Coreas, Roxana

NSF Postdoctoral Fellow
University of California, Berkeley
roxanacoreas@berkeley.edu
r-coreas.github.io

EDUCATION AND TRAINING

2022 – current **University of California, Berkeley**
Postdoctoral Researcher
Advisor: Markita Landry

2022 **University of California, Riverside**
Ph.D. Environmental Toxicology
Making Excellence Inclusive Certificate
University Teaching Certificate
Advisor: Wenwan Zhong
Dissertation: "*On nano-bio interactions: investigation of biological impacts induced by nanomaterials and biocoronas"*

2015 **California State University, Northridge**
B.S. Environmental & Occupational Health, Minor in Chemistry

PEER-REVIEWED PUBLICATIONS (*equal contribution, ‡ corresponding author)

1. E. Voke, M. Arral, H. J. Squire, T.-J. Lin, L. Zheng, **R. Coreas**, A. Lui, A. T. Iavarone, R. L. Pinals‡, K. A. Whitehead‡, M. P. Landry‡. Protein corona formed on lipid nanoparticles compromises delivery efficiency of mRNA cargo. *Nature Communications.* 2025, 16, 8699 [Link]

2. **R. Coreas***, J. Huzar*, M. P. Landry, G. Tikhomirov‡. AI-based prediction of protein corona composition on DNA nanostructures. *ACS Nano.* 2025, 19, 4, 4333-4345 [Link]

3. **R. Coreas**, Z. Li, J. Chen, W. Zhong‡. Low-Dose Exposure of WS_2 Nanosheets Induces Differential Apoptosis in Lung Epithelial Cells. *Environmental Science & Technology*. 2023, 57, 39, 14493-14501 [Link]

4. M. Mahmoudi‡, M. Landry, A. Moore, **R. Coreas**‡. The protein corona from nanomedicine to environmental science. *Nature Reviews Materials*. 2023, 8, 422-438 [Link] ~ Journal Cover ~

5. G. M. DeLoid, X. Cao, **R. Coreas**, D. Bitounis, D. Singh, W. Zhong, P. Demokritou‡. Incineration-generated polyethylene micro-plastics (MNP) increase triglyceride lipolysis and absorption in an *in vitro* small intestinal epithelium model. *Environmental Science and Technology*. 2022, 56, 17, 12288-12297 [Link]

6. **R. Coreas**, C. Castillo, Z. Li, D. Yan, Z. Gao, J. Chen, D. Bitounis, D. Parviz, M.S. Strano, P. Demokritou, W. Zhong‡. Biological impacts of reduced graphene oxide affected by protein corona formation. *Chemical Research in Toxicology*. 2022, 35, 1244-1256 [Link]

7. K. Guo, Z. Li, A. Win, **R. Coreas**, G. B. Adkins, X. Cui, D. Yan, M. Cao, S. E. Wang, W. Zhong‡. Calibration-free analysis of surface proteins on single extracellular vesicles enabled by DNA nanostructure. *Biosensors and Bioelectronics*. 2021, 192, 113502 [Link]

8. **R. Coreas**, X. Cao, G. Deloid, P. Demokritou, W. Zhong‡. Lipid and protein corona of food-grade TiO2 nanoparticles in simulated gastrointestinal digestion. *NanoImpact*. 2020, 20, 100272 [Link]

9. G. Adkins, E. Sun, **R. Coreas**, W. Zhong‡. Asymmetrical flow field flow fractionation coupled to nanoparticle tracking analysis for rapid online characterization of nanomaterials. *Analytical Chemistry*. 2020, 92, 10, 7071-7078 [Link]

10. Y. Duan, **R. Coreas**, Y. Liu, D. Bitounis, Z. Zhang, D. Parvis, M. Strano, P. Demokritou, W. Zhong‡. Prediction of protein corona on nanomaterials by machine learning using novel descriptors. *NanoImpact*. 2020, 17, 100207 [Link]

11. Y. Duan, Y. Liu, **R. Coreas**, W. Zhong‡. Mapping molecular structure of protein locating on nanoparticles with limited proteolysis. *Analytical Chemistry*. 2019, 91, 4204-4212 [Link]

12. J. Lee*, **R. Coreas***, W. Zhong‡. Open-channel separation techniques for the characterization of nanomaterials and their bioconjugates for drug delivery applications. In *Nanotechnology Characterization Tools for Tissue Engineering and Medical Therapy* (Kumar, C, ed). Springer, Berlin, Heidelberg. 2019 [Link]

MANUSCRIPTS UNDER REVIEW (‡ corresponding author)

1. **R. Coreas**, N. Sridhar, T.-J. Lin, H. J. Squire, E. Voke, M. P. Landry‡. Deep profiling of plant stress biomarkers following bacterial pathogen infection with protein corona based nano-omics. *Submitted to Nature Nanotechnology. In Review. Preprint available on bioRxiv*. 2024. [Preprint]

FUNDING

2023 – 2026	BWF Postdoctoral Diversity Enrichment Program [*$60,000*]
2023 – 2026	NSF Postdoctoral Research Fellowship in Biology [*$240,000*]
2020 – 2021	Pre-Professoriate Fellowship, University of California [*$48,000*]
2018 – 2020	Diversity Supplement, National Institutes of Health [*$48,000*]
2018 – 2022	T32 Training in Environmental Toxicology, NIH [*$44,000*]
2016 – 2018	Water Resources and Policy Initiatives Doctoral Scholarship [*$20,000*]
2016 – 2018	Eugene Cota-Robles Fellowship, UC Riverside [*$50,000*]

AWARDS and HONORS

2025	Future Faculty Career Exploration Fellow (About)
2024	ACS AGRO Division New Investigator Award (About)
2024	ASPB Recognition Travel Award (About)
2024	IGEN Travel Award (About)
2024	University of California President's Postdoctoral Fellowship – Alternate Awardee (About)
2023	ABRCMS Judge Travel Award (About)
2023	SACNAS Postdoc Leadership Institute Fellow (About)
2023	Leading Edge Fellow (About)
2023	CAS Future Leaders, American Chemical Society (About)
2022	Earle C. Anthony Graduate Award, UC Riverside (About)
2022	Watkins Commencement Award, UC Riverside (About)
2022	1st Place Student Presentation Award, Pacifichem Conference
2021	Career/Professional Development Award, ACS Bridge Project (About)
2012	Research Training Initiative for Student Enhancement (RISE) Scholar, NIH

INVITED PRESENTATIONS

1. **Rochester Institute of Technology Department of Chemistry Seminar**: *Leveraging nanomaterial biomolecular coronas to enhance nanotechnology.* Rochester, NY. 2025

2. **American Chemical Society:** *Navigating your career path as a first-generation chemical engineer*. Denver, CO. 2024.

3. **Oregon State University Department of Environmental Toxicology Seminar**: *Nano-bio interactions: impacts on nanotoxicology and nano-omics.* Corvallis, OR. 2024.

4. **California State University Northridge Department of Biology Seminar:** *Leveraging biomolecular corona to enhance agricultural nanotechnology*. Northridge, CA. 2024.

5. **Controlled Release Society Immuno-Delivery Focus Group Webinar:** *DNA origami architecture impacts protein corona formation*. Virtual. 2023

6. **Long Beach City College Sip N' Science Seminar:** *Tiny Particles, Big Changes: DNA delivery in Plants.* Long Beach, CA. 2023

PLATFORM PRESENTATIONS ([*] denotes virtual conference)

1. **R. Coreas**, N. Sridhar, T-J. Lin, H. J. Squire, E. Voke, S. Tomatz, M. Landry. *Time-Dependent Enrichment of Stress-Induced Biomarkers in Plants Using Nanoparticle Protein Coronas.* American Institute of Chemical Engineers (AIChE) Annual Meeting, 2025.

2. **R. Coreas**, J. Huzar, M. Landry, G. Tikhomirov. *AI-Based Prediction of Protein Corona on DNA Nanostructures.* AIChE Annual Meeting, 2025.

3. **R. Coreas**, N. Sridhar, T-J. Lin, H. J. Squire, E. Voke, S. Tomatz, M. Landry. *Nano-omics enables stress detection in plants through corona mediated biomarker enrichment in plants and crops within hours of infection*. XXI SMB Plant Biology Congress and 4th ASPB Mexico Section Meeting, 2025

4. **R. Coreas**, N. Sridhar, T-J. Lin, H. J. Squire, E. Voke, M. Landry. *Nano-omic approach for the identification of biotic-induced stress markers in Arabidopsis.* American Chemical Society National Meeting, 2024

5. **R. Coreas**, N. Sridhar, T. Lin, H. J. Squire, E. Voke, M. Landry. *Harnessing the protein corona: enriching plant stress markers on gold nanoparticles.* American Society of Plant Biology (ASPB) Conference, 2024

6. **R. Coreas**, N. Sridhar, H. J. Squire, E. Voke, M. Landry. *Nano-bio Interactions for Plant Genetic Engineering.* Annual Biomedical Research Conference for Minoritized Scientists (ABRCMS) Conference, 2023

7. **R. Coreas**, N. Sridhar, H. J. Squire, E. Voke, M. Landry. *Analysis of the "in planta" biocorona formed on gene-editing nanocarriers.* Society for the Advancement of Chicanos and Native Americans in Science Conference (SACNAS) Conference, 2023

8. **R. Coreas**, J. Huzar, G. Tikhomirov, M. Landry. *DNA nanostructure physiochemical structures affect protein corona formation in human serum.* American Chemical Society National Meeting, 2023

9. **R. Coreas**, N. Sridhar, E. Voke, M. Landry. *Assessing the in planta biocorona interface of gene-editing nanocarriers.* American Chemical Society National Meeting, 2023

10. **R. Coreas**, N. Sridhar, E. Voke, M. Landry. *Proteomic analyses of the "in planta" biocorona formed on single-walled carbon nanotubes.* Leading Edge Symposium, 2023

11. **R. Coreas**, W. Zhong. *Leveraging a biological identity on WS_2 nano-sheets for theragnostic therapies.* University of California Chemical Symposium [*], 2022

12. **R. Coreas**, W. Zhong. *Cellular impacts induced by modulating surfactant concentration and biocorona formation on reduced graphene oxide.* Society of Toxicology Conference, 2022

13. **R. Coreas**, C. Castillo, W. Zhong. *Biological impacts induced by graphene-based nanomaterials in epithelial cells.* Pacifichem Conference [*], 2021

14. **R. Coreas**, C. Castillo, W. Zhong. *Biological impacts of graphene-based nanomaterials with different oxidative states.* University of California Chemical Symposium [*], 2021

15. **R. Coreas**, C. Castillo, W. Zhong. *Cytotoxicity induced by two-dimensional (2-D) engineered nanomaterials (ENMs).* Society for the Advancement of Chicanos and Native Americans in Science Conference [*], 2020

16. **R. Coreas**, W. Zhong. *Screening the lipid corona in digested food grade nanomaterials and the toxicity of 2-D engineered nanomaterials, with and without protein coronas, in epithelial cells.* Fourth Annual National Institute of Environmental Health Nanotechnology Health Implications Research Consortium Meeting, 2019

17. **R. Coreas**, W. Zhong. *Characterizing lipid coronas with liquid-liquid extractions coupled to LC-MS*. American Chemical Society National Meeting, 2019

POSTER PRESENTATIONS ([*] denotes virtual conference, [‡] presented in Spanish)

1. **R. Coreas**, M. Landry. *Maximizing Nano-Bio Interfaces for Enhanced Agricultural Nanotechnology.* AICHE Annual Meeting, 2025

2. **R. Coreas**, N. Sridhar, T. Lin, H. J. Squire, E. Voke, M. Landry. *Harnessing the protein corona: enriching plant stress markers on nanoparticles.* ASPB Conference, 2024

3. **R. Coreas**, N. Sridhar, E. Voke, M. Landry. *Explorando in plana biocorona de la nanotecnología agrícola.* [‡], LatinXChem Twitter Conference [*],2023

4. **R. Coreas**, Z. Li, D. Yan, E. Liu, W. Zhong. *The impact of tungsten disulfide nanosheets on mitochondria.* Mitochondria and Chloroplasts Gordon Research Seminar, 2022

5. **R. Coreas**, C. Castillo, W. Zhong. *Diverse oxidative states of graphene-based nanomaterials and their effects on breast epithelial cells.* SACNAS National Diversity in STEM Conference [*], 2021

6. **R. Coreas**, C. Castillo, W. Zhong. *Deconstructing the cytotoxicity of two-dimensional (2D) nanomaterials.* LatinXChem Twitter Conference [*], 2020

7. **R. Coreas**, W. Zhong. *Measuring the binding kinetics of nanomaterials with protein coronas via radical species formation.* Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, 2019

8. **R. Coreas**, W. Zhong. *Rapid microplate assay for acellular reactive oxygen species generation induced by engineered nanomaterials.* American Chemical Society Meeting, 2018

9. R. Sanchez, J. Guzman, **R. Coreas**, M. Mardirosian, L. Nalbandyan, S. Tran, and P. Fischhaber. *Mechanism of repair of DNA double strand breaks situated between DNA repeats as a function of sequence homology and distance from the break site.* California State University Annual Biotechnology Symposium, 2016

TEACHING EXPERIENCE

2018	Organic Chemistry Lab Instructor
2018	Dynamic Genome Lab Instructor
2017	Intro to Cell & Molecular Biology Lab Instructor
2017	General Chemistry Lab Instructor

MENTORSHIP, LEADERSHIP & OUTREACH

2025 – current — Poster Judge | AICHE
- *Refereed undergraduate research posters in the chemistry and chemical engineering disciplines*
  - *2025: 10 research abstracts*

2025 — Panelist | Sip N' Science Seminar at Long Beach City College
- Participated in a 'Women in STEM' panel presented to community college students on academic journeys in scientific fields

2024 – current — Scholarship Award Reviewer | American Indian Science & Engineering Society (AISES)
- *Reviewed undergrad applications for AISES scholarships*
  - *2024: 31 scholarships*
  - *2025: 13 scholarships*

2023 – current — Poster Judge & Travel Award Reviewer | ABRCMS
- *Reviewed undergrad travel grant applications and research abstracts*
- *Refereed undergraduate research posters in the chemistry discipline*

- *2023: 25 travel grants, 25 posters*
- *2024: 25 research abstracts*
- *2025: 15 research abstracts*

2023 – current — Mentor | Letters to a Pre-Scientist
- *Communicated with elementary and middle school "pre-scientists" about my PhD journey through written letters to encourage their interest in higher education and STEM*

2019 – current — Undergrad Poster Judge, Graduate Research Referee & Travel Award Reviewer | SACNAS
- *Review undergrad applications for the NDiSTEM conference travel grant*
- *Referee undergrad research abstracts (multi-disciplinary STEM)*
- *Judge undergrad posters in diverse STEM disciplines at the NDiSTEM conference*
  - *2019: 10 posters*
  - *2022: 20 grants, 30 abstracts, 20 posters*
  - *2023: 20 grants, 30 abstracts, 20 posters*
  - *2024: 42 grants, 30 abstracts, 16 posters, & 4 graduate platform talks*
  - *2025: 23 grants, 25 abstracts*

2019 – 2020 — Graduate Student Mentor | UC Riverside Grad-Success Mentorship Program
- *Mentored 2 first-year international students in the dept. of engineering*
- *Met once a week to discuss resources and strategies for academic success*

2019 — "Ethics of Research" Workshop | UC Riverside Chicano Link Mentorship Program Seminar
- *Organized and led a workshop on the importance of conducting ethical research*
- *Workshop was presented to ~30 undergraduate students*

2018 – 2022 — Coordinator, Treasurer & Peer Mentor | SACNAS UC Riverside Chapter
- *Spearheaded the reinstatement of the SACNAS chapter at UC Riverside*
- *Fundraised and allocated funds to support workshop developments*
- *Led and coordinated workshops on graduate school applications, research ethics*

2018 – 2020 — AISES Healing the Earth Conference Planning Committee
- *Developed ideas for conference symposia themes and speakers*
- *Participated in the graduate student panel*
- *Recruited science organizations to table at the event*

2018 — Dia de Ciencia Planning Committee
- *Planned a "Day of Science" event for the Latinx community of the Inland Empire*
- *Coordinated biology and chemistry demonstrations explained in Spanish*

2016 – 2021 — Chicano Link Peer Student Mentor | UC Riverside
- *Mentored first year Latinx undergraduate and graduate students*
- *Met bi-weekly to discuss resources and support best-practices*

2016 – 2018 — Co-Founder, Treasurer, & Mentor | Mentorship for the Enrichment of College/Career Achievement (MECCA) Program
- *Organized monthly workshops held at Desert Mirage High School*
- *Planned and executed workshops on college applications and SAT prep*
- *Coordinated and performed science demonstrations for high school students*
- *Fundraised and allocated funds to support workshops and program events*

PRESS

2023 — CRT Women in Toxicology [Link]
2023 — CAS Future Leaders [Link]

PROFESSIONAL ACTIVITIES

Member, Society of Toxicology
Member, American Chemical Society
Member, American Society of Plant Biology
Member, American Institute of Chemical Engineers

Member, American Indian Science and Engineering Society
Member, Society for the Advancement of Chicanos & Native Americans in Science

Manuscript Reviewer for: *Nature Nanotechnology, PNAS, NanoToday, NanoImpact, ACS Omega, ACS Applied Materials and Interfaces, Journal of Colloid and Interface Science, Biomaterials Science, Nanomedicine, International Journal of Biological Macromolecules, Bioconjugate Chemistry*

LANGUAGES

English (native speaker, writer, reader)
Spanish (native speaker, writer, reader)
R programming