MICHELLE R. LACEY

Department of Mathematics
Tulane University
6823 St. Charles Avenue
New Orleans, LA 70118
(504) 862-3439
mlacey1@tulane.edu

EDUCATION

Ph.D., Statistics, Yale University, May 2003.
Dissertation: "On Convergence Rates of the Neighbor-Joining Method for Phylogeny Reconstruction." Committee: Joseph Chang (advisor), Junhyong Kim, Andrew Barron.

M.A., Statistics, Yale University, May 1998.

A.B., Mathematics, Bryn Mawr College, 1994. *Magna cum laude*. English minor.

RESEARCH INTERESTS

Epigenetics, modeling and analysis of biological experiments, and the development of statistical methods for the integrated analysis of humanitarian assistance and monitoring surveys

AWARDS AND FELLOWSHIPS

Dissertation Fellowship, Yale University, 2000-2001.

Leonard J. Savage Writing Prize, Yale Department of Statistics, 1998.

Fellowship, Yale University, 1996-1998.

EXPERIENCE

Associate Professor, Department of Mathematics, Tulane University, July 2010-present

Adjunct Associate Professor, Department of Biostatistics, Tulane University, July 2010-present

Consultant, Research, Assessment & Monitoring Unit, World Food Programme (HQ/Rome, 2015-2016, 2018; Democratic Republic of the Congo, 2016; Sudan, 2017; Liberia, 2020-2021, Western Africa Regional Bureau, 2021-2022)

Assistant Professor, Department of Mathematics, Tulane University, July 2003-June 2010

Adjunct Assistant Professor, Department of Biostatistics, Tulane University, January 2004-June 2010
Research Fellow, Statistical and Applied Mathematical Sciences Institute (SAMSI), Fall 2005

Visitor, Institute of Statistics and Decision Sciences, Duke University, Fall 2005

Statistical Analyst, Department of Pathology, Yale University School of Medicine, Fall 2001-Summer 2003

Consultant, Agilix Corporation, New Haven, CT, Winter 2002-Summer 2003

Instructor, Yale Summer Programs, Summer 2001

Assistant Systems Administrator, Yale University Statistics Department, 1998-2000

Teaching Fellow, Department of Statistics, Yale University, 1997-2003

Biostatistics Intern, Bristol-Myers Squibb Pharmaceutical Research Institute, Wallingford, CT, Summer 1999

Associate Analyst I, Synergy, Inc., Washington, DC, 1995-1996

Research Assistant, Synergy, Inc., Washington, DC, 1994-1995

PEER-REVIEWED PUBLICATIONS

Tower RJ, Busse E, Jaramillo J, **Lacey M**, Hoffseth K, Guntur AR, Simkin J, Sammarco MC. Spatial transcriptomics reveals metabolic changes underly age-dependent declines in digit regeneration. *Elife*. 2022 May 26;11.

Foox J, Nordlund J, Lalancette C, Gong T, **Lacey M**, Lent S, Langhorst BW, Ponnaluri VKC, Williams L, Padmanabhan KR, Cavalcante R, Lundmark A, Butler D, Mozsary C, Gurvitch J, Greally JM, Suzuki M, Menor M, Nasu M, Alonso A, Sheridan C, Scherer A, Bruinsma S, Golda G, Muszynska A, Łabaj PP, Campbell MA, Wos F, Raine A, Liljedahl U, Axelsson T, Wang C, Chen Z, Yang Z, Li J, Yang X, Wang H, Melnick A, Guo S, Blume A, Franke V, Ibanez de Caceres I, Rodriguez-Antolin C, Rosas R, Davis JW, Ishii J, Megherbi DB, Xiao W, Liao W, Xu J, Hong H, Ning B, Tong W, Akalin A, Wang Y, Deng Y, Mason CE. "The SEQC2 epigenomics quality control (EpiQC) study." *Genome Biology*. 2021 Dec 6;22(1):332.

Hoffseth K, Busse E, Jaramillo J, Simkin J, **Lacey M**, Sammarco MC. "Age-Dependent Changes in Bone Architecture, Patterning, and Biomechanics During Skeletal Regeneration." *Frontiers in Cell and Developmental Biology*. 2021;9:749055.

Chandra S, Ehrlich KC, **Lacey M**, Baribault C, Ehrlich M. "Epigenetics and expression of key genes associated with cardiac fibrosis: NLRP3, MMP2, MMP9, CCN2/CTGF and AGT." *Epigenomics*. 2021 Feb;13(3):219-234.

Busse E, Hickey C, Vasilakos N, Stewart K, O'Brien F, Rivera J, Marrero L, **Lacey M**, Schroll R, Van Meter K, Sammarco MC. “Plasma flow distal to tourniquet placement provides a physiological mechanism for tissue salvage.” *PLoS One*. 2020;15(12):e0244236
Ehrlich KC, **Lacey M**, Ehrlich M. “Epigenetics Of Skeletal Muscle-Associated Genes In The ASB, LRRC, TMEM, And OSBPL Gene Families.” *Epigenomes.* 2020; 4(1):1.

Busse E, Simkin J, Marrero L, Stewart K, Brunauer R, Muneoka K, Guntur A, **Lacey M**, Sammarco M. “Sirtuin 3 deficiency does not impede digit regeneration in mice.” *Scientific Reports*. 2019 Nov 11;9(1):16491.

Lacey M, Baribault C, Ehrlich KC, Ehrlich M. “Data showing atherosclerosis-associated differentially methylated regions are often at enhancers.” *Data in Brief*. 2019 Mar 7;23:103812.

Shaffer JG, Mather FJ, Wele M, Li J, Tangara CO, Kassogue Y, Srivastav SK, Thiero O, Diakite M, Sangare M, Dabitao D, Toure M, Djimde AA, Traore S, Diakite B, Coulibaly MB, Liu Y, **Lacey M**, Lefante JJ, Koita O, Schieffelin JS, Krogstad DJ, Doumbia SO. “Expanding Research Capacity in Sub-Saharan Africa Through Informatics, Bioinformatics, and Data Science Training Programs in Mali.” *Frontiers in Genetics*. 2019 Apr 12;10:331.

Ehrlich KC, **Lacey M**, Ehrlich M. “Tissue-specific epigenetics of atherosclerosis-related ANGPT and ANGPTL genes.” *Epigenomics*. 2019 Jan 28.

Lacey M, Baribault C, Ehrlich KC, Ehrlich M. “Atherosclerosis-associated differentially methylated regions can reflect the disease phenotype and are often at enhancers.” *Atherosclerosis*. 2019 Jan; 280:183-191.

Baribault C, Ehrlich KC, Ponnaluri VKC, Pradhan S, **Lacey M**, Ehrlich M. “Developmentally linked human DNA hypermethylation is associated with down-modulation, repression, and upregulation of transcription.” *Epigenetics.* 2018;13(3):275-289.

Meyer KN, **Lacey M**. “Modeling Methylation Patterns with Long Read Sequencing Data.” *IEEE/ACM Transactions on Computational Biology and Bioinformatics*. 2018 Jul-Aug;15(4):1379-1389.

Ponnaluri VK, Ehrlich KC, Zhang G, **Lacey M**, Johnston D, Pradhan S, Ehrlich M. “Association of 5-hydroxymethylation and 5-methylation of DNA cytosine with tissue-specific gene expression.” *Epigenetics*. 2017 Feb;12(2):123-138.

Ehrlich KC, Paterson HL, **Lacey M**, Ehrlich M. “DNA Hypomethylation in Intragenic and Intergenic Enhancer Chromatin of Muscle-Specific Genes Usually Correlates with their Expression.” *Yale Journal of Biology and Medicine*. 2016 Dec 23;89(4):441-455.

Azimi MS, **Lacey M**, Mondal D, Murfee WL. “An Ex Vivo Tissue Culture Model for Anti-angiogenic Drug Testing.” *Methods in Molecular Biology*. 2016;1464:85-95.

Buckley L, **Lacey M**, Ehrlich M. “Epigenetics of the myotonic dystrophy-associated DMPK gene neighborhood.” *Epigenomics*. 2016 Jan;8(1):13-31.

Sammarco MC, Simkin J, Cammack AJ, Fassler D, Gossmann A, Marrero L, **Lacey M**, Van Meter K, Muneoka K. "Hyperbaric Oxygen Promotes Proximal Bone Regeneration and Organized Collagen Composition during Digit Regeneration." *PLoS One*. 2015 Oct 9;10(10):e0140156.

Kimbrell HZ, Sholl AB, Ratnayaka S, Japa S, **Lacey M**, Carpio G, Bhatia P, Kandil E. "BRAF Testing in Multifocal Papillary Thyroid Carcinoma. *Biomedical Research International*. 2015;2015:486391.

Wang M, Kimbrell HZ, Sholl AB, Tulman DB, Elfer KN, Schlichenmeyer TC, Lee BR, **Lacey M**, Brown JQ. "High-Resolution Rapid Diagnostic Imaging of Whole Prostate Biopsies Using Video-Rate Fluorescence Structured Illumination Microscopy." *Cancer Research*. 2015 Oct 1;75(19):4032-41.

Chandra S, Terragni J, Zhang G, Pradhan S, Haushka S, Johnston D, Baribault C, **Lacey M**, Ehrlich M. "Tissue-specific epigenetics in gene neighborhoods: myogenic transcription factor genes." *Human Molecular Genetics*. 2015 Aug 15; 24(16):4660-73.

Azimi MS, Myers L, **Lacey M**, Stewart SA, Shi Q, Katakam PV, Mondal D, Murfee WL. "An ex vivo model for anti-angiogenic drug testing on intact microvascular networks." *PLoS One*. 2015 Mar 5;10(3):e0119227. eCollection 2015.

Luo Q, Mehra S, Golden NA, Kaushal D, **Lacey MR**. "Identification of biomarkers for tuberculosis susceptibility via integrated analysis of gene expression and longitudinal clinical data." *Frontiers in Genetics*. 2014 Jul 24;5:240. eCollection 2014.

Chandra S, Baribault C, **Lacey M**, Ehrlich M. "Myogenic differential methylation: diverse associations with chromatin structure." *Biology* (Basel). 2014 Jun 19;3(2):426-51.

Wells KJ, Lima DS, Meade CD, Muñoz-Antonia T, Scarinci I, McGuire A, Gwede CK, Pledger WJ, Partridge E, Lipscomb J, Matthews R, Matta J, Flores I, Weiner R, Turner T, Miele L, Wiese TE, Fouad M, Moreno CS, **Lacey M**, Christie DW, Price-Haywood EG, Quinn GP, Coppola D, Sodeke SO, Green BL, Lichtveld MY; Region 3 GMaP/BMaP investigators. "Assessing needs and assets for building a regional network infrastructure to reduce cancer related health disparities." *Evaluation and Program Planning*. 2014 Jun; 44:14-25.

Terragni J, Zhang G, Sun Z, Pradhan S, Song L, Crawford GE, **Lacey M**, Ehrlich M. "Notch signaling genes: Myogenic DNA hypomethylation and 5-hydroxymethylcytosine." *Epigenetics*. 2014 Mar 26;9(6).

Xu G, Strong MJ, **Lacey MR**, Baribault C, Flemington EK, Taylor CM. "RNA CoMPASS: a dual approach for pathogen and host transcriptome analysis of RNA-seq datasets." *PLoS One*. 2014 Feb 25; 9(2):e89445.

Lacey MR, Baribault C, Ehrlich M. "Modeling, Simulation and Analysis of Methylation Profiles from Reduced Representation Bisulfite Sequencing Experiments." *Statistical Applications in Genetics and Molecular Biology*. 2013 Dec 1;12(6):723-42.

Ehrlich M, **Lacey M**. "DNA methylation and differentiation: silencing, upregulation and modulation of gene expression." *Epigenomics*. 2013 Oct;5(5):553-68.

Rider MA, Zou J, Vanlandingham D, Nuckols JT, Higgs S, Zhang Q, **Lacey M**, Kim J, Wang G, Hong YS. "Quantitative proteomic analysis of the Anopheles gambiae (Diptera: Culicidae) midgut infected with o'nyong-nyong virus. *Journal of Medical Entomology*." 2013 Sep; 50(5):1077-88.

Tsumagari K, Baribault C, Terragni J, Chandra S, Renshaw C, Sun Z, Song L, Crawford GE, Pradhan S, **Lacey M**, Ehrlich M. "DNA methylation and differentiation: HOX genes in muscle cells." *Epigenetics & Chromatin*. 2013 Aug 2;6(1):25.

Strong MJ, Xu G, Coco J, Baribault C, Vinay DS, **Lacey MR**, Strong AL, Lehman TA, Seddon MB, Lin Z, Concha M, Baddoo M, Ferris M, Swan KF, Sullivan DE, Burow ME, Taylor CM, Flemington EK. "Differences in Gastric Carcinoma Microenvironment Stratify According to EBV Infection Intensity: Implications for Possible Immune Adjuvant Therapy." *PLoS Pathogens*. 2013 May; 9(5):e1003341.

Russell KC, Tucker HA, Bunnell BA, Andreeff M, Schober W, Gaynor AS, Strickler KL, Lin S, **Lacey MR**, O'Connor KC. "Cell-Surface Expression of Neuron-Glial Antigen 2 (NG2)and Melanoma Cell Adhesion Molecule (CD146) in Heterogeneous Cultures of Marrow-Derived Mesenchymal Stem Cells." *Tissue Engineering Part A*. 2013 Oct;19(19-20):2253-66.

Brumlik MJ, Pandeswara S, Ludwig SM, Jeansonne DP, **Lacey MR**, Murthy K, Daniel BJ, Wang RF, Thibodeaux SR, Church KM, Hurez V, Kious MJ, Zhang B, Alagbala A, Xia X, Curiel TJ. "TgMAPK1 is a Toxoplasma gondii MAP kinase that hijacks host MKK3 signals to regulate virulence and interferon-γ-mediated nitric oxide production." *Experimental Parasitology*. 2013 Jul;134(3):389-99.

Tsumagari K, Baribault C, Terragni J, Varley KE, Gertz J, Pradhan S, Badoo M, Crain CM, Song L, Crawford GE, Myers RM, **Lacey M**, Ehrlich M. "Early de novo DNA methylation and prolonged demethylation in the muscle lineage." *Epigenetics*. 2013 Feb 15;8(3): 317-32.

Stolier A, Stone JC, Moroz K, Hanemann CW, McNabb L, Jones SD, **Lacey M**. "A comparison of clinical and pathologic assessments for the prediction of occult nipple involvement in nipple-sparing mastectomies." *Annals of Surgical Oncology*. 2013 Jan;20(1):128-32.
Ehrlich M, **Lacey M**. "Deciphering transcription dysregulation in FSH muscular dystrophy." *Journal of Human Genetics.* 2012 Aug; 57(8):477-84.

Wang G, Ma P, Zhang Q, Lewis J, **Lacey M**, Furukawa Y, O'Reilly SE, Meaux S, McLachlan J, Zhang S. "Endocrine disrupting chemicals in New Orleans surface waters and Mississippi Sound sediments." *Journal of Environmental Monitoring.* 2012 May; 14(5):1353-64.

Chang F, **Lacey MR**, Bouljihad M, Bentrup KH, Fortgang IS. "Tumor necrosis factor receptor 1 functions as a tumor suppressor." *American Journal of Physiology: Gastrointestinal and Liver Physiology*. 2012 Jan; 302(2):G195-206.
Tsumagari K, Chang SC, **Lacey M**, Baribault C, Chittur SV, Sowden J, Tawil R,

Crawford GE, Ehrlich M. “Gene expression during normal and FSHD myogenesis.” *BMC Medical Genomics.* 2011 Sep 27; 4:67.

Russell KC, **Lacey MR**, Gilliam JK, Tucker HA, Phinney DG, O'Connor KC. “Clonal analysis of the proliferation potential of human bone marrow mesenchymal stem cells as a function of potency.” *Biotechnology and Bioengineering* 2011 Nov; 108(11): 2716-26.

Chakravarty G, Moroz K, Makridakis NM, Lloyd SA, Galvez SE, Canavello PR, **Lacey MR**, Agrawal K, Mondal D. “Prognostic significance of cytoplasmic SOX9 in invasive ductal carcinoma and metastatic breast cancer.” *Experimental Biology and Medicine* 2011 Feb; 236(2):145-55.

Xu G, Fewell C, Taylor C, Deng N, Hedges D, Wang X, Zhang K, **Lacey M**, Zhang H, Yin Q, Cameron J, Lin Z, Zhu D, Flemington EK. “Transcriptome and targetome analysis in MIR155 expressing cells using RNA-seq.” *RNA* 2010; 16(8):1610-22.

Dutta NK, Mehra S, Didier PJ, Roy CJ, Doyle LA, Alvarez X, Ratterree M, Be NA, Lamichhane G, Jain SK, **Lacey MR**, Lackner AA, Kaushal D. “Genetic requirements for the survival of tubercle bacilli in primates.” *Journal of Infectious Diseases* 2010; 201(11):1743-52

Weiner GM, **Lacey MR**, Mackenzie L, Shah DP, Frangos SG, Grady MS, Kofke A, Levine J, Schuster J, Le Roux PD. “Decompressive craniectomy for elevated intracranial pressure and its effect on the cumulative ischemic burden and therapeutic intensity levels after severe traumatic brain injury.” *Neurosurgery* 2010; 66(6):1111-8.

Russell KC, Phinney DG, **Lacey MR**, Barrilleaux BL, Meyertholen KE, O'Connor KC. “In vitro high-capacity assay to quantify the clonal heterogeneity in trilineage potential of mesenchymal stem cells reveals a complex hierarchy of lineage commitment.” *Stem Cells* 2010; 28(4):788-98.

Zimmermann MC, Tilghman SL, Boué SM, Salvo VA, Elliott S, Williams KY, Skripnikova EV, Ashe H, Payton-Stewart F, Vanhoy-Rhodes L, Fonseca JP, Corbitt C, Collins-Burow BM, Howell MH, **Lacey M**, Shih BY, Carter-Wientjes C, Cleveland TE, McLachlan JA, Wiese TE, Beckman BS, Burow ME. “Glyceollin I, a novel antiestrogenic phytoalexin isolated from activated soy.” *Journal of Pharmacology and Experimental Therapeutics* 2010; 332(1):35-45.

Rhodes LV, Muir SE, Elliott S, Guillot LM, Antoon JW, Penfornis P, Tilghman SL, Salvo VA, Fonseca JP, **Lacey MR**, Beckman BS, McLachlan JA, Rowan BG, Pochampally R, Burow ME. “Adult human mesenchymal stem cells enhance breast tumorigenesis and promote hormone independence.” *Breast Cancer Research and Treatment* 2010; 121(2):293-300.

Lacey MR, Ehrlich M. “Modeling Dependence in Methylation Patterns with Application to Ovarian Carcinomas.” *Statistical Applications in Genetics and Molecular Biology* 2009; 8(1), Article 40.

Shao C, **Lacey M**, Dubeau L, Ehrlich M. “Hemimethylation footprints of DNA demethylation in cancer.” *Epigenetics* 2009; 4(3): 165-75.

Lacey MR, Calmes JM. "A Sharp Error Probability Estimate for the Reconstruction of Phylogenetic Quartets by the Four-Point Method." *Journal of Computational Biology* 2009; 16(3): 443-456.

Pardo RI, **Lacey MR**. "The Real Student-Loan Scandal: Undue Hardship Discharge Litigation." *American Bankruptcy Law Journal* 2009; 83(1).

Yin Q, McBride J, Fewell C, **Lacey M**, Wang X, Lin Z, Cameron J, Flemington EK. "MicroRNA-155 is an Epstein-Barr virus-induced gene that modulates Epstein-Barr virus-regulated gene expression pathways." *Journal of Virology* 2008; 82(11): 5295-306.

Tsumagari K, Qi L, Jackson K, Shao C, **Lacey M**, Sowden J, Tawil R, Vedanarayanan V, Ehrlich M. "Epigenetics of a tandem DNA repeat: chromatin DNaseI sensitivity and opposite methylation changes in cancers." *Nucleic Acids Research* 2008; 36(7): 2196-207.

Cameron JE, Yin Q, Fewell C, **Lacey M**, McBride J, Wang X, Lin Z, Schaefer BC, Flemington EK. "The Epstein-Barr Virus latent membrane protein 1 (LMP1) induces cellular microRNA-146a, a modulator of lymphocyte signaling pathways." *Journal of Virology* 2008; 82(4):1946-58.

Lacey MR, Brumlik MJ, Yenni RE, Burow ME, Curiel TJ. "*Toxoplasma gondii* expresses two mitogenactivated protein kinase genes that represent distinct protozoan subfamilies." *Journal of Molecular Evolution* 2007; 64(1): 4-14.

Lacey MR, Chang JT. "A signal-to-noise analysis of phylogeny estimation by Neighbor-Joining: Insufficiency of polynomial length sequences" *Mathematical Biosciences* 2006; 199(2): 188-215.

Kriegel AM, Blake DA, El-Ghawalby N, Ezzat F, Soultan A, Abdel-Wahab M, Fathy O, Ebidi G, Bassiouni N, Zhang Q, Hamilton SR, Abbruzzese JL, **Lacey MR**, Soliman AS. "Serum cadmium levels in pancreatic cancer patients from the East Nile Delta region of Egypt." *Environmental Health Perspectives* 2006; 114(1):113-9.

Pardo RI, **Lacey** MR. "Undue Hardship in the Bankruptcy Courts: An Empirical Assessment of the Discharge of Educational Debt." *University of Cincinnati Law Review* 2005; 74(2).

Nishiyama R, Qi L, **Lacey M**, Ehrlich M. "Both hypomethylation and hypermethylation in a 0.2-kb region of a DNA repeat in cancer." *Molecular Cancer Research* 2005; 3(11):617-26.

Brumlik MJ, Wei S, Finstad K, Nesbit J, Hyman L, **Lacey M**, Burow ME, Curiel TJ. "Identification of a novel mitogen-activated protein kinase in *Toxoplasma gondii*." *International Journal for Parasitology* 2004; **34**(11): 1245-1254.
Roth ME, Feng L, McConnell KJ, Schaffer PJ, Guerra CE, Affourtit JP, Piper KR, Guccione L, Hariharan J, Ford MJ, Powell SW, Krishnaswamy H, Lane J, Guccione L, Intrieri G, Merkel, JS, Perbost C, Valerio A, Zolla B, Graham CD, Hnath J, Michaelson C, Wang R, Ying B, Halling C, Parman CE, Raha D, Orr B, Jedrzkiewicz B, Liao J, Tevelev A, Mattessich MJ, Kranz DM, **Lacey M**, Kaufman JM, Kim J, Latimer DR, Lizardi P. "Expression Profiling Using a Novel Universal Microarray." *Nature Biotechnology* 2004; **22**:418-426.

Weitzel JM, Hamann S, Jauk M, **Lacey M**, Filbry A, Radtke C, Iwen KAH, Kutz S, Harneit A, Lizardi P, Seize HJ. "Hepatic gene expression patterns in thyroid hormone-treated hypothyroid rats." *Journal of Molecular Endocrinology* 2003; **31**(2): 291-303.

Lage J, Leamon J, Pejovic T, Hamann S, **Lacey M**, Dillon D, Segraves R, Vossbrinck B, Gonzalez A, Pinkel D, Albertson D, Costa J, Lizardi P. "Whole genome analysis of genetic alterations in small DNA samples using hyperbranched strand displacement amplification and array-CGH." *Genome Research* 2003; **13**:294-307.

OTHER PUBLICATIONS

Lacey, M. "Significance Level" in *Encyclopedia of Research Design*, Neil J. Salkind, ed. Sage Publications, 2010.

Lacey, M. and Ehrlich, M. "DNA hypomethylation and hemimethylation in cancer" in Adam Karpf (ed.), *Advances in Experimental Medicine and Biology: Epigenetic Alterations in Oncogenesis.* 2013; 754: 31-56. Springer: New York.

RESEARCH FUNDING

Save the Children Federation, Inc June 2019-April 2021
Implementer-led Design, Evidence, Analysis & Learning (IDEAL) Associate Award
Role: Quantitative Data Analyst (Peter Horjus, Chief of Party)

NIH/NCATS August 2015-July 2020
UAB Center for Clinical and Translational Science (CCTS)
Role: Co-Investigator (Robert Kimberly, PI)

NIH/NCI June 2018 -May 2022
High speed automated intraoperative microscopy of the prostate circumference to ensure tumor-free margins in radical
prostatectomy
Role: Co-Investigator (J. Quincy Brown, PI)

NIH August 2015-July 2018
Improving biospecimen quality by verifying adequacy at the point-of-acquisition with ex vivo structured illumination microscopy
Role: Co-Investigator (J. Quincy Brown, PI)

NIH June 2010-May 2013
Genetic Requirements for the survival of tubercle bacilli in nonhuman primates
Role: Co-Investigator (Deepak Kaushal, PI)

NIH September 2010-June 2012
Transcriptomics of Tuberculosis Latency and Reactivation in Primates

Role: Co-Investigator (Deepak Kaushal, PI)

NIH September 2009-July 2014
COBRE: Mentoring a Cancer Genetics Program
Role: Mentor (Prescott Deininger, PI)

NCI July 2009-April 2014
Role of the cellular microRNA, miR-155, in EBV type III latency signaling
Role: Co-Investigator (Erik Flemington, PI)

FSHD Global Research Foundation January 2009-December 2009
Comparing the DNaseI-Hypersensitive Chromatin Landscape at 4q35 of FSHD and Control Cells
Role: Co-Investigator (Melanie Ehrlich, PI)

Tulane University Research Enhancement Fund July 2008-June 2010
Development of a Microarray Data Library to Support Estrogen-related Research
Role: PI

Office of Naval Research October 2007-June 2011
Biosensors for Defense Applications Program
Role: Co-Investigator (John McLachlan, PI)

NIH July 2007-May 2009
Mechanisms of progenitor enrichment during amplification of marrow stromal cells
Role: Co-Investigator (Kim O'Connor, PI)

The Ellison Medical Foundation March 2006-February 2010
Aging in Natural Yeast Populations
Role: Co-Investigator (Michal Jazwinski, PI)

Louisiana Cancer Research Consortium (LCRC) July 2003- June 2006, July 2007- June 2008.

INVITED/ACCEPTED CONFERENCE AND SEMINAR PRESENTATIONS

Future Directions in Phylogenetic Methods and Models Workshop, Isaac Newton Institute, Cambridge, UK, December 2007

Frontiers in Applied and Computational Mathematics (FACM), New Jersey Institute of Technology, Newark, NJ, May 2008

Biostatistics Seminar, LSU School of Health Sciences, New Orleans, LA, October 2010, November 2011, February 2014, October 2015, March 2019

Bioinformatics Seminar, Purdue University, West Lafayette, Indiana, October 2010

Statistics Colloquium, Penn State University, State College, PA, November 2011

Louisiana American Statistical Association Spring Meeting, University of New Orleans, New Orleans, LA, April 2012

MCBIOS, Fedex Institute of Technology, Memphis, TN, March 2016

4th Annual LA Conference on Computational Biology & Bioinformatics, Xavier University, New Orleans, LA, April 2016

Biostatistics Seminar, UCSD, San Diego, CA, November 2016

5th Annual LA Conference on Computational Biology & Bioinformatics, Xavier University, New Orleans, LA, April 2017

LSU Computational Biology Seminar Series for Undergraduates, Baton Rouge, LA, October 2017

VAM Seminar, World Food Programme, Rome, IT, July 2018

Resilience Measurement, Evidence and Learning Conference 2018, New Orleans, LA, November 2018

Expert consultation on the Food Insecurity Experience Scale, Food and Agriculture Organization of the United Nations, Rome, IT, February 2019

7th Annual LA Conference on Computational Biology & Bioinformatics, Xavier University, New Orleans, LA, April 2021 (Keynote speaker)

Research Frontiers in Biomathematics Seminar, UCLA, Los Angeles, CA, October 2021

PROFESSIONAL AND ACADEMIC SERVICE

Associate Editor: *Frontiers in Statistical Genetics and Methodology*

Referree: *IEEE/ACM Transactions on Computational Biology and Bioinformatics, Analytical Biochemistry, Medical Oncology, Statistical Applications in Genetics and Molecular Biology, Annals of Applied Statistics, PLoS ONE, Epigenetics, BMC Genomics, Genome Medicine, Experimental Cell, Advances in Evolutionary Biology, Fetal & Pediatric Pathology, Evaluation and Program Planning, Gene, Frontiers in Cellular & Developmental Biology, Genomics Proteomics & Bioinformatics, BBA-Gene Regulatory Mechanisms*

Program Committee, 5th Annual Workshop on Algorithms in Bioinformatics (WABI'05)

Program Committee, 17th Annual International Conference on Intelligent Systems for Molecular Biology & 8th European Conference on Computational Biology (ISMB/ECCB09)

Panelist, National Science Foundation, January 2008
Panelist, National Cancer Institute, 2011-2013
Panelist, VA Clinical Epidemiology Review, 2014-2018

Reviewer, French National Research Agency (ANR) Scientific Evaluation Committee, 2016

Mentor and Graduate Program Group Leader, National Alliance for Doctoral Studies in the Mathematical Sciences, 2013-present

Conference Organizer, Second Annual Gulf States Math Alliance Meeting, 2018

Co-Director, Gulf States Math Alliance Chapter, November 2019-present

Tulane University
- Senate Committee on Equal Opportunity and Institutional Equity, 2008-2011
- Committee on University Honors, 2011-2013
- Five Year Review Committee for SSE Dean, 2011-2012
- Academic Affairs Strategic Planning Committee, 2011-2012
- Senate Committee on Information Technology, 2012-present
- Core Curriculum Initiative Task Force, 2013-2014
- Forum Tulane Organizing Committee, 2015
- SSE Promotion & Tenure Committee, 2018-2021
- University Senate, 2021-present

Tulane University Department of Mathematics
- Undergraduate Coordinator, 2022-present
- Undergraduate Studies Committee, 2006-2009, 2018-present
- Hiring Committee, 2004-2005, 2006-2007, 2012-2013, 2017-2020, 2021-present
- Computing Committee, 2003-present
- Graduate Studies Committee, 2011-2012, 2013-2014
- Executive Committee, 2017-2018, 2021-2022

Tulane University Health Sciences Center
- Genetics and Gene Therapy Committee, November 2007-January 2008
- Genetics and Genomics Committee, “Task Force to $300 Million”, January-March 2008

Tulane Cancer Center (TCC) and Louisiana Cancer Research Consortium (LCRC)
- LCRC Biostatistics/Bioinformatics Core Steering Committee, Summer 2005
- Biospecimen Task Force, Louisiana Cancer Research Consortium, Summer 2004-Summer 2005
- Bioinformatics Task Force, Louisiana Cancer Research Consortium, Winter 2003-Summer 2005
- Steering Committee, Louisiana Cancer Research Consortium, Fall 2003-Summer 2005
- Chair, Biomedical Informatics Core, GMaP/BMaP Region 3, Fall 2009-Summer 2015
- Director, Tulane Cancer Center Genomics Analysis Core, Fall 2010-present
- Steering Committee, Tulane Cancer Center, Fall 2009-Spring 2015
- CCTS Network Pilots & Panels Advisory Committee, May 2016-Spring 2019

TEACHING AND COURSE DEVELOPMENT

At Tulane University (* denotes new course)

- Linear Models (Math 6040/7260), 2005, 2006, 2009, 2011, 2012, 2013, 2015-2019
- Probability and Statistics (Math 301/601), 2003, 2004, 2006
- Introduction to Probability and Statistics (Math 1110), 2006, 2007
- Introduction to Probability (Math 3070/6070), 2018, 2021
- Introduction to Mathematical Statistics (Math 3080/6080), 2009, 2011, 2014, 2019, 2020, 2022
- *Data Analysis (Math 7360), 2004, 2006, 2007, 2011, 2012, 2014, 2016, 2018
- *Mathematics and the Media (TIDES), 2006, 2007, 2008, 2010, 2011, 2012, 2013
- *Statistics for Scientists (Math 1230), 2007-2009, 2013-2017, 2019-2021
- *Topics in Statistics II: Data Mining (Math 7770), Spring 2007
- *Topics in Statistics: Spatial Statistics (Math 7770), Spring 2013

Contributed Lectures

- Topics in Clinical Research, Tulane University Health Sciences Center, Fall 2009
- Tulane School of Public Health and Tropical Medicine Interdisciplinary Doctoral Seminar, Fall 2009
- Molecular Medicine, Tulane University Health Sciences Center, Fall 2010, 2011, 2013, 2015, 2016, 2017
- Genomics in Public Health, Tulane University School of Public Health and Tropical Medicine, Spring 2011
- Introduction to Practical Biology and Genomics, Tulane University School of Public Health and Tropical Medicine, Summer 2011 and Summer 2012

Introduction to Statistics, Yale Summer Programs, Summer 2001.

DOCTORAL STUDENTS

Jason Calmes, 2012. *Estimating the Probability of Accurate Phylogeny Reconstruction by Quartet Aggregation.*

Karlene Nicole Meyer, 2013. *Distance-Weighted Neighboring Sites Models for Methylation Pattern Inheritance.*

Qingyang Luo, 2014. *Integrated Analysis of Genomic and Longitudinal Clinical Data*.

Aleksandra Gorzycka, 2018. *Bayesian Updating and Statistical Inference for Beta-Binomial Models*

Pengfei Li, 2020. *Statistical Models for the Analysis of Whole Genome Bisulfite Sequencing Datasets*