

##### Bug Night, B.T. Washington Elementary School, 2010

##### Public lecture, Science Olympiad National Tournament, 2010

##### Consultant, SciFi Network, 2009

##### Pollinatarium tour, Spurlock Museum Staff, 2009

##### Speaker, SciFest, St. Louis Museum of Science, 2009

##### Speaker, Upward Bound College Prep Academy, 2009

##### Organizer, Genomics course for the Osher Life Long Learning Center, 2009

##### Clark-Lindsey tour, Bee Research Facility, 2009

##### Pollinatarium tour, Thomas Paine Elementary School, 4th grade class, 2009

##### Salon Speaker, Science Exchange, National Academy of Sciences-Hollywood, 2008

##### Organizer, Neuroscience course for the Osher Life Long Learning Center, 2008

##### Consultant, UIUC Pollinatarium, 2008

##### Interviewed, Quirks & Quarks, CBC Radio, 2008

##### Speaker, Community Health Program, 2008

##### Scientific Advisor, Next Generation Lego Team, 2008

##### Host, US Army Construction Engineering Research Laboratory High School Workshop, 2008

##### Director, UIUC "Bees and Beekeeping" Short Course, 2008

##### Participant, Neuroscience workshop for high school teachers, 2008

##### Participant, BeeSpace workshop for high school teachers, 2008

##### Featured Speaker, PlexusCalls on Complex Systems, 2007

##### US Army Construction Engineering Research Laboratory High School Workshop, 2007

##### Bee lab tour, Thomas Paine Elementary School, 4th grade class, 2007

##### Champaign-Urbana B’nai Brith, 2006

##### Interviewed for Focus 580, WILL, 2006

##### Champaign-Urbana Rotary Club, 2006

##### Interviewed for world-science.net, 2006

##### Bee lab tour, Howard Hughes Undergraduate Fellows Program, 2006

##### Bee lab tour, Education Staff, Spurlock Museum of World Cultures, 2006

##### Presentation, Home High School, 2005

##### Interviewed for WCIA Morning News television show, 2005

##### Interviewed for NPR Science Program, 2005

##### UIUC-Howard Hughes Medical Institute Biotechnology Education and Outreach Program, 2005

##### Interviewed for Wisconsin Public Radio, 2005

##### Interviewed for Science Show, News Talk 890 KDXU, Phoenix, AZ (3 times), 2005

##### Interviewed for Science Show, News Talk 890 KDXU, Phoenix, AZ (3 times), 2005

##### Director, UIUC "Bees and Beekeeping" Short Course, 2004

##### Presentation, Champaign-Urbana Montessori School, 2004

##### UIUC-Howard Hughes Medical Institute Biotechnology Education and Outreach Program, 2004

##### “Biology Lab Organization,” HURF, 2004

##### “Weekend Wizards,” Orpheum Science Museum Exhibit, 2004

##### Bee lab tour, YMCA Science Summer Program, 2003

##### Director, UIUC "Bees and Beekeeping" Short Course, 2003

##### Bee lab tour, HURF, 2003

##### “The Opportunistic Mentee”, HURF, 2002

##### Bee lab tour, HURF, 2002

##### Director, UIUC "Bees and Beekeeping" Short Course, 2002

##### Presentation, HURF, 2001

##### Presentation, Montessori Habitat School, 2001

##### Director, UIUC "Bees and Beekeeping" Short Course, 2001

##### Presentation, Doctor Howard Elementary School, 2nd grade class, 2001

##### Presentation, Pack 11 Cub Scouts, 2001

##### Presentation, Howard Hughes Undergraduate Research Fellows, 2000

##### Filmed for Discovery Channel *Twisted Tales*, Animal Planet, 2000

##### Appearance, Chicago WGN radio, with Milt Rosenberg, 2000

##### Presentation, Home High School, 2000

##### Organizer, UIUC "Bees and Beekeeping" Short Course, 2000

##### Presentation, HURF, 1999

##### Presentation, Washington Elementary School 4th grade class, 1999

##### Presentation, Colonel Wolf K-1st grade, 1999

##### Director, UIUC "Bees and Beekeeping" Short Course, 1999

##### Presentation, Howard Hughes Undergrad. Res. Fellows (HURF), 1998

##### Presentation, Washington School 3rd grade and Kindergarten, 1998

##### Presentation, Home Schooling Project, Springfield, IL, 1998

##### Director, UIUC "Bees and Beekeeping" Short Course, 1998

##### Appearance, "Prizma,” German science program, 1997

##### Presentation, Washington Elementary School 2nd grade class, 1997

##### Organizer, UIUC "Bees and Beekeeping" Short Course, 1997

##### Presentation, Parkland College, "College for Kids" program, 1997

##### Presentation, Doctor Howard Elementary School 5th grade class, 1997

##### Presentation, Washington Elementary School 1st grade class, 1996

##### Presentation, Early Learning Preschool, 1996

##### Presentation, Nayot Kindergarten class, 1996

##### Consultant, Israel National Museum of Nature, 1996

##### Judge, American Embassy Scholarship Competition, Israel, 1996

##### Presentation, Parkland College, "College for Kids" program, 1995

##### Presentation, Doctor Howard Elementary School 4th grade class, 1995

##### Presentation, Southside Elementary School Kindergarten class, 1995

##### Presentation, Jefferson Middle School, 1995

##### Presentation, Insect Expo '95, 1995

##### Presentation, Clark Lindsey Senior Citizens Home, 1995

##### Presentation, Champaign Public Library, 1995

##### Presentation, Yankee Ridge Elementary School 3rd grade class, 1995

##### Presentation, Playtime Preschool class, 1995

##### Presentation, Doctor Howard Elementary School 3rd grade class, 1994

##### Presentation, Southside Elementary School second-grade class, 1994

##### Presentation, Playtime Preschool class, 1994

##### Member, Advisory Comm. Apiary Regulations, IL Department Ag., 1994

##### Speaker, IL State Beekeeper's Society Winter Meeting, Springfield, IL, 1994

##### Advisor, Chicago Museum of Science and Technology, 1994

##### Presentation, Playtime Preschool class, 1993

##### Presentation, Colonel Wolfe 1st grade class, 1993

##### Member, Advisory Comm. on Apiary Regulations, IL Department Ag., 1993

##### Speaker, IL State Beekeeper's Association Meeting, Springfield, 1993

##### Speaker, Eastern Apicultural Society Meeting, Orono, Maine, 1993

##### Presentation, Colonel Wolfe Kindergarten class, 1992

##### Speaker, Eastern Apicultural Society Annual Meeting, Ontario, 1992

##### Member, Advisory Comm. on Apiary Regulations, IL Department Ag., 1992

##### Speaker, IL State Beekeeper's Association Meeting, Springfield, 1992

##### Speaker, Cook-Depage County Beekeeper's Association, 1992

##### Presentation, Playtime Preschool class, 1991

##### Speaker, IL State Beekeeper's Association Meeting, Springfield, 1991

##### Reviewer, *The New Book of Knowledge*, 1991

##### Speaker, IL State Beekeeper's Association Meeting, Champaign, 1991

##### Appeared in "*Infinite Voyage*,” PBS documentary on insects, 1991

##### Presentation, Playtime Preschool class, 1990

##### Speaker, IL State Beekeeper's Association Meeting, Springfield, 1990

##### Consultant, National Wildlife Federation, 1990

##### Speaker, IL State Beekeeper's Association Meeting, Springfield, 1990

##### Speaker, IL State Beekeeper's Association Meeting, Springfield, 1989

### **XI. UNIVERSITY SERVICE**

##### Governance Board, Center for Advanced Bioproducts and Bioenergy Innovation, 2020-present

##### Search Committee, Director of Research, Discovery Partners Institute, 2020-present

##### Chair, Council of Institute Directors (Campus), 2016-present

##### Research Information Technology Advisory Committee (Campus), 2018-present

##### Internal Advisory Board, Cancer Center (Campus), 2017-present

##### Research Advisory Board, Carle Illinois College of Medicine (Campus), 2017-present

##### Endowed Professor Selection Committee, School of Molecular and Cellular Biology) (School), 2016

##### Chancellor’s Transition Advisory Committee (Campus), 2016-2017

##### Mayo Clinic & Illinois Alliance working group (Campus), 2016-2017

##### Mentor, Ruby Mendenhall, Department of Sociology (Campus 2nd Discipline Fellowship), 2016-present

##### Research Live! Finals Judge (Campus), 2016

##### Advisory Co-Chair and member of Grand Challenge Learning Leadership Committee/Health & Wellness (Campus), 2015-16

##### Speaker, Academic Leadership Seminar series for Executive Officers (Campus), 2015

##### Campus Awards and Honors Committee, 2015-16

##### Strategic Planning Steering Committee (System), 2015-16

##### Speaker, Future of Medical Education & Research at Illinois (Campus), 2015

##### Member, University System Strategic Planning Committee, 2015-16

##### Grand Challenge Learning Leadership Committee (Campus), 2015-2018

##### Center for Advanced Study Task Force, (Campus), 2015-16

##### Search Committee, Dean, College of Agricultural, Consumer and Environmental Sciences (ACES), 2015-2016

##### College of Medicine Task Force (University), 2015

##### Judge, Illinois Innovation Prize (Campus), 2015

##### Chair, Faculty Cluster Hire Selection Committee (Campus), 2015

##### Sesquicentennial Planning Committee (Campus), 2015-2017

##### Sesquicentennial Planning Sub-Committees: DC/Springfield and OVCR Institutes (Campus), 2015-2017

##### Search Committee, Deputy Director, NCSA (Campus), 2015-2016

##### Committee on Natural Areas (Campus), 2015-2016

##### Advisory Co-Chair, Health & Wellness pathway, Grand Challenge Learning Leadership Committee (campus), 2015-2016

##### Chair, Search Committee, Department of Chemistry, (Campus) 2015-2016

##### Search Committee, Director of the University Office of Governmental Relations (University), 2015-2016

##### Search Committee, Director of the Interdisciplinary Health Sciences Initiative, 2014-2015

##### Committee for Research and Education at NCSA, 2014-2015

##### NCSA Private Sector Program Blue Ribbon Panel, 2014

##### Advisory Committee, Center for Advanced Study, 2014

##### Chair, Director of Coordinated Science Laboratory Search Committee (College of Engineering), 2014

##### Committee on Natural Areas (Campus), 2014-2015

##### Promotion and Tenure Committee (Entomology), 2014-2015

##### Internal Advisory Committee, Illinois-NIH Cancer Nanotechnology Training Program 2014-2015

##### Committee on Natural Areas (Campus), 2014-2015

##### Mentor, Rachel Roberts-Galbraith, Department of Cell & Developmental Biology (NIH K99 application), 2013-2014

##### Committee on Natural Areas (Campus), 2013-2014

##### Promotion and Tenure Committee (Entomology), 2013-2014

##### Graduate College Postdoctoral Affairs Office Advisory Committee, 2013-2014

##### Search Committee, Director, National Center for Supercomputing Applications (NCSA) (Campus), 2013-2014

##### University Research Council (Campus), 2012-2014

##### Chair, Director of Carver Biotechnology Center Search Committee (Campus), 2012

##### Chair, Dean of the College of Engineering Search Committee (Campus), 2012-13

##### National Center for Supercomputing Applications Search Committee (Campus), 2012-2013

##### Mayo-Illinois Strategic Alliance Executive Committee (Campus), 2012-present

##### Grainger Engineering Breakthroughs Initiative Faculty Recruitment Committee (Campus), 2012-2017

##### Committee on Natural Areas (Campus), 2012-2013

##### Promotion and Tenure Committee (Entomology), 2012-2013

##### Committee on Natural Areas (Campus), 2011-2012

##### Council of Center Directors, (Campus) 2011-present

##### Chancellor's Leadership Council (Campus), 2011

##### VCR Search Committee (Campus), 2011-2012

##### Promotion and Tenure Committee (Entomology), 2011-2012

##### Faculty Mentor, Department of Computer Science, 2011-present

##### Chair, Director of the School of Chemical Sciences Search Committee, 2011-2012

##### College of Business Entrepreneur Advisory Board (Campus), 2011-2013

##### Committee on Natural Areas (Campus), 2010-2011

##### Promotion and Tenure Committee (Entomology), 2010-2011

##### Executive Committee, Institute for Genomic Biology (Campus), 2010-2011

##### Executive Committee, NIH DNPTG (Campus), 2010-2011

##### Speaker, Science Faculty Media Workshop, Public Affairs (Campus), 2010-2011

##### Postdoctoral Scientists Advisory Committee (Campus), 2010-2011

##### Promotion and Tenure Committee (Entomology), 2010-2011

##### Executive Committee, Institute for Genomic Biology (Campus), 2009-2010

##### Committee on Natural Areas (Campus), 2009-2010

##### Promotion and Tenure Committee (Entomology), 2009-2010

##### Executive Committee, NIH DNPTG (Campus), 2009-2010

##### Chair, Beckman Institute Director Search Committee (Campus), 2009-2010

##### Cell & Molecular Biology-MBTG Symposium Poster Judge, 2008-2009

##### Chair, Beckman Institute Director Search Committee (Campus), 2008-2009

##### Executive Committee, Institute for Genomic Biology (Campus), 2008-2009

##### Awards Committee (Entomology), 2008-2009

##### Executive Committee, NIH SNTG (Campus), 2008-2009

##### Committee on Natural Areas (Campus), 2008-2009

##### Promotion and Tenure Committee (Entomology), 2008-2009

##### Search Committee, Evolutionary genomics of human behavior (Psych. & IGB), 2007-2008

##### Committee on Natural Areas (Campus), 2007-2008

##### Awards Committee (Entomology), 2007-2008

##### Executive Committee, Institute for Genomic Biology (Campus), 2007-2008

##### Executive Committee, NIH SNTG (Campus), 2007-2008

##### Chair, Provost’s *Ad Hoc* Committee on BioEd (Campus), 2007-2008

##### Division of Biomedical Sciences Planning Committee (Campus), 2007-2008

##### Search Committee, Evol. genomics human behavior (Psych. & IGB), 2006-2007

##### Committee on Natural Areas (Campus), 2006-2007

##### Awards Committee (Entomology), 2006-2007

##### Promotion and Tenure Committee (Entomology), 2006-2007

##### Executive Committee, Institute for Genomic Biology (campus), 2006-2007

##### Assisted News Bureau in evaluation of job candidate (campus), 2006-2007

##### Chair, Provost’s *Ad Hoc* Committee on BioEd (campus), 2006-2007

##### Executive Committee, NIH DNPTG (Campus), 2006-2007

##### Executive Committee, NIH SNTG (Campus), 2006-2007

##### Executive Committee (College; sabbatical replacement), 2005-2006

##### Provost Selection Committee (Campus), 2005-2006

##### Committee on Natural Areas (Campus), 2005-2006

##### Mentor, New Faculty (Cell & Structural Biology), 2005-2006

##### Awards Committee (Entomology), 2005-2006

##### Executive Committee, NIH DNPTG (Campus), 2005-2006

##### Executive Committee, Institute for Genomic Biology (campus), 2005-2006

##### Committee on Natural Areas (Campus), 2004-2005

##### Mentor, New Faculty (Cell & Structural Biology), 2004-2005

##### Chair, Search Committee, Vertebrate behavioral genomics (An. Bio. & IGB), 2004-2005

##### Executive Committee, Institute for Genomic Biology (campus), 2004-2005

##### Awards Committee (Entomology), 2003-2004

##### Promotion and Tenure Committee (Entomology), 2003-2004

##### Mentor, New Faculty (Cell & Structural Biology), 2003-2004

##### Executive Committee, NIH DNPTG (Campus), 2003-2004

##### Member, Agricultural Genome Sciences & Public Policy Training Grant (Campus), 2003-2004

##### Chair, Search Committee, Insect Genomics (Entomology & IGB), 2003-2004

##### Advisory Committee, Keck Center for Functional & Comparative Genomics, 2002-2003

##### Promotion and Tenure Committee (Campus), 2002-2003

##### Awards Committee (Entomology), 2002-2003

##### Promotion and Tenure Committee (Entomology), 2002-2003

##### Mentor, New Faculty (Cell & Structural Biology), 2002-2003

##### Fulbright Student Fellowship Selection Committee (Campus), 2002-2003

##### Executive Committee, NIH DNPTG (Campus), 2002-2003

##### Member, Agricultural Genome Sciences & Public Policy Training Grant (Campus), 2002-2003

##### Advisory Committee, Keck Center for Functional & Comparative Genomics, 2001-2002

##### Chair, Capricious Grading Committee (School), 2001-2002

##### Promotion and Tenure Committee (Campus), 2001-2002

##### Awards Committee (Entomology), 2001-2002

##### Promotion and Tenure Committee (Entomology), 2001-2002

##### New Biology Working Group, Ctr. Advanced Study (Campus), 2001-2002

##### Evaluation of Department Head Committee (Entomology), 2001-2002

##### Mentor, Teaching Academy (Campus), 2001-2002

##### Mentor, New Faculty (Cell & Structural Biology), 2001-2002

##### Executive Committee, NIH DNPTG (Campus), 2001-2002

##### Advisory Committee, Keck Center for Functional & Comparative Genomics, 2000-2001

##### Campus Research Board *ad hoc* reviewer, 2000-2001

##### Chair, Capricious Grading Committee (School), 2000-2001

##### Promotion and Tenure Committee (Campus), 2000-2001

##### Entomology Seminar Coordinator (fall semester), 2000-2001

##### Promotion and Tenure Committee (Entomology), 2000-2001

##### Provost’s *Ad hoc* Committee on a Science Center (Campus), 2000-2001

##### Executive Committee, NIH Developmental Neuroscience and Psychobiology Training Grant (DNPTG) (Campus), 2000-2001

##### LAS Executive Committee (College), 1999-2000

##### Entomology Seminar Coordinator, 1999-2000

##### Executive Committee, Neuroscience Program (Campus), 1999-2000

##### Promotion and Tenure Committee (Entomology), 1999-2000

##### Campus Research Board *ad hoc* reviewer, 1999-2000

##### Liberal Arts and Sciences (LAS) College Executive Committee, 1998-1999

##### Advisory Committee, School of Integrative Biology (SOLS), 1998-1999

##### Promotion and Tenure Committee (Entomology), 1998-1999

##### Executive Committee, Neuroscience Program (Campus), 1998-1999

##### Graduate College, Biological Sciences Subcommittee (Campus), 1998-1999

##### SOLS Distinction Committee, 1998-1999

##### Entomology Seminar Coordinator, 1998-1999

##### Campus Research Board *ad hoc* reviewer, 1998-1999

##### Advisory Committee, Keck Center for Functional & Comparative Genomics, 1999-2000

##### Critical Research Initiatives Selection Committee (Campus), 1998-1999

##### SOLS Capricious Grading Committee, 1997-1998

##### Chairperson, SOLS Environmental Safety Committee, 1997-1998

##### Entomology Seminar Coordinator, 1997-1998

##### Entomology Graduate Student Administration Committee, 1997-1998

##### Entomology Affirmative Action Committee, 1997-1998

##### Member, NIH Developmental Psychobiology and Neurobiology Training Grant Faculty (Campus), 1997-1998

##### Graduate College, Biological Sciences Subcommittee (Campus), 1997-1998

##### Search Committee, Behavioral Ecologist (SOLS), 1997-1998

##### Bylaws Committee for new School of Integrative Biology, 1997-1998

##### Advisory Committee, School of Integrative Biology, 1997-1998

##### Campus Research Board *ad hoc* reviewer, 1997-1998

##### Entomology Seminar Coordinator, 1996-1997

##### Chairperson, SOLS Environmental Safety Committee, 1996-1997

##### SOLS Distinction Committee, 1996-1997

##### SOLS Capricious Grading Committee, 1996-1997

##### Executive Committee, Neuroscience Program, 1996-1997

##### Dean's Liaison, Entomology Department Head Evaluation Comm., 1996-1997

##### W.H. Luckmann Award Comm. (Ctr. Economic Entomology), 1996-1997

##### Campus Research Board *ad hoc* reviewer, 1996-1997

##### Entomology Seminar Coordinator, 1994-1995

##### School Courses and Curriculum Committee, 1994-1995

##### W.H. Luckmann Award Comm. (Ctr. Economic Entomology), 1994-1995

##### Neuroscience Program Student Admissions Committee, 1994-1995

##### Search Committee, Insect Systematist Position, IL Natural History Survey, Center for Biodiversity (Campus representative), 1994-1995

##### SOLS Review Committee1994-1995

##### Campus Research Board *ad hoc* reviewer, 1994-1995

##### Neuroscience Program Student Admissions Committee, 1993-1994

##### Entomology Seminar Coordinator, 1993-1994

##### SOLS Courses and Curriculum Committee, 1993-1994

##### W.H. Luckmann Award Committee (Center for Economic Entomology), 1993-1994

##### SOLS Director Evaluation Committee, 1993-1994

##### Campus Research Board *ad hoc* reviewer, 1993-1994

##### Chairperson, Entomology Graduate Student Administration Committee, 1992-1993

##### Entomology Seminar Coordinator, 1992-1993

##### Search Comm, Ecology, Ethology and Evolution (outside member), 1992-1993

##### Search Comm., Life Sciences journalist, University News Bureau, 1992-1993

##### SOLS Fellowship Committee, 1992-1993

##### Procter and Gamble Lecture coordinator (SOLS–Entomology), 1991-1992

##### Reviewer, UIUC-Sigma Xi scientific writing competition, 1991-1992

##### Faculty Senate, 1991-1992

##### Neuroscience Program-SOLS TA liaison, 1991-1992

##### Entomology Seminar Coordinator, 1991-1992

##### Entomology Graduate Student Administration Committee, 1991-1992

##### School of Life Sciences (SOLS) Distinction Committee, 1990-1991

##### Entomology Graduate Student Administration Committee, 1990-1991

**XII. STUDENTS AND POSTDOCTORAL ASSOCIATES TRAINED**

### Research Scientists

##### Zhenqing Chen, (Ph.D. New York University) 2020-

##### Zachary Huang, 1996-1998

Current Position: *Associate Professor, Michigan State University*

##### Adam Hamilton, (Ph.D. University of Illinois) 2020-

### Postdoctoral Associates

##### Tim Gernat (Ph.D. Computer Science, University Leipzig) 2019-

##### Cassondra Vernier (Ph.D. Washington University) 2019-

##### Adam Hamilton, (Ph.D. University of Illinois) 2018-2020

##### Brian Herb, (Ph.D. Johns Hopkins University) 2017-2018

##### Current Position: *Research Scientist, University of Maryland College of Medicine*

##### Arian Avalos, (Ph.D. University of Puerto Rico) 2015-2018

##### Current Position: *Research Entomologist, USDA Bee Research Laboratory, Baton Rouge, LA*

##### Michael Saul, (Ph.D. University of Wisconsin) 2014-2018 (IGB theme fellow)

##### Current Position: *Research Associate, Jackson Laboratories*

##### Julia Fine, (Ph.D. Pennsylvania State University) 2017-2019

##### Current Position: *Research Entomologist, USDA Bee Research Laboratory, Davis, CA*

##### Molly Shook, (Ph.D. Cornell University) 2014-2016

##### Current Position: *Woodrow Wilson Teaching Fellowship*

##### Zhenqing Chen, (Ph.D. New York University) 2015-2019

##### Current Position: *Research Scientist, UIUC*

##### Hagai Shpigler, (Ph.D. Hebrew University) 2013-2017

##### Current Position: *Lester Fellow, Tel Aviv University*

##### Clare Rittschof, (Ph.D. University of Florida) 2012-2016

##### Current Position: *Assistant Professor, University of Kentucky*

##### Ernest Blackwell, (Ph.D. UIUC) 2010-2012

##### Current Position: *Faculty, Clackamas Community College, Oregon City, OR*

##### Karen Kapheim, (Ph.D. UCLA) 2011-2014

##### Current Position: *Associate Professor, Utah State University*

##### Hongmei Lei, (Ph.D. Purdue University) 2010-2013

##### Current Position: Assistant Professor*, Central State University*

##### Matthew McNeill, (Ph.D. University Iowa) 2010-2014

Current Position: Staff scientist, IDT Inc., Iowa City, IA

##### Axel Brockmann, (Ph.D. University of Wuerzburg) 2004-2011

##### Current Position: *Associate Professor, National Centre for Biological Sciences, Bangalore, India*

##### Amy Toth, (Ph.D. UIUC) 2007-2009

##### Current Position: *Professor, Iowa State University*

##### Amro Zayed, (Ph.D. York University) 2006-2007 (IGB Fellow)

##### Current Position: *Canada Research Chair and* *Associate Professor, York University, Canada*

##### Scott Kreher, (Ph.D. Yale University) 2006-2009

##### Current Position: *Associate Professor, Dominican University*

##### Cedric Alaux, (Ph.D. University Paris) Fondation Fyssen Fellow, 2006-2009

Current Position: *Staff Scientist, INRA Avignon, France*

##### Amanda B. Hummon, (Ph.D. UIUC) 2004-2005 (with S. Rodriguez and J. Sweedler)

##### Current Position: *Associate Professor, Ohio State University*

##### Adrienne Moran Lauter, (Ph.D. University Minnesota) 2003-2005

##### Current Position: *Lab manager, Iowa State University*

##### Moushumi Sen Sarma, (Ph.D. Indian Institute of Science) 2004-2009

##### Yehuda Ben-Shahar, (Ph.D. UIUC) 2002-2003

##### Current Position: *Professor, Washington University*

##### David Schulz, (Ph.D. UIUC) 2001-2002

##### Current Position: *Professor, University Missouri*

##### Christina Grozinger, (Ph.D. Harvard University) Beckman Fellow, 2000-2004

##### Current Position: *Distinguished Professor and Director at Center for Pollinator Research, Pennsylvania State University*

##### Andrew Barron, (Ph.D. Cambridge University) Fulbright Distinguished Fellowship, 2001-2003

##### Current Position: *Professor,* *Macquarie* *University, Sydney, Australia*

##### Miguel Corona, (Ph.D. Mexican National University) CONACyT Mexican Fellowship, 2000-2007

##### Current Position: *Research Scientist, USDA Bee Research Laboratory, Beltsville, MD*

##### Charles Whitfield, (Ph.D. Stanford University) NSF Postdoctoral Fellow, 2000-2004

##### Current Position: *Retired, Associate Professor, UIUC*

##### Michelle Elekonich, (Ph.D. University Washington) 1997-2002

Current Position: *Deputy Division Director, NSF, formerly Associate Professor, University of*

*Nevada at Las Vegas*

##### Guy Bloch, (Ph.D. Tel Aviv University) 1997-2001

##### Current Position: *Professor, Hebrew University*

##### Elizabeth Capaldi, (Ph.D. Michigan State University) 1997-2000 (co-supervised by S. Fahrbach)

##### Current Position: *Professor, Bucknell University*

##### Samuel Beshers, (Ph.D. Boston University) 1995-97

##### Current Position: *UIUC Lecturer and Neuroscience Program Coordinator*

##### Stephen Trumbo, (Ph.D. SUNY Binghamton) 1992-94

##### Current Position: *Professor, University of Connecticut*

##### Zachary Huang, (Ph.D. Guelph University) 1992-96

##### Current Position: *Associate Professor, Michigan State University*

### Doctoral Students

##### Magdalena Murphree, Entomology, 2019-present

##### Sarai Stuart, Ecology, Evolution & Conservation Biology, 2016-present (Franicis M. and Harlie M. Clark Research Support Grant

##### Ian Traniello, Neuroscience, 2014-present (Winner, Fred S. Bailey Scholarship for Community Leadership, Service and Activism; Winner, NIH Outstanding Scholars in Neuroscience Award)

##### Tim Gernat, Computer Science, University Leipzig, 2010-2019

##### Current Position: *Postdoctoral Research Associate, UIUC*

##### Beryl Jones, Ecology, Evolution & Conservation Biology, 2019 (Winner, Emerson Award for Outstanding Graduate Student in the School of Integrative Biology; Eickwort Outstanding Student Award)

##### Current Position: *Postdoctoral Research Associate, Princeton University*

##### Adam Hamilton, Neuroscience, 2018

##### Current Position: *Research Scientist, UIUC*

##### Nick Naeger, Entomology, 2015

##### Current Position: *Research Technician, Washington State University*

##### Marsha Wheeler, Entomology, 2014

##### Current Position: *Research Scientist, University of Washington*

##### Claudia Lutz, Neuroscience, 2012

##### Current Position: *Outreach Manager, IGB*

##### Sophia (Zhengzheng) Liang, Neuroscience, 2013

##### Current Position: *Postdoctoral Research Associate, Harvard University*

##### Brielle Fischman, Ecology & Evolutionary Biology, 2013

##### Current position: *Assistant Professor, Hobart and William Smith College*

##### S. Hollis Woodard, Ecology & Evolutionary Biology, 2011

##### Current position: *Assistant Professor, University of California at Riverside*

##### Ying Wang, Cell & Developmental Biology, 2010

##### Current Position: *Associate, Vinson & Elkins LLP, Intellectual property law*

##### Seth Ament, Neuroscience, 2010

##### Current Position: *Assistant Professor, University of Maryland*

##### Amy Toth, Ecology & Evolutionary Biology, 2006

##### Current Position: *Associate Professor, Iowa State University*

##### Nyla Ismail, Neuroscience, 2008

##### Current Position: *DeBakey Heart & Vascular Center, Houston, TX*

##### Rodrigo Velarde Montecinos, Entomology, 2007

##### Current Position: *Scientist, University of Argentina*

##### Joseph Sullivan, Entomology, 2001

##### Current Position: *MD, Harborside Spine & Sports Center, Petoskey, MI*

##### Yehuda Ben-Shahar, Entomology, 2002

##### Current Position: *Professor, Biology Department, Washington University*

##### David Schulz, Entomology, 2001

##### Current Position: *Professor, University Missouri*

##### Sarah Farris, Entomology, 2000

##### Current Position: *Associate Professor, West Virginia University*

##### Christine Wagener-Hulme, Entomology, 2000

##### Current Position: *Lt. Colonel, USAF (retired)*

##### Daniel Toma, Ecology, Ethology and Evolution, 2000

##### Current Position: *Associate Professor, University of Minnesota*

##### Tugrul Giray, Entomology, 1997

##### Current Position: *Professor and Chair, Department of Biology, University of Puerto Rico*

##### Ginger Withers, Neuroscience, 1993

##### Current Position: *Robert F. Welty Professor, Whitman College*

### Master’s Students

## Kari Jackson, Entomology, 2015-2017

##### Wei Yang, Entomology, 2013-2014

##### Current Position: Bioinformatics Graduate Program, UIUC

##### Morgan Carr-Markell, Ecology, Evolution & Conservation Biology, 2010-2013

##### Current Position: Ph.D. program, University of Minnesota

##### Tara McGill, 2010-2012, Entomology

##### Current Position: Adjunct Professor and Curriculum Development Specialist, Northwestern University

##### Timothy Daugherty

Current Position: Medical School, Southern Illinois University

##### Scott Nixon, 2009, Biology

##### Current Position: *Ph.D. program in Informatics, UIUC*

##### Nick Naeger, 2006-2010, Entomology (see doctoral students)

##### Pouya Kheradpour, Computer Science, 2004-2005 (co-advisors, C. Whitfield & C. Zeng)

##### Current Position: *Google Inc. (Ph.D., MIT)*

##### Amy Cash (Ahmed), Ecology and Evolutionary Biology, 2002-2003

##### Current Position: *Laboratory Manager, Robinson Lab*

##### Maria Vermiglio, 1998, Biology

##### Current Position: *Science Teacher, Maine Township High School East, Park Ridge, IL*

##### Yehuda Ben-Shahar, 1998, Entomology (winner, Clark Award) (see doctoral students)

##### Joseph Sullivan, 1999, Entomology (co-advisor, S. Fahrbach) (see doctoral students)

##### David Schulz, 1997, Entomology (Clark Research Support Grant, 1997) (see doctoral students)

##### Laura Heuser (Kimball), 1997, Entomology

##### Current Position*: Biology teacher, Milwaukee, WI*

##### Sarah Farris, 1995, Entomology (co-advisor, S. Fahrbach) (see doctoral students)

##### Sean Collins, 1995, Entomology

##### Current Position: *Assistant Professor, Ohio State University*

##### Michael Moore, 1993, Biology

Current Position: ZeGrahm Expedition, Seattle, WA

##### (18) Tugrul Giray, 1993, Entomology (see doctoral students)

##### 

### Undergraduate Student Research (132)

### Senior Theses

##### Allyson Ray, B.S. with Highest Distinction, 2016

##### Chelsey Coombs, B.S. with Highest Distinction, 2014

##### Sam Akin, B.S. with Distinction, 2013

##### Kyle Carey, B.S. with Distinction, 2012

##### Roveiza Irfan, B.S. with Distinction, 2010

##### Nicole Spencer, B.S. with Distinction, 2009

##### Timothy Daugherty, B.S. with High Distinction, UIUC, 2009

##### Mira Kolodkin, B.S. with High Distinction, 2006

##### Dustin Rubinstein, B.S. with Distinction, 2002

##### Christopher Thompson, B.S. with Distinction, 2000

##### Russell Riley, B.S. with Distinction, 1998

##### Omar Jassim, B.S. with Highest Distinction, 1997

##### David Schulz, B.S. with Highest Distinction, 1995

##### Jennifer Angel, B.S. with honors, Stanford University (outside advisor), 1994

##### Jennifer Strand, B.S. with High Distinction, 1994 (co-advisor, S. Fahrbach)

##### Natasha Leacock, B.S. with High Distinction, (co-advisor S. Fahrbach)

##### Matthew O'Neal, B.S. with High Distinction, 1992

# **XIII. PUBLICATIONS**

## **Peer-Reviewed Papers**

1. Fouks, B….Robinson, G.E., Elsik, C.G. and O. Rueppell. The genomic basis of evolutionary differentiation among honey bees. To be submitted.

### Chen, Z., Traniello, I.M., Rana, S., Cash-Ahmed, A., Sankey, A.L., Yang, C and G.E. Robinson. Neurodevelopmental and transcriptomic effects of CRISPR/Cas9-induced somatic orco mutation in honey bees. Journal of Neurogenetics special issue in honor of Marla Sokolowski’s 65th birthday. *In review*.

### Choi, S.H., Gernat, T., Hamilton, A. R. and N. Goldenfeld. 2020. Individual variations lead to universal and cross-species patterns of social behavior. *Proceedings of the National Academy of Sciences. In press.*

### Shpigler, H.Y., Herb, B., Drnevich, J., Band, M., Robinson, G.E. and G. Bloch. 2020. Juvenile hormone regulates brain-reproduction tradeoff in bumble bees but not honey bees. *Hormones and Behavior.* DOI: 10.1016/j.yhbeh.2020.104844.

### Avalos, A., Fang, M., Pan, H., Lluch, A.R., Lipka, A.E., Zhao, S.D., Giray, T., Robinson, G.E., Zhang, G. and M.E. Hudson. Group genes associated with aggressive group behavior in honey bees. 2020. *Proceedings of the National Academy of Sciences* <https://doi.org/10.1073/pnas.1922927117>. (with Commentary)

### Geffre, A.C., Gernat, T., Toth, A.L., Jones, B.M., Gysi, D.M., Hamilton, A.R., Bonning, B.C., Robinson, G.E. and A.G. Dolezal. 2020. Honey bee virus causes context-dependent changes in host social behavior. *Proceedings of the National Academy of Sciences.* <https://doi.org/10.1073/pnas.2002268117> (Reported in *Science, Science Friday, Forschung aktuell, Nature Microbiology, PNAS)*

### Traniello, I.M., Bukhari, A., Kevill, J., Ahmed, A.C., Hamilton, A.R., Naeger, N.L., Schroeder, D.C. and G.E. Robinson. 2020. Meta-analysis of honey bee neurogenomic response links Deformed wing virus type A to precocious behavioral maturation. *Scientific Reports* 10, Article number: 3101.

### Traniello, I.M., Chen, Z., Bagchi, V. and G.E. Robinson. 2019. Valence of social information is encoded in different subpopulations of mushroom body Kenyon cells in the honeybee brain. *Proceedings of the Royal Society.* <https://doi.org/10.1098/rspb.2019.0901> (Reported in *Newsweek*, *Daily Mail*)

### Hamilton, A.R., Traniello, I.M., Ray, A.M., Caldwell, A.S., Wickline, S.A. and G.E. Robinson. 2019. Social behavior is associated with transcriptional regulatory plasticity in the brain. *Journal of Experimental Biology* doi: 10.1242/jeb.200196

### Kannan, K., Shook, M., Li, Y. Robinson, G.E. and J. Ma. 2019. Comparative transcriptomic analysis of brain and fat body gene splicing patterns in the honey bee, *Apis mellifera. G3: Genes, Genomes, Genetics* 9: 1055-1063.

### Fine, J.D., Shpigler, H.Y., Ray, A.M., Beach, N.J., Sankey, A.L., Cash-Ahmed, A., Huang, Z.Y., Astrauskaite, L., Chao, R., Zhao, H. and G.E. Robinson. 2018. Quantifying the effects of pollen nutrition on honey bee queen egg laying with a new laboratory system. *PLoS ONE* 13(9): e0203444. <https://doi>. org/10.1371/journal.pone.0203444

### Shpigler, H.Y., Saul, M.C., Murdoch, E.E., Corona, F., Cash-Ahmed, A.C., Seward, C.H., Chandrasekaran, S., Stubbs, L.J. and G.E. Robinson. 2018. Honey bee neurogenomic responses to affiliative and agonistic social interactions. Special issue of *Genes, Brain and Behavior.* <https://doi.org/10.1111/gbb.12509>

### Saul, M.C., Blatti, C., Yang, W., Bukhari, S.A., Shpigler, H.Y., Troy, J.M., Seward, C.H., Sloofman, L., Chandrasekaran, S., Bell, A.M., Stubbs, L., Robinson, G.E., Zhao, S.D. and S. Sinha. 2018. Cross-species systems analysis of evolutionary toolkits of neurogenomic response to social challenge. Special issue of *Genes, Brain and Behavior.* <https://doi.org/10.1111/gbb.12502>

### Herb, B.R., Shook, M.S., Fields, C.J. and G.E. Robinson. 2018. Defense against territorial intrusion is associated with DNA methylation changes in the honey bee brain*. BMC Genomics.* doi: 10.1186/s12864-018-4594-0

# Gernat, T., Rao, V.O., Middendorf, M., Dankowicz, H., Goldenfeld, N.D. and G.E. Robinson. 2018. Automated monitoring of behavior reveals bursty interaction patterns and rapid spreading dynamics in honeybee social networks. *Proceedings of the National Academy of Sciences* 115: 1433–1438.

### Shpigler, H.Y., Saul, M.C., Corona, F., Block, L., Cash-Ahmed, A. and G.E. Robinson. 2017. Deep evolutionary conservation of autism-related genes. *Proceedings of the National Academy of Sciences* 114(36): 9653-9658*.* (Reported in *Science, Daily Mail, BBC, German Public Radio, The Times of London, Canadian Broadcasting Channel, New York Post)*

### Avalos, A., Pan, H., Cai, L., Acevedo-Gonzales, J.P., Rendon, G., Fields, C.J., Brown, P.J., Giray, T., Robinson, G.E., Hudson, M.E. and G. Zhang. 2017. A soft selective sweep during rapid evolution of gentle behaviour in an Africanized honeybee. *Nature Communications.* HTTP: doi:10.1038/s41467-017-01800-0 (Reported in AAAS, *Newsweek*)

### Jackson, K. and G.E. Robinson. 2018. Contest experience does not increase survivorship in honey bee queen duels. *Insectes Sociaux* 65: 631-637.

### Fischman, B.J., Pitts-Singer, T. and G.E. Robinson. 2017. Nutritional regulation of phenotypic plasticity in a solitary bee. *Environmental Entomology* 46: 1070-1079.

### Shpigler, H.Y., Saul, M.C., Murdoch, E.E., Cash-Ahmed, A., Seward, C., Sloofman, L., Chandrasekaran, S., Sinha, S., Stubbs, L. and G.E. Robinson. 2017. Behavioral, transcriptomic and epigenetic responses to social challenge in honey bees. *Genes, Brain and Behavior* 10.1111/gbb.12379

### Jones, B.M., Kingwell, C.J., Wcislo, W.T. and G.E. Robinson. 2017. Caste-biased gene expression in a facultatively eusocial bee species suggests a role for genetic accommodation in the evolution of eusociality. *Proceedings of the Royal Society B* DOI: 10.1098/rspb.2016.2228

### Naeger, N.L. and G.E. Robinson. 2016. Transcriptomic analysis of instinctive and learned reward-related behaviors in honey bees. *Journal of Experimental Biology* 219: 3554-3561*. (*Reported in *Inside JEB)*

### Southey, B.R., Carr-Markell, M.K., Liang, Z.S., Zayed, A., Li, R., Robinson, G.E. and S.L. Rodriguez-Zas. 2016. Characterization of genomic variants associated with scout and recruit behavioral castes in honey bees using whole-genome sequencing. *PLoS ONE* 11: e0146430. doi:10.1371/journal.pone.0146430

### Liu, H., Robinson, G.E. and E. Jakobsson. 2016. Conservation in mammals of genes associated with aggression-related behavioral phenotypes in honey bees. *PLoS Computational Biology.* <http://dx.doi.org/10.1371/journal.pcbi.1004921>

### Chandrasekaran, S., Rittschof, C., Djukovic, D., Gu, H., Raferty, D., Price, N.D. and G.E. Robinson. 2015. Aggression is associated with aerobic glycolysis in the honey bee brain*. Genes, Brain and Behavior* 14: 158-66.

### Sadd, B.M….Robinson, G.E., Scherer, S., Schmid-Hempel, P. and K.C. Worley. 2105. The genomes of two key bumble bee species with primitive eusocial organization. *BMC Genomics* 16: 76.

### Kapheim, K.M., Rao, V.D., Yeoman, C.J., Wilson, B.A., White, B.A., Goldenfeld, N. and G.E. Robinson. 2015. Caste-specific differences in hindgut microbial communities of honey bees (*Apis mellifera*). *PLoS ONE* 10: e0123911

### Khamis, A.M., Hamilton, A.R., Medvedeva, Y.A., Alam, T., Alam, I., Essack, M., Umylny, B., Jankovic, B.R., Naeger, N.L., Suzuki, M., Harbers, M., Robinson, G.E. and V.B. Bajic. 2015. Insights into the transcriptional architecture of behavioral plasticity in the honey bee *Apis mellifera. Scientific Reports* doi: 10.1038/srep11136.

### Kapheim, K.M….G.E. Robinson. 2015. Genomic signatures of evolutionary transitions from solitary to group living. *Science* 348: 1139-1143. (Reported in *Nature*)

### Stephens, Z.D., Lee, S.Y., Faghri, F., Campbell, R.H., Zhai, C., Efron, M.J., Iyer, R., Schatz, M.C., Sinha, S. and G.E. Robinson. 2015. Big Data: Astronomical or Genomical? *PLoS Biology*.DOI: 10.1371/journal.pbio.1002195. (Reported in *Washington Post, NBC News, The Scientist, International Business Times, Nature, BioNews, BT.com, Engineering and Technology Magazine, FierceBiotechIT, Genetic Literacy Project, Genome Web, Ingenuity.com, SanDisk IT Blog, Scientific Computing, IEEE Spectrum, Tech Times, Molecular Ecologist*)

### Rittschof, C.C., Coombs, C.B., Frazier, M., Grozinger, C.M. and G.E. Robinson. 2015. Early-life experience affects honey bee aggression and resilience to immune challenge. *Scientific Reports* doi:10.1038/srep15572 (Reported in *Science Daily*)

### Shpigler, H. and G.E. Robinson. 2015. Laboratory assay of brood care for quantitative analyses of individual differences in honey bee (*Apis mellifera*) affiliative behavior. *PLoS ONE* 10: e0143183. doi:10.1371/journal.pone.0143183

### Wheeler, M.M., Ament, S.A., Rodriguez-Zas, S. Southey, B. and G.E. Robinson. 2015. Diet and endocrine effects on behavioral maturation-related gene expression in the pars intercerebralis of the honey bee brain. *Journal of Experimental Biology* 218: 4005-4014.

### Jones, B.M., Wcislo, W.T. and G. E. Robinson. 2015. Developmental transcriptome for a facultatively eusocial bee, *Megalopta genalis*. *G3: Genes | Genomes | Genetics* 5: 2127-35.

### McNeill, M.S. and G.E. Robinson. 2015. Voxel-based analysis of the immediate early gene, *c-jun*, in the honey bee brain after a sucrose stimulus. *Insect Molecular Biology* 24: 377-390.

### Peso, M., Even, N.,Søvik, E., Naeger, N.L., Robinson, G.E. and A.B. Barron. 2015. Physiology of reproductive worker honey bees (*Apis mellifera*): insights for the development of the worker caste. *Journal for Comparative Physiology A* 202: 147-58.

### McNeill, M.S., Kapheim, K.M., Brockmann, A., McGill, T.A.W. and G. E. Robinson. 2015. Brain regions and molecular pathways responding to food reward type and value in the honey bee. *Genes, Brain and Behavior* 15: 305-317.

### Elsik, C.G., Worley, K.C., Bennett, A.K., Beye, M., Camara, F.C., Childers, C.P., de Graaf, D.C., Debsyer, G., Deng, J., Devreese, B., Elhaik, E., Evans, J.D., Foster, L.J., Graur, D., Guigo, R., Hoff, K.J., Holder, M.E., Hudson, M.E., Hunt, G.J., Jiang, H., Joshi, V., Khetani, R.S., Kosarev, P., Kovar, C.L., Ma, J., Maleszka, R., Moritz, R.F.A., Munoz-Torres, M.C., Murphy, T.D., Muzny, D.M., Newsham, I.F., Reese, J.T., Robertson, H.M., Robinson, G.E., Rueppell, O., Solovyev, V., Stanke, M., Stolle, E., Tsuruda, J.M., Van Vaerenbergh, M., Waterhouse, R.M., Weaver, D.B., Whitfield, C.W., Wu, Y., Zdobnov, E.M., Zhang, L., Zhu, C. and R.A. Gibbs. 2014. Finding the missing honey bee genes: lessons learned from a genome upgrade. *BMC Genomics* 15: 86 doi:10.1186/1471-2164-15-86.

### Woodard, S.H., Bloch, B., Band, B. and G.E. Robinson. 2014. Molecular heterochrony and the evolution of sociality in bumble bees*. Proceedings of the Royal Society* 281: 1471-79.

### Tenczar, P., Lutz, C.C., Rao, V.D., Goldenfeld, N. and G.E. Robinson. 2014. Automated monitoring reveals extreme interindividual variation and plasticity in honey bee foraging activity levels*. Animal Behavior* 95: 41-48. (Reported in the *New York Times*, *Daily News, Entomology Today, Open Science World, Discover*)

### Wheeler, M. and G.E. Robinson. 2014. Diet-dependent gene expression in honey bees: honey vs. sucrose or high fructose corn syrup. *Scientific Reports* 4: article number 5726. doi:10.1038/srep05726

### Li-Byarlay, H., Rittschof, C.C., Massey, J., Pittendrigh, B.R. and G.E. Robinson. 2014. Inhibiting brain oxidative phosphorylation increases aggression in honey bees and fruit flies. *Proceedings of the National Academy of Sciences* 34: 12533–12537. (Highlighted in *Trends in Neuroscience* DOI: <http://dx.doi.org/10.1016/j.tins.2014.11.005>

### Carr-Markell, M.K. and G.E. Robinson. 2014. Comparing reversal-learning abilities, sucrose responsiveness, and foraging experience between scout and non-scout honey bee (*Apis mellifera*) foragers. *Journal of Insect Behavior* 27:DOI 10.1007/s10905-014-9465-1.

### Liang, S., Southey, B.R., Matilla, H., Seeley, T.D., Rodriguez-Zas, S. and G.E. Robinson. 2014. Comparative brain transcriptomic analyses of scouting across distinct behavioural and ecological contexts in honeybees. *Proceedings of the Royal Society* DOI: 10.1098/rspb.2014.1868

### Rittschof, C.C. Bukhari, S.A., Sloofman, LG.., Troy, J.M., Caetano-Anolles, D., Cash-Ahmed, A., Kent, M., Lu, X., Sanogo, Y.O., Weisner, P.A., Zhang, H., Bell, A.M., Ma, J., Sinha, S., Robinson, G.E. and L. Stubbs. 2014. Neuromolecular responses to social challenge: common mechanisms across mouse, stickleback fish and honey bee. *Proceedings of the National Academy of Sciences* 111: 17929-17934.

### Lutz, C.C. and G. E. Robinson. 2013. Activity-dependent gene expression in honey bee mushroom bodies in response to orientation flight. *Journal of Experimental Biology.* 216: 2031-38. (Reported in *Nature*)

### Wheeler, M.M., Ament, S.A., Rodriguez-Zas, S.L. and G.E. Robinson. 2013. Brain gene expression changes elicited by peripheral *vitellogenin* knockdown in the honey bee. *Insect Molecular Biology* 22: 562-573.

### Woodard, S.H., Bloch, B., Band, B. and G.E. Robinson. 2013. Social regulation of maternal traits in nest-founding bumble bee queens. *Journal of Experimental Biology* 216: 3474-82.

### Li-Byarlay, H.M., Li, Y., Stroud, H., Feng, S., Newman, T.C., Kaneda, M., Hou, K.K., Worley, K., Elsik, C.G., Wickline, S.A., Jacobsen, S.E., Ma, J. and G.E. Robinson. 2013. RNA interference knockdown DNA methyltransferase 3 affects gene alternative splicing in the honey bee. *Proceedings of the National Academy of Sciences* 110: 12750-12755. *Cover story.* (Reported in GenomeWeb, Recommended by Faculty of 1000)

### Rittschof, C.C. and G.E. Robinson. 2013. Manipulation of colony environment modulates honey bee aggression and brain gene expression. *Genes, Brain and Behavior* 12: 802-811.

### Naeger, N.L., Peso, M., Even, N., Barron, A.B. and G.E. Robinson. 2013. Altruistic behavior by egg-laying worker honey bees. *Current Biology* 23: 1574-8. (Reported in *Wired*, *ScienceAlert*, *Science* Editor’s Choice)

### Cingolani, P., Cao, X., Chen, C.-C., Coon, M., Land, S., Huang, N., Rao, A., Zhong, S., Robinson, G.E. and D.R. Ruden. 2013. Intronic Non-CG DNA hydromethylation and alternative mRNA splicing in honey bees. *BMC Genomics* 14: 666.

### Lutz, C.C., Rodriguez-Zas, S., Fahrbach, S.E. and G.E. Robinson. 2012. Transcriptional response to foraging experience in the honey bee mushroom bodies. *Developmental Neurobiology* 72: 153-166.

### Liang, S., Vu, H.T., Matilla, H., Seeley, T.D., Rodriguez-Zas, S. and G.E. Robinson. 2012. Molecular determinants of scouting behavior in honey bees. *Sc**ience* 335: 1225-28. (*Reported in New York Times, Discovery News, Chemical and Engineering News, Reforma, Science News, EurekAlert Chinese section, LiveScience.com, Science NOW)*

### Ament, S.A., Alaux, C., Blatte, C., Wheeler, M.M., LeConte, Y., Hunt, G.J., Guzmán-Novoa, E., DeGrandi-Hoffman, G., Uribe-Rubio, J.L., Toth, A.L., Amdam, G., Rodriguez-Zas, S., Sinha, S. and G.E. Robinson. 2012. New meta-analysis tools reveal common transcriptional regulatory basis for multiple determinants of behavior. *Proceedings of the National Academy of Sciences* 109: E1801-10.

### Greenberg, J., Xia, J., Thatcher, S., Ament, S.A., Newman, T., Green, P., Robinson, G.E. and Y. Ben-Shahar. 2012. Behavioral plasticity in honey bees is associated with major differences in brain microRNA transcriptome. *Genes Brain and Behavior* 10.1111/j.1601-183X.2012.00782.x.

### Rodriguez-Zas, S.L., Southey, B.R., Shemesh, Y., Rubin, E.B., Cohen, M., Robinson, G.E. and G. Bloch. 2012. Microarray analysis of natural socially-regulated plasticity in circadian rhythms of honey bees. *Journal of Biological Rhythms* 27: 12-24.

### Foret, S., Pellegrini, M., Kucharski, R., Feng, S., Jacobsen, S., Robinson, G.E. and R. Maleszka. 2012. DNA methylation dynamics, metabolic fluxes, gene splicing, and alternative phenotypes in honey bees. *Proceedings of the National Academy of Sciences* 109: 4968-73.

### Ament, S.A., Wang, Y., Chen, C.-C., Blatti, C.A., Hong, F., Liang, Z.S., Negre, N., White, K.P., Rodriguez-Zas, S., Mizzen, C.A., Sinha, S., Zhong, S. and G.E. Robinson.  2012. The transcription factor *Ultraspiracle* influences honey bee social behavior and behavior-related gene expression.  *PLoS Genetics*8:  e1002596.  doi:10.1371/ journal.pgen.1002596.

### Yang, L., Li, H.M., Burns, P., Borodovsky, M., Robinson, G.E. and J. Ma. TrueSight: Self-training algorithm for splice junction detection using RNA-seq. 2012. 16th Annual International Conference on Research in Computational Molecular Biology RECOMB 12.

### Yang, L., Li, H.M., Burns, P., Borodovsky, M., Robinson, G.E. and J. Ma. 2012. TrueSight: a new algorithm for splice junction detection using RNA-seq. *Nucleic Acid Research* 41: e51.

### Naeger, N.L., Van Nest, B.N., Johnson, J.N., Boyd, S.D., Rodriguez-Zas, S.L., Moore, D. and G.E. Robinson. 2011. Neurogenomic signatures of spatiotemporal memories in time-trained forager honey bees. *Journal of Experimental Biology* 217: 979-987. (3rd most outstanding paper published by *JEB* in 2011)

### Ament, S.A., Velarde, R.A., Kolodkin, M., Moyse, D. and G.E. Robinson. 2011. Neuropeptide Y-like signaling and nutritionally-mediated gene expression and behavior in the honey bee. *Insect Molecular Biology* 20: 335-345.

### Dobrin, S., Herlihy, J.D., Robinson, G.E. and S.E. Fahrbach. 2011. Muscarinic regulation of Kenyon cell dendritic arborizations in adult worker honey bees. *Arthropod Structure & Development* 40: 409-419. *Special issue on insect mushroom bodies.*

### Woodard, S.H., Fischman, B.J., Venkat, A., Hudson, M.E., Varala, K., Cameron, S.A., Clark, A.G. and G.E. Robinson. 2011. Genes involved in convergent evolution of eusociality in bees. *Proceedings of the National Academy of Sciences* 108(18): 7472-7477. (Reviewed by Faculty of 1000; covered in *Animal Behavior, 11th Edition*, D. Rubenstein and J. Alcock, 2018)

### Chandrasekaran, S., Ament, S.A., Eddy, J., Rodriguez-Zas, S., Schatz, B.R., Price, N.D. and G.E. Robinson. 2011. Behavior-specific changes in transcriptional modules lead to distinct and predictable neurogenomic states. *Proceedings of the National Academy of Sciences* 108: 18020-18025. (Reported in *Science News*)

### Daugherty, T.H.F., Toth, A.L. and G. E. Robinson. 2011. Nutrition and division of labor: Effects on foraging and brain gene expression in the paper wasps *Polistes metricus*. *Molecular Ecology* 20: 5337-47.

### Ament, S.A., Chan, Q.W., Wheeler, M.M., Nixon, S.E., Johnson, S.P., Rodriguez-Zas, S.L., Foster, L.J. and G.E. Robinson. 2011. Mechanisms of stable lipid loss in a social insect. *Journal of Experimental Biology* 214: 3808-3821.

### Zayed, A., Naeger, N.L. and G.E. Robinson. 2011. Common and novel transcriptional routes to behavioral maturation in worker and male honey bees. *Genes, Brains and Behavior* 11: 253-61.

### Toth, A.L., Varala, K., Henshaw, M., Rodriguez-Zas, S., Hudson, M. and G.E. Robinson. 2010. Brain transcriptomic analysis in paper wasps identifies genes associated with behaviour across social insect lineages. *Proceedings of the Royal Society B* *epub*. (reported in *Science News, Science Daily, Biology News Net*)

### Kim, J., Cunningham, R., James, B., Wyder, S., Gibson, J.D., Niehuis, O., Zbobnov, E.M., Robertson, H.M., Robinson, G.E., Werren, J.H. and S. Sinha. 2010. Functional characterization of transcription factor motifs using cross-species comparison across large evolutionary distances. *PLoS Computational Biology* 6: e1000652.

### Sen Sarma, M., Rodriguez-Zas, S.L., Gernat, T., Nguyen, T., Newman, T. and G.E. Robinson. 2010. Distance responsive genes found in dancing bees. *Genes, Brain and Behavior* 9: 825-30.

### Toth, A.L., Bilof, K.J., Henshaw, M.T., Hunt, J.H. and G.E. Robinson. 2009. Lipid stores, ovary development, and brain gene expression in *Polistes* females. *Insectes Sociaux* 56: 77-84.

### Alaux, C., LeConte, Y., Adams, H.A., Rodriguez-Zas, S., Sinha, S. and G.E. Robinson. 2009. Regulation of brain gene expression in honey bees by brood pheromone. *Gene, Brain and Behavior* 8: 309-319.

### Brockmann, A., Annangudi, S.P., Richmond, T.A., Ament, S.A., Xie, F., Southey, B.R., Rodriguez-Zas, S.R., Robinson, G.E. and J.V. Sweedler. 2009. Quantitative peptidomics reveal brain peptide signatures of behavior. *Proceedings of the National Academy of Sciences* 106: 2383-2388.

### Alaux, C., Sinha, S., Hasadsri, L., Hunt, G.J., Guzmán-Novoa, E., DeGrandi-Hoffman, G., Uribe-Rubio, J.L., Rodriguez-Zas, S. and G.E. Robinson. 2009. Honey bee aggression supports a link between gene regulation and behavioral evolution. *Proceedings of the National Academy of Sciences* 106: 15400-15405. (reported in GenomeWeb News, NSF Breaking News, UPI, Science Daily)

### Alaux, C., Duong, N., Schneider, S.S., Southey, B.R., Rodriguez-Zas, S. and G.E. Robinson. 2009. Modulatory communication signal performance is associated with a distinct neurogenomic state in honey bees. *PLoS One* 4: e6694. doi: 10.1371/journal.pone.0006694.

### Kantorovitz, M.R., Kazemian, M., Kinston, S., Miranda-Saavedra, D., Zhu, Q., Robinson, G.E., Gens, B., Halfon, M.S. and S. Sinha, 2009. Motif-blind, genome-wide discovery of cis-regulatory modules in Drosophila and mouse. *Developmental Cell* 17: 568-579.

### Sen Sarma, M., Rodriguez-Zas, S., Hong, F., Zhong, S. and G.E. Robinson. 2009. Transcriptomic profiling of central nervous system regions in three species of honey bees during dance communication behavior. *PLoS ONE* 4: e6408. doi: 10.1371/journal.pone.0006408.

### Johnson, R., Evans., J.D., Robinson, G.E. and M.R. Berenbaum. 2009. Changes in transcript abundance relating to colony collapse disorder in honey bees (*Apis mellifera*). *Proceedings of the National Academy of Sciences* 106: 14790-95. (reported in *Time, Scientist*, BBC, MSNBC, *New Scientist*, *Times of London, St. Louis Dispatch*, Miller-McCune.com, Featured New Hot Paper, Thomson Reuters *ScienceWatch®*)

### Trumbo, S.T. and G.E. Robinson. 2008. Social and nonsocial stimuli and juvenile hormone titer in a male burying beetle, *Nicrophorus orbicollis*. *Journal of Insect Physiology* 54: 630-635.

### Navajas, M., Migeon, A., Alaux, C., Cros-Artiel, S., Martin-Magniette, M.L., Robinson, G.E., Evans, J.D., Crauser, D. and Y. LeConte. 2008. Differential gene expression in the honey bee *Apis mellifera* associated with *Varroa destructor* infection. *BMC Genomics* 9: 301. (reported on GenomeWeb Daily News)

### Ament, S.A., Corona, M., Pollack, H.S. and G.E. Robinson. 2008. Insulin signaling is involved in the regulation of worker division of labor in honey bee colonies. *Proceedings of the National Academy of Sciences* 105: 4226-4231.

### Ismail, N., Christine, S., Robinson, G.E. and S.E. Fahrbach. 2008. Pilocarpine improves recognition of nestmates in young honey bees. *Neuroscience Letters* 439: 178-81.

### Adams, H.A., Southey, B.R., Robinson, G.E. and S.L. Rodriguez-Zas. 2008. Meta-analysis of genomewide expression patterns associated with behavioral maturation in honey bees. *BMC Genomics* 9: 503 (24 Oct 2008) [http: //www.biomedcentral.com/1471-2164/9/503](http://www.biomedcentral.com/1471-2164/9/503).

### Velarde, R.A., Robinson, G.E. and S.E. Fahrbach. 2008. Coordinated responses to developmental hormones in the Kenyon cells of the adult worker honey bee brain (*Apis mellifera* L.). *Journal of Insect Physiology* 55: 59-69.

### Barron, A.B., Maleszka, R., Helliwell, P.G. and G.E. Robinson. 2008. Effects of cocaine on honey bee dance behaviour. *Journal of Experimental Biology* 212: 163-168. (reported on Quirks & Quarks, CBC, and in the *New York Times, Washington Post, London Times, Discover Magazine, Reuters, China Daily, FOX News, Los Angeles Times, Science Daily, Times of India, Denver Post, UPI, Sun, Alberta Gazette,Colbert Report, Science*, Editors' Choice)

### Grozinger, C.M. and G.E. Robinson. 2007. Endocrine modulation of a pheromone responsive gene in the honey bee brain. *Journal of Comparative Physiology A* 193: 461-470.

### Brockmann, A. and G.E. Robinson. 2007. Central projections of sensory systems involved in honey bee dance language communication. *Brain Behavior and Evolution* 70: 125-136.

### Remolina, S.C., Hefez, D., Robinson, G.E. and K.A. Hughes. 2007. Senescence in the worker honey bees, *Apis mellifera*. *Journal of Insect Physiology* 53: 1027-1033.

### Barron, A.B., Maleszka, J., Vander Meer, R.K., Robinson, G.E. and R. Maleszka. 2007. Comparing injection, feeding and topical application methods for treatment of honeybees with octopamine. *Journal of Insect Physiology* 53: 187-194.

### Barron, A.B., Maleszka, R., Vander Meer, R. and G.E. Robinson. 2007. Octopamine modulates honey bee dance behavior. *Proceedings of the National Academy of Sciences* 104: 1703-1707. (reported in *Chemistry World, COSMOS*, National Public Radio, *Science & Spirit*)

### Corona, M., Remolina, S., Lauter, A., Wang,Y., Hughes, K.A. and G.E. Robinson. 2007. Vitellogenin, juvenile hormone, insulin signaling and queen honey bee longevity. *Proceedings of the National Academy of Sciences* 104: 7128–7133. (reported in United Press International, *New York Times*)

### Sen Sarma, M., Whitfield, C.W. and G.E. Robinson. 2007. Species differences in brain gene expression profiles associated with adult behavioral maturation in honey bees. *BMC Genomics* 8: 202.

### Alaux, C. and G.E. Robinson. 2007. Alarm pheromone induces immediate-early gene expression and slow behavioural response in honey bees. *Journal of Chemical Ecology* 33: 1346-1350.

### Kantorovitz, R., Robinson, G.E. and S. Sinha. 2007. A statistical method for alignment-free comparison of regulatory sequences. Proceedings of Fifteenth Intl. Conf. on Intelligent Systems for Molecular Biology (ISMB). In press, *Bioinformatics* 23: i249-i255. Special issue.

### Shi, L., Lin, S., Grinberg, Y., Beck, Y., Grozinger C.M., Robinson, G.E. and T. Lee. 2007. Roles of Drosophila Kruppel-homolog 1 in neuronal morphogenesis. *Developmental Neurobiology* 67: 1614-1626.

### Li,Y., Zhang, Z., Robinson, G.E. and S.R. Palli. 2007. Identification and characterization of a juvenile hormone response element and its binding proteins. *Journal of Biological Chemistry* 282: 37605-37617.

### Barron, A.B. and G.E. Robinson. 2007. The utility of behavioral models and modules in molecular analyses of social behavior. *Genes, Brain and Behavior* 7: 257-265.

### Toth, A.L., Varala, K., Newman, T.C., Miguez, F.E., Hitchison, S.K., Willoughby, D.A., Simons, J.F., Egholm, M., Hunt, J.H., Hudson, M.E. and G.E. Robinson. 2007. Wasp brain gene expression supports an evolutionary link between maternal behavior and eusociality. *Science* 318: 441-444. (Reviewed by Faculty of 1000.)

### Bloch, G., Shemesh, Y. and G.E. Robinson. 2006. Seasonal and task-related variation in free running activity rhythms in honey bees. *Insect Sociaux* 53: 115-118.

### Lehman, H.K., Schulz, D.J., Barron A.B., Wraight, C.L., Hardison, C., Whitney, S., Takeuchi, H. and G.E. Robinson. 2006. Division of labor in the honey bee (*Apis mellifera*): the role of *tyramine beta-hydroxylase*. *Journal of Experimental Biology* 209: 2774-2784.

### Honey Bee Genome Sequencing Consortium. 2006. Insights into social insects from the genome of the honeybee *Apis mellifera*. *Nature* 443: 931-949. (reported in *Science, Science News*, NPR Morning Edition, *Seed*, BBC, *The Scientist*, Reuters (UK), Yahoo.com, *LA Times*, ABC News, ABC Science Online (Australia), BBC News (England), *Houston Chronicle*, Independent Online (South Africa), Innovations Report (Germany), MSNBC, *New Scientist* (England), Reuters India, *Boston Globe, The Independent* (London), *Times of Oman*, United Press International, *New York Times, Washington Post, Time, Science Times, St. Louis Post-Dispatch, Baltimore Sun, Time Magazine, San Francisco Chronicle; Top 10 Nature paper, Jan. 2007*; Emerging Front paper, *Thomson Reuters Science*)

### Sinha, S., Ling, X., Whitfield, C.W., Zhai, C. and G.E. Robinson. 2006. Genome scan for cis-regulatory DNA motifs associated with social behavior in honey bees. *Proceedings of the National Academy of Sciences* 103: 16352-16357. (reported in *Science*, physorg.com, *LA Times, Forbes, Vancouver Sun*)

### Kunieda, T., Fujiyuki, T., Kucharski, R., Foret, S., Ament, S.A., Toth, A.L., Ohashi, K., Takeuchi, H., Kamikouchi, A., Kage, E., Morioka, M., Beye, M., Kubo, T., Robinson, G.E. and R. Maleszka. 2006. Carbohydrate metabolism genes and pathways in insects: insights from the honey bee genome*. Insect Molecular Biology* 15: 563-76. Honey bee genome special issue.

### Corona, M. and G.E. Robinson. 2006. Genes of the antioxidant system of the honey bee: annotation and phylogeny*. Insect Molecular Biology* 15: 687-701. Honey bee genome special issue.

### Velarde, R., Robinson, G.E. and S.E. Fahrbach. 2006. Nuclear receptors of the honey bee: annotation and expression in the adult brain. *Insect Molecular Biology* 15: 583-595. Honey bee genome special issue.

### Rodriguez-Zas, S.L., Southey, B.R., Whitfield, C.W. and G.E. Robinson. 2006. Semiparametric approach to characterize unique gene expression trajectories across time. *BMC Genomics* 7: 233. http: //www.biomedcentral.com/content/pdf/1471-2164-7-233.pdf

### Hummon, A.B., Richmond, T.A., Verleyen, P., Baggerman, G., Huybrechts, J., Ewing, M.A., Vierstraete, E., Rodriguez-Zas, S.L., Schoofs, L., Robinson, G.E. and J.V. Sweedler. 2006. From the genome to the proteome: uncovering peptides in the *Apis* brain. *Science* 314: 647-649.

### Wang, Y., Maleszka, R., Mizzen, C.A., Robertson, H.M., Jones, P.L., Peinado, M.A. and G.E. Robinson. 2006. Functional methylation system in a social insect. *Science* 314: 645-647.

### Whitfield, C.W., Ben-Shahar, Y., Brillet, C., Leoncini, I., Crauser, D., LeConte, Y., Rodriguez-Zas, S. and G.E. Robinson. 2006. Genomic dissection of behavioral maturation in the honey bee. *Proceedings of the National Academy of Sciences* 103: 16068-16075.

### Ismail, N., Robinson, G.E. and S.E. Fahrbach. 2005. Stimulation of muscarinic receptors mimics experience-dependent plasticity in the honey bee brain. *Proceedings of the National Academy of Sciences* 103: 207-211. (*Science* STKE Editor’s Choice)

### Barron, A.B., Zhu, H., Robinson, G.E. and M. Srinivasan. 2005. Influence of flight time and flight environment on distance communication by dancing honey bees*. Insectes Sociaux* 52: 402-407.

### Aldunate, R.G., Feniosky, P.-M. and G.E. Robinson. 2005. Collaborative distributed decision making for large scale disaster relief operations: Drawing analogies from robust natural systems. *Complexity* 11: 28-38.

### Toth, A.L. and G.E. Robinson. 2005. Worker nutrition and division of labor in honey bees. *Animal Behavior* 69: 427-435.

### Barron, A.B. and G.E. Robinson. 2005. Neurochemical organisation of division of labour in honey bee colonies (*Apis mellifera*). *Journal of Comparative Physiology A* 191: 659-668.

### Cash, A.C., Whitfield, C.W., Ismail, N. and G.E. Robinson. 2005. Behavior and the limits of genomic plasticity: power and replicability in microarray analysis of honeybee brains. *Genes, Brain and Behavior* 4: 267-271.

### Corona, M., Hughes, K.A., Weaver, D.B. and G.E. Robinson. 2005. Gene expression patterns associated with queen honey bee longevity*. Mechanisms of Aging and Development* 126: 1230-8.

### Toth, A.L., Kantarovich, S., Meisel, A.F. and G.E. Robinson. 2005. Nutritional status influences socially regulated foraging ontogeny in honey bees. *Journal of Experimental Biology* 208: 4641-4649.

### Trumbo, S.T. and G.E. Robinson. 2004. Nutrition, hormones and life history in burying beetles. *Journal of Insect Physiology* 50: 383-391.

### Leoncini, I., Crauser, D., Robinson, G.E. and Y. Le Conte. 2004. Worker-worker inhibition of honey bee behavioural development independent of queen and brood. *Insectes Sociaux* 51: 392-394.

### Ben-Shahar, Y., Dudek, N. and G.E. Robinson. 2004. Phenotypic deconstruction reveals involvement of manganese transporter malvolio in honey bee division of labor. *Journal of Experimental Biology* 207: 3281-8. *Cover story.*

### Schulz, D.J., Pankiw, T., Fondrk, M.K., Robinson, G.E. and R.E. Page. 2004. Comparisons of juvenile hormone hemolymph and octopamine brain levels in honey bees (*Apis mellifera*) from high- and low-pollen hoarding strains. *Annals of the Entomological Society of America* 97: 1313-1319.

### Bloch, G., Rubinstein, C.D. and G. E. Robinson. 2004. *Period* expression in the honey bee brain is developmentally regulated and not affected by light, flight experience, or colony type. *Insect Biochemistry and Molecular Biology* 34: 879-891.

### Leoncini, I., Le Conte, Y., Costagliola, G., Plettner, E., Toth, A.L., Wang, M., Huang, Z., Bécard, J.-M., Crauser, D., Slessor, K.N. and G E. Robinson. 2004. Regulation of behavioral maturation by a primer pheromone produced by adult worker honey bees. *Proceedings of the National Academy of Sciences* 101: 17559-17564. *Cover story.* (reported in *Science, Science News; Journal of Chemical Education*)

### Ben-Shahar, Y., Leung, H.-T., Pak, W.L., Sokolowski, M.B. and G.E. Robinson. 2003. cGMP-dependent changes in phototaxis: a possible role for the *foraging* gene in honey bee division of labor. *Journal of Experimental Biology* 206: 2507-2515.

### Sullivan, J.P., Fahrbach, S.E., Harrison, J.F., Capaldi, E.A., Fewell, J.H. and G.E. Robinson. 2003. Juvenile hormone and division of labor in honey bee colonies: Effects of allatectomy on flight behavior and metabolism. *Journal of Experimental Biology* 206: 2287-96.

### Bloch, G., Solomon, S.M., Robinson, G.E. and S.E. Fahrbach. 2003. Patterns of PERIOD and pigment-dispersing hormone immunoreactivity in the brain of the European honeybee (*Apis mellifera*): Age- and time-related plasticity. *Journal of Comparative Neurology* 464: 269-84.

### Fahrbach, S.E., Farris, S.M., Sullivan, J.P. and G.E. Robinson. 2003. Limits on volume changes in mushroom bodies of the honey bee brain. *Journal of Neurobiology* 57: 141-51.

### Whitfield, C.W., Cziko, A.-M. and G.E. Robinson. 2003. Gene expression patterns in the brain predict behavior in individual honey bees. *Science* 302: 296-299 (reported in *Reuters, CNN.com, St. Louis Dispatch, Wall Street Journal, Belgium De Standaard*; covered in *Perspectives of Animal Behavior* 3rd ed., Goodenough et al.; *Animal Behavior*, Alcock)

### Grozinger, C.M., Sharabash, N., Whitfield, C.W. and G.E. Robinson. 2003. Pheromone-mediated gene expression in the honey bee brain. *Proceedings of the National Academy of Sciences* 100 (Suppl. 2): 14519-25.

### Brillet, C., Robinson, G.E., Bues, R. and Y. Le Conte. 2002. Racial differences in division of labor in colonies of the honey bee, *Apis mellifera*. *Ethology* 108: 115-126.

### Whitfield, C.W., Band, M., Bonaldo, M.F., Kumar, C.G., Liu, L., Pardinas, J.R., Robertson, H.M., Soares, M.B. and G.E. Robinson. 2002. Annotated expressed sequence tags and cDNA microarrays for studies of brain and behavior in the honey bee. *Genome Research* 12: 555-566*. Cover story.*

### Ben-Shahar, Y., Robichon, A., Sokolowski, M.B. and G.E. Robinson. 2002. Influence of gene action across different time scales on behavior. *Science* 296: 741-744. (reported in *NY Times, Washington Post*, German Public Radio, South African Public Radio, Genome News Network; included in *Perspectives of Animal Behavior* 3rd ed., Goodenough et al.; *Animal Behavior*, Alcock)

### Schulz, D.J., Sullivan, J.P. and G.E. Robinson. 2002. Juvenile hormone and octopamine in the regulation of division of labor in honey bee colonies. *Hormones and Behavior* 42: 222-231.

### Schulz, D.J., Elekonich, M.M. and G.E. Robinson. 2002. Biogenic amines in the antennal lobes and the initiation and maintenance of foraging behavior in honey bees. *Journal of Neurobiology* 54: 406-416.

### Barron, A.B., Schulz, D.J. and G.E. Robinson. 2002. Octopamine modulates responsiveness to foraging-related stimuli in honey bees (*Apis mellifera*). *Journal of Comparative Physiology A* 188: 603-610.

### Bloch, G., Sullivan, J.P. and G.E. Robinson. 2002. Juvenile hormone and circadian locomotor activity in the honey bee *Apis mellifera*. *Journal of Insect Physiology* 48: 1123-1131.

### Elekonich, M.M., Jez, K., Ross, A.J. and G.E. Robinson. 2002. Larval juvenile hormone treatment affects pre-adult development but not adult age at onset of foraging in worker honey bees (*Apis mellifera*). *Journal of Insect Physiology* 49: 359-366.

### LeConte, Y., Aresk, M. and G.E. Robinson. 2001. Primer effects of a brood pheromone on honey bee behavioral development. *Proceedings of the Royal Society* 268: 163-168.

### Shapira, M., Thompson, C.K., Soreq, H. and G.E. Robinson. 2001. Changes in neuronal acetylcholinesterase gene expression and division of labor in honey bee colonies. *Journal of Molecular Neuroscience* 17: 1-12.

### Schulz, D.J. and G.E. Robinson. 2001. Octopamine influences division of labor in honey bee colonies*. Journal of Comparative Physiology A* 187: 53-61.

### Bloch, G. and G.E. Robinson. 2001. Reversal of honeybee behavioural rhyhms. *Nature* 410: 1048. (reported in *Science Times, Business News, Dana.org*)

### Katzav-Gozansky, T., Soroker, V., Ionescu, A., Robinson, G.E. and A. Hefetz. 2001. Task-related chemical analysis of labial gland volatile secretion in worker honeybees (*Apis mellifera ligustica*). *Journal of Chemical Ecology* 27: 919-926.

### Bloch, G., Toma, D.P. and G.E. Robinson. 2001. Behavioral rhythmicity, age, division of labor, and period expression in the honey bee brain. *Journal of Biological Rhythms* 16: 444-456.

### Farris, S.M., Robinson, G.E. and S.E. Fahrbach. 2001. Experience- and age-related outgrowth of intrinsic neurons in the mushroom bodies of the adult worker honey bee. *Journal of Neuroscience* 21: 6395-6404.

### Ben-Shahar, Y. and G.E. Robinson. 2001. Satiation differentially affects performance in a learning assay by nurse and forager honey bees. *Journal of Comparative Physiology A* 187: 891-899.

### Elekonich, M.M., Schulz, D.J., Bloch, G. and G.E. Robinson. 2001. Juvenile hormone levels in honey bee (*Apis* *mellifera L.*) foragers: foraging experience and diurnal variation. *Journal of Insect Physiology* 47: 1119-1125.

### Beshers, S.N., Huang, Z.-Y., Oono, Y. and G.E. Robinson. 2001. Social inhibition and the regulation of temporal polyethism in honey bees. *Journal of Theoretical Biology* 213: 461-479.

### Schulz, D.J., Vermiglio, M.J., Huang, Z.-Y. and G.E. Robinson. 2001. Effects of colony food shortage on social interactions in honey bee colonies. *Insectes Sociaux* 49: 50-55.

### Bloch, G., Cnaani, J., Huang, Z.-Y., Robinson, G.E. and A. Hefetz. 2000. Juvenile hormone titers, juvenile hormone biosynthesis, ovarian development and social environment in *Bombus terrestris*. *Journal of Insect Physiology* 46: 47-57.

### Giray, T., Guzman-Novoa, E., Huang, Z.-Y. and G.E. Robinson. 2000. Physiological correlates of genetic variation for rate of behavioral development in honeybee, *Apis mellifera*. *Behavioral Ecology and Sociobiology* 47: 17-28.

### Capaldi, E.A., Smith, A.D., Osborne, J.L., Fahrbach, S.E., Farris, S.M., Reynolds, D.R., Edwards, A.S., Martin, A., Robinson, G.E., Popp, G.M. and J.R. Riley. 2000. Otogeny of orientation flight in the honeybee revealed by harmonic radar. *Nature* 403: 537-540. (reported in *New York Times, Washington Post, Discovery.com, Science News, Dagens Nyheter, Science NOW* website, *Frankfurter Allgemeine Zeitung,* Discovery Channel, National Public Radio, CBC, London *Daily Mail, Nature News and Views*)

### Giray, T., Guzman-Novoa, E., Aron, C., Zelinksy, B., Fahrbach, S.E. and G.E. Robinson. 2000. Genetic variation in worker temporal polyethism and colony defensiveness in the honey bee, *Apis mellifera*, during normal and accelerated behavioural development. *Behavioral Ecology* 11: 44-55.

### Jassim, O., Huang, Z.-Y. and G.E. Robinson. 2000. Juvenile hormone profiles of worker honey bees, *Apis mellifera* during normal and accelerated behavioural development. *Journal of Insect Physiology* 46: 243-249.

### Sullivan, J.P., Jassim, O., Fahrbach, S.E. and G.E. Robinson. 2000. Juvenile hormone paces behavioral development in the adult worker honey bee. *Hormones and Behavior* 37: 1-14.

### Toma, D.P., Bloch, G., Moore, D. and G.E. Robinson. 2000. Changes in period mRNA levels in the brain and division of labor in honey bee colonies. *Proceedings of the National Academy of Sciences* 97: 6914-6919.

### Bloch, G., Simon, T., Robinson, G.E. and A. Hefetz. 2000. Brain biogenic amines and reproductive dominance in bumble bees (*Bombus terrestris*). *Journal of Comparative Physiology A* 186: 261-268.

### Cnaani, J., Robinson, G.E., Bloch, G., Borst, D.W. and A. Hefetz. 2000. The effect of queen-worker conflict on caste determination in the bumble bee *Bombus terrestris*. *Behavioral Ecology and Sociobiology* 47: 346-352.

### Ben-Shahar, Y., Thompson, C.K., Hartz, S.M., Smith, B.H. and G.E. Robinson. 2000. Differences in performance on a reversal learning test and division of labor in honey bee colonies. *Animal Cognition* 3: 119-125.

### Cnaani, J., Robinson, G.E. and A. Hefetz. 2000. The critical period for caste determination in *Bombus terrestris* and its juvenile hormone correlates. *Journal of Comparative Physiology A* 186: 1089-1094.

### Wagener-Hulme, C., Schulz, D.J., Kuehn, J.C. and G.E. Robinson. 1999. Biogenic amines and division of labor in honey bee colonies. *Journal of Comparative Physiology A* 184: 471-479.

### Schulz, D.J. and G.E. Robinson. 1999. Biogenic amines and division of labor in honey bee colonies: behaviorally related changes in the antennal lobes and age-related changes in the mushroom bodies. *Journal of Comparative Physiology A* 184: 481-488.

### Robinson, G.E., Heuser, L.M., LeConte, Y., Lenquette, F. and R.M. Hollingworth. 1999. Neurochemicals aid bee nestmate recognition. *Nature* 399: 534-535.

### Farris, S.M., Robinson, G.E., Davis, R.L. and S.E. Fahrbach. 1999. Larval and pupal development of the mushroom bodies in the honey bee, *Apis mellifera*. *Journal of Comparative Neurology* 414: 97-113.

### Schulz, D.J., Huang, Z.-Y. and G.E. Robinson. 1998. Effects of colony food shortage on behavioral development in honey bees. *Behavioral Ecology and Sociobiology* 42: 295-303.

### Huang, Z.-Y., Plettner, E. and G.E. Robinson. 1998. Effects of social environment and worker mandibular glands on endocrine-mediated behavioral development in honey bees. *Journal of Comparative Physiology A* 183: 143-152.

### Moore, D., Cheeseman, I.M., Angel, J.E., Fahrbach, S.E. and G.E. Robinson. 1998. Timekeeping in the honey bee colony: Integration of circadian rhythms and division of labor. *Behavioral Ecology and Sociobiology* 43: 147-160.

### Frankel, S., Robinson, G.E. and M.R. Berenbaum. 1998. Antioxidant capacity and correlated characteristics of 14 unifloral honeys. *Journal of Apicultural Research Journal of Apicultural Research* 37: 27-31. (reported in *Lancet, Science News, cover story*)

### Pankiw, T., Huang, Z.-Y., Robinson, G.E. and M.L. Winston. 1998. Queen mandibular gland pheromone influences worker honey bee (*Apis mellifera L.*) foraging ontogeny and juvenile hormone titers. *Journal of Insect Physiology* 44: 685-692.

### Fahrbach, S.E., Moore, D., Capaldi, E.A., Farris, S.M. and G.E. Robinson. 1998. Experience-expectant plasticity in the mushroom bodies of the honey bee. *Learning and Memory* 5: 115-123. *Special issue on the mushroom bodies*.

### Camazine, S., Crailsheim, K., Hrassnigg, N., Robinson, G.E., Leonhard, B. and H. Kropiunigg. 1998. Protein trophallaxis and the regulation of pollen foraging by honey bees (*Apis mellifera* L.). *Apidologie* 29: 113-126.

### Collins, S.A., Conner, J.K. and G.E. Robinson. 1997. Foraging behavior of honey bees (Hymenoptera: Apidae) on *Brassica nigra* and B. rapap grown under simulated ambient and enhanced UV-B radiation. *Annals of the Entomological Society of America* 90: 102-106.

### Cnaani, J., Borst, D.W., Huang, Z.-Y., Robinson, G.E. and A. Hefetz. 1997. Caste determination in *Bombus terrestris*: differences in larval development and rates of JH biosynthesis between queen and worker larvae. *Journal Insect Physiology* 43: 373-381.

### Trumbo, S.T., Huang, Z.-Y. and G.E. Robinson. 1997. Division of labor between undertaker specialists and other middle-aged workers in honey bee colonies. *Behavioral Ecology and Sociobiology* 41: 151-163. (reported in *New Scientist, Dallas Morning Times, AAAS ScienceNow*)

### Trumbo, S.T. and G.E. Robinson. 1997. Learning and task interference by corpse-removal specialists in honey bee colonies. *Ethology* 103: 966-975.

### Fahrbach, S.E., Giray, T., Farris, S.M. and G.E. Robinson. 1997. Expansion of the neuropil of the mushroom bodies in male honey bees is coincident with initiation of flight. *Neuroscience Letters* 236: 135-138.

### Huang, Z.-Y. and G.E. Robinson. 1996. Regulation of honey bees by colony age demography. *Behavioral Ecology and Sociobiology* 39: 147-158.

### Giray, T. and G.E. Robinson. 1996. Common endocrine and genetic mechanisms of behavioral development in male and worker honey bees and the evolution of division of labor. *Proceedings of the National Academy of Sciences* 93: 11718-11722.

### Bloch, G., Borst, D.W., Huang, Z.-Y., Robinson, G.E. and A. Hefetz. 1996. Effects of social conditions on juvenile hormone mediated reproductive development in *Bombus terrestris* workers. *Physiological Entomology* 21: 257-267.

### Withers, G.S., Fahrbach, S.E. and G.E. Robinson. 1995. Effects of experience and juvenile hormone on the organization of the mushroom bodies of honey bees. *Journal of Neurobiology* 26: 130-144.

### Robinson, G.E. and R.E. Page. 1995. Genotypic constraints on plasticity for corpse removal in honey bee colonies*. Animal Behaviour* 49: 867-876.

### Fahrbach, S.E., Giray, T. and G.E. Robinson. 1995. Volume changes in the mushroom bodies of adult honey bee queens. *Neurobiology of Learning and Memory* 63: 181-191. *Cover story.*

### Visscher, P.K., Vetter, R.S. and G.E. Robinson. 1995. Alarm pheromone perception in honey bees is decreased by smoke (Hymenoptera: Apidae). *Journal of Insect Behavior* 8: 11-18.

### Trumbo, S.T., Borst, D.W. and G.E. Robinson. 1995. Rapid elevation of juvenile hormone titre during behavioural assessment of the breeding resource by the burying beetle, *Nicrophorus orbicollis*. *Journal of Insect Physiology* 41: 535-543.

### Huang, Z.-Y. and G.E. Robinson. 1995. Seasonal changes in juvenile hormone titers and rates of biosynthesis in honey bees. *Journal of Comparative Physiology B* 165: 18-28.

### Page, R.E., Robinson, G.E., Fondrk, M.K. and M.E. Nasr. 1995. Effects of worker genotypic diversity on honey bee colony development and behavior (*Apis mellifera* L.). *Behavioral Ecology and Sociobiology* 36: 387-396.

### Fahrbach, S.E., Strande, J.L. and G.E. Robinson. 1995. Neurogenesis is absent in the brains of adult honey bees and does not explain behavioral neuroplasticity. *Neuroscience Letters* 197: 145-148.

### Moore, D., Angel, J.E., Cheeseman, I.M., Robinson, G.E. and S.E. Fahrbach. 1995. A highly specialized social grooming honey bee (Hymenoptera: Apidae). *Journal of Insect Behavior* 8: 855-861.

### Robinson, G.E., Page, R.E. and N. Arensen. 1994. Genotypic differences in brood rearing in honey bee colonies: context-specific? *Behavioral Ecology and Sociobiology* 34: 125-137.

### Robinson, G.E., Page, R.E. and Z.-Y. Huang. 1994. Temporal polyethism in social insects is a developmental process*. Animal Behaviour* 48: 467-469.

### Huang, Z.-Y., Robinson, G.E. and D.W. Borst. 1994. Physiological correlates of division of labor among similarly aged honey bees. *Journal of Comparative Physiology A* 174: 731-739.

### Giray, T. and G.E. Robinson. 1994. Effects of intracolony variability in behavioral development on plasticity of division of labor in honey bee colonies. *Behavioral Ecology and Sociobiology* 35: 13-20.

### Page, R.E. and G.E. Robinson. 1994. Reproductive competition in queenless honey bee colonies (*Apis* *mellifera* *L*.). *Behavioral Ecology and Sociobiology* 35: 99-107.

### Plettner, E., Slessor, K.N., Winston, M.L., Robinson, G.E. and R.E. Page. 1993. Mandibular gland components and ovarian development as measures of caste differentiation in the honey bee (*Apis mellifera* L.). *Journal of Insect Physiology* 39: 235-240.

### Withers, G.S., Fahrbach, S.E. and G.E. Robinson. 1993. Selective neuroanatomical plasticity and division of labour in the honey bee. *Nature* 364: 238-240. (reported in the *Chicago Tribune*)

### Goodman, W.G., Huang, Z.-H., Robinson, G.E., Strambi, C. and A. Strambi. 1993. Comparison of two juvenile hormone radioimmunoassays. *Archives of Insect Biochemistry and Physiolog*y 23: 147-152.

### Robinson, G.E. and F.C. Dyer. 1993. Plasticity of spatial memory in honey bees: reorientation following colony fission. *Animal Behaviour* 46: 311-320.

### Page, R.E., Fondrk, M.K. and G.E. Robinson. 1993. Selectable components of sex allocation in colonies of the honey bee (*Apis mellifera*). *Behavioral Ecology* 4: 239-245.

### Page, R.E., Robinson, G.E., Britain, D.S. and M.K. Fondrk. 1992. Genotypic variability for rates of behavioural development in worker honey bees (*Apis mellifera L*). *Behavioral Ecology* 3: 173-180.

### Robinson, G.E., Strambi, C., Strambi, A. and M.F. Feldlaufer. 1992. Comparison of juvenile hormone and ecdysteroid haemolymph titres in adult honey bee worker and queen honey bees (*Apis mellifera*). *Journal of Insect Physiology* 37: 929-935.

### Robinson, G.E., Page, R.E., Strambi, C. and A. Strambi. 1992. Colony integration in honey bees: mechanisms of behavioural reversion. *Ethology* 90: 336-348.

### Taylor, D.J., Robinson, G.E., Logan, B.J., Laverty, R. and A.R. Mercer. 1992. Changes in brain amine levels associated with the morphological and behavioural development of the worker honey bee. *Journal of Comparative Physiology A* 170: 715-721.

### Robinson, G.E., Strambi, C., Strambi, A. and Z.-Y. Huang. 1992. Reproduction in worker honey bees is associated with low juvenile hormone titers and rates of biosynthesis. *General and Comparative Endocrinology* 87: 471-480.

### Huang, Z.-H. and G.E. Robinson. 1992. Honeybee colony integration: worker-worker interactions mediate hormonally regulated plasticity in division of labor. *Proceedings of the National Academy of Sciences* 89: 11726-11729.

### Huang, Z.-H., Robinson, G.E., Tobe, S.S., Yagi, K.J., Strambi, C., Strambi, A. and B. Stay. 1991. Hormonal regulation of behavioural development in the honey bee is based on changes in the rate of juvenile hormone biosynthesis. *Journal of Insect Physiology* 37: 733-741.

### Cameron, S.A. and G.E. Robinson. 1990. Juvenile hormone does not affect division of labor in bumble bee colonies (Hymenoptera: Apidae). *Annals of the Entomological Society of America* 83: 626-631.

### Robinson, G.E., Page, R.E. and M.K. Fondrk. 1990. Intracolonial behavioral variation in worker oviposition, oophagy, and larval care in queenless honey bee colonies. *Behavioral Ecology and Sociobiology* 26: 315-323.

### Page, R.E. and G.E. Robinson. 1990. Nepotism in the honey bee. (Reply to Oldroyd et al.) *Nature* 346: 708.

### Breed, M.D., Robinson, G.E. and R.E. Page. 1990. Division of labor during honey bee colony defense. *Behavioral Ecology and Sociobiology* 27: 395-401. (reported in the *Chicago Tribune, Equinox, International Herald Tribune, Mundo 21, New York Times, St. Louis Post-Dispatch, Volkskrant, The Netherlands*)

### Robinson, G.E. and R.E. Page. 1989. Genetic determination of nectar foraging, pollen foraging, and nest-site scouting in honey bee colonies. *Behavioral Ecology and Sociobiology* 24: 317-323.

### Robinson, G.E., Page, R.E., Strambi, C. and A. Strambi. 1989. Hormonal and genetic control of behavioral integration in honey bee colonies. *Science* 246: 109-112. (reported in *Chicago Tribune, Voice of America*)

### Smirle, M.J. and G.E. Robinson. 1989. Behavioral status and detoxifying enzyme activity are related in worker honey bees. *Journal of Insect Behavior* 2: 285-289.

### Page, R.E., Robinson, G.E. and M.K. Fondrk. 1989. Genetic specialists, kin recognition, and nepotism in honey-bee colonies. *Nature* 338: 576-579. *Cover story.*

### Calderone, N.W., Robinson, G.E. and R.E. Page. 1989. Genetic structure and division of labor in honey-bee society. *Experientia* 45: 765-767.

### Robinson, G.E. and R.E. Page. 1988. Genetic determination of guarding and undertaking in honey-bee colonies. *Nature* 333: 356-358. *Cover story*. (reported in the *Chronicle of Higher Education, Discover, Encyclopedia Britannica 1989 Book of the Year, London Times, New York Times, Science News*)

### Robinson, G.E. 1987. Regulation of honey bee age polyethism by juvenile hormone. *Behavioral Ecology and Sociobiology* 20: 329-338.

### Robinson, G.E. 1987. Modulation of alarm pheromone perception in the honey bee: evidence for division of labor based on hormonally modulated response thresholds*. Journal of Comparative Physiology A* 160: 613-619.

### Robinson, G.E. and F.L.W. Ratnieks. 1987. Induction of premature honey bee (Hymenoptera: Apidae) flight by juvenile hormone analogs administered orally or topically. *Journal of Economic Entomology* 80: 784-787.

### Robinson, G.E., Strambi, A., Strambi, C., Paulino-Simões, Z.L., Tozeto, S.O. and J.M.N. Barbosa. 1987. Juvenile hormone titers in European and Africanized honey bees in Brazil. *General and Comparative Endocrinology* 66: 457-459.

### Robinson, G.E. 1985. Effects of a juvenile hormone analogue on honey bee foraging behaviour and alarm pheromone production. *Journal of Insect Physiology* 31: 277-282.

### Robinson, G.E. 1984. Worker and queen honey bee behavior during foreign queen introduction. *Insectes Sociaux* 3: 254-263.

### Robinson, G.E. and P.K. Visscher. 1984. Effect of low-temperature narcosis on honey bee (Hymenoptera: Apidae) foraging behavior. *Florida Entomologist* 67: 568-570.

### Robinson, G.E., Underwood, B.A. and C.E. Henderson. 1984. A highly specialized water-collecting honey bee. *Apidologie* 15: 355-358.

### Breed, M.D., Velthuis, H.H.W. and G.E. Robinson. 1984. Do worker honey bees discriminate among unrelated and related larval phenotypes? *Annals of the Entomological Society of America* 77: 737-739

### Young, R.G. and G.E. Robinson. 1983. Age and oxygen toxicity related fluorescence in the honey bee thorax. *Experimental Gerontology* 18: 471-475.

### Robinson, G.E. 1981. *Pseudohypocera kerteszi* (Enderlein) (Diptera: Phoridae), a pest of the honey bee. *Florida Entomologist* 64: 456-457.

## **Invited Reviews and Perspectives**

1. Traniello, I.M. and G.E. Robinson. Neural and molecular mechanisms of biological embedding of social interactions. *Annual Review of Neuroscience.* In preparation.
2. Boyce, T., Sokolowski, M.B. and G.E. Robinson. Genes and environmenta, development and time. Introduction to *Proceedings of the National Academy of Sciences* 117: 23235-23241. Introduction to Special Feature on Biological Embedding Across Timescales.
3. Sinha, S., Jones, B.M., Traniello, I.M., Bukhari, S.A., Halfon, M.S., Hofmann, H.A., Huang, S., Katz, P.S., Keagy, J., Lynch, V.J., Sokolowski, M.B., Stubbs, L.J., Tabe-Bordbar, S., Wolfner, M.F. and G. E. Robinson. 2020/ Behavior-Related Gene Regulatory Networks: A New Level of Organization in the Brain. *Proceedings of the National Academy of Sciences* 117: 23270-23279.

### Toth, A.L. and G.E. Robinson. 2020. Genomics of social insects. *In* C. Starr, ed. *Encyclopedia of Social Insects*. Springer Nature, Switzerland.

### Lewin, H.A., Robinson, G.E., W.J. Kress…G. Zhang. 2018. Earth BioGenome Project: Sequencing life for the future of life. *PNAS* 115: 4325-4333.

### Jones, B.M. and G.E. Robinson. 2018. Genetic accommodation and role of ancestral plasticity in the evolution of insect eusociality. *Journal of Experimental Biology* 221: jeb153163 doi: 10.1242/jeb.153163

### Mendenhall, R., Henderson, L., Scott, B., Butler, L., Kedir, N., Lashuna, T. Mallett, Wren, B., Bailey, R., Greenlee, A., Robinson, G.E., Roberts, B.W., Rodriguez-Zas, S., Brooks, J.E. and C. Lleras. Involving urban single low-income African American mothers in genomic research: giving voice to how place matters in health disparities and prevention strategies. *Submitted*.

### Robinson, G.E. and A. Barron. 2017. Epigenetics and the evolution of instinct. *Science* 356: 26-27. (covered by *CBC, The Scientist*)

### Robinson, G.E. 2015. *Forward*. Genomics, Physiology and Behavior of Social Insects. *Advances in Insect Physiology* 48: xi-xii. *Special Issue.*

### Grozinger, C.M. and G.E. Robinson. 2015. The power and promise of applying genomics to honey bee health. *Current Opinion in Insect Science* *10:* 124-132.

### Rittschof, C.C., Grozinger, C.M. and G.E. Robinson. 2015. The energetic basis of behavior: what about the brain? *Current Opinion in Behavior*. DOI: 10.1016/j.cobeha.2015.07.006

### Robinson, G.E. 2015. Dissecting diversity in the social brain. *Science* 350: 1310-12.

### Lutz, C.C., Grozinger, C.M. and G.E. Robinson. Combatting the global pollinator crisis with genomic biology. 2014. *CSA News* (magazine of the American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America). “Feed the World in 2050” special issue. November-December issue.

### Rittschof, C.C. and G.E. Robinson. 2014. Genomics: moving behavioural ecology beyond the phenotypic gambit. *Animal Behaviour* 92: 263-270.

### Kueltz, D., Clayton, D.F., Robinson, G.E. et al. 2013. New frontiers for organismal biology. *BioScience* 63: 464-471.

### I5K Consortium. 2013. The i5K Initiative: Advancing arthropod genomics for knowledge, human health, agriculture, and the environment. *Journal of Heredity* 104: 595-600. *Cover story.*

### Robinson, G.E. 2013. Parasites School Us in Behavior: Afterword to The Strings of the Puppet Master: Mechanisms of Parasitic Manipulation of Behavior (Shelley Adamo), in Host Manipulation by Parasites. D.P. Hughes, J. Brodeur, F. Thomas, eds. Cambridge Press. Pp. 52-54.

### Zayed, A. and G.E. Robinson. 2012. Understanding the relationship between genes and social behavior: Lessons from the honey bee. *Annual Review of Genetics* 46: 591-615.

### Fischman, B.J., Woodard, S.H. and G.E. Robinson. 2011. Molecular evolutionary analyses of insect societies. *Proceedings of the National Academy of Sciences* 108 (Supplement 2): 10847-10854.

### Bell, A.M. and G.E. Robinson. 2011. Behavior and the dynamic genome. *Science* 332: 1161-1162.

### Robinson, G.E. 2011. Royal aspirations. *Nature* 473: 454-455.

### Robinson, G.E. 2010. Preface, *Annual Review of Entomology*, Volume 55.

### Robinson, G.E. et al. 2010. Empowering 21st Century Biology. *BioScience* 60: 923-930.

### Robinson, G.E. Division of labor in insect societies. 2009. *In* V. Resch, and R. Carde, eds. *Encyclopedia of Insects*. Academic Press, NY, 2nd edition.

### Robinson, G.E., Fernald, R.F. and D.F. Clayton. 2008. Genes and social behavior. *Science* 322: 896-900. *Cover story. Special issue on genetics of behavior*. (reported in *Newsweek*)

### Toth, A.L., Smith, C.R., Suarez, A. and G.E. Robinson. 2008. Genetic and genomic analyses of division of labour in the insect societies. *Nature Reviews Genetics* 9: 735-748.

### Toth, A.L. and G.E. Robinson. 2007. Evo-Devo and the evolution of social behavior. *Trends in Genetics* 23: 334-341. *Cover story*.

### Robinson, G.E., Evans, J.D., Maleskza, R., Robertson, H.M., Weaver, D.A. and G.W. Weinstock. 2006. Sweetness and light: illuminating the honey bee genome. *Insect Molecular Biology* 15: 535-539.

### National Research Council of the National Academies. 2006. Status of Pollinators in North America. National Academies Press, Washington, D.C. (member of the Committee on the Status of Pollinators in North America, which authored the report on behalf of the National Research Council)

### Fitzpatrick, M.J., Ben-Shahar, Y., Smid, H.M., Vet, L.E.M., Robinson, G.E. and M.B. Sokolowski. 2005. Candidate genes for behavioural ecology. *Trends in Ecology and Evolutio*n 20: 96-104. *#3 on the list of the “25 Hottest articles in TREE, Summer ‘05”.*

### Robinson, G.E., Grozinger, C.M. and C.W. Whitfield. 2005. Sociogenomics: Social life in molecular terms. *Nature Reviews Genetics* 6: 257-70.

### Berenbaum, M.R. and G.E. Robinson. 2004. Chemical communication in a post-genomic world.  *Proceedings of the National Academy of Sciences* Suppl. 2: 14513.

### Robinson, G.E. 2004. Beyond nature and nurture. *Science* 304: 397-399.

1. Robinson, G.E. Division of labor in insect societies. 2002. *In* V. Resch, and R. Carde, eds. *Encyclopedia of Insects.* Academic Press. NY.

### Robinson, G.E. 2002. Genomics and integrative analyses of division of labor in honey bee colonies. *American Naturalist* 160: S160-S172. *Special issue on behavior genetics*.

### Barron, A.B., Schulz, D.J. and G.E. Robinson. 2002. A role for octopamine in honey bee division of labor. Special issue of *Brain, Behavior and Evolution* 60: 350-359.

### Robinson, G.E. 2002. Sociogenomics takes flight. *Science* 297: 204-205.

### Robinson, G.E. and Y. Ben-Shahar. 2002. Social behavior and comparative genomics: New genes or new gene regulation? *Genes, Brain and Behavior* 1: 197-203.

### Kaufman, T.C., Severson, D.W. and G.E. Robinson. 2002. The *Anopheles* genome and comparative insect genomics. *Science* 298: 97-98.

### Elekonich, M.M. and G.E. Robinson. 2000. Organizational and activational effects of hormones on insect behavior. *Journal of Insect Physiology* 46: 1509-1515.

### Capaldi, E.A., Fahrbach, S.E. and G.E. Robinson. 1999. Neuroethology of spatial learning: the birds and the bees. *Annual Review of Psychology* 50: 651-682.

### Robinson, G.E. 1999. Integrative animal behaviour and sociogenomics. *Trends in Ecology and Evolution* 14: 202-205.

### Robinson, G.E. and Z.-Y. Huang. 1998. Colony integration in honey bees: genetic, endocrine and social control of division of labor. *Apidologie* 29: 159-170. *Special issue on insect colony integration.*

### Robinson, G.E. 1998. From society to genes with the honey bee: A combination of environmental, genetic, hormonal and neurobiological factors determine a bee’s progression through a series of life stages. *American Scientist* 86: 456-462. Reprinted in *Exploring Animal Behavior: Readings from American Scientist*, Sinauer Associates, 2001 and 2010.

### Robinson, G.E. and E.L. Vargo. 1997. Juvenile hormone in the adult eusocial Hymenoptera: Gondadotropin and behavioral pacemaker. *Archives in Insect Biochemistry and Physiology* 35: 559-583. *Special issue on juvenile hormone*.

### Robinson, G.E., Fahrbach, S.E. and M.L. Winston. 1997. Insect societies and the molecular biology of social behavior. *BioEssays* 19: 1099-1108. *Special issue on genes, molecules, and behavior.*

### Fahrbach, S.E. and G.E. Robinson. 1996. Juvenile hormone, behavioral maturation, and brain structure in the honey bee. *Special issue of Developmental Neurobiology* 18: 102-114.

### Robinson, G.E. 1996. Chemical communication in honey bees. *Science* 271: 1824-1825.

### Fahrbach, S.E. and G.E. Robinson. 1995. Behavioral development in the honey bee: Toward the study of learning under natural conditions. *Learning and Memory* 2: 199-224. *Cover story.*

### Robinson, G.E. 1992. Regulation of division of labor in insect societies. *Annual Review of Entomology* 37: 637-665.

### Robinson, G.E. 1992. To bee young again. *Natural History* 101: (February) 40-41 (special issue on aging).

### Page, R.E. and G.E. Robinson. 1991. The genetics of division of labour in honey bee colonies. *Advances in Insect Physiology* 23: 117-169.

## **Edited Journal Issues**

### Boyce, T., Sokolowski, M.B. and G.E. Robinson. 2020. Biological Embedding across timescales: how experience gets under the skin. *Proceedings of the National Academy of Sciences*.

### Boyce, T., Sokolowski, M.B. and G.E. Robinson. 2012. Biological Embedding of Early Social Adversity: From Fruit Flies to Kindergartners. Sackler NAS Colloquium, *Proceedings of the National Academy of Sciences*.

### Berenbaum, M.R. and G.E. Robinson. 2003. Chemical Communication in a Post-Genomic World. Sackler NAS Colloquium, *Proceedings of the National Academy of Sciences* 100: (Supplement 2) 14513.

## **Book Chapters**

### Hamilton, A.R., Shpigler, H., Bloch, G., Wheeler, D.E. and G.E. Robinson. 2017. Endocrine influences on the organization of insect societies. *In* D. Pfaff and M. Joels, eds., *Hormones, Brain, and Behavior*. Academic Press, 3rd edition, pp. 421-451.

### Robinson, G.E. 2015. In *Social Behaviour: Genes, ecology and evolution*. *In* T. Szekely, A. Moore and J. Komdeur, eds. Invited guest feature.

### Rittschof, C.C. and G.E. Robinson. 2016. Behavioral genetic toolkits: Towards the evolutionary origin of complex phenotypes. *In* Virginie Orgogozo, ed., *Current Topics in Developmental Biology* 119, special issue on Genes and Phenotypic Evolution, Chapter 5.

### Robinson, G.E. Honey bee sociogenomics. 2015. *In* J. Graham, ed. *Hive and the Honey Bee*. Dadant & Sons Press.

### Barron, A.B., Brockmann, A., Sen-Sarma, M. and G.E. Robinson. 2012. Neurogenomic and neurochemical dissection of honey bee dance communication. *In* M. Giurfa, G. Galizia and D. Bruckner, eds., *Honeybee neurobiology and behavior*. Springer. 509 pp.

### Ament, S.A., Wang, Y. and G.E. Robinson. 2010. Division of labor in honey bees: Towards a systems biology approach. *In* S. Subramanian ed. *Systems Biology*. Wiley and Sons. DOI: 10.1002/wsbm.73

### Grozinger, C.M. and G.E. Robinson. Honey bee neurogenomics. 2010. *In* M.D. Breed, ed., H.H. Zakon eds., *Encyclopedia of Animal Behavior*. Neuroethology Section ed. Oxford Univ. Press.

### Toth, A.L. and G.E. Robinson. 2010. Evo-Devo and the evolution of social behavior: brain gene expression analyses in social insects. *Proceedings of the 74th Symposium on Quantitative Biology, Evolution: the Molecular Landscape*. Cold Spring Harbor Laboratory.

### Robinson, G.E. 2010. Genes and social behavior: From gene to genome to genomes. Personal Reflection. *In* T. Szekely, A.J. Moore, J. Komdeur, eds., *Social Behaviour: Genes, Ecology and Evolution*. Cambridge University Press, Cambridge, UK.

### Bloch, G., Shpigler, H., Wheeler, D.L. and G.E. Robinson. 2009. Endocrine influences on the organization of insect societies. *In* D. Pfaff et al., eds., *Hormones, Brain, and Behavior*. Academic Press, 2nd edition, pp. 1027-1268.

### Robinson, G.E. and A.B. Barron. 2009. From social behavior to molecules: Models and modules in the middle. *In* J. Gadau and J. Fewell, eds., *Insect Sociology: From Genes to Society.* Harvard University Press.

### Le Conte, Y., Huang, Z. and G.E. Robinson. 2008. "Quorum sensing" in honeybees: Pheromone regulation of division of labor. *In* S.C. Winans and B.L. Bassler, eds., *Chemical Communication among Bacteria*. ASM Press, Washington DC. Chapter 30, 463-468.

### Robinson, G.E. 2006. Genes and social behavior. *Essays in Animal Behavior: Celebrating 50 years of Animal Behaviour.*

### Bloch, G., Wheeler, D.L. and G.E. Robinson. 2002. Endocrine influences on the organization of insect societies. *In* D. Pfaff et al., eds., *Hormones, Brain, and Behavior*. Academic Press, pp. 195-237.

### Robinson, G.E. 2001. From society to genes with the honey bee. *In* P.W. Sherman and J. Alcock, eds., *Exploring Animal Behavior: Readings from American Scientist*, Sinauer Associates, pp. 60-67. Reprinted in 2010 and 2013.

### Huang, Z.-Y. and G.E. Robinson. 1999. Social control of division of labor in honey bee colonies. *In* P. Denoubourg, ed. *Information Processing in Social Insects*. Birkhauser, Basel, Switzerland, pp. 165-187.

### Beshers, S.L., Robinson G.E. and J. Mittenthal. 1999. The response threshold concept and division of labor. *In* Denoubourg, ed. *Information Processing in Social Insects*. Birkhauser, Basel, Switzerland, pp. 115-141.

### Robinson, G.E. 1991. Hormonal and genetic control of honeybee division of labour. *In* L.J. Goodman and R.L. Fisher, eds., *The Behaviour and Physiology of Bees*. CAB International, London, pp. 14-28.

### Robinson, G.E. and R.E. Page. 1989. The genetic basis of division of labor in an insect society. *In* M.D. Breed and R.E. Page, eds., *The Genetics of Social Evolution*. Westview Press, Boulder, CO. pp. 61-80.

### Page, R.E., Robinson, G.E., Calderone, N.W. and W.C. Rothenbuhler. 1989. Genetic structure, division of labor, and the evolution of insect societies. *In* M.D. Breed and R.E. Page, eds., *The Genetics of Social Evolution*. Westview Press, Boulder, CO. pp. 15-29.

### Robinson, G.E. 1987. Hormonal regulation of age polyethism in the honey bee, *Apis mellifera*. *In* R. Menzel and A. Mercer, eds., *Neurobiology and Behaviour in Honeybees*. Springer-Verlag, Berlin. pp. 266-280.

## **Book Reviews**

### Robinson, G.E. 2019. Darwinian beekeeping: Lessons from the wild. *The Lives of Bees: The Untold Story of Honeybees in the Wild,* T.D. Seeley. *Nature*, in press.

### Robinson, G.E. 1998. *Pheromone communication in the social insects.* BioScience 15: 289.

### Robinson, G.E. 1997. *The Wisdom of the Hive*, T.D. Seeley. *American Scientist* 85: 386-387.

### Robinson, G.E. 1995. *Behavioral Mechanisms in Evolutionary Ecology*, L.A. Real, ed. *Nature* 373: 669-670.

### Robinson, G.E. 1993. Colonial Rule. *Bees as Superorganisms*, R.F.A. Moritz and E.E. Southwick. *Nature* 362: 126.

### Robinson, G.E. 1991. *Ecology and Natural History of Tropical Bees,* D.W. Roubik. *Annals of the Entomological Society of America* 84: 213.

## **Popular Articles**

### **Robinson, G.E. Brains work via their genes just as much as their neurons. 2015. *The Conversation.*** <https://theconversation.com/brains-work-via-their-genes-just-as-much-as-their-neurons-47522>

### Robinson, G.E. Honey bee genome. 2008. *McGraw-Hill Yearbook of Science & Technology.*

### Robinson, G.E. 2007. Unanswered Questions: Animal Behavior. *In* P.J. Russell, S.L. Wolfe, P.E. Hertz, eds., *Biology the Dynamic Science*. First Edition. Cengage Learning (formerly Thomson Learning).

### Robinson, G.E. and D.B. Weaver. 2006. The honey bee genome project: a model of cooperation between academia, government and industry. *American Bee Journal* 146: 870-872.

### Robinson, G.E. 2004. The behavior of genes. *New York Times* Op-Ed, 13 December.

### Robinson, G.E. 2000. Bees and genes. *Bee Culture* 128: 20-24.

### Robinson, G.E. 1995. Hormonal and genetic regulation of division of labor in honey bee colonies: you’re only as old as you feel! *American Bee Journal* 135: 169-170.

### Robinson, G.E. 1994. Honey bees: unlocking the secrets of colonial rule. *IL Research* Fall/Winter: 6-9.

### Robinson, G.E. Nepotism. 1990. *In* R.A. Morse, ed., *ABC and XYZ of Bee Culture*. A.I. Root, Medina, Ohio.

### Robinson, G.E. Juvenile Hormone. 1990. *In* R.A. Morse, ed., *ABC and XYZ of Bee Culture.* A.I. Root, Medina, Ohio.

### Robinson, G.E. 1985. The dance language of the honey bee: the controversy and its resolution. *Cornell Plantations Quarterly* 41: 66-75. Reprinted in the *American Bee Journal* 126: 184-191.

### Robinson, G.E. 1984. Orchids pollinated by euglossine bees. *Bee World* 65: 69-73.

### Robinson, G.E. 1882. A unique beekeeping enterprise in Colombia. *Bee World* 63: 43-46.

### Robinson, G.E. 1982. Aberrant queen cells in honey bee colonies. *Bee World* 63: 82-83.

### Robinson, G.E. and R.A. Morse. 1982. Number of honey bees that stay out all night. *Bee World* 63: 173-174.

### Robinson, G.E. 1981. *Pseudohypocero kerteszi* (Enderlein) (Diptera: Phoridae), a pest of the honey bee. *Florida Entomologist* 64: 456-457.

### Robinson, G.E. 1980. The potential for apicultural development in the Third World. *American Bee Journal* 120: 398-400

## **Letters to the Editor**

### Strassmann, J.E., Page, R.E., Robinson, G.E. and T.D. Seeley. 2011. Kin selection and eusociality. *Nature* 471: E5-E6.

### Robinson, G.E., Hackett, K.J., Purcell-Miramontes, M., Brown, S.J., Evans, J.D., Goldsmith, M.R., Lawson, D., Okamuro, J., Robertson, H.M. and D.J. Schneider. 2011. Creating a buzz about insect genomes. *Science* 331: 1386.

### Robinson, G.E. 2008. Caste determination. *Bee Culture* 136: 8.

### 