
JAVIER A. CEJA-NAVARRO

Research Scientist, Lawrence Berkeley National Laboratory, Berkeley, CA

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WORK EXPERIENCE

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| 06. 2016 – Present | Research Scientist Lawrence Berkeley National Laboratory, Biological Systems and Engineering. Berkeley, CA, USA. |
| 11. 2018 – Present | Joint Scientist California Academy of Sciences, Center for Comparative Genomics. San Francisco, CA, USA. |
| 09. 2018 – Present | Member of the Institutional Biosafety Committee. Lawrence Berkeley National Laboratory. |
| 11. 2014 – 06. 2016 | Project Scientist Lawrence Berkeley National Laboratory, Climate and Ecosystem Sciences Division. Berkeley, CA, USA. |
| 08. 2010 – 11. 2014 | Postdoctoral Researcher Lawrence Berkeley National Laboratory, Climate and Ecosystem Sciences Division. Berkeley, CA, USA. |
| 11. 2009 – 08. 2010 | Scientific Consultant International Maize and Wheat Improvement Center (CIMMYT). Texcoco, Mexico. |
| 12. 2008 – 07. 2009 | CONACyT Visiting Scholar Fellow UC Berkeley, Physics Department Berkeley, CA, USA. |

EDUCATION

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| 11. 2015 – 04. 2016 | Leadership Development Program. Lawrence Berkeley National Laboratory/UC Berkeley Program. Berkeley Haas School of Business. |
| 08. 2005 – 11. 2009 | PhD in Biotechnology. Centro de Investigacion y de Estudios Avanzados del I.P.N. Mexico City, Mexico. |
| 08. 2001 – 03. 2005 | Bsc. Chemical Engineering. Instituto Tecnológico de Celaya. Guanajuato, Mexico. |

AWARDS

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| 2016 | LBNL Director's Award for Scientific Outreach and Diversity Achievement. |
| 2008 | Recipient of Fellowship by the Mexico's National Council of Science and Technology for Research Stay at UC Berkeley. |

PUBLICATIONS

- Soria, M. A., Batista-Garcia, R.A., **Ceja-Navarro, J.A.**, Romero-Victorica, M., Martinez-Avila, L., Garcia-Quintero, O.J., Talia, P. **Comparative microbiome analysis of the gut of neotropical termites: prospection of genes coding for carbohydrate metabolism.** Scientific Reports. In revision.
- Ceja-Navarro, J.A.**, Karaoz, U., Bill, M., Hao, Z., White, R. A., Arellano, A., Ramanculova, L., Filley, T. R., Berry, T., Conrad, M.E., Blackwell, M., Nicora, C.D., Kim, Y.M., Reardon, P., Lipton, M., Adkins, J.A., Pett-Ridge, J., Brodie, E.L. **Gut anatomical development and microbial**

functional assembly promote lignocellulose deconstruction and colony subsistence of a wood-feeding beetle. Nature Microbiology. (2019) DOI: 10.1038/s41564-019-0384-y

3. Obadia, B., Gunever, Z.T., Zhang, V., **Ceja-Navarro, J.A.**, Brodie, E.L., Ja, W.J., Ludington, W. **Probabilistic invasion underlies natural gut microbiome stability.** Curr. Biol. 27, R642-R644 (2017).
4. Guerrero, E. B., Soria, M. Salvador, R. **Ceja-Navarro, J.A.**, Campos E., Brodie, E. L., Talia, P. **Effect of different lignocellulosic diets on bacterial microbiota and hydrolytic enzyme activities in the gut of the cotton boll weevil (*Anthonomus grandis*).** Frontiers in Microbiology. 7, 2093 (2016).
5. **Ceja-Navarro, J.A.**, Vega, F.E., Karaoz, U., Hao, Z., Jenkins, S., Lim, H.C., Kosina, P., F. Infante, T. R. Northen, and E. L. Brodie. **Gut microbiota mediate caffeine detoxification in the primary insect pest of coffee.** Nature Communications. 6, 7618 (2015).
6. Vega, F.E., Brown, S. M., Chen, H., Shen, E., Nair, M. B., **Ceja-Navarro, J. A.**, Brodie, E. L., Infante, F., Dowd, P. F., and Pain, A. **Draft genome of the most devastating insect pest of coffee worldwide: the coffee berry borer, *Hypothenemus hampei*.** Scientific Reports, 5, 12525 (2015).
7. **Ceja-Navarro, J.A.**, Nguyen, N. H., Karaoz, U., Gross, S. R., Herman, D. J., Andersen, G. L., Bruns, T. D., Pett-Ridge, J., Blackwell, M., and Brodie, E. L., **Compartmentalized microbial communities, oxygen gradients and nitrogen fixation in the gut of *Odontotaenius disjunctus*.** ISME J. 8, 6 (2014).
8. **Ceja-Navarro, J. A.**, Brodie, E.L., and Vega, F.E. **A technique to dissect the alimentary canal of the coffee berry borer (*Hypothenemus hampei*), with isolations of internal microorganisms.** Journal of Entomological and Acarological Research. 44, e21 (2012).
9. **Ceja-Navarro, J. A.**, Rivera-Orduña, F. N., Patiño-Zúñiga, L., Vila-Sanjurjo, A., Crossa, J., Govaerts, B., and Dendooven, L. **Phylogenetic and multivariate analyses to determine the effect of different tillage and residue management on soil bacterial communities: Phylogenetic and multivariate analyses.** Applied and Environmental Microbiology. 76, 3685 (2010).
10. **Ceja-Navarro, J. A.**, Rivera, F., Patiño-Zúñiga, L., Govaerts, B., Marsch, R., Dendooven, L.. **Molecular analysis of soil bacterial communities in contrasting zero tillage systems.** Plant and Soil. 329, 127 (2010).
11. Montoya-González, A., González-Navarro, O.E., Govaerts, B., Sayre, K. D., Estrada, I., Luna-Guido, M., **Ceja-Navarro, J. A.**, Patiño-Zúñiga, L., Marsch, R., and Dendooven, L.. **Effect of straw management, crop rotation and nitrogen source effect on carbon and nitrogen dynamics and nitrous oxide emissions: a laboratory study.** Plant and Soil. 325, 243 (2009).
12. Patiño-Zúñiga, L., **Ceja-Navarro, J. A.**, Govaerts, B., Luna-Guido, M., Sayre, K. D. , and Dendooven, L. **The effect of different tillage and residue management practices on soil characteristics, inorganic N dynamics and emissions of N₂O, CO₂ and CH₄ in the central highlands of Mexico: a laboratory study.** Plant and Soil. 314, 231 (2008).

Videos:

- a. *Bugs, Microbes, Biofuels and Coffee.* Video animation describing Ceja-Navarro's research at the Berkeley Lab. Co-production and illustration work also by Javier Ceja-Navarro, **more than 6800 views.**
<https://www.youtube.com/watch?v=cWuAK6IMRQM>
- b. *Insectos, Microbios, Biocombustibles y Café.* Spanish Version, **more than 2600 views.**
<https://www.youtube.com/watch?v=wsRvD8JtPb4&feature=youtu.be>
- c. *Do insects contain the secrets for sustainable food and energy production?* LBNL's Science at the Theater: 5 Big Questions, **more than 7800 views.**
<https://www.youtube.com/watch?v=kwCi0fD00zg&feature=youtu.be>

FUNDED PROJECTS

- a) **Cross Kingdom Interactions: The Foundation of Nutrient Cycling in Grassland Soils,** Role:Co-PI, Agency: DOE-BER, Duration:2019-2022. Total: \$3M, \$175K/year to Ceja-Navarro.

- b) **Establishment to senescence: plant-microbe and microbe-microbe interactions mediate switchgrass sustainability, Role:** Co-PI, **Agency:** DOE-BER, **Duration:** 2015-2020. Total: \$5M, \$150K/year to Ceja-Navarro.
- c) **Directing traffic in the rhizosphere: how phage and fauna shape the flow and fate of root carbon through microbial pathways, Role:** Co-PI, **Agency:** DOE-BER, **Duration:** 2016-2019. Total: \$3M, \$150K/year to Ceja-Navarro.
- d) **Burkholderia Ecology and Virulence, Role:** Co-PI, **Agency:** DTRA, **Duration:** 2016-2019. Total: \$3M, \$100K/year to Ceja-Navarro.
- e) **The Soil Metazoan Microbiome: A compartment of nutrient cycling, Role:** PI, **Agency:** LBNL's Laboratory Directed Research and Development program, **Duration:** 2014-2017, Total: \$600K.

TEACHING EXPERIENCE

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| 2018 - present 2014 - present 2013 - 2017 2007 – 2009 | Guest lecturer at IB UC Berkeley: Host-Microbe Interactions Guest lecturer at ESPM UC Berkeley: The Soil Food Web. Guest lecturer at Sonoma State University: Microbes and Evolution. Teacher Assistant, Cinvestav del IPN, Mexico, Soil Ecology Class. |
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UNDERGRADUATE AND GRADUATE MENTORING

- Mentored 15 undergraduate students as primary day to day basis supervisor.
- Mentored 2 masters students, and 2 PhD student, as primary day to day supervisor.
- Thesis adviser of an undergraduate honor thesis student
- Co-mentored 1 postdoc.

OUTREACH CONTRIBUTIONS

Selected Events:

- a) Science Day at the General Consulate of Mexico in San Francisco. Speaker: Insects are Everywhere! October 26th 2019.
- b) Science at Cal, Los caminos de la ciencia. Speaker: From Chemical engineering to microbiology and back, February, 2018 and December 2018.
(<http://scienceatcal.berkeley.edu/caminos-de-la-ciencia-feb>)
- c) A bioinformatics workshop for Guatemalan students. Organizer. September, 2017.
(<https://eesa.lbl.gov/berkeley-lab-ecologist-welcomes-latin-american-students-who-research-insect-gut-microbiome>).
- d) Talentum at the Berkeley Lab. Organizer and Speaker. Event co-organized with the Mexican Consulate in SF and Mexico's Talentum Program. July, 2015.
(<https://today.lbl.gov/lab-scientists-seek-to-educate-inspire-top-mexican-students-visiting-berkeley-lab>)

INVITED TALKS

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| 03.2019 | Arthropods are provided with superpowers by their associated microbiome. Entomological Society of America Pacific Branch Meeting. San Diego, CA. |
| 10.2018 | Critters, microbes, and ecosystem function. California Academy of Sciences Seminar Series, San Francisco, CA. |
| 09.2018 | Beyond microbes: Characterizing the soil food web and the multitrophic interactions that mediate ecosystem services. Biosciences seminar series, Berkeley, CA. |

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| 06.2018 | Gut properties and microbial assembly drive lignocellulose degradation in a wood-feeding beetle. Entomological Society of America Pacific Branch Meeting. Reno, NV. |
| 08.2017 | Microbial and environmental arrangements in the gut of the wood-feeding beetle <i>Odontotaenius disjunctus</i> illustrate mechanisms for energy and nutrient extraction from lignocellulose. SIMB meeting, Denver, CO. |
| 05.2017 | Artrópodos son Bioreactores Microbianos que Controlan Servicios Ambientales. Seminar Series of the Universidad del Valle de Guatemala. |
| 04.2017 | Arthropods are Living Microbial Bioreactors that Support Ecosystem Services. Entomological Society of America Pacific Branch Meeting. Portland, OR. |
| 04.2017 | Arthropod-Microbiome Interactions and their Role in the Host's success to Environmental Adaptation. UC Merced Science Week. Merced, CA. |
| 02.2017 | Arthropod-Microbiome Interactions and their Role in the Host's success to Environmental Adaptation. Entomology Seminar Series of UC Berkeley. Berkeley, CA. |
| 02.2017 | The Soil Metazoan Microbiome: A Compartment of Importance to Soil Nutrient Cycling. Earth and Environmental Sciences Area Review, LBNL. Berkeley, CA. |
| 01.2017 | Multi-domain Microbial Pathways for Lignocellulose Transformation are Spatially Segregated through the Passalid Beetle Digestive Tract. DOE Genomic Sciences Meeting. Arlington, VA. |

CONFERENCE ORAL CONTRIBUTIONS

1. **Ceja-Navarro, J.A.**, Arellano A., Ramaculova, L., Estera, K., Pett-Ridge, J., Weber, P., Brodie, E., Firestone, M. Characterizing the response of soil microbial and faunal communities to drought. ASM Microbe meeting. June 20-24, 2019. San Francisco, CA.
2. **Ceja-Navarro, J.A.**, Arellano A., Ramaculova, L., Estera, K., Pett-Ridge, J., Weber, P., Brodie, E., Firestone, M. Characterizing the response of soil microbial and faunal communities to drought. Soil Ecology Society. May 28-31, 2019. Toledo, Ohio.
3. Arellano, A., Ramanculova, L., Kvietok, M., **Ceja-Navarro, J. A.** **Arthropods are hotspots of microbial diversity.** West Coast Bacterial Physiology Meeting. December, 2016. Monterey, CA.
4. **Javier A. Ceja-Navarro.** Multi-omics approach to study the biotechnological potential for lignocellulose degradation of the Passalid Beetle. **AGU meeting. December, 2015.** San Francisco, CA.
5. **Javier A. Ceja-Navarro**, Fernando E. Vega, Zhao Hao, Hsiao-Chien Lim, Petr Kosina, Francisco Infante, Eoin L. Brodie. **The microbiome of the primary coffee pest *Hypothenemus hampei*, and its role in caffeine detoxification.** Seventh International Symposium on Molecular Insect Science. July 2014. Amsterdam, The Netherlands.
6. **Javier A. Ceja-Navarro**, Fernando E. Vega, Ulas Karaoz, Hsiao-Chien Lim, Peter K. Weber, Zhao Hao, Hoi-Ying Holman, Jennifer Pett-Ridge, Eoin L. Brodie. **Microbial communities associated with the coffee berry borer (*Hypothenemus hampei*; Coleoptera: Curculionidae) and their role in caffeine metabolism.** ISME14 The Power of the Small. 2012. Denmark, Copenhagen.

SYNERGISTIC ACTIVITIES

- Organizer of the scientific workshop at the ASM microbe meeting. Microbes and Beyond. June 20-24, 2019. San Francisco, CA.
- Co-editor of the special issue: The soil microbe and multitrophic interactions that regulate soil carbon and nutrient flux. *Frontiers in Microbiology*. 2019.
- *Proposal reviewing activities:*
 - a) Reviewer for USDA-NIFA grants. December, 2018.
 - b) Reviewer of applications to the DOE Office of Science Graduate Student Research Program. February 2018.

- c) Reviewer for DOE-BER Climate and Environmental Sciences Division. May, 2016
- *Invited panelist*: Secretary of Department of Energy Advisory Board Meeting. Berkeley Lab. January, 2016.
- *Leadership in Broadening Participation*: Mentor of Mexican students for the TALENTUM program of the Secretary of Public Education in Mexico (2015- present). Mentor and supervisor for the DOE's SULI program that seeks to engage community college students into different fields of science.
- *Reviewer for scientific journals*: Nature Communications, Applied and Environmental Microbiology, Soil Biology & Biochemistry, Microbial Ecology, ISME Journal, BMC Genomics, Arthropod Structure and Development.