

David Forrest Clayton, Ph.D.

Queen Mary University of London
Department of Biological & Experimental Psychology
School of Biological and Chemical Sciences
London E1 4NS, United Kingdom
Phone: +44 (0) 744 747 2943 Skype: davidfclayton
email: d.clayton@qmul.ac.uk OR davidfclayton@gmail.com
ORCID ID: 0000-0002-6395-3488
laboratory website: <http://claytonlab.sbcs.qmul.ac.uk/index.html>
born September 3, 1956, Hendersonville, North Carolina, USA

Faculty Appointments

Queen Mary University of London (U.K.) 2012–present

Professor of Neuroscience, School of Biological and Chemical Sciences

The University of Illinois (Urbana-Champaign)

Primary Faculty Appointments, 1991–2012:

Dept. of Cell and Developmental Biology

Full Professor, 2002; Associate Professor, 1996; Assistant Professor, 1991

Joint Appointments, 1991–2012:

Institute for Genomic Biology (2004-2012)

Theme Leader, Genomics of Neural and Behavioral Plasticity (2011-2012)

The Beckman Institute (1991–2012)

Neuronal Pattern Analysis / Neurotech group, Biological Intelligence Theme

Neuroscience Program (1991–2012)

Dept. of Bioengineering (2002–2012)

Agricultural Genome Sciences and Public Policy Graduate Program

The Rockefeller University (New York, NY)

Assistant Professor (Molecular Neuroethology), 1986-1990

Education

The Rockefeller University (New York, NY)

Post-Doctoral Associate, 1985

Animal Behavior, with Fernando Nottebohm

Ph.D., Molecular Cell Biology, 1980-85.

Thesis Adviser: Prof. J.E. Darnell, Jr.

"Coordinated control of liver-specific genes in cultured cells of mice and rats."

University of Georgia (Athens, GA)

B.S., magna cum laude, Biochemistry, 1978-80.

Honors Thesis Adviser: Prof. S. R. Kushner.

"Screening of a *N. crassa* gene bank for sequences complementing auxotrophic mutations in *E. coli* hosts."

University of Georgia (Athens, GA)

A.B.J., cum laude, 1976-78.

Journalism (Radio/TV/Film)

Honors and Elected Memberships

Fellow, Royal Society of Biology, 2015-
Senior Fellow, Canadian Institute for Advanced Research (CBD group, *Child & Brain Development*), 2009-
Doctor *Honoris Causa*, in Biomedical Sciences, University of Antwerp, 2013 p
First Annual Faculty Excellence Award, School of Molecular and Cellular Biology, 2008
Fellow, American Association for the Advancement of Science, 2005
Who's Who in American Teachers, 1998
University of Illinois Scholar, 1996-99
Whitehall Foundation Research Award, 1988-1993
National Science Foundation Graduate Fellow, 1981-1984
Phi Beta Kappa, 1980

Other Professional Activities

Fellow of the The Higher Education Academy (UK), 2017
Programme Committee, "Avian Model Systems 9", Taipei Taiwan, 2016
External Examiner, St George's University of London, Biomedical Sciences BSc/iBSc, 2015-
Co-organizer, "Avian Model Systems" conference, Cold Spring Harbor Labs, 2014
Program Member, NSF Sociogenomics Initiative (<http://www.sociogenomicsrcn.com>), 2013-
Steering Committee, "Plastoscine" research project (<http://www.iuap-plastoscine.org>, Belgium), 2013-
Chair and Co-Organizer, NSF Workshop on Integrative & Organismal Biology, 9/11
Chair, External Review Board, Whitman College (Walla Walla, WA) 3/11
Chair (2010) and Vice Chair (2008), Gordon Research Conference on Genes and Behavior
Charter member, NIH study section IFCN-7 (now LAM, "Neurobiology of Learning & Memory"), 2000-2004
Scientific Advisory Board, National Parkinson Foundation, 1998-2009
Invited Participant, National Academy of Sciences Keck Future Initiatives Conference (Irvine, CA), 11/03
Scientific Advisory Committee, Program Project "Pathogenesis and Diagnosis of Multiple System Atrophy" (PI: Cliff Shults, UC-San Diego) 11/03-10/08
Productive research collaborations with numerous investigators, including Mary Weiss (Institut Pasteur), Lola Reid (Albert Einstein), Fred Alt (Columbia), Vincent Allfrey (Rockefeller University), Gary Banker (University of Virginia), Susan Volman (Ohio State University), William Greenough (University of Illinois), Albert Feng (University of Illinois), Brad Hyman (Harvard/Mass. General), Ana Jonas (University of Illinois), Eliot Brenowitz (University of Washington), Art Arnold (UCLA), Hans Ellegren (Uppsala) and others.

Research Grants

Current:

BBSRC BB/S003223/1, "Developmental reprogramming following prenatal acoustic signals"
£637,354, 12/18-11/21
BBSRC BB/R008736/1, "Machine Learning for Bird Song Learning" (Co-I; R Lachlan PI)
£659,000, 01/18-12/20

Completed:

Leverhulme Trust, "Neurogenomics of Perception"
£312,618, 07/14-06/17
NIH Challenge Grant IRCIGM091556, "Neurogenomics of Social Behavior: Songbird Models"
\$303,261 annual direct costs, \$979,178 total costs 09/09-09/12
Arnold O. Beckman Research Award, UIUC Campus Research Board, "Role of microRNAs in learning and behavioral development" \$28,579 1/12-5/13
NIH (NINDS) I ROI NS045264-07, "Songbird Neurogenomics Initiative"
\$226,079 annual direct costs, \$1,499,775 total costs 04/06-03/12 (project years 4-10)
NIH (NIGMS) I R24 GM088003-01 (PI: G. Robinson) "Planning Grant for a Consortium on the Genetics & Genomics of Social Behavior" \$50,000 06/09-05/10

NIH (NINDS) 2 R01 NS051820-14, "Experience-dependent changes in the brain"
\$1,452,813 total costs 03/05-02/10 (project years 10-14)

NIH R01 MH061994-05 (Clayton subcontract: PI: Schlinger, B., UCLA), "Neural steroidogenic enzymes and brain function" \$162,462 total costs 08/04-07/07

University of Illinois Critical Research Initiatives, "Dynamic Imaging of Brain Physiology Using Novel Optical Methods." \$160,000, 7/03-6/06.

NIH (NINDS) 1 R01 NS045264 (01-03), "Songbird Neurogenomics Initiative" \$237,500 annual direct costs, \$1,136,160 total costs 1/03-3/06

NIH (NIA) 2 R01 AG13762 (PI: J. George). "Molecular Function of Synuclein" \$1,490,210 total costs 8/00-7/06 (project years 4-9).

Charles M. Goodenberger Fund, "Polyunsaturated fatty acids as agents in neurodegenerative disease: Effects on synuclein aggregation," \$12,204, 7/00-6/01

Arnold O. Beckman Award, UIUC Campus Research Board, "Behavioral recognition of songs: Establishing an assay for learning by songbirds." \$11,650, 4/00-4/01

University of Illinois Campus Research Initiatives (Gene Robinson, P.I.), "Sociogenomics: Honeybee EST database" 7/99-6/01.

NIH (NIMH) 2 R01 MH52086, (years 5-9) "Experience-dependent changes in the brain"
\$1,245,283 total costs 3/99-2/05

University of Illinois Critical Research Initiatives, "Neuropsychiatric analysis of transgenic mice: Establishment of a campus resource." \$180,000, 7/98-12/01.

National Parkinson Foundation, "Towards a transgenic model of Parkinson's Disease"
\$40,000, 7/98-6/99.

NIH (NIA) R01 AG13762 (years 1-3), "Function of an Alzheimer's Disease-related protein" \$664,854 total costs 1/97-7/00.

UIUC Campus Research Board, "Brain circuit development and sexual differentiation: Establishment of a tissue culture model" \$7,780, 8/96-8/97.

NSF (BIR 95-04842 & DBI 98-70821; Michael Gabriel, P.I.), "A database system for neuronal pattern analysis"
\$1,074,170, 9/95-8/01.

UIUC Campus Research Board, "Neural effects of constitutive expression of synelfin in transgenic mice"
\$18,750, 8/95-8/97.

NIH (NIMH) 1 R01 MH52086 (years 1-4), "Experience-dependent changes in the brain"
\$580,283 total costs 2/95-1/99.

Whitehall Foundation, "Identifying genes that regulate neuroplasticity in canaries"
\$167,450 direct costs 12/88-11/93.

NIH (NINDS) 2 R01 NS25742 (years 1-3 and 4-7), "Differential gene expression in the brain"
\$757,635 direct costs 12/88-9/97

Conference Grants

NIH 1R13MH087993-01, "2010 Genes and Behavior Gordon Research Conference" \$40,000

NIH 1R13MH082464-01, "2008 Genes and Behavior Gordon Research Conference" \$40,000

NSF IOS-0818355, "Genes and Behavior 2008 Gordon Research Conference; Barga Italy" \$38,400

NSF IOS-0962740, "Conference: 2010 Genes and Behavior (Ventura, CA, March 14-18, 2010)" \$36,000

Sponsor for Awards to Support Training

NRSA for MD/PhD training, to Margaret Ferris, 2008-2012

NRSA for predoctoral training, to Kensey Amaya, 2008-2011

NRSA for postdoctoral training, to Sarah London, 2008-2010

NRSA for MD/PhD training, to Graham Huesmann, 2004-2007

Research Supplement for Underrepresented Minorities (NIMH), to Gloria Chapa, 2003

Howard Hughes Undergraduate Research Fellowship to Annie Kannakeril, 2003
Summer Research Fellowships, Parkinson's Dis. Fndn, American Parkinson's Dis. Assoc., to R. Perrin, 2001.
Illinois Dept. of Public Health Grad. Research Fellowship to Jacqueline Payton, 2000
Clark Summer Research Grant (\$500) to Scott Converse, 1999
Colgate-Palmolive Undergraduate Res. Award (\$875) to Scott Converse, 1998
Beckman Graduate Fellowship to Kevin Park, 1997
Diffenbaugh Graduate Fellowship to Jacqueline Payton, 1997
NSF Graduate Fellowship to Amy Kruse, 1995-1998.
National Research Service Award (postdoctoral, F32 NS09815) to Telsa Mittelmeier, Ph.D., 1995-1998.
Molecular Analysis of a Developing Neural Circuit"
Pfizer Undergrad. Summer Research Fellowships (\$5000) to Brooke Bandy (1997) and Amy Kruse (1995).
Developmental Neurobiology Training Grant Fellowships (postdoctoral) to Julia George, Ph.D. (1993-1995)
and Roy Stripling, Ph.D. (1999-01).
Monsanto Undergraduate Summer Research Fellowship to Amy Kruse, \$3400, 1994. "Optical Analysis of
Endocytosis in PC12 Cells Using 3-Dimensional Image Processing Techniques."
Biotechnology Center Travel Award to Hui Jin, \$500, 10/93.
Colgate-Palmolive Undergrad. Res. Award (\$875) to T. Wadkins, 1993, and Scott Converse, 1998
Monsanto Summer Research Fellowship to Ognjen Petras, \$3,400, 1992. "Herpes Simplex Virus-mediated
gene transfer into songbird central nervous system neurons."

Supervision of Postgraduate Research

Current Doctoral students:

Mahalia Frank (09/17 –)

Completed Doctoral Dissertations (20):

Maeve McMahan (Ph.D., 2019 from Queen Mary University of London): "Operant conditioning of song associations in the zebra finch: molecular, anatomical and behavioural characterisations" *currently*: Data Analyst, HMRC.

Dan Condliffe (Ph.D., 2018 from Queen Mary University of London, co-supervised with Dr. Paul Hurd): "Genome wide mapping of EGR1 and DNA methylation in the auditory lobe of the zebra finch"

Zachary Bell (Ph.D., 2017 from Queen Mary University of London): "Acute Social Isolation Alters Molecular Cognition in the Songbird" *currently*: Postdoctoral Scholar, Okinawa Institute of Science and Technology Graduate University, Japan

Ya-Chi Lin (Ph.D., 2012, Cell & Developmental Biology): "MicroRNA gene expression in the zebra finch brain" *currently*: Postdoctoral Research Fellow, National Institute of Cancer Research, National Health Research Institutes, Taiwan

James Lee (Ph.D., 2011, Neuroscience): "Development of diffusive optical imaging as a tool for studying the neurobiology of birdsong." *currently*: Neurology resident, Univ. of Pittsburgh Medical School

Kensley Amaya (Ph.D., 2010, Cell & Developmental Biology): "Small molecule profiling and imaging of the zebra finch song system." *currently*: program manager, Defense Threat Reduction Agency (USA)

Shu Dong (Ph.D., 2008, Cell & Developmental Biology): "Habituation of molecular responses to song stimulation in the auditory forebrain of adult zebra finches." *currently*: postdoctoral research associate, Seattle Biomedical Research Institute

Graham Huesmann (Ph.D., 2005, Neuroscience; M.D., 2007): "Is it memory or is it death? Caspase-3 and memory formation" *currently*: Asst. Prof., U. Illinois, and Neurologist, Carle Clinic, Urbana IL

Hui-Yun Cheng (Ph.D., 2003, Cell & Structural Biology): "The ups and downs of MAP Kinase ERK: Modulation of molecular responses to song in the zebra finch auditory forebrain." *currently*: Research Associate with Dr. Fu-chan Wei, Chang Gung Memorial Hospital, Taoyuan, Taiwan

Jacqueline Payton (Ph.D., 2002, Cell & Structural Biology; M.D., 2006): "Protein-protein interactions of synuclein: Implications for normal function and neurodegenerative disease." *currently*: Assistant Professor, Pathology and Immunology, Washington Univ. School of Medicine, St. Louis

- Kevin Park** (Ph.D., 2002, Physiology) "Complex acoustical feature representation in the zebra finch caudomedial neostriatum (NCM)." *Currently*: Assistant Prof., Central Michigan University
- Richard Perrin** (Ph.D., 2002, Physiology; M.D., 2006) "Interactions between membrane lipids and synuclein proteins: implications for normal function and neurodegenerative disease." *currently*: Assistant Professor, Neuropathology, Washington Univ. School of Medicine, St. Louis
- Amy Kruse** (Ph.D., 2001, Neuroscience): "Dynamic modulation of an immediate-early gene in the songbird forebrain." *Currently*: Vice President of Innovation, Intific, Arlington VA
- Carl Clayton Holloway III** (Ph.D., 1999, Cell & Structural Biology): "Control of sexually dimorphic brain pathway development in cultured zebra finch brain slices." *currently*: Director, Strategic Initiatives, Medical Countermeasure Systems, US Army Joint Program Exec. Office for Chem. and Biol. Defense
- Roy Stripling** (Ph.D., 1998, Neuroscience): "Response modulation in the zebra finch neostriatum: relationship between electrophysiological and genomic responses to song stimulation." *currently*: Asst. Director, National Center for Research on Evaluation, Standards, and Student Testing, Los Angeles CA
- Hui Jin** (Ph.D., 1997, Cell & Structural Biology): "The role of gene regulation in neural circuit development: studies in the zebra finch." *currently*: Senior Research Scientist, HySeq, CA
- Sandra Siepka** (Ph.D., 1997, Cell & Structural Biology): "Molecular analysis of neural structures during song learning in the zebra finch." *currently*: Research Scientist, Center for Functional Genomics, Northwestern/Howard Hughes Medical Institute
- Julia George** (Ph.D., 1993, Rockefeller U.): "Analysis of novel genes whose RNAs are enriched in the HVC-Associated Telencephalon of Songbirds." *currently*: Senior Research Scientist, Queen Mary University of London, UK.
- Claudio Mello** (Ph.D., 1993, Rockefeller U.): "Analysis of immediate early gene expression in the songbird brain following song presentation." *currently*: Professor, Neuroscience, Oregon Health Science University
- Kent Nastiuk** (Ph.D., 1992, Rockefeller U.): "Androgen regulation of gene expression associated with cell growth and neural plasticity: studies in songbird brain and the SI 15 cell line." *currently*: Research Associate Professor, Department of Pathology and Laboratory Medicine, Univ. of Rochester Med. Centre

Supervision of Postdoctoral Research

Note: almost all of my graduate students above continued for one or more years as postdocs in my group after they defended their dissertations. Other recent postdocs have included:

- Christopher Balakrishnan** (Ph.D., 2005, Boston Univ.) 2008-2012; *currently* Associate Professor, East Carolina University, Dept. of Biology
- Sarah London** (Ph.D., 2005, UCLA) 2006-2011; *currently* Associate Professor, University of Chicago, Dept. of Psychology

Supervision of Masters (MSc) Research

- Julia Broekhuizen** (University of Utrecht, Erasmus programme) 2015-16
- Marian Priebe** (QMUL Bioinformatics MSc) 2016
- Benjamin Lacroix** (University of Antwerp, Erasmus programme) 2014-15

Classroom Instruction

Queen Mary, University of London

- Behavioural Epigenetics (PSY331) course author/organizer (current)
Spring 2018, 2019: first offerings of new module for final year undergraduates
- Psychology Final Year Research Projects (PSY600) module organizer 2015 - present
- Essential Skills (PSY100) tutorial group leader 2014 - present
~10 first year students each year, 8 tutorials across year
- Neuroscience: from Molecules to Behaviour (SBC624)
Spring 2014, 2015, 2016, Module organizer and primary lecturer

~200 final-year undergraduates
Cognition, Evolution and Behaviour (SBC105)
Spring 2013 and 2014, 2 lecture hours for 11 weeks (shared with Nathan Emery)
92 1st year undergraduates

University of Illinois

Research Ethics and Responsibilities (MCB 580)
Spring 2011, 2012; 3 class hours for 7 weeks (three instructors)
Social Dynamics in a Natural Group (MCB 493)
Spring 2010, 2011; Hands-on lab/discussion advanced research opportunity
Neurogenomics (MCB 529DC)
Spring 2004, 2005, 2006, 2007, 2009, 2010
Graduate seminar, 2-4 contact hours/week
Advanced Topics in Neuroscience (Neuro 520, under P. Gold)
Spring 2005, 2006: 3 class hours
Cell Structure and Function (MCB 400, under Stephen Kaufman)
Fall 2003, 2005: 3 class hours
Graduate Introduction to Molecular & Cellular Biology: Genes and Gene Regulation
new 1st semester course for all doctoral students in School of MCB, Fall 2000, 2001, 2002
6 contact hours/week, co-taught with Prof. John Cronan (Microbiology)
Molecular Plasticity (CSB 410clayton)
Spring 2001-2003
Graduate seminar, 2 contact hours/week
Behavioral Genetics (PSYCH 342, under Jeff Mogil; EEE 350, under Gene Robinson)
Spring Semester, class hours: 1999 (3); 2000 (6); 2002 (5); 2004 (3)
Genes and Behavior (IB/NEUR/PSYCH 432)
Spring Semester 2006, 2 class hours
Songbirds, Neural Plasticity and Neuroethology (CSB 410clayton)
Spring 2000
Graduate seminar, 2 contact hours/week
Cells and Tissues (CSB 213)
Fall 1991-1998
3.5 contact hours/week (44 lectures, 150-280 undergraduates per term)
Science, Technology and the Human Condition (HIST 248 and CHP 295)
Co-organizer 1999 (with Richard Burkhardt), 3 contact hours/week, 50 undergrads.
interdisciplinary General Education "capstone" course, Fall 1997-9 (with 10 other faculty)
Molecular Neurobiology (CSB 312, under Ann Marie Craig and Akira Chiba)
• Spring 1996-2000: 2 class hours each year
Introduction to Research, Undergraduate Honor's Program (BIO 390M, under Carol Muster)
• Spring 1991-1998: 4 class hours each year
Undergraduate Independent Research (CSB 290)
• Summer 1991 - present
• ~2 students per semester
Graduate Independent Research (CSB 490)
• Spring 1992 - present
• 4-8 students per semester

Rockefeller University

Neural Plasticity 1986-87, 1988-89 (graduate course with seminar series)

Editorial and Reviewing

Editorial Board Memberships

Guest Editor, Proceedings of the National Academy of Sciences (USA), 2019
Guest Editor, PLOS Genetics, 2017
Frontiers in Genetics (Neurogenomics), 2008-
Neurobiology of Learning and Memory, 2003-

Manuscript reviewer:

Animal Behaviour, Biological Psychiatry, BMC Genomics, BMC Neuroscience, Brain Research, Current Biology, Behavioural Neuroscience, Developmental Neurobiology, eLife, European Journal of Biochemistry, FASEB Journal, Genes Brain and Behavior, Genome Biology, Genome Research, Journal of Comparative Neurology, Journal of Neurobiology, Journal of Neurochemistry, Journal of Neuroendocrinology, Journal of Neuroscience, Learning & Memory, Lipids, Molecular & Cellular Biology, Molecular Biology and Evolution, Molecular Ecology, Nature, Nature Communications, Nature Neuroscience, Nature Reviews Neuroscience, Neurobiology of Learning & Memory, Neuron, Neuroscience Letters, PLOS Genetics, PLOS One, Philosophical Transactions of the Royal Society B, Proceedings of the National Academy of Sciences (USA), Proceedings of the Royal Society (Biological Sciences), Science (AAAS), Scientific Data, Scientific Reports, Trends in Pharmacological Sciences

Grant Reviewing (membership on standing panels):

BBSRC sLoLA (2019)
BBSRC Pool of Experts (1/17 –)
NIH, IFCN-7 (Learning and Memory) study section charter member (2/00 – 6/04)
National Parkinson Foundation (8/98-1/09)

Grant Reviewing (ad hoc):

ERC (2017, 2019)
BBSRC, NERC (2014-2018)
Netherlands Organisation for Scientific Research (2015, 2016)
William T. Grant Foundation (2010)
NIH Challenge Grant reviews (2009)
National Science Foundation (1988, 1995-2002, 2006-2012)
March of Dimes (2009)
NIH, MDCN-K(90) study section (03/07)
NIH, Genetics of Health and Disease study section (06/06, 02/07)
NIH, Sensorimotor Integration study section (02/06)
NIH (NIDCR), Special Emphasis Panel 05-04 (11/04)
NIH, MDCN-7 study section (2/03)
Israel Science Foundation (5/02)
NIH (NINDS) Special Emphasis Panel (11/00)
National Institute on Aging, site visit panels (6/99 and 10/99)
Alzheimer's Association (5/99)
Pepper Pilot Program (Kansas) (8/98)
NIH, Neurology C Special Emphasis Panel reviewer (7/97)
NIH, Psychobiology and Neurobiology Panel Temporary Member (1997)
Wellcome Trust (1996)
University of Illinois Campus Research Board reviewer, 1991-2007

University Service

Queen Mary, University of London (2012-present)

- Director of Graduate Studies, School of Biological and Chemical Sciences (2017-)
- Head of Department, Biological and Experimental Psychology (2012-2016)
- Research Strategy Group member, School of Biological and Chemical Sciences (2012-)
- Biological Services Unit ad hoc planning committee (2014 -)
- Life Sciences Initiative Academic Steering Group (2012-2014)
- Teaching and Learning Committee member, School of Biological and Chemical Sciences (2012-2013)

University of Illinois (1991-2012)

• University-level

- Search Committee, Director of the Institute for Genomic Biology (2011)
- Biotechnology Center Advisory Committee (2010 -)
- Biology and Life Sciences Planning Team, U. Illinois Library (2009)
- General Education Working Group, College of LAS (2009-10)
- Courses and Curriculum Committee, College of Liberal Arts and Sciences (2006-8), Chair 2007-8
- Critical Research Initiatives Review Committee (2005)
- Faculty Search Committee, Cell and Tissue Engineering, Department of Bioengineering (2005)
- University Scholars Selection Committee (2004)
- Bioengineering Faculty Advising Committee (2002- 2006)
- Search Committee, Director of the Biotechnology Center (2002)
- Academic Senate, 2001-2003
- Search Committee, Biotechnology Center Assistant Director (1994-1995)
- Discovery Session organizer, Honors Symposium for Undergrad Recruiting (1992-1998)

• Institute for Genomic Biology

- Theme Leader, Genomics of Neural and Behavioral Plasticity (2011-2012)

• Beckman Institute for Advanced Science and Technology

- Program Advisory Committee (2003-2006)
- Five-Year Review, Director of Beckman Institute (1997-8)
- Biological Intelligence Committee (1993-95)
- Animal Care Committee (1992-2000)

• Neuroscience Program

- Executive Committee, (1993-1994; 1998-2006) (2008-9)
- Member, Carnegie Committee on Graduate Education (2003-2006)
- Seminar Committee, co-chair (1998-99)

• School of Molecular & Cellular Biology (beginning 1997)

- Associate Director for Undergraduate Curriculum (2002- 2010)
- Courses & Curriculum Committee, Chair (2006 - 2010)
- Search Committee Chair, Neuroscience (2008-9)
- Promotions and Tenure Committee (2006- 9)
- Promotions and Tenure Committee, College of Medicine (ad hoc member) (2008-9)
- Search Committee Chair, Cell Biology (2006)
- Executive Committee (2005- 2007)
- Search Committee for School Director (2007)
- 5-Year Review Committee for CSB Department Head (2003)
- Strategic Planning Committee (1998-00)
- Graduate Program Committee (1998-00)
- Animal Facilities Committee (1997-)
- Bylaws Committee (1998-99)
- Cellular Neurobiology Search Committee (1998-99)

- Undergraduate Curriculum Committee (97-98)
- Search Committee, Director Office Network Info. Technologies (1997)
- School of Life Sciences (to 1997)
 - Convener, working group for SOLS reorganization (Molecular, Cellular and Physiological Biology) (1996)
 - SOLS Curriculum Committee, chair (1994-95)
 - Brown Committee for Reorganization of School of Life Sciences (1994)
 - Five-Year Review, Director of School of Life Sciences (1993-1994)
 - Animal Facilities (1992- 97)
 - Markey Molecular Neuroscience Search Committee (1991-1994)
 - Computer Resources (1991-1992)
- Department of Cell & Developmental Biology (formerly Cell & Structural Biology)
 - Associate Head (2000- 2002)**
 - Courses and Curriculum Committee, Chair (2000- 2008)
 - Advisory Committee (1998-2002)
 - Graduate Program Director (1997-1999)
 - Graduate Advising Committee (1993-97, co-chair 96-97)
 - Seminar Committee (1994-96)
 - Ad hoc Committee for Graduate Curriculum Revision (1993-1994)
 - Ad hoc Committee for Undergraduate Curriculum Revision (1993-1994)
 - Undergraduate Curriculum (1992-1993)
 - Undergraduate Distinction (1991-1993)

Research Featured in Reviews, Textbooks and the General Press

HEC-TV (St. Louis), April-May 2011: "Innovations"

Science News, Apr 24 2010, 177:16 (T. Seay): "First songbird genome arrives with spring"

New York Times, Apr 6 2010 (N. Wade): "From a songbird, new insights into the brain"

San Francisco Chronicle, Apr 2 2010 (D. Perlman): "Songbird's DNA may shed light on human speech"

NPR Morning Edition, Apr 1 2010 (Jon Hamilton): "Songbird DNA may offer clues to human speech"

Australian Geographic, Apr 1 2010 (C. Rule): "DNA blueprint of zebra finch gives human language clues"

St. Louis Public Radio, March 31 2010 (V. LaCapra): "Songbird genome may reveal clues to human speech"

CBS Evening News, March 31 2010 (Katie Couric): "Songbird's genome carries speech clues"

MSNBC, March 31, 2010 (Ben Hirschler): "Songbird's genetic code cracked"

BBC News, March 31 2010 (V. Gill): "Blueprint of the songbird genome"

Wall Street Journal, July 3 2009 (R. L. Hotz): "Magic Flute: Primal Find Sings of Music's Mystery."

Newsweek, Dec 1 2008 (S. Begley, On Science): "When DNA is not destiny."

Nature Neuroscience, May 2008, 11:533 (N. Gray, News and Views): "Learning outside the song system."

Genome Technology, Oct 2006, 65: 24-25: "Genome for a Song: To know how the caged bird sings."

Trends in Neurosciences, Aug 2001, Schlinger et al., 24:429-431: "Neurosteroids..."

"Forum on Neurodegenerative Disease Research" Parkland ETV (B. Gladney, producer), Fall 2000

Cover photo, *Behavioral Neurobiology* (textbook by Tom Carew, Sinauer Press, 2000)

Figures featured in *Animal Behavior* (textbook by John Alcock, Sinauer Press, 2001)

"*Tomorrow's World*" (television series on the BBC), Fall 1995.

Science News, Aug. 26, 1995, vol. 148, p. 139: "Do songbirds sing of Alzheimer's?"

Chemistry and Industry, Aug. 21, 1995, vol. 16, p. 636: "Songbirds hold a clue to memory loss."

Journal of NIH Research, October, 1992, pp. 49-53: "Singin' in the brain," by Robert Taylor.

Discover Magazine, October, 1992, "Breakthroughs" section, pp. 10-11: "The mind of a canary."

Chicago Tribune, Sept. 13, 1992, "Tempo" section, p. 2: "Birds on the brain," by James Warren.

New York Times, Aug. 11, 1992, "Science Times" p. 6: "Gene may help birds tune out sour notes and tune in rivals," N. Angier.

Genetic Engineering News, May 1, 1992, p. 22: "Bird brains may hold clues to treating brain disorders in humans."

Invited Presentations

Society for Behavioral Neuroendocrinology, Bloomington IN, 06/19
European Birdsong Meeting, Capo Capo Italy 05/19
Jacobs Foundation – CIFAR Conference, “Reconciling Genes and Contexts”, discussion leader, Marbach 04/18
European Birdsong Meeting, Bordeaux 06/17
University of Leuven, Belgium 05/17
Humans and the Microbiome Roundtable (CIFAR-sponsored), participant, London 05/17
11th International Symposium on Avian Endocrinology (ISAE2016), Keynote, Ontario CA 10/16
Avian Model Systems 9: “A New Integrative Platform”, Taipei Taiwan 03/16
Genetics Society Autumn Meeting, “Building the Brain: from genes to circuits and cognition” London 11/15
Royal Belgian Institute of Natural Sciences, Brussels 11/15
4th International Angelman Syndrome Scientific Conference, Liverpool 10/15
Autumn Symposium, Centre for Ecology and Evolution, London 9/15
1st US-UK-Canada Workshop on Social and Behavioral Epigenetics, Washington DC 7/14
3rd European Workshop on Physiological mechanisms of song learning and production, Seewiesen 7/14
8th International Conference on Hormones, Brain & Behaviour, Liege Belgium 6/14
Avian Model Systems Workshop and Conference, Cold Spring Harbor Labs, Co-organizer, 3/14
Sixth Gordon Research Conference on Genes and Behavior, Galveston TX 3/14
Barts Neuroscience Symposium, London 02/14
Newcastle University, 12/13
Max Planck Institute for Ornithology, Seewiesen 11/13
Kings College London, 11/13
St. Andrews University, 9/13
Society for Molecular Biology and Evolution, Annual Meeting (Chicago) 7/13
Leiden University (Netherlands), 6/13
Colloquium of the Centre for Brain and Cognitive Development, Birkbeck, University of London 2/13
2nd European Workshop on Physiological Mechanisms of Song Learning and Production, Odense, Denmark 2/13
University of Antwerp, “Plastoscine” group, 10/12
Canadian Institutes for Advanced Research, EBBD-NCAP Joint Meeting (Toronto), 4/12
Southern Illinois University, Sigma Xi lecture, 3/12
Fifth Gordon Research Conference on Genes and Behavior, Galveston TX, 3/12
Boston University, Neurobiology, 3/12
Queen Mary, University of London, School of Medicine and Dentistry, 10/11
University of Michigan, Biopsychology, 12/11
National Academy of Sciences Sackler Colloquium on “Early Social Adversity: From Fruit Flies to Kindergartners,” 12/11
Queen Mary, University of London, School of Biological and Chemical Sciences, 10/11
Texas A&M University, Neuroscience Program, 5/11
North Carolina State University, Initiative in Biological Complexity, 4/11
Workshop on “Phenomes – beyond Genomes” sponsored by NSF Biological Sciences Directorate and the USDA-National Institute of Food and Agriculture (NIFA), St. Louis, MO, 4/11
Florida State University, Fowler symposium on “Neuroethology: Frontiers in Understanding Biology” 3/11
Janelia Farm (HHMI) Conference, “Producing and Perceiving Complex Acoustic Signals: Songbirds and Mice as Model Systems,” 3/11
AAAS Annual Meeting Symposium, “Molecules to Mind: Challenges for the 21st Century,” 2/11
Georgia Institute of Technology, Integrative Biosystems Institute Workshop: “Systems Biology of Complex Traits,” 10/11
Georgia State University, Brains and Behavior Distinguished Lecture Series, 10/10
University of Texas, Austin (Integrative Biology), 04/10

Hadley Memorial Lecture, Western Michigan University, 03/10
University of Louisville School of Medicine (Neuroscience), 03/10
Fourth Gordon Research Conference on Genes and Behavior (Chair), Ventura 03/10
Instituto Gulbenkian de Ciência, Oeiras, Portugal. Conference on Social modulation of hormones, brain and behaviour: integrating mechanisms and function, 06/09
Canadian Institutes for Advanced Research. EBBB Programme, Vancouver 03/09
University of Houston (Biology), 11/08
International Conference: Delivering Value from Avian Genomics, Mississippi State Univ 05/08
University of California, Irvine (Neurobiology), 04/08
Third Gordon Research Conference on Genes and Behavior (Vice-chair), Barga, Italy 02/08
University of Iowa (Biological Sciences), 10/07
University of Illinois at Chicago (Physiology), 09/07
University of British Columbia (Vancouver), Habituation Workshop, 08/07
Society for Behavioral Neuroendocrinology, Asilomar, 06/07
Cold Spring Harbor Laboratory, The Biology of Genomes, 05/07
NIMH/NIDA conference on Social Behavior, 01/07
Cold Spring Harbor Laboratory, Conference on Chicken genomics, 05/06
Helmholtz Lecture, University of Utrecht (The Netherlands), 03/06
Second Gordon conference on Genes and Behavior, 02/06
National Parkinson Foundation annual meeting (session chair), 11/05
Workshop on "Brains: Genes and Behavior," Lund University, Sweden, 11/05
Distinguished Seminar Series, W. M. Keck Center for Behavioral Biology at North Carolina State University, 10/05
Cold Spring Harbor Laboratory, Learning and Memory Meeting, 04/05
UIUC Neuroscience Program Open House, Keynote Speaker (01/05)
Organizer/Chair, Songbird Neurogenomics Initiative, Satellite of Society for Neurosci. Annual Mtg. (10/04)
Organizer/Chair, Minisymposium: Neurogenomics of Behavior, Society for Neurosci. Annual Mtg. (10/04)
First Gordon Conference on Genes and Behavior, Discussion Leader, (Ventura, CA) 1/04
Winter Conference on Neurobiology of Learning & Memory (Park City, UT), 1/02, 1/04
National Academy of Sciences Keck Future Initiatives Conference (Irvine, CA), 11/03
2003 Workshop on Steroid Hormones and Brain Function (Breckenridge, CO), 04/03
Hunter College (NY, NY), Neurobiology of Birdsong Symposium, workshop organizer. 12/02
University of Texas Medical Center, Neurobiology series, 05/02
University of Indiana Neuroscience Colloquium, 04/02
2002 Workshop on Steroid Hormones and Brain Function (Breckenridge, CO), 03/02
NIA/NINDS Workshop on Synuclein & Cortical Lewy Bodies (7/01)
Knox College (5/01)
University of Tennessee, Series on Neurogenetics (4/01)
Emory University Center for Behavioral Neuroscience (3/01)
Gordon Conference, Ventura CA, "Protein/membrane interactions" (1/01)
Florida State University, 4/00
Baylor University School of Medicine, 9/99
Beckman Institute Director's Seminar, 4/99
UCLA, Molecular & Cellular Neuroscience series, 5/98
University of Texas (Austin), Dept. of Zoology, 5/98
8th Annual Conference, Office of Aging and Gerontology, Urbana IL, 5/98
University of Rochester, Workshop on Basal Ganglia Disorders, 4/98
Banbury Center (Cold Spring Harbor), "Genetics of Parkinson's Disease", 12/97
Wood's Hole Laboratory (MA) "Neural Systems & Behavior" course, 7/97
University of Indiana, Molecular Medicine series, 4/97
Illinois Biology Teacher's Association keynote address, 4/97
University of Wisconsin at Milwaukee, Neuroscience Program, 4/97

Alzheimer's Disease Association Conference, Central Illinois Chapter, 3/97
Park City (UT) Conference on Neurobiology of Learning & Memory, 1/92, 1/94-97, Session Organizer, 1997
Nalbandov Symposium: Development. & Evolution of Learning Centers in Brain, Beckman Institute, IL 11/96
Symposium Speaker, Society for Neuroscience Annual Meeting (11/96)
Chemical and Life Sciences Building dedication, Univ. of Illinois, 9/96 & 4/97
State Univ. of N.Y. Med. Ctr., Syracuse (Cell and Molecular Biology), 1/96
Pfizer Undergraduate Research Awards, Groton CT 10/95
XVth Washington International Symposium, Neurodegenerative Diseases, 5/95
28th Annual Winter Conference on Brain Research, 1/95
Ohio State University, Dept. of Zoology, 1/94
Andrews University, Dept. of Biology, 1/94
Midwest Neurobiology, 16th annual meeting, 4/93
Chicago Medical School, Molecular & Cellular Sciences series, 3/93
University of Indiana Medical Center, Dept. of Physiology, February, 3/93
University of Iowa Medical School (Physiology), 6/90
University of Virginia Medical School (Neuroscience), 3/90
Roche Institute for Molecular Biology, 2/90
FASEB Research Conference on Molecular Neurogenetics, 8/89
University of Georgia (Zoology), 12/88
Society for Neuroscience Annual Meeting, Toronto, 11/88
University of Georgia School of Veterinary Medicine, 6/88
NIMH Conference on Molecular Neurobiology (Santa Barbara, CA), 5/88
Columbia University (Biology), 2/88
Gordon Conference (Neural Plasticity), 7/87, 7/93
Gordon Conference (CNS Development: Cellular & Molecular Mechanisms), 6/87

David F. Clayton Brief Overview of Research

The nervous system and the genome are the two major control systems in animals. My research is directed at the interface between the two. What genomic mechanisms contribute to brain development, evolution and function? How do social, perceptual and behavioral circumstances engage these mechanisms? Most fundamentally, how does this interplay support *successful adaptations* to experiential and environmental challenges? (For broad synthetic reviews, see 36, 66, 91, 93, 102)*. Much of my work relies on studies of songbirds, in particular the zebra finch. Songbirds are uniquely powerful models for study of gene-brain-behavior relationships (reviewed in 73). Over the past 30 years (beginning while still a graduate student studying liver-specific gene regulation in mice) I pioneered the application of molecular genetics to songbird research. My leadership culminated in the complete sequencing of the zebra finch genome (75) and has stimulated a robust international collaborative research program to analyze neurogenome function in behaving songbirds. Most recently, I've begun work on the **neuroepigenetic mechanisms underlying adaptive developmental reprogramming** that is triggered in zebra finch embryos in response to specific parental vocalisations (with Mariette & Buchanan, Australia).

Along the way my research has accomplished:

- First cloning of genes from songbirds (10).
- One of the first and still best demonstrations in any model system that natural experience routinely activates (15) gene expression in the brain.
- First identification of genes associated with developmental plasticity in the song learning system: α -synuclein (22, 28) and zenk (29).
- First recognition of the structural relationship between synucleins and apolipoproteins (22, 33), an observation that has had major impact in Parkinson's Disease research [with Julia George].
- Development of the habituation model for studying gene-brain-behavior relationships in songbirds (24, 27, 47, 49, 62, 68).
- First definition of neural centers for song perception, as opposed to song production (15, 27, 60).
- First demonstration that the neural circuit for song production will form *in vitro* and depends on localized neural estrogen production (40).
- Discovery that caspase-3, an enzyme usually linked to cell death, is released locally at synaptic sites during a natural learning experience (52).
- Discovery that song communication leads to changes in microRNAs and other non-coding RNAs in higher brain centers (72, 75, 82).
- Through numerous collaborations, application of many new technologies to neurobiology including mass-spec-based imaging (53, 84), proteomics (54, 56, 72), and molecular evolution analyses (61).

My research is highly cited across a broad range of fields (14,000+ citations, Google Scholar H Index \geq 49) and has been supported by five different NIH Institutes (Neurological Disorders & Stroke; Mental Health; Aging; Human Genome Research; General Medical Sciences), the National Parkinson Foundation, and (in the UK) the Leverhulme Trust and the BBSRC, among others.

In 2012 I moved to the UK to tap into the rich European traditions in ethology and to develop a new Biological and Experimental Psychology department at Queen Mary – a unique opportunity to continue to develop my vision for an integration of ethology, neuroscience and psychology. The move has led to close ongoing collaborations with scientists in the Netherlands, Belgium, Germany and Australia, among others.

*reference numbers refer to bibliography on CV

David F. Clayton
Bibliography

I. Peer-Reviewed Research

a few of the more actively cited papers are specifically noted - citations as of June, 2016

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