

# LISA K. JOHNSON

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## SUMMARY

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Bioinformatics scientist developing solutions for interdisciplinary researchers to overcome technical challenges associated with analyzing high-resolution sequencing data so that discoveries can be proportional to the data collected.

## EDUCATION

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**Ph.D. Molecular, Cellular, Integrative Physiology** 2015-2019  
with a Designated Emphasis in Biotechnology

*University of California, Davis*

Dissertation: “[Genomic and Transcriptomic Reference Assemblies and Analyses with Sequencing Datasets from Multiple Non-traditional Model Species](#)”

Advisors: [C. Titus Brown](#) & [Andrew Whitehead](#)

**M.S. Environmental Resource Management** 2007-2009

*Florida Institute of Technology*

Agency: Southeast Florida Aquatic Preserves, Florida Department of Environmental Protection

**M.S. Biology** 2002-2004

*University of North Carolina, Wilmington*

Thesis: “[Metabolic influences of fiber size in aerobic and anaerobic muscles of the blue crab, \*Callinectes sapidus\*](#).”

Advisor: [Stephen Kinsey](#)

**B.S. Biochemistry** 1998-2002

Minor in Music

*Eckerd College*

## POSITIONS HELD

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**Software Engineer, Field Operations** July 2019-Present  
[10x Genomics](#), *Bioinformatics Software Support* *Pleasanton, CA*

**Graduate Research Assistant** September 2015 - June 2019  
*Lab for Data Intensive Biology,* *Davis, CA*  
*School of Veterinary Medicine, UC Davis*

**Bioinformatics Programmer** March 2014 - May 2015  
[Bioinformatics Core](#), *Genome Technology Center,* *New York City, NY*  
*New York University Langone Medical Center*

**Biological Scientist - Molecular Biology Research Technician** March 2010 - March 2014  
[Coral Reef Health and Ecology Lab](#), *Fort Pierce, FL*  
*Harbor Branch Oceanographic Institute, Florida Atlantic University*

**Shoreline Restoration Project Coordinator** May 2008 - March 2010  
*Southeast Florida Aquatic Preserves,* *Fort Pierce, FL*  
*Florida Department of Environmental Protection*

**U.S. Peace Corps Volunteer** August 2004 - November 2006  
*Yap State Environmental Protection Agency* *Yap, Micronesia*

**Graduate Research Assistant**  
*Comparative Biochemistry & Physiology Lab,  
University of North Carolina at Wilmington*

August 2002 - June 2004  
*Wilmington, NC*

## TEACHING EXPERIENCE

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**Instructor** November 4, 2018  
*Society for Environmental Toxicology And Chemistry, North America Meeting* *Sacramento, CA*  
[De Novo Transcriptome Assembly & Differential Gene Expression Analysis](#)

**Instructor** October 19-22, 2018  
*Global Invertebrate Genomics Alliance III Meeting* *Curaçao*  
[Bioinformatics Workshop](#)

**Instructor** July 2-14, 2018  
*Data Intensive Biology Summer Institute, UC Davis* *Davis, CA*  
[Next-Generation Sequence Analysis Workshop](#)

**Carpentries Workshop Instructor**  
*Teaching basic data science skills to researchers*

Smithsonian, NMNH: [Python for Ecologists](#) February 7-8, 2018  
UC Davis: [Genomics: Project organization and management](#) Jan 24-25, 2018  
UC Davis: [Version control with Git](#) Jan 3-5, 2018  
UC Merced: [Python for Ecologists](#) Oct 26-27, 2017

**Instructor** Oct 11-12, 2017  
*Scripps Institution of Oceanography-Bioinformatics Users Group, UCSD* *La Jolla, CA*  
[Non-model mRNASeq Workshop](#)

**Teaching Assistant** July 31-Aug 10, 2017  
*Marine Biological Lab* *Woods Hole, MA*  
[Microbial Diversity Summer Course: Genomics Lessons](#)

**Instructor, Teaching Assistant Coordinator** June 19-July 21, 2017  
*Data Intensive Biology Summer Institute, UC Davis* *Davis, CA*

**Graduate Teaching Assistant (Systemic Physiology - NPB101D)** Winter Quarter 2017  
*Department of Neurobiology, Physiology & Behavior, UC Davis* *Davis, CA*

**Teaching Assistant** August 2015, 2016  
*Kellogg Biological Station, Michigan State University* *Kalamazoo, MI*

**Adjunct Faculty (Environmental Science - SCI 275)** 20 class sections; 2009-2014  
*University of Phoenix* *Online*

**Graduate STEM Teaching Fellow (NSF GK-12)** Fall 2007  
*Florida Institute of Technology* *Melbourne, FL*

**Graduate Teaching Assistant (Cell Biology - BIO 101)** Fall 2002  
*Department of Biology & Marine Biology, UNCW* *Wilmington, NC*

**Teaching Assistant (Organic Chemistry 1&2, Biochemistry 1&2)** Fall 2000-Spring 2002  
*Department of Chemistry, Eckerd College* *St. Petersburg, FL*

## PUBLICATIONS

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**Johnson LK**, Sahasrabudhe R, Gill T, Roach J, Froenicke L, Brown CT, Whitehead A. 2020. Draft genome assemblies using sequencing reads from Oxford Nanopore Technologies and Illumina platforms for four species of North American killifish from the *Fundulus* genus. [GigaScience](#), 9(6): g100067.

Mickol RL, Louyakis A, Kee HL, **Johnson LK**, Dawson SC, Hargreaves KR, Chadwick GL, Newman DK, Leadbetter DK, Brown CT. *In review*. Draft Genome Sequence of the Free-living, Iridescent Bacterium *Tenacibaculum mesophilum* strain ECR. Microbiology Resource Announcements.

Love MI, Soneson C, Hickey PF, **Johnson LK**, Pierce NT, Shepherd L, Morgan M, Patro R. 2020. Tximeta: Reference sequence checksums for provenance identification in RNA-seq. [PloS Computational Biology](#). 16(2): e1007664.

Alexander H, **Johnson LK**, Brown CT. 2019. Keeping it light: (re)analyzing community-wide datasets without major infrastructure. [GigaScience](#), 8(2): g10159.

**Johnson LK**, Alexander H, Brown CT. 2019. Re-assembly, quality evaluation, and annotation of 678 microbial eukaryotic reference transcriptomes. [GigaScience](#), 8(4): g10158.

[GigaScience Prize Track Winner](#)

[Q&A Article](#)

Standage D, (alphabetical:) Aliyari A, **Cohen (Johnson) L**, Crusoe M, Head T, Irber L, Joslin SEK, Kingsley NB, Murray KD, Neches R, Scott C, Shean R, Steinbiss S, Sydney C, Brown CT. 2017. khmer release v2.1: software for biological sequence analysis. [Journal of Open Source Software](#). 2(15): 272.

Hanley O, Zewdu R, **Cohen (Johnson) L**, Jung H, Lacombe J, Lee D, Philippidou P, Selleri L, Dasen J. 2016. Parallel Pbx-Dependent Pathways Govern the Coalescence and Fate of Motor Columns. [Neuron](#). 91 (5), 1005-1020.

Cartularo L, Kluz T, **Cohen (Johnson) L**, Shen SS, Costa M. 2016. Molecular Mechanisms of Malignant Transformation by Low Dose Cadmium in Normal Human Bronchial Epithelial Cells. [PloS One](#). 11(5), e0155002.

Maass K, Shekar A, Lu J, Kang G, See F, Kim E, Delgado C, Shen S, **Cohen (Johnson) L**, Fishman G. 2015. Isolation and Characterization of ESC-Derived Cardiac Purkinje Cells. [Stem Cells](#). doi: 10.1002/stem.1921.

Montenegro D, Kalpana K, Chrissian C, Sharma A, Takaoka A, Iacovidou, M, Soll C, Aminova O, Heguy A, **Cohen (Johnson) L**, Shen S, Kawamura A. 2015. Uncovering “herbal probiotics” in Juzen-taiho-to, an immune-boosting herbal formulation. [Bioorganic & Medicinal Chemistry Letters](#). doi:10.1016/j.bmcl.2014.12.036

**Johnson LK**, Dillaman RM, Gay DM, Blum JE, Kinsey ST. 2004. Metabolic influences of fiber size in aerobic and anaerobic locomotor muscles of the blue crab, *Callinectes sapidus*. [Journal of Experimental Biology](#). 207:4045-4056.

Gavrilova O, Haluzik M, Matsusue K, Cutson JJ, **Johnson L**, Dietz KR, Nicol CJ, Vinson C, Gonzalez FJ, Reitman ML. 2003. Liver peroxisome proliferator-activated receptor-gamma contributes to hepatic steatosis, triglyceride clearance, and regulation of body fat mass. [Journal of Biological Chemistry](#). 278(36):34268-34276.

## BOOK CHAPTER

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**Cohen (Johnson) L**, Efstathiadis E, Shen S. 2015. Chapter 9: *De novo* Transcriptome Assembly. In: Next Generation DNA Sequencing Informatics, 2nd Edition. Ed. Stuart Brown. Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY.

## PRESENTATIONS

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**Johnson LK**, Brennan R, Brown CT, Whitehead J. 2018. *De novo* transcriptome assemblies and transcriptional profiling of 16 *Fundulus* killifish species in response to environmental challenge. Society of Environmental Toxicology And Chemistry, North America 39th Annual Meeting. November 4-9, 2018.

**Johnson LK**, Alexander HA, Brown CT. [Re-assembly, quality evaluation, and annotation of 678 microbial eukaryotic reference transcriptomes](#). 13th Annual International Conference on Genomics. Shenzhen, China. October 25, 2018. Invited talk, **GigaScience Prize Track Winner**

**Johnson LK** and Whitehead J. [De novo assemblies, annotations, and gene expression profiling of gill epithelium from 16 species of \*Fundulus\* killifish in response to salinity change](#). International Conference on the Biology of Fishes, Calgary, Alberta. July 15-19, 2018.

Word KR, Duckles BM, Brooks PT, **Johnson LK**, Brown CT. [Perspectives from an intensive bioinformatics training workshop with a heterogeneous learner population: success takes many different forms](#). Society for Integrative and Comparative Biology Annual Meeting, San Francisco, CA. January 3-7, 2018.

**Cohen (Johnson) L**, Alexander H, Brown CT. 2017. [Reassembling 600+ marine transcriptomes: automated pipeline development and evaluation](#). Aquatic Sciences Meeting, Association for the Sciences of Limnology and Oceanography, Honolulu, HI. Feb 26-March 3, 2017.

**Cohen (Johnson) L**, González-Angel AM, Edge S. 2013. Molecular responses of coral larvae and sponges to environmental stresses. [Florida Specialty License Plate-Funded Research Symposium, Harbor Branch Oceanographic Institute, Fort Pierce, FL. May 16, 2013](#).

González-Angel AM, Edge SE, **Cohen (Johnson) LJ**, Mason B. 2013. *Porites astreoides* larval response to acute hyposalinity stress. 42nd Benthic Ecology Meeting, Savannah, GA. March 20-24, 2012.

Voss J, Edge S, **Cohen (Johnson) L**, Fahsbender E, Williams M, Harrison N. 2012. Oil, Dispersant, and Disease: Impacts and Interactions on Corals in the Florida Keys. 41st Benthic Ecology Meeting, Norfolk, VA. Mar 23, 2012.

Voss J, Beal J, Edge S, **Cohen (Johnson) L**, Hanisak, D. 2012. Estuarine Impacts on St. Lucie Reef: Determining the Effects of Changing Resource Management on Floridas Northernmost Coral Reef. Indian River Lagoon Symposium, Harbor Branch Oceanographic Institute at Florida Atlantic University. Feb 9, 2012

Voss J, Edge S, **Cohen (Johnson) L**, Fahsbender E, Williams M, Harrison N. 2011. Oil, Dispersant, and Disease: Impacts and Interactions on Corals in the Florida Keys. Coastal And Estuarine Research Federation Meeting, Daytona Beach, FL. Nov 7, 2011.

Beal J, Voss J, Edge S, **Cohen (Johnson) L**. 2011. Living on the ledge: assessment of coral stressors on St. Lucie Reef, Florida. 21st Biennial Conference of the Coastal and Estuarine Research Federation. November 6-10, 2011. Daytona Beach, FL.

**Cohen (Johnson) LJ**, Herren LW, Virgilio MT. 2010. Restoring fringing mangrove habitat in the Indian River Lagoon. Florida Academy of Sciences Annual Meeting, Indian River State College, Ft. Pierce, FL. March 19-20, 2010.

Virgilio MT, **Cohen (Johnson) LJ**, Herren LW. 2010. Using historic aerial photographs and GIS as management tools for establishing baselines and setting goals for future shoreline restoration in the Indian River Lagoon. Florida Academy of Sciences Annual Meeting, Indian River State College, Ft. Pierce, FL. March 19-20, 2010.

Minton D, Smith G, Filmed C, Tafleichig A, **Johnson L**, and Molina M. 2008. Improvement of coral dredging management to minimize environmental impacts in Yap State, Federated States of Micronesia. 11th Annual International Coral Reef Symposium, West Palm Beach, FL. July 7-11, 2008.

**Johnson LK** and Kinsey ST. 2004. Effects of muscle fiber size on post-contractile lactate recovery in the blue crab, *Callinectes sapidus*. Society for Integrative and Comparative Biology Annual Meeting, New Orleans, LA. January 5-9, 2004. **1st Place Student Poster Award**

**Johnson LK**, Cutson JJ, Nicol CJ, Gonzalez FJ, Gavrilova O, Reitman ML. 2001. Effects of rosiglitazone on A-ZIP/F-1 mice with liver-specific deletion of PPAR-gamma gene. Summer Student Poster Day, National Institutes of Health, Bethesda, MD.

**Johnson LK**, Gavrilova O, Reitman ML. 2000. Effects of surgical transplantation of brown adipose tissue on the metabolism of lipotrophic AZIP/F-1 mice. Summer Student Poster Day, National Institutes of Health, Bethesda, MD.

**Johnson LK**, Everett CA, Chumakov MK, Gavrilova O, Reitman ML. 1999. Effects of diet on metabolism in lipotrophic A-ZIP/F-1 mice. Summer Student Poster Day, National Institutes of Health.

Tatham TA, **Johnson LK**, Acuna AS. 1998. Symmetrical generalization of the discriminative stimulus effects of toluene and ketamine suggests mediation by NMDA receptors. Society for Neuroscience Annual Meeting, San Diego, CA.

## GRANTS

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NSF-XSEDE Research Allocation: "Improving reference genomes and transcriptomes towards gene expression profiling of sequencing data sets containing multiple eukaryotic species" **\$50,040.14** March 15, 2019-September 15, 2020. Co-PI.

NSF-XSEDE Startup Allocation: "Application for Jetstream startup allocations for running dammit de novo transcriptome annotation pipeline software" **\$16,690.00** (100,000 SUs) March 2, 2018-2019. PI.

NSF-XSEDE Education Allocation: "Bioinformatics Training Workshop at SETAC-North America Conference" **\$5,956.00** (40,000 SUs) Sep 17, 2018-2019. Co-PI.

NSF-XSEDE Education Allocation: "Jetstream access for the Bioinformatics Training Workshop at the GIGA III Conference" **\$22,335.00** (125,000 SUs) Sept 5, 2018-2019. Co-PI.

NSF-XSEDE Education Allocation: "Compute Infrastructure to Support DIBSI-ANGUS at UC Davis" **\$29,780.00** (200,000 SUs) June 12, 2018-2019. Co-PI.

NSF-XSEDE Education Allocation: "Non-model RNAseq analysis workshop at UCSD-SIO" **\$6,729.41** (40,320 SUs) Sep 26, 2017-2018. Co-PI.

NSF-XSEDE Education Allocation: "Compute Infrastructure to Support DIBSI-ANGUS at UC Davis" **\$72,100.80** (432,000 SUs) February 20, 2017-2018. Co-PI.

NSF-XSEDE Startup Allocation: "Startup allocation request for the storage, exploration, and analysis of the Marine Microbial Eukaryotic Transcriptome Sequencing Project" **\$8,345.00** (50,000 SUs) PI: Johnson LK. May 2, 2016-2017. PI.

Sigma Xi Grant-in-Aid-of-Research (Cell Biology/Biochemistry): "The effects of cell size on metabolism during recovery from fatigue in the blue crab, *Callinectes sapidus*." March 2003. **\$1,000** PI.

## OTHER FUNDING & AWARDS

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<b>GigaScience Award Track, 1st Place Prize</b>	October 2018
<i>13th International Conference on Genomics: \$1,000</i>	

<b>NSF Travel Award</b>	October 2018
<i>Global Invertebrate Genomics Alliance III Meeting: \$935.91</i>	

<b>Honorable Mention</b>	2016
<i>Graduate Research Fellowship Program, National Science Foundation</i>	

<b>Graduate Student Fellowship</b> <i>Molecular, Cellular, Integrative Physiology Graduate Group, UC Davis</i>	Fall 2015, Winter 2016
<b>Graduate Fellowship in Environmental Resource Management</b> <i>Florida Institute of Technology</i>	2008-2009
<b>First Place, Student Poster Award</b> <i>Division of Comparative Physiology &amp; Biochemistry, Society for Integrative and Comparative Biology</i>	2004
<b>Academic Honors &amp; Special Talent Scholarships</b> <i>Eckerd College</i>	1998-2002
<b>Student Science Award Fellowship</b> <i>American Heart Association</i>	1998

## TECHNICAL SKILLS

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<b>Linux Computing Resources</b>	AWS cloud, HPCC management systems (PBS, SGE, Slurm)
<b>Scripting Languages</b>	Python, R, bash
<b>Bioinformatics Pipelines</b>	Illumina bcl2fastq demultiplexing, QC, <i>de novo</i> assembly, annotation, quantification, differential gene expression analysis
<b>Molecular Lab</b>	RNA, hmwDNA, protein isolations, purification, Bioanalyzer/gel electrophoresis, PCR, Cy3/Cy5 labeling, Oxford Nanopore Technologies library preparation, MinION sequencing, microarray hybridization
<b>Field &amp; Wet Lab</b>	Biological sampling (estuarine, marine shallow and deep sea), benthic ecological surveys, <i>ex situ</i> exposure experimental design

## INTERNSHIPS

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<b>Summer Intern - Laboratory Support Technician (GS-0404-4)</b> <i>Molecular Biology &amp; Gene Regulation Section, National Institutes of Health, NIDDK</i> NIH Summer Internship Program in Biomedical Research	Summers 1999-2001 <i>Bethesda, MD</i>
<b>High School Intern</b> <i>Behavioral Pharmacology Lab, Uniformed Services University of the Health Sciences</i>	1997-1998 <i>Bethesda, MD</i>

## SPECIAL TRAINING

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<b>Data Carpentry Instructor Training</b> <i>The Carpentries</i>	September 2017
<b>Scientific Diver</b> <i>American Association of Underwater Sciences Harbor Branch Oceanographic Institute, Florida Atlantic University</i>	2010-2014 <i>Fort Pierce, FL</i>

## COMMUNITY

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**Reviewer:** Briefings in Bioinformatics, Molecular Ecology Resources

**Cellist:** UC Davis Symphony Orchestra (2017-2018), New York University Community Orchestra (2014-2015), Vero Beach Chamber Orchestra (2010-2013, Principal: 2012-2013), Melbourne Community Orchestra (2007-2009), Wilmington Symphony Orchestra (2002-2004), Tampa Bay Symphony (1998-2002), Montgomery County Youth Orchestras (1993-1998)