

## Bobby L. Jones II

Email: [bjones14@email.mmc.edu](mailto:bjones14@email.mmc.edu) | Phone: 205.586.6008

### SUMMARY OF QUALIFICATIONS

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- ❖ Broadly trained research scientist with over 7 years of combined research experience in neuroscience, biochemistry, molecular biology, immunology, and cell biology
- ❖ Over 4 years of hands-on research experience in the neurobiology of drug addiction (Doctoral dissertation)
- ❖ Two years of research experience in the neural development and function in *C. elegans* (Masters' thesis)
- ❖ Competitive awards/honors recognizing research accomplishments
- ❖ Two years of teaching experience at the elementary school level

### EDUCATION

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|---------------------------|-------------------------|---|------------------------|
| <b>Doctoral Candidate</b> | Microbiology/Immunology | Meharry Medical College, Nashville, TN. | <b>2019 (Expected)</b> |
| <b>M.A.</b>               | Biology                 | Fisk University, Nashville, TN          | <b>2014</b>            |
| <b>B.S.</b>               | Biology                 | University of Alabama, Birmingham, AL   | <b>2010</b>            |

### RESEARCH EXPERIENCE

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**Graduate Student** **2015 - Present**  
Department of Microbiology and Immunology, Center for AIDS Health Disparities Research (CAHDR), Meharry Medical College (MMC), Nashville, TN  
Supervisor: Dr. Jui Phandare

- My doctoral research is focused on the neuroprotective effects of proline metabolism in methamphetamine-induced neurotoxicity. Previous research had implicated apoptosis in the methamphetamine-induced neurotoxicity in neuronal cell lines. However, the underlying mechanistic details remained poorly defined. I hypothesized a role for the proline catabolic enzyme proline oxidase (POX) in inducing apoptosis, via over-production of reactive oxygen species (ROS), upon methamphetamine exposure. Intriguingly, I neither found any association between physiologically relevant doses of methamphetamine and apoptosis nor any accumulation of ROS. However, interestingly, I detected a methamphetamine-specific upregulation of the proline biosynthetic pathway enzymes. This indicates that the proline metabolic pathway may play an important role in maintaining neuronal homeostasis. My latest findings suggest that the upregulated proline levels cause a reduction in glutamate levels, thus precluding glutamate-induced neurotoxicity.

**Summer Research Intern** **2016 (Jun-Aug)**  
Department of Vaccine Production Program Laboratory (VPPL), Vaccine Research Center, National Institute of Allergy and Infectious Diseases (NIAID), National Institutes of Health (NIH), Bethesda, MD  
Supervisors: Drs. E. Scheideman and Richard Schwartz

- My summer research internship training was designed to support the mission of the VPPL, i.e. to efficiently translate candidate research vaccines into materials for proof-of-concept clinical trials. I assisted in optimizing better growth conditions for Chinese Hamster Ovary (CHO) cells used in vaccine production.

**Graduate Student** **2012 - 2014**  
Department of Life and Physical Sciences, Fisk University, Nashville, TN  
Supervisor: Dr. Brian Nelms

- The role of the transcription factor forkhead-8 (FKH-8) in the development and function of the dopaminergic neurons in the model organism *Caenorhabditis elegans* (*C. elegans*) remained unclear, despite reports of its homologs in other species playing important roles in dopaminergic neuronal fate and maintenance. I studied the

impact of the absence of *fkh-8* on dopamine neuronal development in *C. elegans*, and my research contributed to the eventual demonstration that FKH-8 plays critical role in the functioning, but not in the development, of the dopaminergic neurons.

**Researcher**

**2010 - 2011**

Department of Immunology, University of Alabama at Birmingham, Birmingham, AL  
Supervisor: Dr. Harry Schroeder Jr.

- Towards understanding the mechanisms underlying the B- and T-cell antigen receptor repertoire development, my research involved processing and analyzing the bone marrow and tissue samples from recombinant mice expressing polyclonal antibody repertoires lying outside of normal genetic constraints.

**Research Intern**

**2009 (Jun-Jul)**

Department of Rheumatology/Immunology, University of Alabama at Birmingham, Birmingham, AL  
Supervisor: Dr. Louis Bridges

- Towards identifying genetic influences on rheumatoid arthritis (RA) susceptibility and severity, I helped compile data on the single nucleotide polymorphisms (SNPs) found in the gene encoding B cell scaffold protein with ankyrin repeats 1 (BANK1), identified as a risk factor in RA. Resulting data suggested that variations in the SNP frequencies among races surveyed may be associated with RA severity.

**Student Intern**

**2005 (Jun-Jul)**

Department of Pathology and Cell Biology, University of Alabama at Birmingham, Birmingham, AL  
Supervisor: Dr. Joanne E. Murphy-Ullrich

- I contributed to the research that confirmed the reported role of thrombospondin 1 (produced by endothelial cells in response to injury and stress) in proper cellular repair after artificial wound injury.

**TECHNICAL SKILLS**

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- **Cell Biology and Tissue culture:** Culturing, maintenance, plasmid transfection and lentiviral transduction of various human cell lines; generation and maintenance of stable cell lines (overexpression, knock-down, and knock-out).
- **Molecular Biology:** Bacterial culture and transformation; DNA and RNA isolation, purification, quantitation; End-point and quantitative polymerase chain reaction (PCR, qPCR); reverse transcription-polymerase chain reaction (RT-PCR); gene cloning and site-directed mutagenesis; small interfering RNA (siRNA) and short hairpin RNA (shRNA)-mediated gene silencing; clustered regularly interspaced short palindromic repeats (*CRISPR*)-CAS9-mediated targeted genome editing
- **Biochemistry and Immunology:** Biochemical and enzymatic assays; Protein isolation and quantitation techniques; sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE) and western blot.

**TEACHING EXPERIENCE**

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**Science Teaching Fellow**

**2017-2018**

Napier Enhanced Option Elementary School, Nashville, TN

- Co-taught interactive science sessions; developed teaching strategies and tools; facilitated laboratory exercises; advised students.

**Science Teaching Fellow**

**2012-2013**

Hattie Cotton STEM Magnet Elementary School, Nashville, TN

- Co-taught interactive science sessions; developed teaching strategies and tools; co-managed a classroom laboratory; advised/mentored students outside of the classroom.

**HONORS AND AWARDS**

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- **2<sup>nd</sup> Place**, Meharry Translational Research Center Conference, MMC, Nashville, TN **2018**
- **Research Intern**, Graduate Summer Opportunity to Advance Research Program, NIH, Bethesda, MD **2016**

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- **Science Teaching Fellow**, Scientist in the Classroom Partnership Program, Vanderbilt University, TN **2017-18**
- **Travel Award**, Society on NeuroImmune Pharmacology (SNIP) Annual Meeting, Krakow, Poland **2016**
- **Science Teaching Fellow**, Scientist in the Classroom Partnership Program, Vanderbilt University, TN **2012-13**
- **Scholar**, Post-baccalaureate Research Education Program (PREP), UAB, Birmingham, AL **2010-11**
- **Scholar**, Ronald E. McNair Post-baccalaureate Achievement Program, UAB, Birmingham, AL **2009-10**
- **Scholar**, Alabama Louis Stokes Alliance for Minority Participation, UAB, Birmingham, AL **2006-07**

## PROFESSIONAL EXPERIENCE

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### Secretary

Graduate Student Association (GSA), Meharry Medical College, Nashville, TN. **2016-2018**

- Served as official correspondent of the organization
- Recorded the minutes and maintained current records of all meetings of the organization
- Collected and presented all communications and correspondences to and from the GSA

**Mentor**, Lipscomb Biomolecular Science M.S Program **2017**

Meharry Medical College, Nashville, TN.

- Assisted in designing short-term projects and provided hands-on technical training for graduate students
- Supervised and assisted with poster and oral presentations

**Teacher Aide for Medical Students** **2018-Present**

Meharry Medical College, Nashville, TN.

- In small group setting, assist students understand concepts and answer questions from lecture/discussion topics.

**Work Study Student** **2010 (Jan-Dec)**

Messina Lab, University of Alabama at Birmingham, Birmingham, AL

- In charge of keeping inventory, re-stocking lab supplies, lab cleaning, and waste disposal

## PUBLICATIONS AND PRESENTATIONS

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- Pandhare, J., Dash, S., **Jones, B.**, Viallta, F., Dash, C. 2017. A Novel Role of Proline Oxidase in HIV-1 Envelope Glycoprotein-induced Neuronal Autophagy. *J. Biol. Chem.* 290: 25439-25451.
- **Jones, B.**, Balasubramaniam, M., Dash, C., Pandhare, J. 2018. Activation of proline synthesis pathway protects neurons from methamphetamine-induced toxicity. (Poster) MeTRC Health Disparities Conference, Nashville, TN.
- **Jones, B.**, Balasubramaniam, M., Dash, C., Pandhare, J. 2018. Activation of proline synthesis pathway protects neurons from methamphetamine-induced toxicity. (Poster) Society for Neuroscience, San Diego, CA.
- **Jones, B.**, Scheideman, E., Hussain, A., Schwartz, R. 2016. ClonePix® Seeding and Cell Growth: Optimization Studies for Generation of Clonal CHO Cell Lines for Vaccine Development. (Poster) NIH Summer Research Symposium, Rockville, MD.
- **Jones, B.**, Dash, S., Balasubramaniam, M., Dash, C., Pandhare, J. 2016. A Novel Role of the Metabolic Redox Enzyme Proline Oxidase in Methamphetamine-Induced Neurotoxicity. (Poster) Society on NeuroImmune Pharmacology, Krakow, Poland.
- **Jones, B.**, Nelms, B. 2013. Investigating the role of FKH-8 in regulating expression of dopaminergic neuron target genes in *C. elegans*. (Poster) Southeast Regional Society for Developmental Biology Meeting, Nashville, TN.
- **Jones, B.**, Vale, A., Y., Xing, Schroeder, H. 2011. Similarities and Divergences in the DQ52-containing CDR-H3 repertoire between mouse and human. (Poster) Annual Biomedical Research Conference for Minority Students (ABRCMS), St. Louis, MO.

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- **Jones, B.**, Vale, A., Y., Xing, Schroeder, H. 2010. Preferential selection for wild-type over Dh-altered immunoglobulin CDR-H3 in naïve B cell populations. (Poster) UAB McNair Conference, Birmingham, AL.
- **Jones, B.**, Ypeng, H., Bridges, L. 2009. Racial/Ethnic Differences in Single Nucleotide Polymorphisms in the gene encoding B-Scaffold protein in ankryin repeats (BANK1) in Rheumatoid Arthritis. (Poster) UAB McNair Conference, Birmingham, AL.
- **Jones, B.**, Sweetwyne, M., Murphy-Ullrich, J. 2005. The effect of Thrombospondin-1 on angiogenesis. (Poster) UAB CORD Summer Internship Symposium, University of Alabama at Birmingham, Birmingham, AL.