

## GWÉNAËLLE BEGUE, Ph.D.

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### EDUCATION

**PhD Exercise Physiology** - Montpellier University, Montpellier, France 2013

Dissertation: *Protein Balance and Muscular Phenotype*

Summa Cum Laude

**MS Exercise Physiology** - Montpellier University, Montpellier, France 2009

Thesis: *Role of interleukin 6 (IL-6) in resistance training induced muscle adaptations.*

Summa Cum Laude

**BS Exercise Science** - Montpellier University, Montpellier, France 2007

### PROFESSIONAL APPOINTMENTS

**Associate Professor (Tenure)** 2018-Present

Department of Kinesiology, Exercise Science

California State University, Sacramento, CA, USA

**Volunteer Clinical Faculty** 2024-Present

Nephrology Department, Internal Medicine

University of California Davis Health, Sacramento, Davis. CA, USA

**Postdoctoral Research Associate** 2015-2018

Aging, Exercise 'Omics', & Skeletal Muscle Health

Human Performance Laboratory

Ball State University, Muncie, IN, USA

**Lecturer (Part-Time)** 2012-2013

Department of Kinesiology, Exercise Science

Montpellier University, Montpellier, France

**Teaching Assistant** 2009-2012

Department of Kinesiology

Montpellier University, Montpellier, France

### CONSULTING EXPERIENCE

**Research Exercise Physiologist (remote)** 2025

Renibus Therapeutic (Biopharmaceutical)

**Exercise Physiologist (remote)** 2024-present

PUER Health (biotechnology/startup)

**Scientific Reviewer-Consultant (remote)** 2021- present

General Dynamics Information Technology (GDIT)

### RESEARCH FUNDINGS & GRANTS

#### Funded

National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), R01 2021-2026

*Role of Mitochondrial Dysfunction in the Response to Exercise in Patients with Advanced Kidney Disease.*

PI: Dr. Gamboa (Vanderbilt University), **Co-Is: Dr. Begue** (CSU Sacramento), Dr. Rosharanvan (UC Davis).

**\$3M**

National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), R01 2021-2026  
*Impact of metabolic acidosis on muscle mitochondrial energetics, metabolic health and physical endurance in persons with chronic kidney disease. PI: Dr. Rosharanvan (UC Davis), Co-PI: Dr. Gamboa (Vanderbilt University), **Collaborator: Dr. Begue** (CSU Sacramento). **\$3M***

Office of Research, Innovation and Economic Development (ORIED), Sacramento State 2023-2024  
 Research and Creative Activity Award  
*Physical Activity and Muscle-Brain Crosstalk: Significance of Biomarkers and Fitness Level in Parkinson's Disease. PI: **Dr. Begue** (CSU Sacramento) Co-I: Dr. Brown (CSU Sacramento). **\$10,000***

Invigorating Scholarly and Creative Activities Program, Sacramento State, **3WTUs** Spring 2022  
 Probationary Faculty Development Grant, Sacramento State, **\$500** Fall 2022

Office of Research, Innovation and Economic Development (ORIED), Sacramento State 2020-2021  
 Research and Creative Activity Award  
*Exercise-Induced Brain-Boosting Molecules in Patients with Parkinson's Disease. PI: **Dr. Begue** (CSU Sacramento) Co-I: Dr. Brown (CSU Sacramento). **\$7,500***  
 Research and Creative Activity Award  
*Effects of Menstrual Cycle Phase on Muscular Performance and Repair After Resistance Exercise-Induced Muscle Damage. PI: Dr. Casazza (CSU Sacramento) **Co-I: Dr. Begue** (CSU Sacramento), **\$7,500***

National Institute of Diabetes and Digestive and Kidney Diseases, R03 2020-2023  
*A Randomized, Controlled Trial of Personalized, Home-based Exercise Training on Muscle Mitochondrial Function and Metabolism. PI: Dr. Rosharanvan (UC Davis), **Collaborator: Dr. Begue** (CSU Sacramento). **\$156k***

#### Not Funded

National Institute of Neurological Disorder and Stroke (NINDS), R15 2024  
*Effect of Exercise and Intermittent Hypoxia on Physical Health and Biomarkers of Brain Health in Individuals with Parkinsons Disease. PI: **Dr. Begue** (CSU Sacramento), Co-PI: Dr. Brown (CSU Sacramento). **\$375,000***

#### PUBLICATIONS and PRESENTATIONS

##### Selected Peer-Reviewed Articles ([Full list here](#))

1. **Begue G**, Ahmadi A, Hayden CM, Foster A, Rehman U, Norman JE, Vargas C, Bennett BJ, McDonald C, Ikizler TA, Hamdan H, Smith L, Kim TY, Jue T, Gamboa J, Roshanravan B. **A Pilot Randomized Trial of Home-Based, Video-Supervised Exercise on Muscle Metabolism and Physical Endurance in Chronic Kidney Disease.** medRxiv [Preprint]. 2025
2. **Begue G**, Roshanravan B. **From Frailty to Fitness: Unraveling Mortality Risk in ESKD.** Clin J Am Soc Nephrol. 2025
3. Ahmadi A, Valencia AP, **Begue G**, Norman JE, Fan S, Durbin-Johnson BP, Jenner BN, Campbell MD, Reyes G, Kapahi P, Himmelfarb J, de Boer IH, Marcinek DJ, Kestenbaum BR, Gamboa JL, Roshanravan B. **A Pilot Trial of Nicotinamide Riboside and Coenzyme Q10 on Inflammation and Oxidative Stress in CKD.** Clin J Am Soc Nephrol. 2025
4. Hayden CMT, **Begue G**, Gamboa JL, Baar K, Roshanravan B. **Review of Exercise Interventions to Improve Clinical Outcomes in Nondialysis CKD.** Kidney Int Rep. 2024
5. Raue U, **Begue G**, Minchev K, Jemiolo B, Gries KJ, Chambers TL, Rubenstein A, Zaslavsky E, Sealfon S, Trappe TA, Trappe SW. **Fast and Slow Muscle Fiber Transcriptome Dynamics with Lifelong Endurance Exercise.** J Appl Physiol (1985).2023

6. Ahmadi A, **Begue G**, Valencia AP, Norman JE, Lidgard B, Bennett BJ, Van Doren MP, Marcinek DJ, Fan S, Prince DK, Gamboa J, Himmelfarb J, de Boer IH, Kestenbaum BR, Roshanravan B. **Randomized crossover clinical trial of coenzyme Q10 and nicotinamide riboside in chronic kidney disease.** JCI Insight. 2023
7. Rubenstein A, Smith G, Raue U, **Begue G**, Minchev K, Ruf-Zamojski F, Nair V, Zhou L, Zaslavsky E, Trappe T, Trappe S and Sealfon S. **Single-cell transcriptional profiles in human skeletal muscle.** Sci Rep. 2020 Jan 14;10(1):229
8. Gries K, Minchev K, Raue U, Grosicki G, **Begue G**, Finch WH, Graham B, Trappe T, and Trappe S. **Single Muscle Fiber Contractile Properties in Lifelong Aerobic Exercising Women.** J Appl Physiol (1985). 2019
9. **Begue G**, Raue U, Jemiolo B, Trappe SW. **DNA Methylation Assessment from Human Slow- and Fast-Twitch Skeletal Muscle Fibers.** J Appl Physiol (1985). 2017Apr 1; 122(4): 952-967
10. Britto FA, **Begue G**, Rossano B, Docquier A, Vernus B, Sar C, Ferry A, Bonniou A, Ollendorff V, Favier FB. **REDD1 deletion prevents dexamethasone-induced skeletal muscle atrophy.** Am J Physiol Endocrinol Metab. 2014, Dec1; 307(11): E983-93
11. **Begue G**, Douillard A, Galbes O, Rossano B, Vernus B, Candau R, Py G. Early activation of rat skeletal muscle IL-6/STAT1/STAT3 dependent gene expression in resistance exercise linked to hypertrophy. PLoS One. 2013;8(2): e57141.
12. Douillard A, Galbes O, **Begue G**, Rossano B, Levin J, Vernus B, Bonniou A, Candau R, Py G Calpastatin overexpression in the skeletal muscle of mice prevents clenbuterol-induced muscle hypertrophy and phenotypic shift. Clin Exp Pharmacol Physiol. 2012 Apr; 39 (4): 364-72

#### Textbook Collaboration

*Laboratory Experiences in Exercise Physiology*, James R. Bagley, C. Matthew Lee; Kendal Hunt. 2020

#### Selected Conference Abstracts Presentations (Oral and Poster)

1. B. Lyon, Y Marquez, K Neu, C Bayless, M. Brown, **G. Begue**. Effectiveness of a 12-week educational exercise intervention on improving physical activity, exercise capacity, and symptoms in people with Parkinson's disease. *American Physiological Society, Annual Conference*, Baltimore (MD), 2025 (Poster)
2. **G. Begue**, A. Foster, A. Figueroa Lopez, L. Kaether, TY. Kim, T. Jue, H. Hamdan, J. Gamboa, B. Roshanravan. A home-based video-supervised 12-weeks exercise program improves physical performance in chronic kidney disease. *American Society of Nephrology Annual Kidney Week Conference*, San Diego (CA), 2024 (Oral Presentation)
3. **G. Begue**, A. Nicorici, N. Ghafar, R. Batra, H. Badhesha, C. Vargas, TY. Kim, H. Hamdan, T. Jue, J. Gamboa, B. Roshanravan. A novel exercise intervention, home-based and video-supervised improved cardiorespiratory fitness and physical performance in chronic kidney disease. *American Society of Nephrology Annual Kidney Week Conference*, Orlando (FL), 2022 (Poster)
4. **G. Begue**. Skeletal Muscle Molecular Adaptations: "Omics" and Epigenetics. *Southwest ACSM Annual Meeting, Skeletal Muscle Symposium*, 2022 (Oral Presentation).
5. **G. Begue**, J. Norman, B. Chabi, C. Vargas, A. Ahmadi, U. Rehman, TY. Kim, T. Jue & B. Roshanravan. Home-based, video-supervised exercise study testing improved cardiorespiratory fitness and enhanced muscle metabolism in chronic kidney disease. *French Kinesiology Annual Conference (ACAPS)*, Montpellier (France), 2021 (Oral presentation)
6. **G. Begue**, G. Casazza, K. Schaal. The Female Athlete Challenges: Research gaps and perspectives. *Southwest ACSM Annual Meeting*, online, 2020 (**Symposium Organizer and Presenter**)
7. **G. Begue**, U. Raue, B. Jemiolo, K. Minchev, T. Trappe, S. Trappe. Epigenetic and transcriptomic signatures of human slow- and fast-twitch muscle fibers across the lifespan. *ACSM Conference on Integrative Physiology of Exercise*, San Diego (CA, USA), 2018. (Poster)

8. **G. Begue**, U. Raue, B. Jemiolo, K. Minchev, T. Trappe, S. Trappe. Epigenetic and transcriptomic signatures of human slow- and fast-twitch muscle fibers across the lifespan. *Indiana Physiological Society Annual Conference*, Upland (IN, USA), 2018 (**Oral Presentation Award**)
9. **G. Begue**, U. Raue, B. Jemiolo, S. Trappe. A new RRBS application to assess DNA methylation in human slow- and fast-twitch skeletal muscle fibers with low-DNA input. *Indiana Physiological Society Annual Conference*, Indianapolis (IN, USA), 2017 (**Poster**)
10. **G. Begue**, U. Raue, B. Jemiolo, S. Trappe. The aging Athlete: DNA content in slow- and fast-twitch skeletal muscle fibers. *Indiana Physiological Society Annual Conference*, Indianapolis (IN, USA), 2017 (**Poster**)
11. **G. Begue**, A. Douillard, O. Galbès, B. Rossano, B. Vernus, R. Candau & G. Py. Role of IL6 / STAT1/STAT3 signaling pathway in resistance training induced muscle hypertrophy. *French Kinesiology Bi-Annual Conference (ACAPS)*, Grenoble (France), 2013 (**Poster**)
12. **G. Begue**, B. Vernus, M. Combette, R. Candau, G. Py. Eccentric contractions induced proteolysis through autophagy lysosomal system in rats. *International Biochemistry of Exercise Congress (IBEC)*, Stockholm (Sweden), 2012 (**Poster**)
13. **G. Begue**, O. Galbes, A. Douillard, B. Rossano, F. Favier, G. Py. Role of interleukin 6 (IL-6) in strength training muscle adaptations. *First International Congress of Translational Research in Human Nutrition*, Clermont-Ferrand (France), 2010 (**Poster**)

### Social Media and News Articles

*Can exercise help slow progression of Parkinson's Disease? Sacramento State study investigates* by KCRA, August 2023. <https://www.kcra.com/article/sacramento-state-study-exercise-parkinsons-disease/45632260>

1. *Sac State study will gauge whether exercise can improve the lives of Parkinson's patients* by Cynthia Hubert, Sacramento State News website, August 2023. <https://www.csus.edu/news/newsroom/stories/2023/8/parkinsons-exercise-research.html>
2. *Nephrology researchers investigate treatment options for impaired physical performance in chronic kidney disease*, by Liam Connolly, UC Davis Health News & Medical Press websites, June 2023. <https://medicalxpress.com/news/2023-06-nephrology-treatment-options-impaired-physical.html>

### Guest Presentations: Lectures, Seminars, and Webcast

1. *The Power of Exercise-Induced Biomarkers for Personalized Exercise in Chronic Diseases*. Webcast, CSU Exemplar in Kinesiology, STEM-Net, CSU Chancellor Office, 2023.
2. *A Journey in Exercise Physiology Research*. Guest Lecturer: Introduction to Kinesiology, George Fox University, Newberg (OR, USA), 2022 & 2023
3. *Health and Exercise Performance: The Role of Circadian Rhythms and The Muscle Molecular Clock*, Guest Lecturer: KINS 294A- Contemporary Topics in Sports Performance, CSU Sacramento (CA), 2022
4. *Exercise Regulation of Muscle Size and Function*. Guest Lecturer: Exercise Science Club, George Fox University (OR), web conferenced presentation, 2021.
5. *A Journey in Exercise Muscle Biology Research*. Guest Lecturer: KIN 781 - Muscle Physiology, San Francisco State University (CA), web conferenced presentation, 2020
6. *Exercise Regulation of Muscle Size and Function: Whole Body to Gene*. Guest Lecturer: Exercise Physiology, George Fox University (OR), Newberg (OR, USA), 2019

### HONORS AND AWARDS

<i>Alan D. Wade Family Research Award</i> , Retiree Association & College of HHS, Sacramento State, Health research on poor, underserved, and vulnerable CKD populations	2022
<i>Oral Presentation Award</i> , Indiana Physiological Society Annual Conference	2018
<i>Travel Award</i> , Integrative Biology of Exercise meeting, American Physiological Society	2016
<i>Poster Award</i> , Young Investigator, Kinesiology Society Annual Conference, Grenoble (France)	2013

## TEACHING EXPERIENCE

### Sacramento State University

Physiology of Exercise (KINS 152)  
 Lecture: 2 units; Laboratory: 1 unit; Fall and Spring terms; 2018-2023  
 Energy Production and Performance (KINS 152S)  
 Lecture: 3 units; Summers 2019-2022, Spring 2020  
 Research in Exercise Physiology (KINS 259)  
 Graduate Seminar: 3 units; Springs 2019,2021,2025  
 Research Methods in Kinesiology (KINS 210)  
 Lecture: 3 units, Spring 2024  
 Graduate Studies in Kinesiology (KINS 209)  
 Lecture: 3-units; Falls 2021-2023  
 Research Seminar (KINS 211)  
 Graduate seminar: 1 unit; Falls 2021-2023  
 Advanced Exercise Physiology Laboratory (KINS 250)  
 Laboratory: 3 units; Fall 2022  
 Advanced Exercise Physiology (KINS 252)  
 Lecture: 3-units; Fall 2023  
 Culminating Experience (Thesis Research)  
 Fall and Spring terms; 2019-2025  
 Directed Individual Study (undergraduate and graduate)  
 Spring and Fall 2020, Spring 2021, Spring 2023, Fall 2023 &2024, Spring 2025

### Ball State University

Foundation of Exercise Physiology (undergraduate)  
 Lecture: 3 units; Fall 2014, Spring 2015

## SERVICE TO PROFESSION

### *Ad Hoc* Journal Peer-Reviewer

Women in Sport and Activity Journal	2022-Present
Frontiers in Endocrinology	2022-Present
Journal of Strength and Conditioning Research	2019-Present
Journal of Cachexia, Sarcopenia and Muscle	2021-Present
Epigenetics	2020-Present

### Scientific Reviewer

U.S. Army Medical Research and Development Command	2021- present
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### Memberships

American College of Sports Medicine (ACSM)	2014-Present
Southwest Chapter – ACSM	2020-Present
American Physiological Society (APS)	2014-Present
American Society of Nephrology (ASN)	2021-Present
American Society of Chemistry and Molecular Biology (ASCMB)	2017-2019

### Certifications

Basic Biomedical Research: Collaborative Institutional Training Initiative (CITI)  
 Basic Life Support (CPR): American Health Association (AHA)  
 Licensed Phlebotomist of California State (CPT I)

## SERVICE TO UNIVERSITY, COLLEGE, and DEPARTMENT

**University - Sacramento State University**

Faculty Senate, Research and Creative Activity Awards Subcommittee, HHS Representative	2025-2028
Institutional Review Board (IRB), Member	2019-Present
Research and Creative Activity Award (RCA), Reviewer and Panel Chair	2019-2025
CSU Biotech, New Investigator Grant Mechanism, Scientific Reviewer	2025
Search Committee, AVP Office of Research, Faculty Representative	2023
Research and Creative Activity Student Symposium, Juror	2021-2022

**College and Department - Health and Human Services, Kinesiology**

HHS, Health Hive Committee, offer health care and community support services, Member	2024- Present
Kinesiology Undergraduate Coordinator	2024-Present
Curriculum Committee, Member	2021-Present
Integrative Exercise Biology Laboratory, Director	2018-
Present	
Graduation Commencement, Faculty Marshal	2019-Present
Kinesiology Graduate Program Committee	
Co-Coordinator	2021-2024
Member	2019-2021
Undergraduate Program Committee, Member	2023-2025
Exercise Science Committee, Member	2018-2023
Budget Committee, Member	2018-2022