

CURRICULUM VITAE

Erich D. Jarvis

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BORN 5/6/65, Harlem, NY.

EDUCATION

1979-1983 Scholarships to Geoffrey Ballet and Alvin Ailey Dance Schools, NY
1979-1983 Dance Major, High School of the Performing Arts, NY
1983-1988 B.A., Double: Biology & Mathematics. Minor: Chemistry. Hunter College, NY
1988-1995 Ph.D., Molecular Neurobiology & Animal Behavior, The Rockefeller University, NY
1995-1998 Postdoc. Molecular Neurobiology & Animal Behavior, The Rockefeller University, NY

RESEARCH & PROFESSIONAL POSITIONS

1984-1988 Undergraduate: Molecular biology of protein synthesis genes in bacteria with Dr. Rivka Rudner Hunter College, NY
1988-1995 Graduate: Molecular behavioral mechanisms of song-associative learning in songbirds with Dr. Fernando Nottebohm. The Rockefeller University, NY
1995-1998 Postdoc: Molecular biology of learned vocal communication in songbirds with Dr. Fernando Nottebohm. The Rockefeller University, NY
1998-2002 Assistant Professor, Adjunct: The Rockefeller University, NY
1998-2005 Assistant Professor, Department of Neurobiology, Duke University Medical Center (DUMC), NC
1999-2005 Assistant Professor, Fellow: Center for Cognitive Neuroscience, Duke University, NC
2000-2005 Assistant Professor, Center for Bioinformatics & Computational Biology, Duke University
2000-2005 Assistant Professor, Allied Faculty: Psychological & Brain Sciences, Duke University, NC
2001-2005 Assistant Professor, Faculty: Development Biology Program, DUMC, NC
2005-present Associate Professor, Tenure: Neurobiology & departments above, Duke University, NC
2008-present Investigator, Howard Hughes Medical Institute (HHMI)

TEACHING

1992-1998 Trained inner-city high school students of under-represented backgrounds to gain laboratory research experience, Science Outreach Program of NY
1998-present Trained high school, undergrad & graduate students in neuroscience research, DUMC, NC
1999-present Medical student core neuroscience course, DUMC, NC
2000-2003 Cognitive neuroscience graduate course, Duke University, NC
2001-2002 Graduate core neuroanatomy course, DUMC, NC
2001-2005 Undergraduate neuroscience course, DUMC, NC
2001 Graduate neuroethology course, DUMC, NC
2006-2008 Graduate neuroscience lecture training course, DUMC, NC
2006-2008 Graduate student core neuroscience course, DUMC, NC
2008-present Director, Concepts in Neuroscience: Cellular & Molecular Neurobiology, DUMC, NC

AWARDS & HONORS

1984 NIH-Minority Biomedical Research Support (MBRS) Traineeship
1986 First Place Award for Excellence in Biomedical Research, NIH-MBRS Annual Symposium
1986 NIGMS-Minority Access to Research Careers (MARC) Honors Undergraduate Fellowship
1988 MARC-NIGMS Pre-Doctoral National Research Service Award
1988 FORD Foundation Pre-Doctoral Fellowship
1995 Society for Neuroscience Travel Fellowship for Under-Represented Scientists
1995 NIMH Dissertation Grant
1995 NIMH Neuroscience Postdoctoral Training Grant

- 1995 Rockefeller University Kluge Postdoctoral Fellowship
- 2000 George H. Hitching's Young Investigator Award, NC Triangle Foundation, one person/year
- 2000 Esther & Joseph Klingenstein Award in Neuroscience
- 2000 Whitehall Foundation Award in Neuroscience, 2nd highest score
- 2000 David and Lucille Packard Foundation Award
- 2000 Hall of Fame: Hunter College Search for Education, Elevation & Knowledge (SEEK), NY
- 2001 Duke University Provost Bioinformatic Award
- 2002 Duke University Provost Computational Biology Award
- 2002 Hall of Fame: Alumni Association of Hunter College
- 2002 Human Frontiers in Science Program Young Investigators Award
- 2002 NSF Alan T. Waterman Award. NSF's highest award for young investigators given annually to one scientist or engineer who under the age of 35 made a significant discovery/impact in science. Awarded for molecular approach and findings to map brain areas involved in behavior.
- 2002 Wall of Fame: Duke University Medical Center
- 2003 The 2003 Distinguished Alumni Award of the City University of New York
- 2004 Intranet Linguists of the Year for 2004
- 2005 Dominion Award: Strong Men and Women of Excellence: African American Leaders. Prior awardees include Arthur Ash, Maya Angelou, Oprah Winfrey, and Michael Jordan.
- 2005 American Philosophical Society Award
- 2005 NIH Director's Pioneer Award. Given annually to top ~1.5% of applicants.
- 2005 NOVA Science Now documentary of Dr. Jarvis and his research.
- 2006 Discover magazine top 100 science discoveries of 2005; avian brain nomenclature listed at #51.
- 2006 Diverse magazine's top 10 emerging scholars of 2006.
- 2006 Popular Science Magazine's Brilliant 10 of 2006 under the age of 45
- 2007 Mental Floss Magazine's 10 Trail blazing scientist of 2007
- 2007 Creator Synectics' top 100 geniuses
- 2008 HHMI Investigator Award

NAMED, HONORARY, & KEYNOTE LECTURES

- 1999 Speaker: International Emperor's Award in Biology, Nagoya, Japan
- 2000 Plenary Speaker: Research Center for Minority Institutions (RCMI)-Symposium, Puerto Rico
- 2001 Distinguished Speaker: 10th Annual Puerto Rico Neuroscience Conference, Puerto Rico
- 2001 Plenary Lecturer: Atlantic Symposium on Computational Biology, Genome Systems & Tech, NC
- 2002 Baptista Memorial Symposium: International Ornithology Conference, Beijing, China
- 2002 Lecture and Discussant: Gordon Research Conference in Neuroethology, Oxford, UK
- 2002 Leaders in Scientific Discovery: Conversations with two nobel laureates (Cech & Gilman) and a Waterman awardee (Jarvis). ABRCMS 40th NIGMS Anniversary Conference, New Orleans, LA
- 2002 Lecturer: The National Academy of Science's US-Japan meeting, Irvine, CA
- 2003 Topical Lecturer: American Society for the Advancement of Science (AAAS) Meeting, Denver
- 2003 Keynote Speaker: National Science Foundation, African American History Month Series, MD
- 2003 Keynote Speaker: Howard University Graduate School, Washington, DC
- 2003 Keynote Speaker: Society for Advancement of Chicanos & Native Americans, Albuquerque, NM
- 2004 The ISIS 2004 Keynote Inspirational Speaker: University of North Carolina, Chapel Hill, NC
- 2004 The 2004 Howard Hughes Professor's Lecture: Columbia University, New York, NY
- 2004 Keynote Speaker: NC Health Careers Access Program, Greensboro, NC
- 2005 The 2005 Chancellor's Scholars Lecturer: Fayetteville University, NC
- 2005 Keynote Speaker: Education for Sustainable Development Conference, Yale University, CT
- 2005 Keynote Speaker: NIMH intramural annual conference, Gettysburg, VA.
- 2005 Keynote Speaker: Society of Neuroethology Congress, Budapest, Hungary.
- 2005 Langford Lecture Award: Duke University's outstanding research for tenure promotion.
- 2006 Keynote Speaker: HBCU-UP National Research Conference, Baltimore, MD
- 2006 Keynote Speaker: National Institutes of Aging, Black History Month Lecturer, MD
- 2006 NIMH Director's Lecturer, Bethesda, MD
- 2006 NIDCD Council Lecturer, Bethesda, MD
- 2006 24th IOC Plenary Lecturer, Hamburg, Germany
- 2006 Distinguished Lecturer: NC Central University, Durham, NC
- 2006 The 2006 James Holland Memorial Lecturer, Indiana University, Bloomington, IN
- 2006 Symposium Speaker: American Society for Cell Biology
- 2007 Keynote Speaker: 2007 NEURON Conference, at Simmons College, MA

- 2007 Keynote Speaker: 2007 Beta Kappa Chi Honor Society /National Institute of Science conference
- 2007 The 2007 Darwin Day Lecturer: Virginia Commonwealth University, Richmond, VA
- 2007 BioX Lecturer: Stanford University, Stanford, CA
- 2007 Honored Guest Speaker: Adventures of the Mind youth conference, Morehouse University, GA
- 2007 Public Symposium Speaker: Conference on Birdsong, Speech, & Language, Utrecht, Netherlands
- 2007 Keynote Speaker: University of Colorado HSC, Annual Neuroscience Retreat, Keystone, CO.
- 2007 Keynote Speaker: National Association of Biology Teachers, Atlanta, GA
- 2007 Symposium Speaker: International Seminar on Language Evolution, St. Andrews, UK
- 2008 The 2008 Dodgen Lecturer: Mississippi Academy of Sciences, Olive Branch, MS
- 2008 Keynote Speaker: Biology Leadership Conference, Ilse of Palms, SC
- 2008 Keynote Speaker: South East Nerve Net Conference, Atlanta, GA
- 2008 Keynote Speaker: NIGMS Institutional Research & Academic Career Development Awards Conference, UNC Chapel Hill, NC
- 2008 The 2008 Martinez-Townsel Endowed Lecturer, MBL, Cold Spring Harbor, MA
- 2008 Friday Evening Lecturer, MBL, Cold Spring Harbor, MA
- 2008 Presidential Symp Lecturer: Society for Behavioral Neuroendocrinology, Groningen Netherlands
- 2008 Plenary Lecturer: 11th RCMI Symposium on Health Disparities, Honolulu, Hawaii
- 2009 National Academy Science Evolution of Medicine Lecturer, Celebrating Darwin's 200th Birthday
- 2009 Keynote Lecturer: 1st NYC Minority Graduate Student Network (MGSN) conference

MEMBERSHIPS, ADVISORY PANELS, EDITORIAL BOARDS, & CONSULTING

- 1988-present Member, Society for Neuroscience
- 1998-present Member, J.B. Johnston Neuroscience Organization
- 1999-present Organizer, Avian Brain Nomenclature Consortium that changed the 100-year old outdated understanding of the avian and thus vertebrate brain evolution
- 1999-2002 Council Member, Duke University President's Council on Black Affairs, NC
- 2001-2005 Founding Member, Black Collective at Duke (BCD), Duke University, NC
- 2003-present Member, Society for Advancement of Chicanos & Native Americans (SACNAS)
- 2004-present International Society for Neuroethology
- 2004-2006 Invited Advisor, NSF Task Group for Enhancing Support for Transformative Research.
- 2005-2006 Elected Member, Duke University Medical Center Basic Sciences Faculty Steering Committee
- 2005-present Nominated Member & current director of NIH fellowship grant, Committee on Diversity in Neuroscience (C-DIN), The Society for Neuroscience
- 2006, 2008 Invited Panelist, NIH Director's Pioneer Award Reviewer
- 2007 Invited Panelist, NIH Director's New Innovator Award Reviewer
- 2007 Invited Advisor, NIH Fostering Innovation Workshop.
- 2007-2008 Invited, Advisory Committee to the NIH Director (ACD; Elias Zerhouni): Subcommittee on Peer Review; Reviewed, developed and recommended new mechanisms for funding more innovative and transformative research, and implemented by NIH beginning 2009.
- 2008-present Nominated member, The Dana Alliance for Brain Initiatives

WEB SITES

- Jarvis Lab: <http://www.jarvislab.net/>
- Avian Brain Hub: <http://avianbrain.org/>
- Songbird Brain Transcriptome Database: <http://songbirdtranscriptome.net>

PUBLICATIONS

Peer-reviewed articles: pdfs can be found at <http://www.jarvislab.net/Publications.html>.

1. LaFauci G, Widom RL, Eisner R, **Jarvis ED**, Rudner R. Mapping of rRNA genes with integrable plasmids in *Bacillus subtilis*. (1986) *J. Bacteriol.* 165:204-214.
2. Widom RL, **Jarvis ED**, LaFauci G, Rudner R. Instability of rRNA operons in *Bacillus subtilis*. (1988). *J. Bacteriol.* 170:605-610.
3. **Jarvis ED**, Widom R, LaFauci G, Setoguchi Y, Richter IR, Rudner R. *Chromosomal Organizations of rRNA operons in Bacillus subtilis*. (1988) *Genetics* 120:625-635.

4. **Jarvis ED**, Cheng S, Rudner R. Genetic structure and DNA sequences at junctions involved in the rearrangements of *Bacillus subtilis* strains carrying the *trpE26* mutation. (1990) *Genetics* 126:785-797.
5. Rivas MV, **Jarvis ED**, Rudner R. The structure of the *trpE*, *trpD* and 5' *trpC* genes of *Bacillus pumilus*. (1990) *Gene* 87:71-78.
6. Rudner R, Severestt A, Buchholz S, Studamire B, White AM, **Jarvis ED**. Two tRNA gene clusters associated with ribosomal RNA operons *rrnD* and *rrnE* in *Bacillus subtilis*. (1993) *J. Bacteriol.* 175:503-509.
7. **Jarvis ED**, Mello CV, Nottebohm F. Associative learning and stimulus novelty influence the song-induced expression of an immediate early gene in the canary forebrain. (1995) *Learning & Memory* 2:62-80.
8. Chew SJ, Mello CV, Nottebohm F, **Jarvis ED**, Vicario D. Decrements in auditory responses to a repeated conspecific song are long-lasting and require two periods of protein synthesis in the songbird forebrain. (1995) *Proc. Natl. Acad. Sci.* 92:3406-3410.
9. Holzenberger M, **Jarvis ED**, Chong C, Grossman M, Nottebohm F, Scharff C. Selective expression of insulin-like growth factor II in the songbird brain. (1997) *J. Neurosci.* 17:6974-6987.
10. Rivas M, **Jarvis ED**, Morisaki S, Carbonado H, Gottlieb AB, Krueger J. Identification of aberrantly regulated genes in diseased skin using the cDNA differential display technique. (1997) *J. Invest. Derm.* 108:188-194.
11. Rudner R, Martsinkevich O, Leung W, **Jarvis ED**. Classification and genetic characterization of pattern forming Bacilli. (1998) *Molec. Microbio.* 27:687-703.
12. **Jarvis ED**, Schawbl H, Ribeiro S, Mello CV. Brain gene regulation by territorial singing behavior in freely ranging songbirds. (1997) *Neuroreport* 8:2073-2077.
13. **Jarvis ED**, Nottebohm F. Motor-driven gene expression. (1997) *Proc. Natl. Acad. Sci.* 94:4097-4102.
14. **Jarvis ED**, Scharff C, Grossman M, Ramos JA, Nottebohm F. For whom the bird sings: context-dependent gene expression. (1998) *Neuron* 21:775-788.
15. Krebs CJ, **Jarvis ED**, Pfaff DW. The 70 kDa heat shock cognate protein (Hsc73) gene is enhanced by ovarian hormones in the ventromedial hypothalamus. (1999) *Proc. Natl. Acad. Sci.* 96:1686-1691.
16. Krebs CJ, **Jarvis ED**, Chan J, Lydon JP, Ogawa S, Pfaff DW. A membrane-associated progesterone-binding protein, 25-Dx, is regulated by progesterone in brain regions involved in female reproductive behaviors. (2000) *Proc. Natl. Acad. Sci.* 97:12816-12821.
17. Li XC, **Jarvis ED**, Alvarez-Bordo B, Lim D, Nottebohm F. A relation between behavior, neurotrophin expression and neuronal survival. (2000) *Proc. Natl. Acad. Sci.* 97:8584-8589.
18. **Jarvis ED**, Mello CV. Molecular mapping of brain areas involved in parrot vocal communication. (2000) *J. Comp. Neurol.* 419:1-31.

19. Nehrbass N, **Jarvis ED**, Scharff C, Nottebohm F, Mello CV. Site-specific retinoic acid production in the brain of adult songbirds. (2000) *Neuron* 27:359-370.
20. **Jarvis ED**, Ribeiro S, Vielliard J, DaSilva M, Ventura D, Mello CV. Behaviorally-driven gene expression reveals hummingbird brain song nuclei. (2000) *Nature* 406:628-632.
21. **Jarvis ED**, Smith VA, Wada K, Rivas MV, McElroy M, Smulders TV, Carnici P, Hayashisaki Y, Dietrich F, Wu X, Yu J, Wang PP, Hartemink AJ, Lin S. A framework for integrating the songbird brain. (2002) *J. Comp. Physiol. A* 188:961-980.
22. Smith VA, **Jarvis ED**, Hartemink AJ. Evaluating functional network inference using simulation of complex biological systems. (2002) *Bioinformatics* 18:216S-224S.
23. Ribeiro S, Mello CV, Velho T, Gardner TJ, **Jarvis ED**, Pavlides C. Induction of hippocampal long-term potentiation during waking leads to increased extrahippocampal zif-268 expression during ensuing rapid-eye-movement sleep. (2002) *J Neurosci.* 22:10914-10923.
24. The FANTOM Consortium & The RIKEN Genome Exploration Research Group Phase II Team. Analysis of the mouse transcriptome based upon functional annotation of 60,770 full length cDNAs. (2002) *Nature* 420:563-573.
25. Smith VA, **Jarvis ED**, Hartemink AJ. Influence of network topology and data collection on functional network inference. (2003) *Pac. Symp. Biocomputing* 2003:164-175.
26. Gustincich S, Batalov S, Beisel KW, Bono H, Carninci P, Fletcher CF, Grimmond S, Hirokawa N, **Jarvis ED**, Jegla T, Kawasawa Y, LeMieux J, Miki H, Raviola E, Teasdale RD, Tominaga N, Yagi K, Zimmer A, Hayashizaki Y, Okazaki Y. Analysis of the mouse transcriptome for genes involved in the function of the nervous system. (2003) *Genome Res.* 13:1395-1401.
27. Haesler S, Wada K, Nshdejan A, Morrissey E, Lints EKT, **Jarvis ED***, Scharff C*. FoxP2 expression in avian vocal learners and non-learners. (2004) *J. Neurosci.* 24:3164-3175. *co-corresponding authors.
28. Wada K, Sakaguchi H, **Jarvis ED***, Hagiwara M. Differential expression of glutamate receptors in avian neural pathways for learned vocalization. (2004) *J. Comp. Neurol.* 476:44-64 *corresponding author
29. Reiner A, Perkel DJ, Bruce L, Butler AB, Csillag A, Kuenzel W, Medina L, Paxinos G, Shimizu T, Striedter GF, Wild M, Ball GF, Durand S, Güntürkün O, Lee DW, Mello CV, Powers A, White SA, Hough G, Kubikova L, Smulders TV, Wada K, Dugas-Ford J, Husband S, Yamamoto K, Yu J, Siang C, **Jarvis ED**. Revised nomenclature for avian telencephalon and some related brainstem nuclei. (2004) *J. Comp. Neurol.* 473:377-414.
30. Reiner A, Perkel DJ, Bruce L, Butler AB, Csillag A, Kuenzel W, Medina L, Paxinos G, Shimizu T, Striedter GF, Wild M, Ball GF, Durand S, Güntürkün O, Lee DW, Mello CV, Powers A, White SA, Hough G, Kubikova L, Smulders TV, Wada K, Dugas-Ford J, Husband S, Yamamoto K, Yu J, Siang C, **Jarvis ED**. The Avian Brain Nomenclature Forum: a new century in comparative neuroanatomy. (2004) *J. Comp. Neurol.* 473:E1-E6.
31. Yu J, Smith VA, Wang PP, Hartemink AJ, **Jarvis ED**. Advances to Bayesian network inference for generating causal networks from observational biological data. (2004) *Bioinformatics* 20:3594-3603.

32. Reiner A, Perkel D, Mello CV, **Jarvis ED**. Songbirds and the new avian brain nomenclature. (2004) *Ann. N.Y. Acad. Sci.* 1016: 77-108.
33. **Jarvis ED**. Learned birdsong and the neurobiology of human language. (2004) *Ann. N.Y. Acad. Sci.* 1016: 746-777.
34. **Jarvis ED**, O Güntürkün, L Bruce, A Csillag, HJ Karten, W Kuenzel, L Medina, G Paxinos, DJ Perkel, T Shimizu, GF Striedter, M Wild, GF Ball, J Dugas-Ford, S Durand, G Hough, S Husband, L Kubikova, DW Lee, CV. Mello, A Powers, C Siang, TV Smulders, K Wada, SA White, K Yamamoto, J Yu, A Reiner, AB Butler. Avian Brain Nomenclature Consortium. Avian brains and a new understanding of vertebrate brain evolution. (2005) *Nature Rev Neurosci.* 6:151-159.
35. Mouritsen H, Feenders G, Liedvogel M, Wada K, **Jarvis ED**. A night vision brain area in migratory songbirds. (2005) *Proc. Natl. Acad. Sci.* 102:8339-8344.
36. Burmeister S, **Jarvis ED**, Fernald R. Rapid behavioral and genomic responses to social opportunity. (2005) *PLoS Biology.* 3:1996-2004.
37. Ferreira ARJ, Smulders TV, Sameshima K, Mello CV, **Jarvis ED**. Vocalizations and associated behaviors of the Sombre hummingbird (Trochilinae) and the Rufous-breasted Hermit (Phaethornithinae). (2006) *Auk.* 123:1129-1148.
38. Sasaki A, Sotnikova TD, Gainetdinov RR, **Jarvis ED**. Social context-dependent singing-regulated dopamine. (2006) *J. Neurosci.* 26:9010-9014.
39. Wada K, Howard JT, McConnell P, Lints T, Rivas MV, Whitney O, Horita H, Patterson MA, White SA, Scharff C, Heasler S, Zhao S, Sakaguchi H, Hagiwara M, Shiraki T, Hirozane-Kishikawa T, Skene P, Hayashizaki Y, Carninci P, **Jarvis-ED**. A molecular neuroethological approach for identifying and characterizing a cascade of behaviorally regulated genes. (2006) *Proc. Natl. Acad. Sci.* 103:15212-15217.
40. Smith VA, Yu J, Smulders TV, Hartemink AJ, **Jarvis ED**. Computational inference of neural information flow networks. (2006) *PLoS Comp. Biol.* 2:1436-1449.
41. Liedvogel M, Feenders G, Wada K, Troje NF, **Jarvis ED***, Mouritsen H*. Lateralised activation of Cluster N in the brains of migratory songbirds. (2007) *Eur. J. Neurosci.* 25:1166-1173. *co-corresponding authors.
42. Kubikova L, Turner E, **Jarvis ED**. The pallial-basal ganglia pathway modulates the behaviorally-driven gene expression of the motor pathway. (2007) *Eur. J. Neurosci.* 25:2154-2160.
43. Hara E, Kubikova L, Hessler NA, **Jarvis ED**. Role of the midbrain dopaminergic system in modulation of vocal brain activation by social context. (2007) *Eur. J. Neurosci.* 25:3406-3416.
44. Pinaud P, Osorio C, Alzate O, **Jarvis ED**. Profiling of experience-regulated proteins in the songbird auditory forebrain using quantitative proteomics. (2008). *Eur. J. Neurosci.* 27:1409-1422.
45. Feenders G, Liedvogel M, Rivas MV, Zapka M, Horita H, Hara E, Wada K, Mouritsen H, **Jarvis ED**. Molecular mapping of movement-associated areas in the avian brain: A Motor theory for vocal learning origin. (2008) *PLoS ONE* 3(3): e1768, 1-27.
46. Horita H, Wada K, **Jarvis ED**. Early onset of deafening-induced song deterioration and differential requirements of the pallial-basal ganglia vocal pathway. (2008) *Eur. J. Neurosci.* 28:2519-2532.

47. Hara E, Kubikova L, Hessler NA, **Jarvis ED**. Assessing visual requirements for social context-dependent activation of the songbird song system (2009) *Proc. R. Soc. B* 276:279-289.

Invited peer-review special issue articles:

48. Rudner R, Studamire B, **Jarvis ED**. Determination of restriction fragment length polymorphisms in bacteria using ribosomal RNA genes. (1994) *Methods in Enzymology* 235:184-196.
49. **Jarvis ED**. Evolution of brain structures for vocal learning in birds: a synopsis. (2006) *Acta Zoologica Sinica*. 52:85-89. *Invited paper for the 23rd International Ornithology Conference.*
50. **Jarvis ED**. Selection for and against vocal learning in birds and mammals. (2006) *Ornithological Science*. 5:5-14. *Invited article for special feature on neuroecology of birdsong.*
51. **Jarvis ED**. Neural systems for vocal learning in birds and humans: a synopsis. (2007) *J. Ornithology*. 143:S35-44. *Special issue for International Ornithology Conference. Plenary lectures.*

Invited Book Chapters:

52. Rudner R, **Jarvis ED**, Widom RL. Chromosomal organization and spontaneous deletions of *rrn* operons in *Bacillus subtilis*. (1988) In: Genetics and Biotechnology of Bacilli Vol 2. JA Hoch, AT Ganesan (eds). Academic Press, San Diego. pp. 115-120.
53. Mello CV, **Jarvis ED**, Denisenko N, Rivas M. Isolation of song-regulated genes in the brain of songbirds. (1997) In: Methods in Molecular Biology, Differential Display Methods and Protocols. Liang P, Pardee AB (eds), Humana Press, NJ. 85:205-217.
54. Mello CV, **Jarvis ED**. Applying differential display to brain research. (1999) In: Techniques for Behavioral and Neural Sciences. Crusio WE, Gerlai RT (eds). Elsevier Science, Netherlands, Amsterdam. 13:200-211.
55. Modulation of movement by the basal ganglia. Chapter 17 In: Neuroscience, 2nd edition. Hall W, Nicolelis M, **Jarvis ED** (2000). Purves D, Augustine GJ, Fitzpatrick D, Katz LC, McNamara JO, Williams M (eds). Sinauer Associates, MA. pp. 391-407. (3rd edition in 2004)
56. Modulation of movement by the cerebellum. Chapter 18 In: Neuroscience, 2nd edition. Hall W, **Jarvis ED** (2000). D Purves, GJ Augustine, D. Fitzpatrick, LC Katz, JO McNamara, Williams M (eds). Sinauer Associates, MA. pp. 409-426. (3rd edition in 2004)
57. **Jarvis ED** Brains and birdsong. (2004) In: Nature's Music: The Science Of Birdsong. Marler P, Slabberkoorn H (eds) Elsevier-Academic Press, NY. pp. 239-275.
58. **Jarvis ED** Evolution of vocal learning systems in birds and humans. (2006) In: Evolution of Nervous Systems. Kaas J (ed). 2:213-228.
59. Riener A, Perkel DJ, Mello CV, **Jarvis ED**. Songbirds and the revised avian brain nomenclature. (2008) In: The Neuroscience of Birdsong. Ziegler and Marler (eds). Cambridge University Press. pp. 58-62.
60. Mello CV, **Jarvis ED**. Behavior-dependent expression of inducible genes in vocal learning birds. (2008) In: The Neuroscience of Birdsong. Ziegler and Marler (eds). Cambridge University Press. pp. 381-397.

61. **Jarvis ED.** Bird Brain: Evolution. (2009) In: Encyclopedia of Neuroscience. Squire LR (ed). Oxford: Academic Press 2:209-215.
62. **Jarvis ED.** Bird Song Systems: Evolution. (2009) In: Encyclopedia of Neuroscience. Squire LR (ed). Oxford: Academic Press. 2:217-255
63. **Jarvis ED.** Evolution of the pallium in birds and reptiles. (2009) In: New Encyclopedia of Neuroscience. Marc D. Binder, Nobutaka Hirokawa and Uwe Windhorst (eds). Ann Butler (sub-ed). Springer-Verlag GmbH Berlin Heidelberg. 15 pages.

FEDERAL AWARDS

Evolution of Brain Structures for Vocal Learning in Birds: NSF-IBN0084357 7/1/2000-6/31/2003
 NSF Alan T. Waterman Award. 5/6/2002-5/5/2005.
 The Basal Ganglia in Vocal Communication: NIH-R01MH62083 1/22/2002-12/21/2005
 Avian Brain Nomenclature Forum: NIMH/NINDS/NIDCD-R13MH64409/1/2001-8/30/2002
 Avian Brain Nomenclature Forum: NSF-IBN01108994 1/1/2002-12/31/2002
 Sensory- and Motor-Driven Genes in Vocal Communication: NIH-R01DC007218 6/17/2005–present
 Neural Flow Networks in Songbirds: NSF/NIH-R01DC07796-01 8/1/2005–present
 NIH Director's Pioneer Award: DP1 OD000448 10/1/2005-present
 Auditory protein regulation in normal & abnormal states. NIH-R21DC007478 7/1/2006-present