

## CURRICULUM VITAE

### John Jeshurun Michael

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#### ACADEMIC QUALIFICATIONS

Degree	Institution	Date
Ph.D. in Veterinary Sciences	Washington State University, Pullman, WA	2009 – 2015
Bachelors in Technology, Biotechnology	Sathyabama University, Tamil Nadu, India	2003 – 2007

#### PROFESSIONAL APPOINTMENTS

Position	Institution/Company	Date
Lecturer	Cornell University, Ithaca, NY	September 2018 – present
Instructor	Cornell University, Ithaca, NY	July 2016 – August 2018
Postdoctoral Fellow	Washington State University, Pullman, WA	March – June 2016
Graduate Student	Washington State University, Pullman, WA	2009 – 2015
Software Engineer	Infosys Technologies Limited, India	2007 – 2009

#### AWARDS

Title	Description	Institution	Date
Teaching Assistant Excellence Award	The Graduate and Professional Student Association recognized my efforts as a Teaching Assistant for Introductory Biochemistry	Washington State University	Fall 2015
University Gold Medalist	Ranked 1 <sup>st</sup> among 121 students in the Department of Biotechnology	Sathyabama University, Tamil Nadu, India	May 2007
Current Semester Topper	Ranked among top 5 in a class of 51		Spring 2004, Fall 2004, Spring 2005 and Fall 2005
Overall topper among the 2 <sup>nd</sup> year students	Ranked 13 <sup>th</sup> out of 1095 students		Spring 2004

#### GRANTS

Title	Description	Funding Agency	Date
Poncine Scholarship	A year-long graduate student stipend (\$24,780.00)	Poncine Trust	July 2014 – June 2015

2015 Education Committee Travel Award	Travel grant for presenting at the 59th Annual Biophysical Society Meeting (\$400)	Biophysical Society	February 2015
Graduate and Professional Student Association – Travel grant	Travel grant to present my data at the Annual Biophysical Society Meetings (\$353.54 – 2015; \$550 – 2014; \$450 - 2013)	Washington State University Graduate and Professional Student Association	Spring 2015, Spring 2014, and Spring 2013
Graduate and Professional Student Association – Registration grant	Registration grant to attend the Annual Biophysical Society Meetings (\$70)		Spring 2013

## TEACHING EXPERIENCE

Course	Role and Course Description	Instructor (s)	Department	Date
Vegetarian Diets (23 students enrolled)	<b>Co-Instructor</b> – Delivered lectures, guided students with term papers, assignments, created assignments, made exams, and managed a team of three undergraduate and one graduate teaching assistants.	Drs. Charles McCormick, and John Jeshurun Michael	Division of Nutritional Sciences, Cornell University	Spring 2019
Personalized Concepts and Controversies (115 students enrolled)	<b>Instructor</b> - I supervised a team of eight graduate teaching assistants, designed lectures, in-class activities to promote active-learning, managed grades, organized team meetings, organized scheduling, and purchased supplies. I also taught one recitation session per week, where I would lecture for about 50 minutes and answer questions raised by students, and maintained office hours.	Dr. John Jeshurun Michael	Division of Nutritional Sciences, Cornell University	Fall 2017
Nutrition, Health, and Society (433 students enrolled)	<b>Co-Instructor</b> – Delivered lectures, guided students with term papers, assignments, created assignments, made exams, delivered extra-help sessions, maintained office hours, and managed a team of eight graduate teaching assistants.	Drs. David Levitsky, and John Jeshurun Michael	Division of Nutritional Sciences, Cornell University	Fall 2017
Obesity and the Regulation of Body Weight (Online Course)	<b>Teaching Assistant</b> - I helped address student concerns by email and graded exams.	Dr. David Levitsky	Division of Nutritional Sciences, Cornell University	Winter 2017, Summer 2017
Human Anatomy and Physiology Lab (~100 students enrolled)	<b>Course coordinator</b> – I supervised a team of 12 undergraduate and four graduate TAs. I organized teaching assistant schedules, designed lab handouts, prepared online pre- and post-lab assignments, placed orders for lab supplies, organized lab setup and tear-down, supervised teaching assistant presentations, prepared exams, proctored exams, taught a few labs, evaluated teaching	Dr. Marla Lujan	Division of Nutritional Sciences, Cornell University	Spring 2017, Spring 2018, Spring 2019

	assistants, and organized weekly lab meetings.			
Human Anatomy and Physiology Lecture (~250 students enrolled)	<b>Guest Lecturer</b> – I was invited to give a lecture titled “ <i>Skeletal Muscles Clinical Correlate: Distal Arthrogryposis.</i> ”	Dr. Kimberly O’Brien	Division of Nutritional Sciences, Cornell University	Spring 2017, Spring 2018
Nutrition, Health, and Society (Online Course)	<b>Teaching Assistant</b> - I helped address student concerns by email, and graded assignments and exams.	Dr. David Levitsky	Division of Nutritional Sciences, Cornell University	Winter 2017, Summer 2017
Personalized Concepts and Controversies (160 students enrolled)	<b>Teaching Fellow</b> - I taught two recitation sessions per week, where I would lecture for about 50 minutes and answer questions raised by students, maintained office hours, and managed a team of nine teaching assistants.	Dr. Anna Kelles	Division of Nutritional Sciences, Cornell University	Fall 2016
Nutrition, Health, and Society (424 students enrolled)	<b>Co-Instructor</b> – Delivered lectures, guided students with term papers, assignments, created exams, delivered extra-help sessions, maintained office hours, and managed a team of nine teaching assistants.	Drs. David Levitsky, Anna Kelles, and John Jeshurun Michael	Division of Nutritional Sciences, Cornell University	Fall 2016
Introductory Biochemistry (~180 students enrolled)	<b>Guest Lecturer</b> – At the invitation of the Instructor, I gave a lecture on "Synthesis of Fatty Acids."	Dr. Ronald Brosemer	School of Molecular Biosciences, Washington State University	Fall 2015
Introductory Biochemistry (~50 students per recitation session)	<b>Recitation Teaching Assistant</b> – I taught two recitation sessions per week, where I would lecture for about 50 minutes and answer questions raised by students.	Dr. Ronald Brosemer	School of Molecular Biosciences, Washington State University	Fall 2011, Spring 2012, Fall 2012, Fall 2013, Spring 2014 and Fall 2015 (6 semesters)
Introduction to Skeletal Muscle Physiology	<b>Guest Lecturer</b> – I was invited to give a lecture titled “ <i>Regulatory roles of troponin and tropomyosin in striated muscles</i> ”, which focused on muscle functioning at a molecular level.	Dr. Mike Dodson	Department of Animal Sciences, Washington State University	Fall 2011
Physiology of Reproduction Laboratory,	<b>Laboratory Teaching Assistant</b> – I helped organize the lab, delivered short lectures, prepared quizzes and graded them.	Dr. Derek McLean	Department of Animal Sciences, Washington State University	Spring 2010
Introductory Animal Science	<b>Laboratory Teaching Assistant</b> – I helped organize the lab, delivered short lectures, prepared quizzes, and graded them.	Dr. Charles Gaskins	Department of Animal Sciences, Washington	Fall 2009

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## MANUSCRIPTS

1. **John Jeshurun Michael**, Sampath Gollapudi, Steven J Ford, Katarzyna Kazmierczak, Danuta Szczesna-Cordary, and Murali Chandra. Deletion of 1-43 amino acids in cardiac myosin essential light chain blunts length dependency of Ca<sup>2+</sup> sensitivity and crossbridge detachment kinetics, *Am J Physiol Heart Circ Physiol.* **2012**; Jan 15;304(2):H253-9.
2. Ranganath Mamidi, **John Jeshurun Michael**, and Murali Chandra. Interplay between the overlapping ends of tropomyosin and the N terminus of cardiac troponin T affects tropomyosin states on actin, *FASEB J.* **2013** Sep;27(9):3848-59.
3. **John Jeshurun Michael**, Sampath Gollapudi and Murali Chandra. Effects of pseudo-phosphorylated rat cardiac troponin T are differently modulated by  $\alpha$ - and  $\beta$ -myosin heavy chain isoforms. *Basic Res Cardiol.* **2014** Nov;109(6):442.
4. **John Jeshurun Michael** and Murali Chandra. Interplay between the effects of dilated cardiomyopathy mutation (R206L) and the Protein Kinase C phosphomimic (T204E) of rat cardiac troponin T are differently modulated by  $\alpha$ - and  $\beta$ -myosin heavy chain isoforms. *J Am Heart Assoc.* **2016** Mar 21;5(3).
5. **John Jeshurun Michael**, Sampath Gollapudi and Murali Chandra. Interplay between the effects of a Protein Kinase C phosphomimic (T204E) and a dilated cardiomyopathy mutation (K211 $\Delta$  or R206W) in rat cardiac troponin T blunts the magnitude of muscle length-mediated crossbridge recruitment against the  $\beta$ -myosin heavy chain background. *J Muscle Res Cell Motil.* **2016**, 37 (3): 83-93.
6. Masataka Kawai, Tarek Karam, **John Jeshurun Michael**, Li Wang, and Murali Chandra. Comparison of elementary steps of the cross-bridge cycle in rat papillary muscle fibers expressing  $\alpha$ - and  $\beta$ -myosin heavy chain with sinusoidal analysis. *J Muscle Res Cell Motil.* **2016**, 37(6):203-214.
7. David A. Levitsky, Carly R. Pacanowski, Laura Barre, Anna Sewall, Yingyi Zhong, Josh Tokman, Sabrina Dunn, **John Jeshurun Michael**, and Lua Wilkinson. Being in a Control Group is Associated with the Prevention of Age-Related Weight Gain (*To be submitted in June 2019*)
8. **John Jeshurun Michael**, Yuan Ru, Carrie E Thomas, Eva K. Pressman, Richard K. Miller, Thomas H Darrah, Francoise Vermeylen, and Kimberly O. O'Brien. Expression of Placental ZIP8 and ZIP14 are differently associated with maternal iron status. (*To be submitted in June 2019*)

## PRESENTATIONS

1. **John Jeshurun Michael** and Murali Chandra. Interplay between the effects of dilated cardiomyopathy mutation (R206L) and the Protein Kinase C phosphomimic (T204E) of rat cardiac troponin T are differently modulated by  $\alpha$ - and  $\beta$ -myosin heavy chain isoforms. 1451-Pos. *Presented at the 60<sup>th</sup> Annual Biophysical Society Meeting, Los Angeles, California.* February 2016
2. **John Jeshurun Michael** and Murali Chandra. Functional effects of the H1-helix of rat cardiac troponin T on crossbridge detachment rate is differently modulated by  $\alpha$ - and  $\beta$ -myosin heavy chain isoforms. 3006-Pos. *Presented at the 59<sup>th</sup> Annual Biophysical Society Meeting, Baltimore, Maryland.* February 2015
3. Sampath K. Gollapudi, Joseph Maricelli, **John Jeshurun Michael\***, Lynne O. Nelson, Dan B. Rodgers, and Murali Chandra. A Cardiac Troponin T Mutant Missing the N-terminal Extension Causes a Dose-dependent Pattern of Effects on Cardiac Function and Remodeling in Transgenic

Mice. 3005-Pos. *Presented at the 59<sup>th</sup> Annual Biophysical Society Meeting, Baltimore, Maryland.* February 2015 (\* - presenting author)

4. **John Jeshurun Michael**, Sampath Gollapudi, and Murali Chandra. Functional Effects of Pseudo-phosphorylating Rat Cardiac Troponin T Residue 204 are Uniquely Modulated by  $\alpha$ - and  $\beta$ -Myosin Heavy Chain Isoforms. 3889-Pos. *Presented at the 58<sup>th</sup> Annual Biophysical Society Meeting, San Francisco, California.* February 2014
5. **John Jeshurun Michael**, Lauren Tal, Jil Tardiff and Murali Chandra. Pseudophosphorylation of cardiac troponin I residues 23/24 decreases myofilament  $Ca^{2+}$  sensitivity in transgenic mice containing D230N mutation in  $\alpha$ -tropomyosin. 2466-Pos. *Presented at the 57<sup>th</sup> Annual Biophysical Society Meeting, Philadelphia, Pennsylvania.* February 2013
6. **John Jeshurun Michael**, Ranganath Mamidi, Lauren Tal, Jil Tardiff and Murali Chandra. D230N mutation in tropomyosin and R92L mutation in cardiac troponin T have strikingly different impact on calcium-regulated activation of cardiac myofilaments. 1815-Pos. *Presented at the 56<sup>th</sup> Annual Biophysical Society Meeting, San Diego, California.* March 2012
7. **John Jeshurun Michael**, Srilakshmi Mallampalli, Ranganath Mamidi, and Murali Chandra. Altering the structure of the H1-helix of rat cardiac troponin T affects  $Ca^{2+}$ -mediated activation of rat cardiac thin-filaments. Pos-L208 *Presented as a late abstract at the 56<sup>th</sup> Annual Biophysical Society Meeting, San Diego, California.* March 2012
8. **John Jeshurun Michael**, Steven J Ford, Katarzyna Kazmierczak, Danuta Szczesna-Cordary, and Murali Chandra. Deletion of 1- 43 amino acids from the N-terminus of myosin essential light chain in transgenic mice decreases force production by reducing the number of myosin cross-bridges. 683-Pos. *Presented at the 55<sup>th</sup> Annual Biophysical Society Meeting, Baltimore, Maryland.* March 2011

**BOOK CHAPTER:** Sampath Gollapudi, **John Jeshurun Michael**, and Murali Chandra; "Striated Muscle Dynamics" for the *Encyclopedia of Human Biology* (3<sup>rd</sup> Edition) (Available online 28 October 2014); doi:10.1016/B978-0-12-801238-3.00251-8;

<http://www.sciencedirect.com/science/article/pii/B9780128012383002518>

#### REVIEWER/REVIEW EDITOR OF SCIENTIFIC JOURNALS

- American Journal of Physiology: Heart and Circulatory Physiology
- Frontiers in Striated Muscle Physiology
- Frontiers in Biophysics
- Open Veterinary Journal
- Journal of Cellular Physiology
- Journal of Microbiology, Biotechnology and Food Sciences

#### RESEARCH EXPERIENCE

Laboratory PI	Institution	Projects	Date
Dr. Kimberly O'Brien	Division of Nutritional Sciences, Cornell University	Zip8 & Zip 14 status in anemic mothers	Summer 2017 – present
Dr. Murali Chandra	Dept. of Integrative Physiology and Neuroscience, Washington State University	Functional effects of the H1-helix and flexible-linker of cardiac troponin T in health and disease	Summer 2010 – Summer 2016
Dr. Mike Dodson	Dept. of Animal Sciences, Washington State University	Culturing adipocytes <i>in vitro</i> using sterile techniques	Spring 2010
Dr. K. Perumal	Shri AMM Murugappa Chettiar Research Centre, Chennai, Tamil Nadu, India	Isolation and characterization of fungal pigments	Spring 2007

Dr. Palanisamy	Centenary Madras Veterinary College, Chennai, Tamil Nadu, India	<i>In vitro</i> fertilization of buffalo oocytes	Fall 2006
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## TECHNICAL SKILLS

- **Protein Biology:**
  - Protein expression in *E.coli* cells
  - Protein purification using ion-exchange chromatography
  - SDS-PAGE
  - Western blot
  - Pro-Q diamond staining
  - Estimation of protein concentration using Nanodrop method
- **Animal experience:**
  - Maintenance of mouse colonies
  - Extraction of cardiac bundles from mice and rats
- **Biophysical techniques:**
  - Troponin exchange into detergent-skinned cardiac muscle fibers
  - Force-ATPase measurements and Step-length perturbations in muscle fibers to estimate various contractile (e.g., maximal force production, ATP consumption, tension cost, cooperativity and Ca<sup>2+</sup> sensitivity of force production) and mechano-dynamic parameters (e.g., muscle fiber stiffness, rates of crossbridge (XB) recruitment and XB distortion, rate of tension redevelopment, etc.).
- **Analysis:**
  - Image J
  - LabView
  - Graphpad Prism 6.0 – Two-way ANOVA based figures
  - Excel
- **Cell Biology:**
  - Media preparation
  - Pouring Agar plates
  - Inoculation and cell culture
- **Bioinformatics:**
  - BLAST
  - LALIGN
  - Six-frame translation tool

## OUTREACH AND SERVICE

- Judge at the “NGSO Annual Spring Symposium” organized by Nutrition Graduate Student Organization at Cornell University – June 6<sup>th</sup> 2018
- Judge at the “CURB Spring Forum 2017” organized by CURB’s Young Researchers Program – April 27<sup>th</sup> 2017
- Judge at “Showcase for Undergraduate Research and Creative Activities (SURCA) 2016” - organized by the Office of Undergraduate Research, at Washington State University – March 28<sup>th</sup> 2016
- Judge at the “First Postdoctoral Research Symposium” organized by the College of Veterinary Medicine at Washington State University – April 16<sup>th</sup> 2014
- Student representative in the Muscle Group Search Committee for a new faculty in the Dept. of Integrative Physiology and Neuroscience, Washington State University – Fall 2012

## LEADERSHIP

- Truth and Training (T&T) AWANA Leader for children (10-12 years old). Organized by Emmanuel Baptist Church, Pullman, WA. – (2011 – 2016).

- President of the Washington State University Cricket Club – Fall 2011

## LANGUAGES

1. English (native)
2. Tamil (native - comprehension and speaking)
3. Japanese (conversational at a basic level - since 2012)
4. Mandarin (conversational at a basic level - since 2012)

## REFERENCES

1. Dr. David Levitsky (*Teaching Support Supervisor*) – Professor, Division of Nutritional Sciences, Cornell University; Tel: +1 (607)-255-3263; [dal4@cornell.edu](mailto:dal4@cornell.edu)
2. Dr. Marla Lujan (*Teaching Support Supervisor*) – Assistant Professor, Division of Nutritional Sciences, Cornell University; Tel: +1 (607)-255-3153; [mel245@cornell.edu](mailto:mel245@cornell.edu)
3. Dr. Kimberly O'Brien (*Research Supervisor*) – Professor, Division of Nutritional Sciences, Cornell University; Tel: +1 (607)-255-3743; [koo4@cornell.edu](mailto:koo4@cornell.edu)
4. Dr. Murali Chandra (*Ph. D. Advisor*) – Professor, Dept. of Integrative Physiology and Neuroscience, Washington State University; Tel: +1 (509)-335-7561 ; [murali@vetmed.wsu.edu](mailto:murali@vetmed.wsu.edu)
5. Dr. Ronald Brosemer (*Teaching Assistant Supervisor*) – Professor, School of Molecular Biosciences, Washington State University; Tel: +1 (509)-335-6195; [xaire@vetmed.wsu.edu](mailto:xaire@vetmed.wsu.edu)