

# Jarred SANDERS, PhD

## PERSONAL DATA

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PLACE AND DATE OF BIRTH: Dickinson, ND USA | 08 February 1988  
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**Motivations and Goals:** I am a conscientious, self-motivated scientist with the grit to achieve excellence and deliver results even when challenged with setbacks. I bring 8 years of experience in interdisciplinary research that includes developmental biology, pharmacogenomics, biophysics, neuroscience, and genetics. I seek to leverage my skills in a competitive organization committed to growth and delivering products and/or services that improve lives.

## WORK EXPERIENCE

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| Current                 | PhD Scientist<br>UNIVERSITY OF CHICAGO with Prof David Biron<br><i>Identified the genetics of sleep homeostasis and the lasting consequences of sleep deprivation</i><br>I spearheaded a collaborative project to discover the molecular and cellular basis of sleep using a model system. I screened and identified two behaviorally and genetically distinct homeostatic mechanisms regulating sleep using molecular cloning techniques, computational image analysis, and the parsing of large datasets in MATLAB. I further identified molecular signaling pathways linked to stress that are upregulated in a tissue-specific manner following perturbations to sleep. During this time, I supervised 5 undergraduates and 3 graduate students on short-term computational and molecular biology projects. My work successfully resulted in 3 first author, peer-reviewed publications. |
| JUNE 2010               |  |
| JANUARY-APRIL 2013      | Teaching Assistant<br>UNIVERSITY OF CHICAGO with Prof Trevor Price<br><i>Developed a modeling lab for BIOS13107 Environmental Ecology</i><br>I led a team of 4 TAs to develop a climate modeling lab for 60 students. This was the highest rated section of the course in student evaluations. I led a discussion group for 20 students every week, graded exams, and held office hours to clarify material given during lectures.   |
| APRIL-JUNE 2011         | Rotation Student<br>UNIVERSITY OF CHICAGO with Dr Richard Jones<br><i>Identified protein QTLs that modulate cellular responses to chemotherapy</i><br>I collaborated with 2 pharmacogenomics labs to help identify novel relationships between inter-individual protein levels, genetic variants, and sensitivity to chemotherapeutic drugs using the R software environment and micro-Western blotting assays.  |
| JUNE 2009 - AUGUST 2010 | Research Assistant<br>UNIVERSITY OF GEORGIA, ATHENS with Prof Douglas Menke<br><i>Identified cis-regulatory elements affecting the evolutionary development of limb size variation</i><br>I used limb morphology differences of <i>Anolis</i> species from the Greater Antilles to test the hypothesis that independent, repeated evolution of limb size variation relied on shared developmental mechanisms.  |

## EDUCATION

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- JUNE 2017    PhD in GENETICS, GENOMICS, AND SYSTEMS BIOLOGY  
**University of Chicago, USA**  
Thesis: "*C. elegans* Lethargus is a Vulnerable Sleep State" | Advisor: David Biron
- MAY 2010    BSc in GENETICS, *Magna cum laude*  
**University of Georgia, USA**  
GPA: 3.84/4.00
- JUNE 2006    High School Diploma with High Honors, , *Class of 2010 Salutatorian*  
**Kadena High School, Okinawa, Japan**  
GPA: 4.00/4.00

## GRANTS AND SCHOLARSHIPS

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- 2010-2013    NIH Genetics and Regulation Training Grant (T32 GM07197)  
2007-2010    Georgia HOPE Scholarship (*Full Tuition*)  
2006        Kadena Air Force Base Officers' Spouses' Club Scholarship  
2006        Kadena Air Force Base Alpha Kappa Alpha Chapter Scholarship

## PUBLICATIONS

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**Distinct unfolded protein responses mitigate effects of non-lethal deprivation of *C. elegans* sleep in different tissues.**

Sanders J\*, Scholz M\*, Merutka I, Biron D.

*Submitted to BMC Biology (2017)*

**Sleep during development is not essential for *C. elegans* survival, but poor quality sleep causes FoxO-dependent increases in sleep.**

Bennett H, Khoruzhik Y, Hayden D, Huang H, Sanders J, Walsh M, Biron D, Hart A.

*In review at BMC Biology (2017)*

**Homeostasis in *C. elegans* sleep is characterized by two behaviorally and genetically distinct mechanisms.**

Sanders J\*, Nagy S\*, Tramm N\*, Iwanir S, Shirley IA, Levine E, Biron D.

*eLife* (Cambridge). 2014 Dec 4;3. doi: 10.7554/eLife.04380. PMID: 2547412

**Male Mating Behaviour: The importance of waiting**

Sanders J\*, Biron D

*eLife* (Cambridge). 2014 July 22;3. doi: 10.7554/eLife.03754. PMCID: PMC4106264

**The *Caenorhabditis elegans* interneuron ALA is (also) a high-threshold mechanosensor.**

Sanders J\*, Nagy S, Fetterman G, Wright C, Treinin M, Biron D.

*BMC Neuroscience*. 2013 Dec 17;14(1):156. PMID: 24341457

## WET LAB SKILLS

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Extensive molecular biology experience using PCR, qPCR, Western blots, micro-Western blots, molecular cloning, Gateway cloning, Gibson assembly cloning, restriction enzyme cloning, nucleic acid preparation, gel electrophoresis, DNA sequencing, transgenic animal construction, sterile technique, assay design, optogenetics, microfluidics, fluorescence microscopy, confocal microscopy, reverse genetics screening, genetic crosses, maintaining an orderly notebook, organizational skills, attention to detail

## COMPUTER SKILLS

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Basic Knowledge: Bash (Unix shell), Git, GitHub, Mathematica, Python, R, Adobe Photoshop, Adobe Illustrator, Arduino, soldering  
Intermediate Knowledge: MATLAB, HTML, ~~La~~TEX, Excel, Word, PowerPoint, Outlook, Google Docs, Google Sheets, Google Slides

## REFERENCES

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THESIS ADVISOR: David Biron, PhD  
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