

## **Charlene B. Van Buiten, Ph.D.**

Assistant Professor of Food Science and Human Nutrition  
Colorado State University

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### **PRESENT APPOINTMENT**

**2019-present**      **Assistant Professor**, Department of Food Science and Human Nutrition  
Colorado State University, Fort Collins, CO

### **EDUCATION**

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**2017**                      **Ph.D., Food Science**  
Pennsylvania State University, University Park, PA  
Dissertation: *Physicochemical modification of gliadin by dietary polyphenols and the potential implications for celiac disease.*  
Ryan J. Elias, advisor.

**2012**                      **B.S., Nutritional Sciences**  
University of Connecticut, Storrs, CT  
Minors: Food Science, Biological Sciences

### **RESEARCH EXPERIENCE**

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**2017-2019**                      **Postdoctoral Research**  
**T32 Ruth L. Kirschstein National Research Service Award**  
**Rutgers, The State University of New Jersey (Ilya Raskin)**  
*Department of Plant Biology*  
Elucidating of the pre-absorptive functionality of dietary polyphenols within the context of chronic inflammatory diseases; investigating the influence of gastrointestinal redox environment modification on intestinal health.

**2012-2017**                      **Doctoral Research**  
**USDA National Institute of Food and Agriculture Predoctoral Fellowship**  
**Pennsylvania State University (Ryan J. Elias)**  
*Department of Food Science*  
Developed a novel approach to preventing celiac disease symptoms *in vitro* using tea polyphenols as a natural sequestrant of gluten protein; characterized protein-polyphenol interactions and using a variety of biophysical techniques including nuclear magnetic resonance, isothermal titration calorimetry, dynamic light scattering and circular dichroism.

**2009-2012**                      **Undergraduate Research**  
**University of Connecticut (Richard Mancini)**  
*Department of Animal Science*  
Explored the effects of reverse electron transport on metmyoglobin reduction and assisted with packaging experiments focused on factors affecting chemical stability of beef during storage.

## TEACHING EXPERIENCE

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- Fall 2016**                    **Sole Instructor of Record– Science & Technology of Plant Foods**  
*Pennsylvania State University, Department of Food Science*  
 Led lectures and weekly labs focused on the physical, chemical and microbial changes that plant foods undergo from the time of harvest to human consumption. Developed course material for molecular biology of plants and sustainability of plant foods; developed capstone product development project.
- Guest Lecturer – Food Toxins**  
 Pennsylvania State University, Department of Food Science  
 Topic: Celiac disease.
- Spring 2015, 2016**       **Guest Lecturer – Physiology of Nutrition**  
*Pennsylvania State University, Department of Food Science*  
 Topic: Effect of processing on nutrition and bioactivity of plant foods.
- Fall 2015**                    **Sole Instructor of Record – Communication of Scientific Research**  
*Pennsylvania State University, Department of Food Science*  
 Led discussion-based course focused on techniques for sharing scientific data with a variety of audiences. Developed activities for students to practice grant writing, poster presentations and oral presentations.
- Co-Instructor – Science & Technology of Plant Foods**  
*Pennsylvania State University, Department of Food Science*  
 Developed and presented new lecture units for bread production and plant protein functionality. Directed processing lab activities and designed grading rubrics for teaching assistants to use for lab reports.
- Spring 2015**                **Teaching Assistant – Food Systems in Italy**  
*Pennsylvania State University, Department of Food Science*  
 Provided instructional support for two-week tour of food production facilities in northern Italy.
- Fall 2013, 2014**            **Teaching Assistant – Science & Technology of Plant Foods**  
*Pennsylvania State University, Department of Food Science*  
 Provided instructional support during processing lab activities and graded lab reports.
- Spring 2012**                **Teaching Assistant – The Science of Food**  
*University of Connecticut, Department of Animal Science*  
 Held weekly office hours and graded written material.

## STUDENT MENTORSHIP

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- 2018**                            Research Mentor, Independent Study in Biochemistry
- 2018**                            Guest Speaker and Mentor, Young Women in Bio
- 2015, 2016**                   Summer Research Mentor, Upward Bound Summer STEM Academy
- 2015-2016**                   Graduate Research Mentor, Independent Study in Food Chemistry

## AUTHORED RESEARCH GRANTS

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### Completed

<b>2016-2018</b>	USDA National Institute of Food and Agriculture Predoctoral Fellowship Role: PI                      Total Award: \$70,874
<b>2015-2016</b>	Pennsylvania Wine Marketing & Research Board – Research, Marketing and Education Grant Role: Co-PI                      Total Award: \$12,963
<b>2014-2015</b>	Pennsylvania State University College of Agricultural Sciences Graduate Student Competitive Grant Role: Lead Author      Total Award: \$2,000
<b>2011</b>	University of Connecticut Summer Undergraduate Research Fund Role: Lead Author      Total Award: \$3,000

## PUBLICATIONS

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**Van Buiten, C. B.;** Yennawar, N.; Pacheco, C. N.; Hatzakis, E.; Elias, R. J. Physicochemical interactions with (-)-epigallocatein-3-galate drives structural modification of celiac-associated immunostimulatory peptide  $\alpha_2$ -gliadin (57-89) at physiological conditions. *Food & Function*. **2019**, DOI:10.1035/C9FO00553F

**Van Buiten, C. B.;** Lambert, J. D.; Elias, R. J. Green tea polyphenols mitigate gliadin-mediated inflammation and permeability in vitro. *Mol. Nutr. Food Res.* **2018**, 62. 1700879. DOI: 10.1002/mnfr.201700879

Stanley, T. H.; **Van Buiten, C. B.;** Baker, S. A.; Elias, R. J.; Anantheswaran, R. C.; Lambert, J. D. Impact of roasting on the flavan-3-ol composition, aroma chemistry and in vitro pancreatic lipase inhibitory activity of cocoa beans. *Food Chem.* **2018**, 255, 414 – 420.

Belskie, K. M.; **Van Buiten, C. B.;** Ramanathan, R.; Mancini, R. A. Reverse electron transport effects on NADH formation and metmyoglobin reduction, *Meat Sci.* **2015**, 105, 89 – 92. DOI: 10.1016/j.meatsci.2015.02.012

Ramanathan, R.; Mancini, R. A.; Dady, G. A.; **Van Buiten, C. B.** Effects of succinate and pH on cooked beef color. *Meat Sci.* **2013**, 93 (4), 888 – 892. DOI: 10.1016/j.meatsci.2012.12.007

Ramanathan, R.; Mancini, R. A.; **Van Buiten, C. B.;** Suman, S. P.; Beach, C. M. Effects of pyruvate on lipid oxidation and ground beef color. *J Food Sci.* **2012**, 77 (8), C886 – C892. DOI: 10.1111/j.1750-3841.2012.02814.x

### In Preparation

**Van Buiten, C. B.;** Lambert, J. D.; Elias, R. J. Novel dietary therapies for celiac disease. **2019**.

**Van Buiten, C. B.;** Smith, J. C.; Elias, R. J.; Lambert, J. D. Flavanols vs. Flavor: An Interactive Curriculum for Developing a High-Flavanol Chocolate Bar. **2019**.

## CONFERENCE PRESENTATIONS

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**Van Buiten, C. B.;** Gong, Y.; Wu, G.; Lam, Y. Y.; Raskin, I. (2019). "Poorly absorbed dietary compounds modify intraluminal redox status: A novel therapeutic target for metabolic syndrome," NIH Centers for Advancing Research on Botanical and Other Natural Products Annual Meeting, Washington, D.C..

Honarbakhsh, M.; Malta, K.; Ericsson, A.; Zhu, C.; Bromberg, Y.; Zhong, G.; Isoherranen, N.; **Van Buiten, C. B.;** Raskin, I.; Chikindas, M.; Breslin, P.; Quadro, L. (2019) "Interaction between dietary vitamin A, gut microbes and host vitamin A status," Experimental Biology 2019. Orlando, FL.

**Van Buiten, C. B.;** Smith, J. C.; Elias, R. J.; Lambert, J. D. (2017). "Flavanols vs. Flavor: Fostering an Interest in Food Science with Chocolate Bar Product Development," Institute of Food Technologists 2017 National Meeting. Las Vegas, NV.

**Van Buiten, C. B.;** Lambert, J. D.; Sae-tan, S.; Elias, R. J. (2017). "Inhibition of Gliadin Digestion by Green Tea Polyphenols and the Potential Implications for Celiac Disease," Experimental Biology 2017. Chicago, IL.

**Van Buiten, C. B. (2016).** "Physicochemical consequences of interactions between immunodominant gluten peptide  $\alpha_2$ -gliadin (57-89) and major green tea polyphenol (-)-epigallocatechin-3-gallate," 2016 USDA NIFA Fellows Program Project Directors' Meeting, Washington, D.C.

**Van Buiten, C. B. (2016).** "Physicochemical modification of an immunodominant gluten peptide and the potential implications for celiac disease," Withycombe-Charalambous Graduate Student Awards Symposium at the 251<sup>st</sup> American Chemical Society National Meeting, San Diego, CA.

**Van Buiten, C. B.;** Pacheco, C. N.; Hatzakis, E.; Yennawar, N.; Elias, R. J. (2016). "Structural modification of an immunodominant gluten peptide upon interaction with (-)-epigallocatechin-3-gallate," Advances in Food Peptide & Food Protein Research: Nutrition, Functionality & Food Safety session and Sci-Mix, 251<sup>st</sup> American Chemical Society National Meeting, San Diego, CA

**Van Buiten, C. B. & Elias, R. J. (2016).** "Polymer-based removal of foxy aromas," Pennsylvania Wine Marketing & Research Board Research Summit, University Park, PA.

**Van Buiten, C.B.;** Pacheco, C. N.; Hatzakis, E.; Yennawar, N.; Elias, R. J. (2016). "Structural modification of an immunodominant gluten peptide upon interaction with (-)-epigallocatechin-3-gallate," 2016 Gamma Sigma Delta Research Symposium, University Park, PA.

**Van Buiten C. B.;** Pacheco, C. N.; Hatzakis, E.; Elias, R.J. (2015) "Influence of molecular structure on interactions of dietary polyphenols and an immunodominant gluten peptide", 250<sup>th</sup> American Chemical Society National Meeting, Boston, MA.

**Van Buiten C. B.;** Pacheco, C. N.; Hatzakis, E.; Elias, R.J. (2015) "Influence of molecular structure on interactions of dietary polyphenols and an immunodominant gluten peptide," 2015 Food Systems Approach to Gut Health Conference, University Park, PA.

**Van Buiten, C. B.;** Schmitt, M.; Schneider, V.; Elias, R.J. (2015) "Investigation of a novel polymer-based fining technique for the removal of 2-aminoacetophenone from *Vitis vinifera* wines," 2015 American Society for Enology and Viticulture National Conference, Portland, OR.

**Van Buiten, C. B.;** Primrose, R. J.; Elias, R. J. (2014). "Effects of Pre- and Post-Fermentation Fining with Polyvinylpolypyrrolidone on the Aromatic Profile of *Moscatel* Wine," 2014 American Society of Enology and Viticulture National Conference, Austin, TX.

**Van Buiten, C. B.;** Ramanathan, R., Mancini, R. A. (2012). "Effects of reverse electron transport on NADH formation and enzymatic metmyoglobin reduction," 2012 Frontiers in Undergraduate Research, University of Connecticut, Storrs, CT.

## HONORS AND AWARDS

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### Pennsylvania State University

**2016** Robert D. and Jeanne L. McCarthy Graduate Teaching Award  
Edith and William B. Rosskam Memorial Scholarship

**2015** Harold F. Martin Graduate Assistant Outstanding Teaching Award  
Pennsylvania Commonwealth Education Abroad Scholarship

**2014, '15** William Rosskam Memorial Scholarship

**2014** Frank S. and Nina Cobb Grant-in-Aid Award

**2013, 2015** Robert D. and Jeanne L. McCarthy Graduate Teaching Award

### Institute of Food Technologists

**2016** First Place, Nutritious Foods for Kids Product Development Contest

**2010, '11, '12** IFT Student Scholarship, Connecticut "Nutmeg" Chapter

### University of Connecticut

**2011** Jarvis Products Corporation Scholarship  
Cornelius and Mary Jane York Scholarship

**2010, 2011** Mary M. and Katherine E. Connelly Scholarship

**2010** Kinsman Family International Agriculture Award  
Universitas 21 Global Citizenship Award

**2009** Henry and Ebba Hansen Leadership Award

### National FFA Association

**2009** National FFA Organization American Degree

## PROFESSIONAL DEVELOPMENT

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### Rutgers University

**2018** OASIS Leadership and Professional Development Program  
Fundamentals of Designing and Teaching Online Courses  
Universal Design and Accessibility in Online Education

**2017** *Nature* Masterclass in Scientific Writing & Publishing

### Big 10 Academic Alliance – National Research Mentoring Network

**2018** Postdoc Mentor Training Workshop  
Professional Development and Grantwriting Conference

**Institute of Food Technologists**

- 2016** IFT Food Communicators Group  
Disney IFT Student Association Product Development Team
- 2015** LEAD 360 Workshop Participant

**Pennsylvania State University**

- 2015** Schreyer Institute of Teaching Excellence – Course in College Teaching Certificate Program

**University of Connecticut**

- 2008-2012** Connecticut FFA Food Science & Technology Career Development Event Coordinator
- 2009** PepsiCo Global Research & Development Students Day Participant

**PROFESSIONAL SERVICE**

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- 2018** **Volunteer, Institute for Food Technologists**  
“Feeding Tomorrow” Travel Scholarship Judge
- 2017-present** **Expert Referee**  
*Journals:* The International Journal of Obesity; Obesity; Journal of the Science of Food and Agriculture; Agriculture; Nutrients

**ACADEMIC SERVICE**

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**Rutgers University**

- 2018-2019** President, Postdoctoral Association

**Pennsylvania State University**

- 2014-2017** Graduate Student Representative
- 2016** Life Sciences Symposium Collaborative Activity Chair

**University of Connecticut**

- 2011-2012** Research Peer Advisor, Office of Undergraduate Research

**PROFESSIONAL MEMBERSHIP**

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Institute of Food Technologists  
American Society of Nutrition  
American Chemical Society  
*Gamma Sigma Delta* Honor Society of Agriculture  
American Society of Enology and Viticulture

**REFERENCES**

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**Ilya Raskin, Ph.D., Distinguished Professor**

Department of Plant Biology  
Rutgers, The State University of New Jersey  
New Brunswick, NJ 08901  
raskin@sebs.rutgers.edu

**Ryan J. Elias, Ph.D., Associate Professor**

Department of Food Science  
Pennsylvania State University  
University Park, PA 16801  
elias@psu.edu

**Joshua D. Lambert, Ph.D., Associate Professor**

Department of Food Science  
Pennsylvania State University  
University Park, PA 16801  
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**John N. Coupland, Ph.D., Professor**

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Pennsylvania State University  
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**Cameron Faustman, Ph.D., Professor****Interim Dean of the College of Agriculture, Health and Natural Resources**

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