

*Curriculum Vitae*

**Franck CARBONERO, Ph.D**

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## **PROFESSIONAL EXPERIENCE**

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**Assistant professor**, Washington State University, Department of Nutrition and Exercise Physiology, August 2019-Present

**Assistant professor**, University of Arkansas, Department of Food Science, July 2013- July 2019

**Post-Doctoral Research Associate**, University of Illinois at Urbana-Champaign (UIUC), Institute for Genomic Biology, February 2013-June 2013. Mentor: Prof Steven Leigh and Bryan White

**Post-Doctoral Research Associate**, University of Illinois at Urbana-Champaign (UIUC), Department of Animal Sciences, August 2010-January 2013. Mentor: Prof H. Rex Gaskins

**Graduate Research Assistant**, University of Warwick (UK), School of Life Sciences, October 2006-July 2010 Advisor: Dr Kevin Purdy

**Graduate Research Assistant**, Université Blaise Pascal (France), Laboratory of Microbiology: Genome and Environment, January- June 2006. Advisor: Dr Gerard Fonty

**Research Assistant**, Université Joseph Fourier (France), Laboratory of Alpine Ecology, April-July 2005 Advisor: Dr Roberto Geremia

## **EDUCATION**

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**Ph.D. Microbial Ecology**, University of Warwick, United Kingdom, October 2006- July 2010  
Concentration: Microbial Ecology, Molecular Microbiology

**M.S. Biodiversity, Ecosystems and Functional Ecology**, Université Blaise Pascal, France, September 2004- July 2006  
Concentration: Microbiology, Ecology

**B.S. Cellular and Molecular Biology**, Université Joseph Fourier, France, September 2001- June 2004  
Concentration: Biology, Biochemistry and Genetics

## PUBLICATIONS

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### Manuscripts published or in press

(\*Corresponding author; Underlined student advisee; +Equal contribution)

- Lavefve L, Marasini D and **Carbonero F\*** (2019). Microbial ecology of plant-based fermented foods and current knowledge on their impact on human health. Invited review/chapter for *Advances in Food Science and Nutrition*, Volume 87.
- Gomez A, Sharma A, Mallott E, Petrzalkova K, Robinson CJ, Yeoman CJ, **Carbonero F**, Pafco B, Rothman J, Ulanov A, Vlckova K, Amato KR, Schnorr S, Dominy N, Modry D, Todd A, Torralba M, Nelson KE, Burns M, Blekhman R, Remis M, Stumpf RM, Wilson BA, Gaskins HR, Garber P, White BA, Leigh SR (2019). Plasticity in the human gut microbiome defies evolutionary constraints. *mSphere* In press
- Walker LM, Cedeño-Sanchez M, Herre EA, **Carbonero F**, Turner BL, Wright SJ, and Stephenson SL (2018). The response of litter-associated myxomycete communities to 14 years of N, P and K addition in a lowland tropical rain forest. *Journal of Eukaryotic Biology*, In press (IF: 2.5)
- Ashley D, Marasini D, Brownmiller C, Lee JA, **Franck Carbonero** and Lee SO (2019). Impact of grain sorghum polyphenols on microbiota of normal weight and overweight/obese subjects during in vitro fecal fermentation. *Nutrients*, In Press (IF: 4.1)
- Carbonero F\***, Mayta-Apaza AC, Bolea M, Yu JZ, Lindebald M, Lyubimov A, Neri F, Szilagyi E and Bartholomew A (2018). Specific members of the gut microbiota are reliable biomarkers of irradiation intensity and lethality in large animal models of human health. *Radiation Research Journal*, Online ahead of print (IF: 2.4).
- Carbonero F\***, Mayta-Apaza AC, Yu JZ, Lindebald M, Lyubimov A, Neri F, Szilagyi E and Bartholomew A (2018). A Comparative Analysis of Gut Microbiota disturbances in the Gottingen Minipig and Rhesus Macaque Models of Acute Radiation Syndrome following bioequivalent radiation exposures. *Radiation and Environmental Biophysics*, 57 (4), 419-426 (IF: 2.9).
- Mayta-Apaza AC, Pottgen E, De Bodt J, Papp N, Abranko L, Van de Wiele T, Lee SO and **Carbonero F\*** (2018). Impact of tart cherries polyphenols on the human gut microbiota and phenolic metabolites in vitro and in vivo. *Journal of Nutritional Biochemistry*, 59, 160-172 DOI: 10.1016/j.jnutbio.2018.04.001 (IF: 4.5)
- Tsai T, Sales MA, Kim H, Erf GF, Vo N, **Franck Carbonero**, Van Der Merwe M, Kegley EA, Buddington RK, Wang X, Maxwell CV and Zhao J (2018). Isolated rearing at lactation increases gut microbial diversity and improves post-weaning performance in pigs. *Frontiers in Microbiology*, 9: 2889 (IF: 4).
- ALJahdali N, Gadonna-Widehem P, Delayre-Orthez C, Marier D, Garnier B, **Carbonero F\***, Anton PM (2017). Repeated Oral Exposure to N  $\epsilon$ -Carboxymethyllysine, a Maillard Reaction Product, Alleviates Gut Microbiota Dysbiosis in Colitic Mice. *Digestive Diseases and Science.*; 62 (12), 3370-3384 (IF: 2.9)

- Vo N, Tsai TC, Maxwell C, **Carbonero F\*** (2017). Early exposure to agricultural soil accelerates the maturation of the early-life pig gut microbiota. *Anaerobe*; 45:31-39 (IF: 2.3)
- Walden C, **Carbonero F\***, Zhang W (2017). Assessing impacts of DNA extraction methods on next generation sequencing of water and wastewater samples. *Journal of Microbiological Methods*; 141:10-16 (IF: 1.8)
- ALJahdali N, **Carbonero F\*** (2017). Impact of Maillard Reaction products on Nutrition and Health: Current knowledge and need to understand their fate in the human digestive system. *Critical Reviews in Food Science and Nutrition*; 2017 Sep 13:0. doi: 10.1080/10408398.2017.1378865. (IF: 6.1)
- Mayta-Apaza AC, Marasini D, **Carbonero F\*** (2017). Tart Cherries and health: Current knowledge and need for a better understanding of the fate of phytochemicals in the human gastrointestinal tract. *Critical Reviews in Food Science and Nutrition*; Sep 28:0. doi: 10.1080/10408398.2017.1384918. (IF: 6.1)
- Rodhouse L, **Carbonero F\*** (2017). Overview of craft brewing specificities and potentially associated microbiota. *Critical Reviews in Food Science and Nutrition*; 2017 Sep 14:1-12. doi: 10.1080/10408398.2017.1378616. (IF: 6.1)
- Johnson WH, Douglas MR, Lewis JA, Stuecker TN, Carbonero FG, Austin BJ, Evans-White MA, Entrekin SA, Douglas ME (2017). Do biofilm communities respond to the chemical signatures of fracking? A test involving streams in North-central Arkansas. *BMC Microbiology*; 17(1):29 (IF: 2.6)
- Turroni S, Rampelli S, Biagi E, Consolandi C, Severgnini M, Peano C, Quercia S, Soverini M, **Carbonero F**, Bianconi G, Rettberg P, Canganella F, Brigidi P, Candela M (2017). Temporal dynamics of the gut microbiota in people sharing a confined environment, a 520-day ground-based space simulation, MARS500. *Microbiome*; 5(1):39 (IF: 8.5)
- Carbonero F\*** (2017). Human epigenetics and microbiome: the potential for a revolution in both research areas by integrative studies. *Future Science OA*; 3(3).
- Sheflin AM, Melby CM, **Carbonero F** and Weir TL (2017). Linking Dietary Patterns with Gut Microbial Composition and Function. *Gut Microbes*; 8(2):113-129 (IF: 4.2)
- Cureau N, AlJahdali N, Vo N, **Carbonero F\*** (2016). Epigenetic mechanisms in microbial members of the human microbiota: current knowledge and perspectives. *Epigenomics*; 8(9): 1259-73 (IF: 4.5).
- Gomez A, Ptrzelkova K, Yeoman C, Burns MB, Amato KR, Vlckova K, Modry D, Todd A, Robinson CA, Remis M, Torralba M, Nelson KE, **Carbonero F**, Gaskins HR, Wilson B, Stumpf R, White B, Leigh S and Blekhman R (2016). Gut microbiome of coexisting BaAka pygmies and Bantu reflects gradients of traditional subsistence patterns. *Cell Reports*; 4(9):2142-53 (IF: 8.4).
- Baker CA, Rubinelli PM, Park SH, **Carbonero F**, Ricke SC (2016). Shiga toxin-producing *Escherichia coli* in food: Incidence, ecology, and detection strategies. *Food Control*; 59:407-419 (IF: 3.5).

- Walden, C, **Carbonero, F**, and Zhang, W (2015). Preliminary Assessment of Bacterial Community Change Impacted by Chlorine Dioxide in a Water Treatment Plant. *Journal of Environmental Engineering*; 42(2) (IF: 1.5).
- Gomez A, Petrzelkova K, Yeoman CJ, Vlckova K, Mrázek J, Koppova I, **Carbonero F**, Ulanov A, Modry D, Todd A, Torralba M, Nelson KE, Gaskins HR, Wilson B, Stumpf RM, White BA, Leigh SR (2015). Gut microbiome composition and metabolomic profiles of wild western lowland gorillas (*Gorilla gorilla gorilla*) reflect host ecology. *Molecular Ecology*; 10:2551-65 (IF: 6.1).
- O’Keefe SJD, Li JV, Lahti L, Ou J, **Carbonero F**, Mohammed K, Posma JM, Kinross J, Wahl E, Rude E, Vippera K, Naidoo VD, Mtshali L, Tims S, Puylaert PGB, DeLany J, Krasinskas A, Benefiel AC, Kaseb HO, Newton K, de Vos WM, Gaskins HR, Zoetendal EG, Nicholson JK (2015). Fat, Fiber and Cancer Risk in African Americans and Rural Africans. *Nature Communications*; 6:6342 (IF: 12.1).
- Shen W, Wolf PG, **Carbonero F**, Zhong W, Reid T, Gaskins HR, McIntosh MK (2014). Intestinal and systemic inflammatory responses are positively associated with sulfidogenic bacteria abundance in high-fat-fed male C57BL/6J mice. *Journal of Nutrition*; 144(8):1181-7 (IF: 4.1)
- Carbonero F**, Oakley BB and Purdy KJ (2013). Metabolic flexibility as a major predictor of spatial distribution in microbial communities. *PLoS One*; 9(1):e85105 (IF: 2.8).
- Candela M, Turrone S, Biagi E, **Carbonero F**, Rampelli S, Fiorentini, and Brigidi P (2014). Inflammation and colorectal cancer, when microbiota-host mutualism breaks. *World Journal of Gastroenterology*; 20(4):908-22 (IF:3.4).
- Ou J, **Carbonero F**<sup>+</sup>, Zoetendal E, Umeakunne K, DeLany J, Wang M, Newton K, Gaskins HR, and O’Keefe SJD (2013). Diet, microbiota, and microbial metabolites in colon cancer risk in rural Africans and African Americans. *American Journal of Clinical Nutrition*; 98(1): 111-120 (IF: 6.9).
- Amato KR, Yeoman CJ, Kent A, Righini N, **Carbonero F**, Estrada A, Gaskins HR, Stumpf RM, Yildirim S, Torralba M, Gillis M, Wilson BA, Nelson KE, White BA and Leigh SR (2013). Habitat degradation impacts black howler monkey (*Alouatta pigra*) gastrointestinal microbiomes. *The ISME Journal*; 7 (7), 1344-1353 (IF: 9.7).
- Hayot Carbonero C, **Carbonero F**, Smith LMJ and Brown TA (2013). Cytological characterisation of the underutilized forage crop *Onobrychis vicifolia* Scop. and other members of the *Onobrychis* genus. *Genetic Resources and Crop Evolution*; 60 (7), 1987-1996 (IF: 1.5).
- Nava G. M., **Carbonero F**<sup>+</sup>, Croix JA, Greenberg E and Gaskins HR (2012). Abundance and diversity of mucosa-associated hydrogenotrophic microbes in the healthy human colon. *The ISME Journal*. 6(1):57-70 (IF: 9.7).
- Carbonero F**, Benefiel AC and Gaskins HR (2012). Contributions of the hydrogen economy to colonic homeostasis. *Nature Reviews Gastroenterology and Hepatology*. 9:504-518 (IF: 12.6).

- Nava GM, **Carbonero F**<sup>+</sup>, Ou J, Benefiel AC, O’Keefe SJD and Gaskins HR (2012). Hydrogenotrophic microbiota distinguish native Africans from African and European Americans. *Environmental Microbiology Reports*. 4(3):307–315 (IF: 3.3).
- Carbonero F**, Benefiel AC, Alizadeh A and Gaskins HR (2012). Microbial sulfur metabolisms in the human colon and their link with health and disease. *Frontiers in gastrointestinal sciences*. 3:448 (IF: 4.1)
- Carbonero F**, Oakley BB, Hawkins RJ and Purdy KJ (2012). Genotypic distribution of *Methanosaeta*, a specialist model microorganism, along an estuary: Does metabolic restriction limit niche differentiation potential? *Microbial Ecology*. 63(4): 856-864 (IF: 3.6).
- Oakley BB, **Carbonero F**, Dowd SE, Hawkins RJ and Purdy KJ (2012). Contrasting patterns of niche partitioning between two anaerobic terminal oxidizers of organic matter. *The ISME Journal*. 6:905–914 (IF: 9.7).
- Hayot Carbonero C, **Carbonero F**, Smith LMJ and Brown TA (2012). Phylogenetic characterisation of *Onobrychis* species with special focus on the forage crop *Onobrychis viciifolia*. *Genetic Resources and Crop Evolution*; 59 (8), 1777-1788 (IF: 1.5).
- Carbonero F**, Nava GM, Benefiel AC, Greenberg E and Gaskins HR (2011). Microbial DNA extraction from intestinal biopsies is improved by avoiding mechanical cell disruption. *Journal of Microbiological Methods*. 87:125-127 (IF: 1.8).
- Croix JA, **Carbonero F**, Nava GM, Russel M, Benefiel AC, Greenberg E and Gaskins HR (2011). On the relationship between sialomucin and sulfomucin expression and hydrogenotrophic microbes in the human colonic mucosa. *PLOS One*. I6:e24447 (IF: 2.8).
- Carbonero F**, Oakley BB and Purdy KJ. (2010) Improving the isolation of anaerobes on solid media: The example of the fastidious *Methanosaeta*. *Journal of Microbiological Methods*; 80(2):203-205 (IF:1.8).
- Oakley BB, **Carbonero F**, van der Gast CJ, Hawkins RJ and Purdy KJ (2010). Evolutionary divergence and biogeography of sympatric niche-differentiated bacterial populations. *The ISME Journal*; 4(4):488–497 (IF: 9.3).

### **Manuscripts submitted or in preparation**

- AlJahdali N, Gadonna-Widehem P, Anton PM, and **Carbonero F**\* (2018). Modulation of Mice Gut Microbiota by Increasing Amounts of Dietary melanoidins from barley malts. Submitted to *Nutrients*
- Lavefve L, Howard LR, and **Carbonero F**\* (2018). Berry polyphenols metabolism and impact on human gut microbiota and health. Submitted to *Food and Function*
- Lavefve L, Cureau N, Rodhouse L, Vallee M, Walker LM, Marasini D, and **Carbonero F**\* (2018). Microbiota profiles and dynamics in different alcoholic and non-alcoholic fermented food products. Submitted to *Food Research International*

Zhao, Z, Xu LZ, Hu QQ, Wang H, Wang RH, **Carbonero F**, Liang Y, and Li Y (2018). A portable and automatic biosensing instrument for detection of foodborne pathogenic bacteria. *Transactions of the ASABE* (in review)

Al Othaim A, Marasini D, AlJahdali N, **Carbonero F\*** (2018). Impact of increasing concentrations of tart and sweet cherries juice concentrates on the murine gut microbiota. In prep

Al Othaim A, Marasini D, **Carbonero F\*** (2018). Impact of cranberry juice consumption on the gut and vaginal microbiota in post-menopausal women. In prep

Rodhouse L, Vanderpoorten K, Marasini D, and **Carbonero F\*** (2018). Bacterial microbiota composition and dynamics in the craft brewing process and barrel-aged beers. In prep

Cureau N, Lavefve L, Marasini D, Threllfall R, Howard LR, and **Carbonero F\*** (2018). Impact of anti-bacterial additives and yeast inoculation on the bacterial dynamics and chemical quality of wine fermentation. In prep

Cureau N, Lavefve L, Marasini D, Threllfall R, Savin M, and **Carbonero F\*** (2018). Modulation of bacterial microbiota associated with Arkansas grown wine and table grapes by environmental and temporal factors. In prep

### **Book chapters**

**Carbonero F** and Gaskins HR: Methanogenic archaea in the Human Microbiome. In: Nelson K. (Ed.) Encyclopedia of Metagenomics: SpringerReference ([www.springerreference.com](http://www.springerreference.com)). Springer-Verlag Berlin Heidelberg, 2013. DOI: 10.1007/SpringerReference\_349968

**Carbonero F** and Gaskins HR Sulfate-reducing Bacteria in the Human Gut Microbiome. In: Nelson K. (Ed.) Encyclopedia of Metagenomics: SpringerReference ([www.springerreference.com](http://www.springerreference.com)). Springer-Verlag Berlin Heidelberg, 2013. DOI: 10.1007/SpringerReference\_349969

### **Published abstracts**

Tsai T, Kim H, Sales MA, Wang X, Erf GE, Kegley EB, **Carbonero F**, van der Merwe M, Buddington R, and Maxwell CV (2016). Effect of rearing strategies during lactation on growth performance and the population of innate and adaptive immune cells in pigs from pre-weaning to market. *Journal of Animal Science* 94(supplement2):122

Tsai TT, Kim H, Sales MA, Wang X, Erf GE, Kegley EB, **Carbonero F**, van der Merwe M, Buddington R, and Maxwell CV. Effect of topsoil exposure during lactation on subsequent performance and abundance of innate and adaptive immune cells in pigs. *Journal of Animal Science* 94(supplement2):84 DOI10.2527/msasas2016-179

Vipperla K, Ou J, Wahl E, Ruder EH, DeLany JP, **Carbonero F**, Gaskins HR, O'Keefe SJD (2014). Halving the Meat and Fat and Doubling Fiber Intake Suppresses Microbiota Phenotypic and Mucosal Proliferative Biomarkers of Colon Cancer Risk Within 2 Weeks. *Gastroenterology*, May 2014 Volume 146, Issue 5, Supplement 1, Pages S-180–S-181.

Kinross J, Li JV, Lahti L, Ou J, **Carbonero F**, Vipperla K, Ruder EH, Newton K, Naidoo VG, DeLany JP, Zoetendal EG, Gaskins HR, O'Keefe SJD, Nicholson JK (2014). A High Fat Lower Fiber Dietary Intervention Perturbs the Urinary Metabonome and Gut Microbial Co-Metabolic Processes in a Population of African and African Americans. *Gastroenterology*, May 2014 Volume 146, Issue 5, Supplement 1, Pages S-543–S-544

- Carbonero F**, Ou J, Vipperla K, Ruder EH, Newton K, Naidoo VG and O'Keefe SJ (2013). Short-term reciprocal diet exchanges impact colonic fermentation and hydrogenotrophic microbiota for native Africans consuming a typical Western diet and African Americans consuming a traditional African diet. *Gastroenterology*, 144(5), S-346.
- Carbonero F**, Benefiel AC, Kristo J, Leinberger JK, Leurck MM, Greenberg E and Gaskins HR (2013). Increased abundance of bacteria producing hydrogen sulfide in the colonic mucosa of patients with ulcerative colitis and Crohn's disease. *Gastroenterology*, 144(5), S-825.
- Carbonero F**, Shen W, Zhou Z, McIntosh M and Gaskins HR (2013). Association of intestinal and systemic inflammatory responses with microbial bile acid deconjugation and hydrogen sulfide production in high fat-fed mice. *Gastroenterology*, 144(5), S-65.
- Carbonero F**, Benefiel AC, Kristo J, Leinberger JK, Greenberg E, Torres J and Gaskins HR (2013). An efficient and non-destructive method for microbial DNA extraction from paraffin-embedded intestinal biopsies. *Gastroenterology*, 144(5), S-827.
- Zoetendal EG, Puylaert PG, Ou J, **Carbonero F**, Newton K, Naidoo VG, Ruder EH, Gaskins HR, de Vos WM and O'Keefe SJ (2013). Short-term reciprocal diet exchanges between African Americans and rural Africans impacts the microbiota composition and activity. *Gastroenterology* 144(5): S-346.
- Zoetendal EG, Puylaert PG, Ou J, Vipperla K, Brouard FM, Ruder EH, Newton K, **Carbonero F**, Gaskins HR, de Vos WM and O'Keefe SJ (2013). Distinct microbiotas are present in urban and rural native South Africans, and in African Americans. *Gastroenterology* 144(5): S-347.
- Li J, Kinross J, Ou J, **Carbonero F**, Vipperla K., Ruder E, Newton K, Gaskins HR, Zoetendal EG, O'Keefe SJ and Nicholson JK (2013). A high fat lower fiber dietary intervention perturbs the urinary metabolome and gut microbial co-metabolic processes in a population of African and African Americans. *Gastroenterology* 144(5), S-348.
- Carbonero F**, Ou J, Benefiel AC, O'Keefe SJD and Gaskins HR (2012). Traditional African and western diets select distinct phylogenetic and functional colonic microbiota among different populations. *Gastroenterology*. 142(5):S-641.
- Carbonero F**, Croix JA, Benefiel AC, Greenberg E and Gaskins HR (2012). Abundance and distribution of mucosa-associated hydrogenotrophs in the healthy colon and in inflamed and non-inflamed tissues of IBD patients. *Gastroenterology*. 142(5):S-679.
- O'Keefe SJ, **Carbonero F**, Ou J, Gaskins HR, Zoetendal EG, Newton K and Vipperla K (2012). Can dietary modulation of the microbiota lower colon cancer risk in African Americans? *Gastroenterology*. 142(5):S-136.

## PRESENTATIONS

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### Invited Oral Presentations

- March (9-10) 2017:** Clinical Epigenetics Society (CLEPSO) International Meeting, Dusseldorf, Germany. Epigenetic Mechanisms in Microbial Members of the Human Microbiota: Current Knowledge and Perspectives.
- October (19-21) 2017:** Annual Meeting of the South Central Branch of the American Society for Microbiology, Little Rock. Determination of the Microbiota Dynamics in Fermented Foods and Beverages. **Co-chair of the Food Microbiology session.**

- November 2015.** Department of Nutrition and Food Science Fall 2015 Food Science Seminar Series at Texas A&M University: "Exploring the effect of different foods and diets on the gut microbiome".
- May 2015.** Division of Microbiology, Microbiome Seminar Series at Jefferson FDA National Center for Toxicological Research. "Taxonomic and functional modulation of the gut microbiome in relation to disease and diet".
- September 2014.** 22nd Annual Meeting of the South Central Branch of the American Society for Microbiology. Taxonomic and functional modulation of the gut microbiome in relation to disease and diet.
- October 2013.** University of Arkansas for Medical Sciences, Division of Gastroenterology. Impact of the microbiome on colonic health and modulation by the diet.
- February 2013.** Michigan State University, Department of Microbiology and Molecular Genetics. From estuarine microbial ecology to the impact of colonic microbiota on digestive health and its modulation by diet.
- January 2013.** University of Arkansas, Department of Food Science. Impact of the microbiome on colonic health and modulation by the diet.
- November 2012.** Sainte-Justine Hospital, Montreal. Microbiome et santé intestinale : impact des métabolismes et influence du régime alimentaire.
- June 2012.** Université de Montréal, Department of Microbiology and Immunology. Influence des métabolismes microbiens liés à l'hydrogène dans la santé du côlon.
- May 2012.** University of Florida, Department of Animal Sciences. Microbial hydrogen metabolism and their links to colonic health and disease.
- May 2012.** Oregon State University, College of Veterinary Medicine. Role of microbial hydrogen metabolism in colonic health and disease.
- June 2011.** Laboratoire d'Ecologie Alpine, Université Joseph Fourier, Grenoble, France. Distribution and abundance of methanogens and sulfate-reducing bacteria: From an estuary to the human digestive system.

### Oral Presentations

- October 2017** ALJahdali N, Gadonna-Widehem P, Anton PM, Carbonero F. Determination of the Effects of Different Melanoidins on the Murine Gut Microbiota. Annual Meeting of the South Central Branch of the American Society for Microbiology, Little Rock, October (19-21) 2017
- July 2015.** International Association for Food Protection Conference, Portland OR. Park SH, **Carbonero F** and Ricke SC. Evaluation of Microbial Populations in Chicken Ceca Raised on Pasture Flock Fed with Commercial Prebiotics via Sequencing (Illumina MiSeq).
- March 2015.** Institute of Biological Engineering Annual Conference, Lexington, KY. Walden C, **Carbonero F** and Zhang W. Methods Comparison of Nucleic Acid Extraction from Environmental Samples Using Next Generation Sequencing.
- November 2013.** Obesity Week, Atlanta, Georgia. Wang AA, Wang M, **Carbonero F**, Donovan SM, Gaskins HR and Teran-Garcia M. Common bacterial genera abundance is associated with anthropometric and percent body fat measurements in young Caucasian children
- May 2013** Digestive Diseases Week, Orlando, USA. Association of intestinal and systemic inflammatory responses with microbial bile acid deconjugation and hydrogen sulfide production in high fat-fed mice.



- April 2013** Congress on Gastrointestinal Function, Chicago, USA. Association of intestinal and systemic inflammatory responses with microbial bile acid deconjugation and hydrogen sulfide production in high fat-fed mice.
- August 2012** ESA annual meeting, Portland, USA. Amato KR, Yeoman CJ, Kent A, Righini N, Carbonero F *et al.* Spatial and temporal variation in the gut microbiome of wild, black howler monkeys (*Alouatta pigra*).
- May 2012** Digestive Diseases Week, San Diego, USA. O'Keefe SJ, Carbonero F, *et al.* Can dietary modulation of the microbiota lower colon cancer risk in African Americans?
- June 2011** 7th International Symposium of Anaerobic Microbiology, Smolenice, Slovakia. Gut microbiota distinguish native Africans from African and European Americans.
- April 2011** Congress on Gastrointestinal Function, Chicago, USA. Characterization of the hydrogenotrophic microbiota diversity and structure in the colon of healthy and IBD subjects.
- September 2009** Meeting of the Association Francophone d'Ecologie Microbienne, Lyon, France. Distribution de microorganismes modèles le long du gradient de salinité d'un estuaire.
- September 2009** British Ecological Society Annual Meeting, University of Hertfordshire, Hatfield, UK. Distribution patterns of specialists and generalists microorganisms along an estuarine gradient.
- June 2009** 6th International Symposium of Anaerobic Microbiology, Prague, Czech Republic. Distribution of model microorganisms along an estuarine gradient.
- May 2009** Warwick postgraduate symposium. Genotypic and phenotypic distribution of a model specialist microorganism (*Methanosaeta*) along an estuarine gradient.
- July 2007** Molecular Microbial Ecology Group Meeting, Liverpool, UK. Genotypic and phenotypic distribution of model microorganisms along an estuarine gradient.

## Posters

- Colbert C, Fuhrman B, and **Carbonero F** (2018). Relationship between breast cancer urinary estrogen biomarkers and gut microbiome in Hispanic women. Annual Meeting of the South Central Branch of the American Society for Microbiology, Jackson, Mississippi
- Lavefve L, Cureau N, Marasini D, Ashley D, Lee SO, and **Carbonero F** (2018). Identification of bacterial populations during the fermentation of plant-based products using 16S ribosomal gene sequences. Annual Meeting of the South Central Branch of the American Society for Microbiology, Jackson, Mississippi
- Al Othaim A, Marasini D, and **Carbonero F** (2018). Impact of varying amounts of concentrate tart cherry juice on healthy mice gut microbiota. Annual Meeting of the South Central Branch of the American Society for Microbiology, Jackson, Mississippi
- Lavefve L, Cureau N, Marasini D, Ashley D, Lee SO, and **Carbonero F** (2018). Identification of bacterial populations during the fermentation of plant-based products using 16S ribosomal gene sequences. Ozark Food Processors Association (OFPA) meeting; Fayetteville, Arkansas
- ALJahdali N, **Carbonero F** (2017). Determination of the Effect of, NeCarboxymethyllysine a Maillard Reaction Products on the Microbiota in Mice and its Potential Protective Effect on Experimental Colitis. MCBIOS XIV Annual Conference, Little Rock,

- ALJahdali N, **Carbonero F** (2017). Modulation of healthy gut microbiota by increasing amounts of dietary advanced glycation products (malt melanoidins. Arkansas Bioinformatics Consortium meeting , Little Rock,
- Rodhouse L, **Carbonero F** (2017). Phylogenetic Diversity of the Bacterial and Fungal Communities of Craft Beers Throughout the Brewing Process. American Society of Brewing Chemists Annual Meeting, Fort Myers, FL,
- ALJahdali N, **Carbonero F** (2017). Determination of the Effects of Different Maillard Reaction Products on the Murine Gut Microbiota. Microbiome R&D and Business Collaboration Forum: USA, San Diego, CA,
- ALJahdali N, Gadonna-Widehem P, Anton PM, and **Carbonero F** (2016). Determination of the Effect of, N<sup>c</sup>Carboxymethyllysine a Maillard Reaction Products on the Microbiota in Mice and its Potential Protective Effect on Experimental Colitis. International Society of Microbial Ecology Conference, Montreal, Canada.
- Mayta-Apaza AC, Pottgen E, De Bodt J, Papp N, Abranko L, Van de Wiele T, Lee SO and **Carbonero F** (2016). Modulation of the gut microbiota by tart cherries consumption: In vitro and human dietary intervention studies. International Association for Food Protection Annual meeting, Saint-Louis, USA.
- ALJahdali N, Gadonna-Widehem P, Anton PM, and **Carbonero F** (2016). Determination of the Effect of, N<sup>c</sup>Carboxymethyllysine a Maillard Reaction Product on the Microbiota in Mice and its Potential Protective Effect on Experimental Colitis. Anaerobe Society of the Americas Congress, Nashville, TN.
- Vo N, Tsai T, Kim H, Sales MA, Wang X, Erf GE, Kegley EB, van der Merwe M, Buddington R, Maxwell CV, and **Carbonero F** (2016). Effect of topsoil exposure during lactation on subsequent performance and gut microbiota in pigs. Anaerobe Society of the Americas Congress, Nashville, TN.
- Cole P, Thornburgh S, Burnett B, **Carbonero F**, Tian ZR (2015).Bactericidal Heavy Metal Nanocomposites for Industrial & Biomedical Platforms. Poster presented at the 2015 Combined Southwest Region Meeting and the Southeastern Regional Meeting of the American Chemical Society
- Cole P, Ozkizilcik A,Thornburgh S, Burnett B, **Carbonero F**, Tian ZR (2015). Lipid-Coated Nanospheres For Individualized, Localized Drug Delivery of Chemotherapeutics & Antibiotics. Poster presented at the 2015 Combined Southwest Region Meeting and the Southeastern Regional Meeting of the American Chemical Society
- Carbonero, F**, Ou, J, Vipperla, K, Ruder, EH, Newton, K, Naidoo, VG and O'Keefe, SJ (2013). Short-term reciprocal diet exchanges impact colonic fermentation and hydrogenotrophic microbiota for native Africans consuming a typical Western diet and African Americans consuming a traditional African diet. Digestive Diseases Week, Orlando, USA.
- Carbonero F**, Benefiel AC, Kristo J, Leinberger JK, Leurck MM, Greenberg E and Gaskins HR (2013). Increased abundance of bacteria producing hydrogen sulfide in the colonic mucosa of patients with ulcerative colitis and Crohn's disease. Digestive Diseases Week, Orlando, USA.
- Carbonero F**, Benefiel AC, Kristo J, Leinberger JK, Greenberg E, Torres J and Gaskins HR (2013). An efficient and non-destructive method for microbial DNA extraction from paraffin-embedded intestinal biopsies. Digestive Diseases Week, Orlando, USA.
- Zoetendal EG, Puylaert PG, Ou J, **Carbonero F**, Newton K, Naidoo VG, Ruder EH, Gaskins HR, de Vos WM and O'Keefe SJ (2013). Short-term reciprocal diet exchanges between

- African Americans and rural Africans impacts the microbiota composition and activity. Digestive Diseases Week, Orlando, USA.
- Zoetendal EG, Puylaert PG, Ou J, Vipperla K, Brouard FM, Ruder EH, Newton K, **Carbonero F**, Gaskins HR, de Vos WM and O'Keefe SJ (2013). Distinct microbiotas are present in urban and rural native South Africans, and in African Americans. Digestive Diseases Week, Orlando, USA.
- Li J, Kinross J, Ou J **Carbonero F**, Vipperla, K., Ruder, E, Newton K, Gaskins HR, Zoetendal EG, O'Keefe SJ and Nicholson JK (2013). A high fat lower fiber dietary intervention perturbs the urinary metabonome and gut microbial co-metabolic processes in a population of African and African Americans. Digestive Diseases Week, Orlando, USA.
- Carbonero F**, Nava GM, Croix JA, Greenberg E, and Gaskins HR (2012). Abundance and distribution of mucosa-associated hydrogenotrophs in the healthy colon and in inflamed and non-inflamed tissues of IBD patients. Digestive Diseases Week, Orlando, USA.
- Carbonero F**, Ou J, Nava GM, O'Keefe SJ, and Gaskins HR (2012). Traditional African and Western diets select distinct phylogenetic and functional colonic microbiota. Digestive Diseases Week, Orlando, USA.
- Carbonero F**, Ou J, Nava GM, O'Keefe SJ, and Gaskins HR (2012). Traditional African and Western diets select distinct phylogenetic and functional colonic microbiota. Keystone symposium: "The Microbiome", Keystone, USA.
- Carbonero F**, Ou J, Nava GM, O'Keefe SJ, and Gaskins HR (2012). Traditional African and Western diets select distinct phylogenetic and functional colonic microbiota. Cancer Community at Illinois Symposium, Urbana, USA.
- Carbonero F**, Ou J, Nava GM, O'Keefe SJ, and Gaskins HR (2011). Gut microbiota distinguish Zulu Africans from African and European Americans. 4th FEMS Congress of European Microbiologists, Geneva, Switzerland.
- Carbonero F**, Oakley BB, and Purdy KJ (2011). Distribution of model microorganisms along an estuarine gradient. 4th FEMS Congress of European Microbiologists, Geneva, Switzerland.
- Carbonero F**, Nava GM, Croix JA, Greenberg E, and Gaskins HR (2011). Characterization of the hydrogenotrophic microbiota diversity and structure in the colon of healthy and IBD subjects. 7th International Symposium of Anaerobic Microbiology, Smolenice, Slovakia.
- Carbonero F**, Ou J, Nava GM, O'Keefe SJ, and Gaskins HR (2011). Hydrogenotrophic microbiota distinguish native Africans from African and European Americans. Congress on Gastrointestinal Function, Chicago, USA.
- Carbonero F**, Oakley BB, and Purdy KJ (2010). Genotypic and phenotypic distribution of a model specialist microorganism along an estuarine gradient. 7th Joint Symposium on gut microbes, Aberdeen, UK.
- Carbonero F**, Oakley BB, and Purdy KJ (2009). Genotypic and phenotypic distribution of a model specialist microorganism along an estuarine gradient. 3rd FEMS Congress of European Microbiologists, Gothenburg, Sweden.
- Carbonero F**, Oakley BB, and Purdy KJ (2008). Genotypic and phenotypic distribution of model microorganisms along an estuarine gradient: Bridging the gap between traditional and microbial ecology. International Symposium on Microbial Ecology 12, Cairns, Australia.

**Carbonero F, Oakley BB, and Purdy KJ (2008).** Cultivation and isolation of Methanosaeta from estuarine sediments. International Symposium on Microbial Ecology 12, Cairns, Australia.

### Media coverage

KUAF: Letting food age: Interview on food fermentation aspects

Huffington Post, Health 24 and other media. How diet can bug your gut. May 2013.

Amato et al. (2013) picked as Editor's choice in *Science* vol 240,12 april 2013.

PCR newsletter of Biotechniques: Microbial DNA extraction methods from human samples. September 2012.

U of I news bureau: Researchers map minority microbes in the colon. August 2011

[http://news.illinois.edu/news/11/0802colon\\_microbes\\_RexGaskins.html](http://news.illinois.edu/news/11/0802colon_microbes_RexGaskins.html)

### AWARDS

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**2014:** Certificate of Reviewing Excellence: Elsevier-Journal of Microbiological Methods

**Award of the best poster presentation 2011.** 7th International Symposium of Anaerobic Microbiology, Smolenice, Slovakia.

**FEMS young scientist travel award 2011.** 7th International Symposium of Anaerobic Microbiology, Smolenice, Slovakia.

**FEMS young scientist travel award 2011.** 4th FEMS Congress of European Microbiologists, Geneva, Switzerland.

**FEMS young scientist travel award 2010.** Rowett/INRA 7th Joint Symposium on gut microbes, Rowett Institute, Aberdeen, UK.

### GRANTS AND FUNDING

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**2018-2019** USDA-ARS: Collaborative agreement for research on phytochemicals and poultry gut microbiome PI, funded (\$50,000).

**2018-2019** Arkansas Biosciences Institute grant: Phytochemical nanoemulsion potential for pathogen control and gut microbiome beneficial modulation in broiler chickens. PI, funded (\$14,300).

**2018** State Undergraduate Research Fellowship: The gut microbiome and breast cancer risk factors among Hispanic Women in Arkansas: a pilot study. Co-PI (\$3,500)

**2017-2018** Ocean Spray: Modulation of the vaginal microbiome by the gut microbiome: a crucial factor for improved prevention of Urinary Tract Infection by cranberry juice consumption? PI, funded (\$39,891).

**2017** Arkansas Breast Cancer Research Program: Gut microbiome and breast cancer risk factors among Hispanic Women in Arkansas: a pilot study. Co-PI (\$53,398)

**2016-2019** Arkansas Biosciences Institute grant: Selectivity of Infrared Heat Treatment on Inactivation of Mycotoxigenic Fungi. Co-PI, funded (\$149,000).

- 2015-2016** Cherry Marketing Institute: Conversion of tart cherries dietary polyphenols by the human gut microbiota: how to maximize health benefits? PI, funded (\$44,298).
- 2015-2016** Provost's Collaborative Research Grants program: Methods comparison of nucleic acid extraction from environmental samples using next generation sequencing. Co-PI, funded (\$1,500)
- 2014** Arkansas Biosciences Institute grant: The gut microbiome as a mediator between diet and cancer risk: Gathering evidence from human studies. PI, funded (\$32,244).
- 2014** Cherry Marketing Institute: Conversion of tart cherries dietary components by the human gut microbiome: which microbes, which metabolism and which potentially beneficial end-products? PI, funded (\$38,384).
- 2014-2017** Effect of Rearing Environment on Development of the Immune System in Neonates: the Pig as a Model. Co-PI, funded (\$150,000).
- 2013-2014** Arkansas Biosciences Institute grant: Building Next-Generation DNA Sequencing Infrastructure at the University of Arkansas. Co-PI, funded (\$70,000).
- 2012-2013** Carle-Translational research grant: Role of Microbial Hydrogen Metabolism in Chronic Constipation and Constipation-predominant Irritable Bowel Syndrome. Investigator, funded with potential for 3-year renewal (\$190,000).
- 2012** Division of Nutritional Sciences Vision 20/20: Effect of a long-term controlled diet on the stool microbiome of six volunteers participating in Mars500, a 500 day simulation of a human mission to Mars. Co-I, funded (\$20,000).
- 2012** Mayo Clinic seed grants: Understanding Relationship Between Mucosal Microbiome, Colonic Transit, and Breath Methane Production in Chronic Constipation. Co-I, funded (\$50,000).
- 2012** ACES International Seed Grants Program: Comparative molecular analysis of microbial hydrogen metabolism in the rumen of *Bos taurus*, *B. indicus* and swamp buffalo (*Bubalus bubalis*). Co-I, funded (\$2,500).

## **PROFESSIONAL ACTIVITIES**

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### **Editorial board member:**

PloS One (Academic Editor)  
Journal of Microbiological Methods  
Microbial Ecology  
Poultry Science  
Frontiers in Nutrition and Microbes  
Frontiers in Veterinary Infectious Diseases

### **Manuscript reviewing:**

Journal of Microbiological Methods (>100 manuscripts reviewed)  
Microbial ecology, Scientific Reports, PloS One, British Journal of Nutrition, Animal Biotechnology, Anaerobe, Journal of Breath Research, The Journal of Nutrition, Nature Reviews Gastroenterology and Hepatology, The ISME journal, Environmental microbiology, Applied and Environmental Microbiology, American Journal of Physiology, Canadian Journal of Microbiology, American Journal of Primatology...

## **TEACHING**

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2014-2018 FDSC 4122 Food Microbiology  
2014-2018 FDSC 4121L Food Microbiology-Lab  
2014-2018 Guest lectures in Advanced Nutrition, Nutraceuticals, Food for Health classes...  
2015-2018 FDSC 4333/5333 Molecular Techniques in Food Science and Nutrition  
2016 FDSC 5001 Food Science Seminar  
2015 CEMB 590 Special Topics: Microbial Ecology Bioinformatics and Statistics