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## CURRICULUM VITAE

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NAME: Cesar de la Fuente

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POSITION TITLE: Presidential Assistant Professor, University of Pennsylvania

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### EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Leon, Leon, Castilla y Leon	B.Sc.	06/2009	Biotechnology
University of Leon, Leon, Castilla y Leon	M.Sc.	06/2009	Biotechnology
University of British Columbia, Vancouver, BC	Ph.D.	11/2014	Microbiology & Immunology
University of British Columbia, Vancouver, BC	Postdoc	12/2014-09/2015	Microbiology & Immunology
Massachusetts Inst. of Technology, Cambridge, MA	Postdoc	10/2015-04/2019	Synthetic Biology, Electrical Engineering & Computer Science

### Publications

**Asterisks\*** indicate co-first-authorship, underlines indicate corresponding authorship (**63 papers published since starting at Penn (not counting papers in revision), including 43 papers as corresponding author**).

**131.** Wan F., Wong F., Collins J.J., and de la Fuente-Nunez C. Machine Learning for Antimicrobial Peptide Design. Invited review. *Nature Reviews Bioengineering*. In revision.

**130.** de la Fuente-Nunez C., and Hancock R.E.W. Antibiotic failure: Beyond antimicrobial resistance. Invited review. *Nature Reviews Microbiology*. In revision.

**129.** Wan F., Torres M., and de la Fuente-Nunez C. Machine learning approaches for mining functional peptides in genomes and proteomes. Invited review. *Nature Protocols*. In revision.

**128.** Ageitos L., Boaro A., Broset E., Torres M., and de la Fuente-Nunez C. Exploring the selective antimicrobial activity of rationally designed peptides from Andersonin-D1. In revision.

**127.** de Araujo W.R., Lukas H., Torres M., Gao W., and de la Fuente-Nunez C. Low-Cost Biosensor Technologies for Rapid Detection of COVID-19 and Future Pandemics. Invited review. *ACS Nano*. In revision.

**126.** de la Fuente-Nunez C., Garcia P.A., Lu T.K., and Buie C.R. Electric field-based high-throughput platform for efficient delivery of nucleic acids and antimicrobials into bacterial cells. In revision.

**125.** Silva A.,..., de la Fuente-Nunez C., and Pinheiro AAS. Synthetic angiotensin II peptide derivatives prevent cerebral and severe non-cerebral malaria in murine models. In revision.

**124.** Pedron C.N.,..., de la Fuente-Nunez C., and Oliveira Junior V.X. Molecular hybridization strategy for tuning bioactive peptide function. *Nature Communications Biology*. Accepted.

**123.** Maasch JRMA, Torres M, Melo M, and de la Fuente-Nunez C. Molecular de-extinction of ancient antimicrobial peptides enabled by machine learning. *Cell Host Microbe*, (2023). In press.

**122.** Wang Y., Stebe K., de la Fuente-Nunez C., and Radhakrishnan R. Computational design of peptides for biomaterials applications. *ACS Applied Biomaterials*, (2023). In press.

**121.** de Lima, Ferreira A, Ranjan I, Collman RG, de Araujo W.R., and de la Fuente-Nunez C. A bacterial cellulose-based and low-cost electrochemical biosensor for ultrasensitive detection of SARS-CoV-2. *Cell Reports Physical Science*, (2023). In press.

- 120.** de Lima, Ferreira A, Awasthi S, Torres M, Friedman H, Cohen GH, de Araujo W.R., and **de la Fuente-Nunez C.** Rapid and accurate detection of Herpes Simplex Virus type 2 using a low-cost electrochemical biosensor. *Cell Reports Physical Science*, (2023). In press.
- 119.** Fernandes F.C.,...**de la Fuente-Nunez C.**, and Franco O.L. Geometric deep learning as potential tool for antimicrobial peptide prediction. Invited review. *Frontiers in Bioinformatics*. Volume 3, July 2023 doi:10.3389/fbinf.2023.1216362
- 118.** Wong F, **de la Fuente-Nunez C.**, Collins JJ. Leveraging artificial intelligence in the fight against infectious diseases. *Science*. 2023 Jul 14;381(6654):164-170. doi: 10.1126/science.adh1114. Epub 2023 Jul 13. PMID: 37440620.
- 117.** Averbeck SR, Xu D, Murphy BB, Shevchuk K, Shankar S, Anayee M, Der Torossian Torres M, Beauchamp MS, **de la Fuente-Nunez C.**, Gogotsi Y, Vitale F. Stability of Ti3C2Tx MXene Films and Devices under Clinical Sterilization Processes. *ACS Nano*. (2023) May 23;17(10):9442-9454. doi: 10.1021/acsnano.3c01525. Epub 2023 May 12. PMID: 37171407.
- 116.** Zhang X., **de la Fuente-Nunez C.**, and Wang J. Artificial intelligence accelerates efficient mining of functional peptides. *Life Medicine*. Volume 2, Issue 2, April 2023, Inad005, <https://doi.org/10.1093/lifemedi/lnad005>
- 115.** Wan F., and **de la Fuente-Nunez C.** Mining for antimicrobial peptides in sequence space. *Nature Biomedical Engineering*, (2023). doi: 10.1038/s41551-023-01027-z.
- 114.** Boaro A., Ageitos L., Torres M., Broset E., Oztekin S., and **de la Fuente-Nunez C.** Structure-function-guided design of synthetic peptides with anti-infective activity derived from wasp venom. *Cell Reports Physical Science*, (2023). 4. 101459. doi: 10.1016/j.xcrp.2023.101459.
- 113.** Cesaro A, Lin S, Pardi N, **de la Fuente-Nunez C.** Advanced delivery systems for peptide antibiotics. *Adv Drug Deliv Rev*. (2023) Feb 17:114733. doi: 10.1016/j.addr.2023.114733. Epub ahead of print. PMID: 36804008.
- 112.** Yang N, Aminov R., Franco OL., **de la Fuente-Nunez C.**, Wang J. Editorial: Community series in antimicrobial peptides: Molecular design, structure function relationship and biosynthesis optimization. *Front Microbiol*, (2023) Jan 16;14:1125426. doi: 10.3389/fmicb.2023.1125426.
- 111.** Ageitos L., Torres M. D. T., **de la Fuente-Nunez C.** Biologically Active Peptides from Venoms: Applications in Antibiotic Resistance, Cancer, and Beyond, *International Journal of Molecular Sciences*, (2022) 23(23), 15437; doi: 10.3390/ijms23231543.
- 110.** Li T., Wang Z., Guo J., **de la Fuente-Nunez C.**, Wang J., Han B., Tao H., Liu J., and Wang X. Bacterial resistance to antibacterial agents: mechanisms, control strategies, and implications for global health, *Science of the Total Environment*, (2022) 160461, <https://doi.org/10.1016/j.scitotenv.2022.160461>.
- 109.** Maasch J.R.M.A., Torres M.D.T., Melo M.C.R., and **de la Fuente-Nunez C.** Molecular de-extinction of ancient antimicrobial peptides enabled by machine learning, *bioRxiv*, (2022) doi: <https://doi.org/10.1101/2022.11.15.516443>.
- 108.** Torres M.D.T., **de la Fuente-Nunez C.** Molecular tools for probing the microbiome, *Current Opinion in Structural Biology*, Volume 76 (2022). <https://doi.org/10.1016/j.sbi.2022.102415>.
- 107.** Cardoso M.H., Chan L. Y., Cândido E. S., Buccini D. F., Rezende S. B., Torres M. D. T., Oshiro K. G. N., Silva Í. C., Gonçalves S., Lu T. K., Santos N. C., **de la Fuente-Nunez C.**, Craik D.J., and Franco O.L. An N-capping asparagine-lysine-proline (NKP) motif contributes to a hybrid flexible/stable multifunctional peptide scaffold, *Chemical Science* (2022) <https://doi.org/10.1039/D1SC06998E>.
- 106.** Daniell H., Nair S.K., Guan H., Guo Y., Kulchar R.J., Torres M.D.T., Shahed-Al-Mahmud M., Wakade G., Liu Y.-M., Marques A., Graham-Wooten J., Zhou W., Wang P., Molugu S.K., de Araujo W.R., **de la Fuente-Nunez C.**, Ma C., Short W.R., Tebas P., Margulies K.B., Bushman F.D., Mante F.K., Ricciardi R., Collman R.G., Wolff M.S., Debunking different Corona (SARS-COV-2 delta, omicron, OC43) and influenza (H1N1, H3N2) virus strains by plant viral trap proteins in chewing gums to decrease infection and transmission, *Biomaterials* (2022), doi: <https://doi.org/10.1016/j.biomaterials.2022.121671>.
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- 104.** **de la Fuente-Nunez, C.** Antibiotic discovery with machine learning. *Nat Biotechnol* (2022). <https://doi.org/10.1038/s41587-022-01327-w>

- 103.** García-García, D., Morales, E., **de la Fuente-Nunez, C.**, Vigo, I., Fonfría, E. S., & Bordehore, C. (2021). Identification of the first COVID-19 infections in the US using a retrospective analysis. *Spatial and Spatio-temporal Epidemiology* rs.3.rs-707353. <https://doi.org/10.21203/rs.3.rs-707353/v1>
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- 101.** Arqué, X., Torres, M., Patiño, T., Boaro, A., **Sánchez, S.**, & **de la Fuente-Nunez, C.** (2022). Autonomous Treatment of Bacterial Infections in Vivo Using Antimicrobial Micro- and Nanomotors. *ACS Nano*, 2022 Apr 29;16(5):7547–58. doi: 10.1021/acsnano.1c11013.
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- 99.** Torres M., de Lima L., Ferreira A., ..., and **de la Fuente-Nunez C.** Detection of SARS-CoV-2 with RAPID: a prospective cohort study. *iScience*. 2022 April 15;25 (4). <https://doi.org/10.1016/j.isci.2022.104055>.
- 98.** Cesaro A., Torres M., Gaglione R., ..., **de la Fuente-Nunez C** and **Arciello A.** Synthetic Antibiotic Derived from Sequences Encrypted in a Protein from Human Plasma. *ACS Nano*. 2022 Feb 22;16(2):1880-1895. doi: 10.1021/acsnano.1c04496. Epub 2022 Feb 3. PMID: 35112568.
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- 96.** Ageitos L., and **de la Fuente-Nunez C.** Antimicrobial peptides: potential therapeutics against drug-resistant pulmonary infections. *Arch Bronconeumol*. 2021 Sep 29. doi: 10.1016/j.arbres.2021.09.007.
- 95.** Ferreira A., de Lima L., Torres M., de Araujo W.R., and **de la Fuente-Nunez C.** Low-cost optodiagnostic for minute-time scale detection of SARS-CoV-2. *ACS Nano*. 2021. DOI: 10.1021/acsnano.1c03236
- 94.** Melo MCR, Maasch JRMA, **de la Fuente-Nunez C.** Accelerating antibiotic discovery through artificial intelligence. *Nature Commun Biol*. 2021;4(1):1050. doi: 10.1038/s42003-021-02586-0. PMID: 34504303.
- 93.** Meurer M., ..., **de la Fuente-Nunez C**, Angeles-Boza, A., et al. Antimicrobial Susceptibility Testing of Antimicrobial Peptides Requires New and Standardized Testing Structures. *ACS Infectious Diseases*. 2021;7(8):2205-2208. doi: 10.1021/acsinfecdis.1c00210.
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- 91.** de Lima L., Ferreira A., Torres M., de Araujo W.R., and **de la Fuente-Nunez C.** Minute-scale detection of SARS-CoV-2 using a low-cost biosensor composed of pencil graphite electrodes. *PNAS*. 2021. 118(30):e2106724118. doi: 10.1073/pnas.2106724118.
- 90.** Mejía A., Broset E., and **de la Fuente-Nunez C.** Probiotic engineering strategies for heterologous production of antimicrobial peptides. *Advanced Drug Delivery Reviews*. 2021. 113863. doi: 10.1016/j.addr.2021.113863.
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- 88.** Torres MDT, de Araujo WR, de Lima LF, Ferreira AL, **de la Fuente-Nunez C.** Low-cost Biosensor for Rapid Detection of SARS-CoV-2 at the Point-of-Care. *Matter (Cell Press)*. 2021;4:2403-2416. doi: 10.1016/j.matt.2021.05.003. PMID: 33997767; PMCID: PMC8106877.
- 87.** Tang TC, Tham E, Liu X, Yehl K, Rovner AJ, Yuk H, **de la Fuente-Nunez C**, Isaacs FJ, Zhao X, Lu TK. Hydrogel-based biocontainment of bacteria for continuous sensing and computation. *Nat Chem Biol*. 2021 Jun;17(6):724-731. doi: 10.1038/s41589-021-00779-6. Epub 2021 Apr 5. PMID: 33820990.
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- 85.** Silveira G., Torres M., Ribeiro C., Meneguetti B., Carvalho C., **de la Fuente-Nunez C**, Franco O.L., and Cardoso M. Anti-biofilm peptides: relevant preclinical animal infection models and translational potential. *ACS Pharmacology & Translational Science*. 2021; 4 (1), 55-73. doi: 10.1021/acspsci.0c00191
- 84.** Pedron C.N., Silva A.F., Torres M.D.T., Oliveira C., Andrade G.P., Cerchiaro G., Pinhal M., **de la Fuente-Nunez C.**, and **Oliveira Junior V.X.** Net charge tuning modulates the antiplasmodial and anticancer properties of peptides derived from scorpion venom. *J Pept Sci*. 2021 Jan 13:e3296. doi: 10.1002/psc.3296.

- 83.** Torres M.D.T., Cao J., Franco O.L., Lu T.K., and **de la Fuente-Nunez C.** Synthetic biology and computer-based frameworks for antimicrobial peptide discovery. *ACS Nano*. 2021 Feb 4. doi: 10.1021/acsnano.0c09509.
- 82.** Torres M.D.T., Voskian S., Brown P., Liu A., Lu T.K., Hatton T.A., and **de la Fuente-Nunez C.** Coatable and Resistance-Proof Ionic Liquid for Pathogen Eradication. *ACS Nano*. 2021;15:966-978. doi: 10.1021/acsnano.0c07642.
- 81.** Boaro A., Ageitos L., Torres M., **Bartoloni F.H.**, and **de la Fuente-Nunez C.** Light-Emitting Probes for Labeling Peptides. *Cell Reports Physical Science*. 2020 Dec 23;1(12):100257. doi: 10.1016/j.xcrp.2020.100257.
- 80.** Ahmed A., ..., **de la Fuente-Nunez C.** et al. Synthetic Host Defense Peptides Inhibit Venezuelan Equine Encephalitis Virus Replication and the Associated Inflammatory Response. *Sci Rep*. 2020;10:21491. doi: 10.1038/s41598-020-77990-3.
- 79.** Silva O.N., ..., **Franco O.L.**, and **de la Fuente-Nunez C.** Repurposing a peptide toxin from wasp venom into anti-infectives with dual antimicrobial and immunomodulatory properties. *PNAS*. 2020, 117(43):26936-26945. doi: 10.1073/pnas.2012379117.
- 78.** Kazemzadeh-Narbat M., Cheng H., Chabok R., Alvarez M.M., **de la Fuente-Nunez C.**, Phillips K.S., **Khademhosseini A.** Strategies for antimicrobial peptide coatings on medical devices: a review and regulatory science perspective. *Crit Rev Biotechnol*. 2020:1-27. doi: 10.1080/07388551.2020.1828810.
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- 76.** Echeverria C., Torres M.D.T., Fernández-García M., **de la Fuente-Nunez C.**, and **Muñoz-Bonilla A.** Influence of Nano and Microscale Topographies on Bacterial Attachment to Polymeric Surfaces. *Biotechnology Advances*. 2020, 43:107586. doi: 10.1016/j.biotechadv.2020.107586.
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- 72.** Gaglione R., Pizzo E., Notomista E., **de la Fuente-Nunez C.**, and Arciello A. Host defence cryptides from human apolipoproteins: applications in medicinal chemistry. *Curr Top Med Chem*. 2020;20(14):1324-1337. doi:10.2174/1568026620666200427091454
- 71.** Chen C.H., Melo M.C., Berglund N., Khan A., **de la Fuente-Nunez C.**, **Ulmschneider J.P.**, **Ulmschneider M.B.** Understanding and modelling the interactions of peptides with membranes: from partitioning to self-assembly. *Curr Opin Struct Biol*. 2020; 61:160-166. doi: 10.1016/j.sbi.2019.12.021.
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- 62.** Cândido E.S., Cardoso M.H., Chan L.Y., Torres M.D.T., Oshiro K.G.N., Porto W.F., Ribeiro S.M., Haney E.F., Hancock R.E.W., Lu T.K., **de la Fuente-Nunez C.**, Craik D.J., and Franco O.L. Short Cationic Peptide Derived from Archaea with Dual Antibacterial Properties and Anti-Infective Potential. *ACS Infect Dis*. 2019; 5:1081-1086. doi:10.1021/acsinfecdis.9b00073.
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**11. de la Fuente-Nunez C.**, and Hancock R.E.W. Using anti-biofilm peptides to treat antibiotic-resistant bacterial infections. *J Postdoc Res*. 2015; 3:1-8. doi: <http://doi.org/2fr>

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**9.** Reffuveille F., **de la Fuente-Nunez C.**, Mansour S., and Hancock R.E.W. A broad-spectrum antibiofilm peptide enhances antibiotic action against bacterial biofilms. *Antimicrob Agents Chemother*. 2014; 58:5363-71. doi: 10.1128/AAC.03163-14.

**8. de la Fuente-Nunez C.**, Reffuveille F., Haney E.F., Straus S.K., and Hancock R.E.W. Broad-spectrum anti-biofilm peptide that targets a cellular stress response. *PLoS Pathogens*. 2014. 10:e1004152. doi: 10.1371/journal.ppat.1004152. Editors' choice in: Science, Nature Reviews Microbiology, highlighted by *Faculty of 1000*, and featured on *Science Friday* radio show.

**7.** Fan L., Wang Q., **de la Fuente-Nunez C.** et al., Increased IL-8 production in human bronchial epithelial cells after exposure to azithromycin-pretreated *Pseudomonas aeruginosa* *in vitro*. *FEMS Microbiol Lett*. 2014; 355:43-50. doi: 10.1111/1574-6968.12441.

**6. de la Fuente-Nunez C.** et al., Anti-biofilm and immunomodulatory activities of peptides that inhibit biofilms formed by pathogens isolated from cystic fibrosis patients. *Antibiotics*. 2014; 3:509-26. doi: 10.3390/antibiotics3040509.

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**4. de la Fuente-Nunez C.**, Reffuveille F., Fairfull-Smith K., and Hancock R.E.W. Effect of nitroxides on swarming motility and biofilm formation, multicellular behaviors in *Pseudomonas aeruginosa*, *Antimicrob Agents Chemother*. 2013; 57:4877-81. doi: 10.1128/AAC.01381-13.

**3. de la Fuente-Nunez C.\***, Mertens J.\*, Smit J., and Hancock R.E.W. The bacterial surface layer provides protection against antimicrobial peptides. *Appl Environ Microbiol*. 2012; 78:5452-6. doi: 10.1128/AEM.01493-12. Highlighted by *Nature Reviews Microbiology*.

**2. de la Fuente-Nunez C.** et al. Inhibition of bacterial biofilm formation and swarming motility by a small synthetic cationic peptide. *Antimicrob Agents Chemother*. 2012; 56:2696-704. doi: 10.1128/AAC.00064-12.

**1.** Breidenstein E.B., **de la Fuente-Nunez C.**, and Hancock R.E.W. *Pseudomonas aeruginosa*: all roads lead to resistance. *Trends Microbiol*. 2011; 19:419-26

## **Books**

**1.** Melo M.C.R., Maasch J.R.M.A., **de la Fuente-Nunez C.** Machine Learning for Drug Discovery. *American Chemical Society. ACS In Focus*. March 2022. eISBN: 9780841299238. doi: 10.1021/acsinfocus.7e5017

## **Book Chapters**

**1.** Cesaro A., Torres M., **de la Fuente-Nunez C.** Chapter Thirteen – Methods for the design and characterization of peptide antibiotics. *Methods in Enzymology*. Volume 662, 2022, 303-326.

**2.** Martín-Rodríguez A.J., Quezada H., Becerril Aragón G., **de la Fuente-Nunez C.**, Castillo-Juarez I., Maeda T., Wood T.K., and García-Contreras R. Recent developments in novel bacterial anti-infectives. eBook. *Frontiers in Clinical Drug Research-Anti Infectives*. Bentham Science Publishers. 2016.

**3. de la Fuente-Nunez C.**, Whitmore L., and Wallace B.A. Peptaibols, in Kastin, A.J., ed., *Handbook of Biologically Active Peptides*. Boston: Academic Press. 2013; 150(7).

## **Complete List of Published Work in My Bibliography:**

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## **Citations Indexed on Google Scholar:**

<https://scholar.google.com/citations?user=N2OdcFYAAAAJ&hl=en> h-index: 45 (>9,400 citations)

**ORCID ID:** 0000-0002-2005-5629



## Patents

>20 patents pending or approved, including the following:

### Granted:

#### *University of British Columbia patents:*

U.S. Patent Application No. 61/870,655. Small cationic anti-biofilm and innate defense regulator (IDR) peptides. First inventor.

### Pending:

#### *University of Pennsylvania patents:*

UPenn invention disclosures for: COVID-19 diagnostic test, venom-derived antibiotics, and the use of pattern recognition technology for antibiotic discovery.

20-9127: Antimicrobial and antibiofilm peptides sequences with metal-binding motifs

20-9434: Method for rationally designing peptides from wasp venom into novel antibiotics

21-9515: Low-cost rapid diagnostic for COVID-19

21-9655: Hidden antibiotics in the human proteome

21-9669: Detection of SARS-CoV-2 within 5 minutes using a low-cost biosensor composed of pencil graphite electrodes

21-9678: COLOR: A Low-Cost Optodiagnostic For SARS-CoV-2

22-9974: Hidden Antibiotics in the Human Proteome

23-10289: Identification Of Antimicrobial Peptides

#### *Massachusetts Institute of Technology patents:*

MIT Case No. 18772: "Silver and Copper Chelating Ionic Liquids and Polymer and Gels with Antimicrobial and Antifungal Activity", by **de la Fuente-Nunez C**, Lu TK, Hatton TA, and Brown P.

M.I.T. Case No. 18650, "DNA Compaction and Protein Manipulation Using CO<sub>2</sub> Responsive Surfactants and Polymers as a Vehicle for Gene Transfection", by **de la Fuente-Nunez C**, Hatton TA, and Brown P.

M.I.T. Case No. 19124, U.S. Provisional Application No.: 62/454,299 "Task Specific Ionic Liquid-Impregnated Polymeric Surface Coatings for Antibacterial, Antifouling and Metal Scavenging Activity", by **de la Fuente-Nunez C**, Hatton TA, Brown P, and Voskian S.

MIT Case No. 20320J: "Computational Platform for *in Silico* Combinatorial Sequence Space Exploration and Artificial Evolution of Peptides", by **de la Fuente-Nunez C**, Franco OL, Porto W, Lu TK.

MIT Case No. 19357, "Yeast-Based Engineering of Antimicrobial Peptides".

MIT Case No. 19371, "Precision Peptides for Microbiome Engineering"

MIT Case No. 19372, "Anti-Biofilm Peptides Against Drug-Resistant Bacterial Pathogens".

MIT Case No. 20320J, "Computational Platform for *in Silico* Combinatorial Sequence Space Exploration and Artificial Evolution of Peptides".

MIT Case No. 20758, "Identification of Novel Cryptic Multifunctional Antimicrobial peptides from the Human Stomach Enabled by a Computational-Experimental Platform".

MIT Case No. 20757J, "Antimicrobial Peptides Against Bacterial Pathogens".

## **Positions and Honors**

### Positions and Employment

2019\*- Presidential Assistant Professor, Departments of Bioengineering, Microbiology, and Psychiatry, University of Pennsylvania, Philadelphia, PA. \*Position accepted in May 2018. Deferred official start date for a year.

2015- Postdoctoral Associate, MIT, Cambridge, MA.

2014-2015 Postdoctoral Research Fellow, University of British Columbia, Vancouver, BC

### Other Experience and Professional Memberships

2022- Member, Society for Biomaterials (SFB)

2022- Member, American Association for the Advancement of Science (AAAS)

2022- Member, American Association for Dental, Oral and Craniofacial Research (AADOCR)

2022- Member, AADOCR Philadelphia Section

2022- Member, IADR Microbiology/Immunology Group

2021- Member, Biochemistry and Molecular Biophysics (BMB) Admissions Committee, UPenn  
 2021- Member, Organic Chemistry Junior Faculty Search Committee, UPenn  
 2021- Member, Center for Precision Engineering for Health (CPE4H) Faculty Search Committee, UPenn  
 2021- Member, Bioengineering Admissions Committee, UPenn  
 2021- Member, IEEE Engineering in Medicine and Biology Society (EMBS)  
 2021- Member, International Association for Dental Research (IADR)  
 2021- Member, Chemical and Biomolecular Engineering, UPenn  
 2020- Member, Biochemistry and Molecular Biophysics (BMB) Admissions Committee, UPenn  
 2020- Member, Genomics and Computational Biology Graduate Group Program, UPenn  
 2020- Member, Biomedical Engineering Society (BMES)  
 2020- Member, New York Academy of Sciences  
 2019- Member, Biochemistry & Molecular Biophysics Graduate Group Program, UPenn  
 2019- Member, Cell & Molecular Biology Graduate Group, UPenn  
 2019- Member, Clinical Neurosciences Training (CNST) Program, UPenn  
 2019- Member, Microbiology, Virology and Parasitology Graduate Group Program, UPenn  
 2019- Member, Bioengineering Graduate Group Program, UPenn  
 2019- Member, Neuroscience Graduate Group Program, UPenn  
 2019- Member, Graduate Group in Pharmacology, UPenn  
 2019- Member, Institute for Translational Medicine and Therapeutics (ITMAT), UPenn  
 2019- Member, Institute for Biomedical Informatics, UPenn  
 2019- Member, Penn Institute for Computational Science, UPenn  
 2019- Member, Real Sociedad Española de Química  
 2018- Member, American Institute of Chemical Engineers (AIChE)  
 2017- Member, American Chemical Society (ACS)  
 2016- Member, International Chemical Biology Society  
 2016- Member, ESCMID Study Group for Biofilm  
 2016- Member, European Society of Clinical Microbiology and Infectious Diseases (ESCMID)  
 2016- Member, Alliance for the Prudent Use of Antibiotics  
 2016- Member, American Peptide Society  
 2015- Member, European Peptide Society  
 2014- Member, Spanish Society for Biochemistry and Molecular Biology  
 2012- Member Canadian Society of Microbiologists  
 2010- Member, American Society for Microbiology

### **Scientific Advisory Activities**

2022 – Present SAB Member, Nowture S.L.  
 2021 – Present SAB Member, Invaio Sciences  
 2021 – Present SAB Member, Telum Therapeutics  
 2021 – Present SAB Member, Phare Bio

### **Selected Honors, Awards**

2023 Invited, AIChE Langer Prize Committee  
 2023 Elected member, Royal Academy of Pharmacology (Galicia). Only 42 members elected since 2003.  
 2023 National Academy of Medicine's (NAM's) Emerging Leaders in Health and Medicine (ELHM) Scholar  
 2023 Invited, IEEE EMBS Awards Committee  
 2023 National Prize in Biotechnology (VI Edition, Premios Nacionales de Tecnología, Spain)  
 2023 Fellow, American Institute for Medical and Biological Engineering (AIMBE)  
 2023 Selected for 2023 NAM Emerging Leaders Forum  
 2023 Elected Judge. MIT Technology Review Innovators "Under 35" Global edition  
 2023 Selected by Quincemil Newspaper as one of 15 Galicians changing the world  
 2023 Rao Makineni Lectureship Award  
 2023 Forbes Spain 23 Change Makers for 2023  
 2022 Clarivate Highly Cited Researcher

2022 Molecules 2022 Young Investigator Award  
 2022 Invited to join the Oxford Global Key Opinion Leaders Advisory Board  
 2022 Early Career Researcher Award for the Gordon Research Conference on Antimicrobial Peptides  
 2023  
 2022 Nominated for TOP Insiders 2022 Award by Business Insider España  
 2022 IJMS 2021 Young Investigator Award  
 2022 Elected Judge. MIT Technology Review Innovators "Under 35" Global edition  
 2022 Young Investigator Award from the Royal Spanish Society of Chemistry (RSEQ)  
 2022 Keystone Symposia Early Career Investigator Travel Award. Keystone Symposia T5  
 Micropeptides: Biogenesis and Function.  
 2021 Early Career Investigator Ad Hoc Council Participant at NIGMS NIH  
 2021 Forbes Top 50 Awarded Spaniards  
 2021 Clarivate Highly Cited Researcher  
 2021 2021 Innovator Award from Diario de León  
 2021 Con Voz Galega Ambassador for Lagar de Cervera  
 2021 Forbes top 100 most creative Spanish individuals  
 2021 2022 ASM Award for Early Career Applied and Biotechnological Research  
 2021 Contributing expert for REVIVE Advancing Antimicrobial R&D at Global Antibiotic Research and  
 Development Partnership (GARDP)  
 2021-Present CAMB-MVP Recruitment & Outreach Ambassador, Perelman School of Medicine  
 2021 Antibiotics 2020 Young Investigator Award  
 2021 IEEE EMBS Academic Early Career Achievement Award "For the pioneering development of  
 novel antibiotics designed using principles from computation, engineering, and biology."  
 2021 Elected member of the Young Academy of Spain  
 2021 Thermo Fisher Award  
 2021 IADR Innovation in Oral Care Awards  
 2021 Princess of Girona Prize for Scientific Research  
 2021 AIChE Delaware Valley Section (DVS) Outstanding Faculty Award  
 2021 Waksman Foundation Lecturer  
 2021 ASM Distinguished Lecturer  
 2021 Edwin Schultz Lecture, Stanford University  
 2021 Philadelphia Business Journal 40 Under 40  
 2021 Sigma Xi Member  
 2021 Galician of the Year- El Correo Gallego  
 2021 Contributing Expert, REVIVE  
 2021 Biomedical Engineering Society (BMES) CMBE Rising Star Award  
 2021 Young Innovator in Cellular and Molecular Bioengineering  
 2020 Talento Joven e Innovador, Universidade da Coruña  
 2020 Honorary Member, Colombian Society of Chemical Engineers  
 2020 Brain & Behavior Research Foundation (BBRF) Young Investigator Award  
 2020 NIH MIRA investigator  
 2020 Selected as Chair of panel. World Laureates Forum, Computational Biology Summit  
 2020 Invited to World Laureates Forum  
 2020 Selected by the US National Academies to serve on the committee to "Examine the long-term  
 health and economic effects of antimicrobial resistance in the US"  
 2020 AIChE's 35 Under 35 Award  
 2020 Nemirovsky Prize  
 2020 ACS Infectious Diseases Young Investigator Award  
 2020 30 Rising Leaders in the Life Sciences by *In Vivo* magazine  
 2020 Member of the University Council Steering Committee  
 2020 Assistant Professor Representative of the Senate Executive Committee, UPenn  
 2020 ACS 2020 Kavli Emerging Leader in Chemistry lecture award.  
 2020 Selected as Scialog Fellow by RCSA, the Paul G. Allen Frontiers Group and the Frederick  
 Gardner Cottrell Foundation.  
 2020 University of Naples Federico II PhD in Biotechnology Member of the Advisory Board  
 2019 Recipient of the Langer Prize for Innovation and Entrepreneurial Excellence by the AIChE

Foundation

2019 Delegate. American Academy of Achievement. 53<sup>rd</sup> International Achievement Summit

2019 – Present UPenn CNST Advisory Board

2019 Society of Hispanic Professional Engineers Young Investigator Award

2019 Named one of the “World’s Top Innovators Under 35” by MIT Technology Review

2019 Named GEN Top 10 Under 40

2019 Awarded a Presidential Professorship Chair by the University of Pennsylvania

2019 Elected Judge. MIT Technology Review Innovators “Under 35” Europe 2019

2018 Named a 2018 Wunderkind by *STAT News*

2018 Elected for MISTI MIT Global Seed Funds Scientific Review Committee

2018 Elected Judge. MIT Technology Review Innovators “Under 35” Europe 2018

2017 Elected Judge. MIT Technology Review Innovators “Under 35” Europe 2017

2017 Semifinalist. 2017 MIT \$100k Launch Competition

2017 Selected as ACS Nano Junior Fellow

2016 MIT Technology Review Innovator “Under 35” (Spain)

2016 “30 Under 30” Latino Boston

2016 Harvard Medical School Ruth & William A. Silen Award for Microbiology, Immunology, Genetics or Molecular Biology

2015 Recipient of “Fundación Ramón Areces” Fellowship

2015 University of British Columbia PI grant

2014 University of British Columbia Robert Emmanuel & Mary Day Endowment Award

2014 University of British Columbia Travel Grant

2014 Gordon Research Conference Travel Award

2012 Selected as Fundación “la Caixa” Fellow

2012 University of British Columbia Robert Emmanuel & Mary Day Endowment Award

2012 American Society for Microbiology Travel Grant

### **Named Lectures**

#### **2023:**

- Joseph Priestley Society (JPS) Lecture. Philadelphia, USA. (October 19, 2023).
- Rao Makineni Lectureship Award. 28th American Peptide Symposium in Scottsdale, Arizona, USA. (June 24-29, 2023).

#### **2022:**

- Invited Speaker. Judith H. Greenberg Early Career Investigator Lecture. NIGMS. Virtual. (September 28, 2022).
- Invited Speaker. Conferencia Magistral Cátedra Fundación San Rafael. A Coruña, Spain. (May 9, 2022).

#### **2021:**

- Invited Speaker. Kavli Foundation Emerging Leader in Chemistry lecture. ACS Spring 2021 National Meeting. San Antonio, TX, USA. (April 9, 2021).
- Invited Speaker. Edwin Schultz Lecture. Stanford University. Palo Alto, CA, USA. (January 20, 2021).

### **Selected Invited Talks and Lectures**

#### **2024:**

- Invited Speaker. 2024 American Society of Investigative Pathology (ASIP). Baltimore, MD, USA (April 21, 2024)
- Invited Speaker. National Academy of Medicine Forum. Washington, DC, USA (April 9-10, 2024)
- Invited Speaker. New Antibacterial Discovery and Development Gordon Research Conference. Ventura, California, USA. (March 17-22, 2024)
- Invited Seminar. Emory University. Atlanta, Georgia, USA. (February 26, 2024).

**2023:**

- Invited Speaker. Henry Stewart Talks. Online. (2023)
- Invited Keynote. Keynote X Congreso Internacional Sobre Biotecnología, Tlaxcala, México. (December 4, 2023)
- Invited Seminar. Royal Society of Chemistry, Stony Brook University, Stony Brook, New York, USA. (November 30, 2023) (declined).
- Invited Speaker. 6th World Laureates Association (WLA) Forum. Shanghai, China. (November 6-8, 2023).
- Invited Keynote. Keynote ASM-NCB Meeting Distinguished Lecturer Invitation University of Wisconsin – La Crosse. La Crosse, Wisconsin, USA. (November 3-4, 2023)
- Invited Speaker. Drug Discovery Summit and Drug Design and Medicinal Chemistry Congress. Boston, MA, USA. (November 1-2, 2023) (declined).
- Invited Speaker. 11th Microbiome & Probiotics R&D & Business Collaboration Forum. San Diego, CA, USA. (October 19-20, 2023).
- Invited Keynote. Joseph Priestley Society (JPS) Lecture. Philadelphia, USA. (October 19, 2023).
- Invited Seminar. Centro de Investigación Científica y de Educación Superior de Ensenada. Ensenada, Baja California, Mexico. (September 26-27, 2023).
- Invited Keynote. World AMR Congress 2023. Philadelphia, PA, USA. (September 7-8, 2023). (declined)
- Invited Speaker. Institute for Biomedical Informatics/Genomics and Computational Biology (IBI-GCB) 1<sup>st</sup> Annual Retreat. Macungie, Pennsylvania, USA (September 6-8, 2023).
- Invited Seminar. LSU Health Science Microbiology and Immunology Seminar Series. Louisiana State University, Shreveport, LA, USA. (September 1, 2023).
- Invited Speaker. 266<sup>th</sup> ACS National Meeting. San Francisco, California, USA. (August 13-17, 2023).
- Invited Speaker. 10th Congress of European Microbiologists (FEMS2023). Hamburg, Germany. (July 9-13, 2023).
- Invited Seminar. CNB-CSIC Seminar Series. Madrid, Spain. (June 30, 2023).
- Invited Keynote. XXIX Congreso de la Sociedad Española de Microbiología. Burgos, Spain (June 26) (declined).
- Invited Keynote. American Peptide Symposium. Rao Makineni Lectureship Award. Scottsdale, Arizona, USA. (June 24-29, 2023).
- Invited Keynote. IADR 2023. Bogota, Colombia. (June 21-25, 2023) (declined).
- Invited Speaker. DTRA DOMANE Workshop. Winston-Salem, NC, USA. (June 21-22, 2023).
- Invited Speaker. Kisaco Research Antimicrobial Resistance Connect. London, UK. (June 21-22, 2023). (declined).
- Invited Speaker. STEM Speaker Panel organized by STEMist. Virtual. (June 19-23, 2023).
- Invited Speaker. ASM Microbe. Houston, Texas, USA. (June 15-19, 2023).
- Invited Keynote. Tiny Earth Symposium. Wisconsin Institute for Discovery. University of Wisconsin-Madison. Madison, Wisconsin. (June 13, 2023).
- Invited Speaker. Bankinter Foundation of Innovation. Madrid, Spain. (June 12-14, 2023).
- Invited Speaker. Discovery Europe 2023 by Oxford Global. Berlin, Germany. June 6-7, 2023. (declined)
- Invited Keynote. Asociacion Colombiana de Farmacología ACF Pharmacology and Therapeutics Congress. Bogota, Colombia. (June 1-3, 2023). (Postponed)
- Invited Speaker. 11th Microbiome & Probiotics R&D & Business Collaboration Forum- Europe. Rotterdam, Netherlands. (May 23-24, 2023) (declined).
- Invited Seminar. Stanford University. Palo Alto, CA, USA. (May 11, 2023).
- Invited Speaker. FPdGi round table on AI. Lugo, Spain. (May 5, 2023).
- Invited Speaker. American Society for Microbiology Distinguished Lecturer (ASMDL) presentation at the Ohio Branch meeting. Oxford, Ohio, USA. (April 14-15, 2023) (declined).
- Invited Seminar. Talk at FDA. Sponsored by FDA's Artificial Intelligence Working Group. Virtual. (April 4, 2023).
- Invited Keynote. Eastern New York Student Chapter of ASM Trainee symposium. Albany, NY, USA. (March 31, 2023).
- Invited Speaker. Emory's Emerson Center's 2023 Annual Symposium. Atlanta, Georgia, USA. (March 30, 2023).

- Invited Keynote. V Jornadas de Genética y Biotecnología Universidad de Leon. Leon, Spain. (March 25, 2023) (declined).
- Invited Seminar. Swarthmore College Seminar. Swarthmore, PA. USA. (March 24, 2023).
- Invited Seminar. One Health Summit in Brussels (Bamberg Health). Brussels, Belgium. (March 21, 2023).
- Invited Seminar. Universidad Autónoma de Tlaxcala, México. (March 14, 2023).
- Invited Seminar. UNC Chapel Hill M&I seminar series. Chapel Hill, North Carolina, USA. (February 21, 2023).
- Invited Speaker. La Caixa Foundation event "What is creativity?". Virtual. (February 16, 2023).
- Invited Seminar. Spring MITI seminar. University of Pennsylvania. Philadelphia, USA. (February 3, 2023).
- Invited Speaker. 1<sup>st</sup> THINK Symposium on Diagnostics and Microfluidics. McGill University's Bellairs Research Station in Holetown, Barbados. (February 3 to 10, 2023). (declined)
- Invited Speaker. Antimicrobial Chemotherapy Conference, ACC2023. Virtual. (February 1, 2023).
- Invited Keynote. Gordon Research Conference: Antimicrobial Peptides. Lucca, Italy. (January 15, 2023).
- Invited Mentorship Component Speaker. Gordon Research Seminar: Antimicrobial Peptides. Lucca, Italy. (January 15, 2023).

## 2022:

- Invited Speaker. Keystone Symposia: Novel Approaches Against Emerging Antimicrobial Resistance. Banff, Alberta, Canada. (December 4 to 8, 2022).
- Invited Keynote Speaker. 27th Latin-American Symposium on Biotechnology, Biomedical, Biopharmaceutical, and Industrial Applications of Capillary Electrophoresis and Microchip Technology. Panama City, Panama. (December 3 to 8, 2022).
- Invited Speaker. RSEQ XVIII Simposio de Jóvenes Investigadores Químicos. Seville, Spain. (November 21 to 24, 2022).
- Invited Keynote Speaker. FEBS-IUBMB-ENABLE 2022 Conference. Seville, Spain. (November 16 to 18, 2022).
- Invited Speaker. GRC Chemistry and Biology of Peptides. Oxnard, CA, USA. (October 30 to November 4, 2022).
- Invited Speaker. IV Congreso Internacional de Sostenibilidad. Madrid, Spain. (October 20, 2022) (Declined).
- Invited Keynote Speaker. Janssen Emerging Technologies and Methodologies in Small Molecule Drug Discovery & Synthesis Symposium. Toledo, Spain. (September 29, 2022).
- Invited Speaker. Galicia Biodays. A Coruña, Spain. (September 22 to 23, 2022).
- Invited Speaker. Lake Arrowhead Conference 2020. Lake Arrowhead, CA, USA. (September 11 to 15, 2022).
- Invited Speaker. World AMR Congress. Oxon Hill, MD, USA. (September 7 to 8, 2022).
- Invited Speaker. 5<sup>th</sup> International Caparica Conference in Antibiotic Resistance 2022. Caparica, Portugal. (September 5, 2022) (Declined).
- Invited Speaker. Clinician Engineer Hub Webinar. Virtual. (September 2, 2022).
- Invited Seminar. Genentech Infectious Diseases Seminar Series. Virtual. (August 29, 2022).
- Invited Keynote Speaker. XVIII Congreso Colombiano de Farmacología & Terapéutica. Barranquilla, Colombia. (August 18, 2022). (Postponed).
- Invited Speaker. ATOM Tech Team Meeting. Virtual. (August 3, 2022).
- Invited Seminar. Defense Threat Reduction Agency. Virtual. (July 20, 2022).
- Invited Keynote Speaker. Second International Electronic Conference on Antibiotics. Virtual. (June 15, 2022).
- Invited Speaker. SUIP Faculty Research Talk. University of Pennsylvania. Philadelphia, PA, USA. (June 14, 2022).
- Invited Speaker. ASM Microbe Meeting. ASM Awards Spotlight Session for 2022 ASM Award for Early Career Applied and Biotechnological Research. Washington, D.C., USA. (June 12, 2022).
- Invited Speaker. Penn Health Tech Idea to Impact Health-Tech Innovation Symposium. Philadelphia, PA, USA. (June 7, 2022).
- Invited American Society for Microbiology Distinguished Lecturer (ASMDL)/Waksman Foundation Lecturer. 64<sup>th</sup> Convención Annual SMPR. Puerto Rico. Virtual. (June 3, 2022).

- Invited Speaker. CiPD's Inaugural Symposium: Dentists, Scientists & Engineers Transforming Oral Health. University of Pennsylvania. Philadelphia, PA, USA. (June 2, 2022).
- Invited Speaker. Cellarity's Single Cell and AI in Medicine Symposium. Sommerville, MA, USA. (May 19, 2022).
- Invited Speaker. 2nd International Conference on Emerging Materials and Nanotechnology. Prague, Czech Republic. (May 13, 2022) (Declined).
- Invited American Society for Microbiology Distinguished Lecturer (ASMDL)/Waksman Foundation Lecturer. Western New York Branch of ASM Spring Meeting. Buffalo, NY, USA. (April 26, 2022).
- Invited Speaker. AIChE Delaware Valley Section Outstanding Faculty Award Event. Widener University. Virtual. (April 20, 2022).
- Invited Speaker. IEEE EMBS Virtual Conference on Investigation of Biomedical Informatics for Biomedical Engineering Day. Virtual. Panama. (April 14, 2022)
- Invited Panelist. Keystone Symposia. Micropeptides: Biogenesis and Function (T5-2022). Career Roundtable. Snowbird, UT, USA. (April 8, 2022).
- Invited Speaker. Keystone Symposia. Micropeptides: Biogenesis and Function (T5-2022). Microproteins across the Tree of Life. Snowbird, UT, USA. (April 7, 2022).
- Invited Speaker. 9<sup>th</sup> Microbiome & Probiotics R&D & Business Collaboration Forum. San Diego, CA, USA. Virtual. (March 30, 2022).
- Invited Speaker. ACS National Meeting. "Big Data and AI in Agricultural and Food Chemistry." Virtual. (March 20, 2022).
- Invited Round Table. XI CIBERER Conference "Research is Advancement" Artificial Intelligence Applied to Research in Rare Diseases. Valencia, Spain. Virtual. (February 25, 2022).
- Invited Speaker. 2022 Delaware Valley Engineers Week Opening Ceremony. Philadelphia, PA, USA. (February 17, 2022).
- Invited Workshop. 2<sup>nd</sup> Annual AJAS Meet the Scientists Session. 2022 AJAS Virtual Conference. Virtual. (February 10, 2022).
- Invited Workshop. Nucleate Philadelphia Curriculum Expert Workshop on Technical Risk & Scientific Plan. Philadelphia, PA, USA. Virtual. (February 8, 2022).
- Invited Seminar. Spring 2022 Molecular Discovery Seminar Series for the Chemical Biology Laboratory at the NCI. Virtual. (February 3, 2022).
- Invited Seminar. UNCC Bioinformatics & Genomics Seminar Series. Charlotte, NC. Virtual. (January 28, 2022).
- Invited Speaker. Galicia AI Seminar. Spain. Virtual. (January 13, 2022).

## **2021:**

- Invited Speaker. Igeneris Add.ventures Seminar. Madrid, Spain. Virtual. (December 16, 2021).
- Invited Speaker. Pharmacology Graduate Group (PGG) Journal Club. University of Pennsylvania. Philadelphia, PA, USA. (December 2, 2021).
- Invited Speaker. GVN Monaco Diagnostic Workshop. Monaco. Virtual. (December 2, 2021).
- Invited Speaker. Biotech Pharma Summit. Porto, Portugal. (November 29, 2021).
- Invited Speaker. JPhD 2021 Conference. Barcelona, Spain. Virtual. (November 26, 2021).
- Invited Keynote. Congreso Nacional SEMI, Santiago de Compostela, Spain. (November 26, 2021). (Declined).
- Invited Speaker. DTRA Artificial Intelligence Medical Discovery (AI-MED) Workshop. Defense Threat Reduction Agency. Virtual. (November 18, 2021).
- Invited Speaker. 2021 AIChE Annual Meeting. Boston, MA, USA. (November 8, 2021).
- Invited Panel. World AMR Congress. Washington, D.C., USA. (November 8, 2021).
- Invited Speaker. Carta de Santiago. Santiago de Compostela, Spain. (November 6, 2021).
- Invited Speaker. Franklin Park Venture Day 2021. Philadelphia, PA, USA (November 3, 2021).
- Invited Speaker. Biological Chemistry Seminar Series. Chemistry Department of the University of Pennsylvania. Philadelphia, PA, USA. (November 2, 2021).
- Invited Keynote Speaker. ASM Distinguished Lecturer Plenary Talk at North Carolina Branch Meeting. Virtual. (October 30, 2021).
- Invited Speaker. Seminar at Bigelow Laboratory for Ocean Sciences. Virtual. (October 28, 2021).
- Invited Speaker. Enterprise Innovation Summit. ESIC. Madrid, Spain. (October 27, 2021). (Declined).
- Invited Speaker. Universidade Catolica Dom Bosco Scientific Initiation Event. Brazil. Virtual. (October 27, 2021).

-Invited Panel Discussion. Biology and Medicine Session II. Fourth World Laureates Forum Young Scientist Forum. Beijing, China. Virtual. (October 29, 2021).

-Invited Seminar. University of Florida BME Seminar Series. Virtual. (October 25, 2021).

-Invited Keynote Speaker. ASM Distinguished Lecturer Plenary Talk at Fall 2021 Rocky Mountain Branch Annual Virtual Meeting. Virtual. (October 21, 2021).

-Invited Speaker. Covid-19 Symposium at TechConnect World. Washington, D.C., USA. (October 18, 2021).

-Invited Panelist. South Summit 2021. Madrid, Spain. Virtual. (October 6, 2021).

-Invited Speaker. Penn Medicine London Advisory Council Meeting. Virtual. (October 4, 2021).

-Invited Speaker. University of Pennsylvania Power of Penn Campaign Conclusion Event. Philadelphia, PA, USA. (September 30, 2021).

-Invited Speaker. MVP Faculty Chalk Talks Perelman School of Medicine. University of Pennsylvania. Philadelphia, PA, USA. (September 29, 2021).

-Invited Speaker. Building a Path Forward: Lessons from the COVID-19 Pandemic. A Penn INSPIRE Community Forum. University of Pennsylvania. Virtual. (September 23, 2021).

-Invited Speaker. 9th International Congress & Expo on Biotechnology and Biomaterials (BiotechMaterials2021). Virtual. (September 23, 2021).

-Invited Speaker. Fall 2021 CBE PhD Advisor Selection. University of Pennsylvania. Philadelphia, PA, USA. (September 22, 2021).

-Invited Speaker. RSEQ – GQPN Grupo de Quimica de Productos Naturales. Virtual. (September 22, 2021).

-Invited Seminar. University of Texas at San Antonio Seminar for the South Texas Center for Emerging Infections Diseases. San Antonio, TX, USA. (September 3, 2021).

-Invited Plenary Speaker. V COPEBIOT 2021. Peru. Virtual. (August 10, 2021).

-Invited Speaker. Summer Undergraduate Internship Program (SUIP) Summer 2021 Faculty Research Seminar. University of Pennsylvania. Virtual. (August 4, 2021).

-Invited Speaker. First Pennsylvania Chemical Biology Symposium. University of Pittsburgh. Virtual. (July 26, 2021).

-Invited Seminar. Tessera Therapeutics. Virtual. (July 19, 2021).

-Invited Speaker. BIOS Frontier Science Series Podcast. Virtual. (July 12, 2021).

-Invited Speaker. Procter & Gamble. Virtual. (June 16, 2021).

-Invited Speaker. Thermo Fisher Award Lecture. Virtual. (June 15, 2021).

-Invited Speaker. IV edition of the International Caparica Conference in Antibiotic Resistance, IC2AR2021, Caparica, Portugal. (June 14, 2021).

-Invited Panelist. Boston Bacterial Meeting (BBM) Breakout Session on Antibiotic Resistance. Virtual. (June 10, 2021).

-Invited speaker. 3<sup>rd</sup> CHOP Immune Dysregulation Symposium. Virtual. (June 4, 2021).

-Invited Keynote Speaker. Maker Faire Galicia 2021. Virtual. (June 3, 2021).

-Invited Speaker. Jornadas de Orientación Profesional y Fomento del Emprendimiento en la Universidad de Málaga. Universidad de Málaga, Spain. Virtual. (May 31, 2021).

-Invited Keynote Speaker. European School of Administration Conference. Virtual. (May 19, 2021).

-Invited Speaker. Simposio CdeCMx Clubes de Ciencia Mexico. Mexico. (May 15, 2021).

-Invited Keynote Speaker. First International Electronic Conference on Antibiotics. Antibiotics and MDPI. Virtual. (May 14, 2021).

-Invited Speaker. 4th Global Congress on Antibiotics, Antimicrobials & Resistance. Prague, Czech Republic. (May 7 to 8, 2021).

-Invited Speaker. Webinar Climantica. Centro de Supercomputacion de Galicia (CESGA). Virtual. (April 16, 2021).

-Invited Seminar. DTRA COVID-19 Long-Hauler Syndrome (LHS) Workshop. Defense Threat Reduction Agency. Virtual. (April 13, 2021).

-Invited Speaker. TEDxPenn 2021. Philadelphia, PA, USA. (April 10, 2021).

-Invited Workshop Leader. AIChE 2021 National Conference Workshop. Virtual. (April 9, 2021).

-Invited Speaker. Dr. George W. Raiziss Rounds Seminar. Penn Dept of Biochemistry & Biophysics. Biochemistry & Molecular Biophysics Graduate Group. Philadelphia, PA, USA. (April 1, 2021).

-Invited Seminar. "PONENCIA FAMMAideas". FAMMA. Madrid, Spain. Virtual. (March 30, 2021).



- Invited Speaker. Gordon Research Seminar on Antimicrobial Peptides in Ventura, CA, USA. (March 27, 2021) (Postponed).
- Invited Speaker. Penn Engineering Board Meeting Talk. University of Pennsylvania. Philadelphia, PA, USA. (March 26, 2021).
- Invited Keynote. Society of Hispanic Professional Engineers. Virtual. (March 25, 2021).
- Invitation to Panel Discussion. Grace Hopper Lecture in BE Horizon 2030 Engineering Life in (Bio)Engineering Panel Discussion. University of Pennsylvania Bioengineering. Philadelphia, PA, USA. (March 25, 2021).
- Invited speaker. Online course on One Health. MediPIET. Madrid, Spain. Virtual. (March 15, 2021).
- Invited Speaker. Universidad Nacional Autonoma de Mexico Departmental Seminar. Mexico City, Mexico. (February 26, 2021).
- Invited Seminar. Baylor College of Medicine Seminar Series. Virtual. (February 25, 2021).
- Invited Speaker. Jornada Foro ADEA 24-02 Horizonte COVID-19 vacunación, tratamientos y nuevos diagnósticos. ADEA Club de Marketing. Virtual. (February 24, 2021).
- Invited Opening Keynote Speaker. Virtual South Summit Health & Wellbeing 2021. Virtual. (February 23, 2021).
- Invited Seminar. Rutgers University. Newark, NJ, USA. (February 18, 2021).
- Invited Speaker. The Power of Penn Medicine Campaign Cabinet. Virtual. (February 10, 2021).
- Invited Speaker. Pharmacology Graduate Group (PGG) Recruitment Chalk Talk. Biomedical Graduate Studies, University of Pennsylvania. Philadelphia, PA, USA. (February 5, 2021).
- Invited Speaker. Harvard SEAS Topics in Bioengineering. Cambridge, MA, USA. (February 4, 2021).
- Invited Speaker. BMES Rising Star Award Lecture. Biomedical Engineering Society. Virtual. (January 22, 2021).
- Invited Speaker. Webinar series "Biotecnología para todos" SEBBY FIQ Mexico. Virtual. (January 4, 2021).
- Invited Speaker. Tertulia de Jóvenes Investigadores en programa Especial de Aragón Radio 'El Viaje'. Virtual. (January 1, 2021).

**2020:**

- Invited Speaker. Dia del Ingeniero de Colombia. Bogotá, Colombia. (November 23, 2020).
- Invited Speaker. GARDP Webinar Presentation & panel discussion on 'Artificial intelligence/ computational chemoinformatics as a basis for discovery of new antibacterials. Virtual. (November 17, 2020).
- Invited Speaker. ICEMD Enterprise Innovation Summit 2020. Madrid, Spain. (November 11, 2020).
- Invited Speaker. 8<sup>th</sup> Microbiome and Probiotics Conference. San Diego, CA, USA. (November 5 to 6, 2020).
- Invited Speaker. Bionanosurf Scientific Seminars. Zaragoza, Spain. (November 4, 2020).
- Invited Speaker. World Laureates Forum. Shanghai, China. (October 29, 2020).
- Invited Speaker. DTRA Discovery of Medical Countermeasures Against Novel Entities (DOMANE) Workshop. VA, USA. (October 28 to 29, 2020).
- Invited Speaker. Chemical and Biomolecular Engineering Seminar Series. University of Pennsylvania. Philadelphia, PA, USA. (October 28, 2020).
- Invited Speaker. Langer Prize themed Podcast with Amir Nashat. Virtual. (October 14, 2020).
- Invited Speaker. World AMR Conference. Washington, D.C., USA. (October 8, 2020).
- Invited Speaker. Drexel University Medicine Microbiology Immunology Seminar. Philadelphia, USA. (September 30, 2020).
- Invited Speaker. Carnegie Mellon Forum on Biomedical Engineering. Virtual. (September 18, 2020).
- Invited Speaker. International Microbial Genomes Conference 2020. Lake Arrowhead, California, USA. (September 13 to 17, 2020).
- Invited Speaker. Keynote at Techniche 2020. Indian Institute of Technology. Guwahati, India. (September 3 to 6, 2020).
- Invited Speaker. 3<sup>rd</sup> International Symposium on Drug Resistance. Ciudad de Mexico, Mexico. (August 27 to 28, 2020).
- Invited Speaker. ACS National Meeting. ACS Infectious Diseases Young Investigator Lecture. San Francisco, CA, USA. (August 16 to 20, 2020).
- Invited Speaker. Penn Summer Undergraduate Internship Program (SUIP). University of Pennsylvania. Philadelphia, PA, USA. (July 29, 2020).

- Invited Speaker. Institute of Molecular Medicine (iMM). Lisbon, Portugal. (June 29, 2020).
- Invited Speaker. 17th International Scientific Congress V Symposium on Infectious Diseases and Vaccines 2020. Varadero, Cuba (June 23 to 26, 2020).
- Invited Speaker. Día del Biotecnólogo. Invited by Sociedad Estudiantil de Biotecnología y Bioingeniería de Yucatán. Yucatán, Mexico. (June 16, 2020).
- Invited Speaker. MIT IMPACT Program. Cambridge, MA, USA. (May 26, 2020).
- Invited Speaker. Startup Village 2020. The territory of the Skolkovo Innovation Center, Moscow, Russia. (May 21 to 22, 2020).
- Invited Speaker. Penn Psychiatry Program Director's Meeting. Philadelphia, PA, USA. (May 11, 2020).
- Invited Speaker. Scialog Microbiome, Neurobiology and Disease initiative Conference. Tucson, AZ, USA. (April 30 to May 3, 2020).
- Invited Speaker. PMHARC journal club meeting. University of Pennsylvania. Philadelphia, PA, USA. (April 20, 2020).
- Invited Speaker. TEDxPenn 2020. University of Pennsylvania. Philadelphia, PA, USA. (April 4, 2020).
- Invited Speaker. ACS 2020 Kavli Emerging Leader in Chemistry lecture award. ACS National Meeting and Exposition. Philadelphia, PA, USA. (March 23, 2020) (Rescheduled).
- Invited Speaker. VI Congreso de Estudiantes de Investigación Biosanitaria (VI CEIBS) Granada, Spain. (March 11 to 14, 2020).
- Invited Speaker. 4th AMR Conference. Basel, Switzerland. (March 12 to 13, 2020).
- Invited Speaker. Center for Cellular and Molecular Therapeutics (CCMT) seminar series. University of Pennsylvania. Philadelphia, PA, USA. (March 5, 2020).
- Invited Speaker. Penn Institute for Computational Science Colloquium Series. University of Pennsylvania. Philadelphia, PA, USA. (February 28, 2020).
- Invited Speaker. Inflammation Working Group Seminars Fox Chase Cancer Center. Philadelphia, PA, USA. (February 19, 2020).
- Invited Speaker. Frontiers in Science Seminar Series at UPenn Dental Medicine. University of Pennsylvania. Philadelphia, PA, USA. (February 13, 2020).
- Invited Speaker. Seminar at Temple University. Philadelphia, PA, USA. (January 16, 2020).
- Invited Speaker. CT3N WIP/JC Seminars. University of Pennsylvania. Philadelphia, PA, USA. (January 15, 2020).

**2019:**

- Invited Speaker. World AMR Congress. Washington, DC, USA. (November 7 to 8, 2019).
- Invited Chair. AIChE Annual Meeting - Microbes at Biomedical Interfaces Topical Conference. Orlando, FL, USA. (Oct 29-30, 2019).
- Invited Speaker. Keynote Address. Universidad Colegio Mayor de Cundinamarca. Bogotá, Colombia. (November 2019).
- Invited Speaker. Keynote Address. SHPE Young Investigator Award. Phoenix, Arizona, USA. (October 31, 2019).
- Invited Speaker. Institute for Immunology RIP Seminar. University of Pennsylvania. Philadelphia, PA, USA. (October 25, 2019).
- Invited Speaker. First International Conference and Workshop Microbiota. A Coruña, Galicia, Spain. (October 10, 2019).
- Invited Speaker. Prokaryotic Seminar at UPenn. University of Pennsylvania. Philadelphia, PA, USA. (September 30, 2019).
- Invited Speaker. Microbiome Talk UPenn. University of Pennsylvania. Philadelphia, PA, USA. (September 25, 2019).
- Invited Speaker. MIT TR35 EmTech. MIT. Cambridge, MA, USA. (September 17, 2019).
- Invited Speaker. CAMB-MVP Research Retreat. Swarthmore Inn. Swarthmore, PA, USA. (August 23, 2019).
- Commencement speech for la Caixa fellowship ceremony. CosmoCaixa. Barcelona, Spain. (July 12, 2019).
- Invited Speaker. UPenn Biochemistry and Biophysics Seminar. University of Pennsylvania. Philadelphia, PA, USA. (June 24, 2019).
- Invited Speaker. International Infection, Immunity and Inflammation Conference (I4C). University of British Columbia. Vancouver, BC, Canada. (May 14, 2019).

- Invited Speaker. Clinical Neurosciences Training Seminar (CNST) Seminar Series. University of Pennsylvania. Philadelphia, PA, USA. (May 3, 2019).
- Invited Speaker. 2019 Gordon Research Conference of Antimicrobial Peptides. Renaissance Tuscany Il Ciocco. Lucca (Barga), Italy. (February 24-March 1, 2019).
- Invited Speaker. ICTP-CSIC. Madrid, Spain. (February 22, 2019).
- Invited Speaker. BSI Online Conference. Virtual. (February 10, 2019).
- Invited Speaker. University of Rhode Island. Chemical Engineering Seminar Series. Providence, RI, USA. (February 7, 2019).
- Invited Speaker. The 8th Annual Symposium Synthetic Biology Center at MIT. Cambridge, MA, USA. (January 22, 2019).

#### **2018:**

- Invited speaker. 6th Annual Meeting of the Boston Area Antibiotic Resistance Network. The Starr Center 185 Cambridge St, Boston, MA, USA. (December 7, 2018).
- Invited Keynote Address. XLV Reunión Anual SOGAPAR. Ferrol, Spain. (November 16 to 17, 2018).
- Invited Speaker. Penn 5<sup>th</sup> Microbiome Symposium. University of Pennsylvania. Philadelphia, PA, USA. (Nov. 7 to 8, 2018).
- Invited Speaker and AIChE Session Co-Chair. AIChE Annual Meeting - Microbes at Biomedical Interfaces Topical Conference. Pittsburgh, PA, USA. (Oct 29 to 30, 2018).
- Invited Speaker. Penn Psychiatry Research Day. University of Pennsylvania. Philadelphia, PA, USA. (October 11, 2018).
- Invited Speaker. MIT Biological Engineering Retreat. Boston, Massachusetts, USA. (October 9, 2018).
- Invited Keynote Address. Harvard Infectious Diseases Consortium. Harvard Medical School. Boston, MA, USA. (May 30, 2018).
- Invited Seminar. University of Pennsylvania. Philadelphia, PA, USA.
- Invited Seminar. Cornell University. Ithaca, NY, USA.
- Invited Seminar. University of Colorado Boulder. Boulder, CO, USA.
- Invited Seminar. Colorado State University. Fort Collins, CO, USA.
- Invited Seminar. University of California Berkeley. Berkeley, CA, USA.
- Invited Seminar. Carnegie Mellon University. Pittsburgh, PA, USA.
- Invited Seminar. Vanderbilt University. Nashville, TN, USA.
- Invited Seminar. Boston University. Boston, MA, USA.
- Invited Seminar. Boston College. Chestnut Hill, MA, USA.

#### **2017:**

- Invited Speaker. 7th International Meeting on Antimicrobial Peptides. Copenhagen, Denmark.
- Invited Discussion Leader. Synthetic Biology Gordon Research Seminar (GRS). Stowe, VT, USA.
- Invited Speaker. 13<sup>th</sup> Annual Protein Engineering Summit. Boston, MA, USA.
- Invited Speaker. University of Connecticut. Storrs, CT, USA.
- Invited Speaker. Massachusetts General Hospital. Charlestown, MA, USA.
- Invited Seminar. Penn State University, PA, USA.
- Invited Speaker. ACS Nano Kavli Futures Symposium. University of California-Los Angeles, CA, USA.
- Invited Seminar. California Institute of Technology. Pasadena, CA, USA.

#### **2016:**

- Invited Speaker. Antibacterial Discovery and Development Summit. Boston, MA, USA.
- Invited Speaker. MIT Technology Review Innovators Under 35. Madrid, Spain.
- Invited Speaker. Broad Institute of MIT and Harvard, Cambridge, MA, USA.
- Invited Speaker. Institute for Bioengineering of Catalonia. Barcelona, Spain.
- Invited Speaker. International Biochemistry and Molecular Biology meeting. Natal, Rio Grande do Norte, Brazil.
- Invited Speaker. University of Campo Grande, Mato Grosso do Sul, Brazil.
- Invited Speaker. Harvard Medical School, Boston, MA, USA.
- Invited Speaker. Harvard University, Cambridge, MA, USA.
- Invited Speaker. Synthetic Biology Center. MIT, Cambridge, MA, USA.

#### **2015:**

- Invited Speaker. Spanish National Biotechnology Centre, CSIC. Madrid, Spain.
- Invited Speaker. Synthetic Biology Group. MIT. Cambridge, MA, USA.
- Invited Speaker. University of British Columbia, Vancouver, BC, Canada.

- Invited Speaker. University of Santiago de Compostela, Spain.
- Invited Speaker. University of A Coruña, University Hospital, Spain.

#### **2014:**

- Invited Speaker. Young Investigators Seminar. Barrié Foundation and University of A Coruña, Spain.
- Invited Speaker. University of British Columbia, Vancouver, BC, Canada.

#### **Recent Conference organization and Chair positions**

2020- Chair, World Laureates Forum Computational Biology Summit. Panelists: Arieh Warshel (2013 Nobel Prize in Chemistry) and Raphael Levine (1988 Wolf Prize in Chemistry). Beijing, China. (September 22, 2020)

#### **Outreach**

##### **Contributions to Diversity, Equity, and Inclusion (DEI)**

During my career, I have been truly committed to increasing the representation of historically underrepresented minorities in STEM. As an example of this vision, I have built my lab to be entirely composed of individuals from underrepresented and highly diverse backgrounds. I intentionally work to achieve gender parity and recruit to my lab individuals with unconventional backgrounds, who may not have had previous opportunities. 70% of the people in my lab are foreign-born and 70% are women. When seeking a faculty position at Penn, I highlighted to the hiring committee my commitment to diversity within my lab and more widely the University. I want to see the field of science become a true reflection of the diversity of our society. I am creating diversity metrics to help assess my lab's progress in a tangible manner. I hope this will encourage others to do the same. I was invited to interview for a position as Vice Chair for Inclusion, Diversity and Equity within my Department at Penn. In 2020, I was invited to serve in the Equity, Diversity, and Inclusion Subcommittee of the Canadian Society of Microbiologists. Since 2020 I have been serving as a DEI mentor and Diversity Advisor for Penn Bioengineering students and meeting for group lunches with these student groups as well as advising meetings for Bioengineering grad students every semester. I have given 3 invited lectures in 2020, 2021 and 2022 for the Summer Undergraduate Internship Program (SUIP) for underrepresented students at the University of Pennsylvania. As a junior faculty member, an immigrant, and someone who speaks English as a second language, I am still living the experience of what it means to rise to the top in a system that was not necessarily designed with me in mind. Whether it is learning how to present to audiences of hundreds of people in a foreign language, learning how the funding process works, or how the different Departments and University operate, there is a tremendous need to help navigate the academic system. I strive to create pathways to promote Diversity, Equity, and Inclusion in my lab and in academia more broadly.

##### **Service, Engagement, and/or Outreach**

I have given many talks and served on numerous panels on a range of topics from science communication, and discussing a career in science, to promoting diversity and inclusion in STEM. I was invited by the University of Manitoba to serve on a career panel, the BE Department at Penn to act as a Diversity mentor and was invited by the World Laureates Forum Computational Biology Summit to Chair a session with panelists Arieh Warshel (2013 Nobel Prize in Chemistry) and Raphael Levine (1988 Wolf Prize in Chemistry). In 2021 I was invited to the WLF Young Scientist Forum and shared work with Joachim Frank (2017 Nobel Prize in Chemistry), Avram Hershko (2004 Nobel Prize in Chemistry) and Barry Marshall (2005 Nobel Prize in Physiology or Medicine). In 2020 I delivered a PREP lecture given to underrepresented minority Penn students and was an invited panelist at the IMPACT MIT program and the SHPE career exploration panel. In 2020, in collaboration with undergraduate team member Adriana Mejía, we partnered with Firsthand Philly and the Science Center to record and share with the Philadelphia community what a day in our lab looks like. I participated in the Early Career Investigator Ad Hoc Council at NIGMS NIH in 2022. I served on the Bioengineering (BE) PhD Admissions Committee for the University of Pennsylvania in 2019, 2020 and 2021. I served on the ULAR Executive Search Committee in 2020. In 2021, 2022 and 2023, I also served on the admissions committee for Biochemistry and Molecular Biophysics (BMB). In 2021 and 2022, I conducted admissions interviews for Cell & Molecular Biology, Genomics and Computational Biology, and the VMD-PhD Program at the University of Pennsylvania School of Veterinary Medicine. In 2022 and 2023 I participated in the Summer Undergraduate Internship Program (SUIP) Application Review process. I also served as a Recruitment Ambassador for the 2023 Summer Undergraduate Internship Program (SUIP) and the Post-Baccalaureate Research Education Program (PREP) admissions. In 2022 I was invited to become a STEMPREP mentor for high school students. In the same year I participated in the National

Association of Academies of Science's Meet the Scientists event at the American Junior Academy of Science 2022 Conference in which I met with aspiring high school age scientists to discuss their research and provide career guidance. In 2021 to 2022 I served as a member of the Penn Center for Precision Engineering for Health (CPE4H) Faculty Search Committee and the Organic Chemistry Junior Faculty Search Committee. In 2022 I interviewed MD/PhD candidates for the GCB and CAMB graduate groups, judged posters for Penn's CAMB Symposium, and reviewed abstracts for the 2023 BMES CMBE Conference. In November of 2022 I was invited to examine a Ph.D. degree research thesis for The University of Queensland. In 2023, I was invited to become a trainer on the Structural Biology and Molecular Biophysics (SBMB) Training Grant (T32-GM132039; <https://www.med.upenn.edu/sbmbt32/>).

### **Outreach/Service (selected events)**

2023	Invited to serve as chair on Matthew Aronson's dissertation defense committee
2023	Invited to serve on planning committee for 2023 Penn Institute for Computational Science (PICS) annual symposium
2023	Invited to serve as expert on planning committee for NSF Engineering Research Visioning Alliance (ERVA) Engineering to Mitigate Antimicrobial Resistance workshop
2023	Invited to apply to serve on the American Society for Microbiology Distinguished Lecturers (ASMDL) Subcommittee
2023	Invited Participant. Royal Society of Chemistry Americas Regional Editors' Symposium at ACS National Meeting. San Francisco, California, USA. (declined).
2023	AIChE Langer Prize Selection Committee
2023	Invited to serve on Sahla Syed's dissertation defense committee.
2023	Invited by the Student Activities Committee (SAC) co-chairs to serve as a judge for our YI Poster Competition at the 2023 American Peptide Symposium (APS)
2023	Trainer, Structural Biology and Molecular Biophysics (SBMB) Training Grant (T32-GM132039; <a href="https://www.med.upenn.edu/sbmbt32/">https://www.med.upenn.edu/sbmbt32/</a> ).
2023	Summer Scholars Program, Swarthmore College.
2023	Invited by STEMist, a 501c(3) nonprofit organization to deliver lecture to upper elementary and middle school students.
2023	Invited to interview PhD Candidates for Penn's CAMB
2023	Invited to interview PhD Candidates for Penn's GCB Graduate Group
2023	11th Annual Regeneron Prize for Creative Innovation. Invited by Penn to serve as reviewer.
2023	Recruitment Ambassador for the Summer Undergraduate Internship Program (SUIP) and the Post-Baccalaureate Research Education Program (PREP) admissions
2022– Present	Mentor, Young Academy of Spain
2022 – 2022	Invited to examine the Higher Degree by Research thesis for The University of Queensland's Institute for Molecular Bioscience
2022 – Present	Invited to serve on Penn Medicine's strategic planning working group entitled "Make breathtaking discoveries and put them to work".
2022 – 2022	Invited to be a poster judge for UPenn's 25 <sup>th</sup> Annual CAMB Symposium
2022 – 2022	Invited to interview MD/PhD Candidates for Penn's GCB Graduate Group
2022 – 2023	Invited to review abstracts for the 2023 BMES CMBE Conference
2022 – 2022	Invited to be a poster judge for the 2022 SUIP Symposium
2022	Invited to speak with the fellows of the NIGMS Postdoctoral Research Associate Training (PRAT) Program
2022 – Present	Invited to be a STEMPREP mentor for high school students.
2022 – 2022	Invited mentor for the National Association of Academies of Science's American Junior Academy of Science 2022 Conference Meet the Scientist Event.
2021 – 2022	Member of Penn Center for Precision Engineering for Health (CPE4H) Faculty Search Committee.
2021 – 2021	Member of Organic Chemistry Junior Faculty Search Committee.
2021 – 2021	WLF Young Scientist Forum with Joachim Frank (2017 Nobel Prize in Chemistry), Avram Hershko (2004 Nobel Prize in Chemistry) and Barry Marshall (2005 Nobel Prize in Physiology or Medicine).
2020 – Present	Bioengineering (BE) PhD Admissions Committee for the University of Pennsylvania
2020 – 2020	IMPACT MIT program invited panelist.

- 2020 – Present Participated in the University Scholars (UScholars) Program at the Penn Center for Undergraduate Research and Fellowships
- 2020 – Present Penn Engineering Bioengineering Diversity Advisor.
- 2020 – Present Summer Undergraduate Internship Program (SUIP) Annual Faculty Research Talks.
- 2020 – 2020 PREP lecture given to underrepresented minority Penn students.
- 2020 – 2020 Mentoring students interested in doing a Ph.D. through the Penn Post-Baccalaureate Research Education Program (PennPREP).
- 2019 – 2019 Poster judge. Penn Biomedical Postdoctoral Research Symposium (BPP) Symposium (2019-10-11).
- 2019 – 2019 Poster judge. Annual Summer Undergraduate Internship Program (SUIP) Research Symposium (2019-08-08).
- 2019 – 2019 Recipient of BioLegend Best Presentation Award (prize of \$100 USD donated to a graduate student in a resource-limited setting).
- 2019 – 2019 MIT Communication Lab invited me to speak at a workshop discussing the faculty interview day. (January 11, 2019).
- 2018 – 2018 Harvard/MGH invited me to participate as a panelist in Panel Discussion: Making the Most of Your Postdoc. (September 17, 2018).
- 2016 – 2016 I co-organized a workshop with ECUSA (Spanish Scientists in the USA) where I spoke about the scientific and societal implications of CRISPR technology. (March 24, 2016).

### **Service and Leadership**

I have served in a number of leadership positions. Here I will briefly summarize selected positions I was recently involved with. For example, I was selected by the US National Academies to serve on the committee to *Examine the long-term health and economic effects of antimicrobial resistance in the US*. I was also invited by Penn as an Assistant Professor Representative of the Senate Executive Committee, and I am a member of the University Council Steering Committee. While at MIT, I was invited to and completed the Leadership Skills for Engineering and Science Faculty workshop. I have been invited to serve on the Editorial Board of the journals *Nature Communications Biology*, *ACS Infectious Diseases*, *Frontiers Microbiology*, *Cell Reports Physical Science*, and *Antibiotics*, and have peer-reviewed articles for numerous journals including *Cell*, *Nature Medicine*, *Nature Nanotechnology*, *Nature Biomedical Engineering*, *Science Advances*, *PNAS*, *Nature Communications*, *Science Translational Medicine*, *Cell Chemical Biology*, *Chemical Reviews*, and *ACS Nano*. In 2022, I was invited to serve as a co-editor for a *Frontiers in Bioinformatics* Research Topic (RT) “Machine Learning Approaches to Antimicrobials: Discovery and Resistance”. I have also written a book commissioned by the American Chemical Society on “Machine Learning for Drug Discovery”. In 2022, I was invited to serve on Penn Medicine’s strategic planning working group entitled “Make breathtaking discoveries and put them to work”. In 2023, I was selected to participate in the PSOM-Wharton Dr. Edward S. Cooper Leadership Development Program.

### **Teaching and Mentoring**

Making STEM fields more accessible to underrepresented minorities is a top priority in my scientific practice and as a faculty member. I was named “30 Under 30 Latino Boston” and have received the Society of Hispanic Professional Engineers Young Investigator Award. I was honored to join these cohorts of Hispanic and Latino leaders who have excelled in fields such as education, finance, government, science, and engineering. I look forward to continuing to work with these leaders to provide other Hispanics and underrepresented populations with the opportunities I have had so they can pursue their dreams. My experience mentoring other Hispanic scientists as well as women scientists outside of my laboratory include creating science and engineering mentoring hubs in Brazil and Colombia. This initiative provides pathways for young scientists to pursue a career in science. Since 2014 I have mentored— and learned from— over fifty students at the undergraduate, graduate, and postgraduate level. Most of these students are women, and their decision to pursue a Ph.D. degree is very much in line with my goal to promote the success of women in STEM fields. I am committed to education. I have given numerous lectures, classes and seminars at Penn including BE699, BE100 and GCB/CAMB 752, among others, and have given additional lectures at Drexel University.

### **Teaching Experience**

I have mentored >50 students and postdocs in the past 6 years at UBC, MIT and Penn. At Penn, I have mentored high school student Ishani Ranjan (summer 2019) and Samantha Zimmer (summer 2021) and undergraduate

students Jake Gurevitch, Kelesha Nelson, Shuangzhe Lin, and Adriana Namie Mejía, the latter of whom is working on engineering probiotics to target a number of diseases and is an author on two publications (1 published first-author paper, 1 in preparation). I have also supervised graduate students Angela Cesaro (1 paper published, 2 submitted), Sebahat Oztekin (3 papers submitted), Andreia Boaro (1 paper accepted, 2 submitted), Daphne Kontogiorgos-Heintz (Penn Bioengineering's Blair Research Fellowship, Penn Engineering Littlejohn Undergraduate Research Fellowship, Grant for Faculty Mentoring Undergraduate Research), Yemaiza Ojeda-Lassalle, Jacqueline Maasch (3 papers submitted; GAPSA-Provost Fellowship for Interdisciplinary Innovation and Grace Hopper Celebration Scholarship), Lucía Ageitos Castiñeiras (3 papers submitted), Nick Palmer (1 paper accepted and another submitted), Hannah Kim, Pat Exconde and Jacqueline Peng whose work ranges from using AI for antibiotic discovery to building technologies for microbiome engineering. I am currently mentoring three postdoctoral fellows: Angelica Cesaro, Fangping Wan, and Marcelo Torres. In all cases, I worked alongside my students in the same laboratory, and also meet more formally each week to discuss progress and career goals. In addition, for over six years I have served as mentor and co-advisor to numerous undergraduate and graduate students and postdocs in three laboratories in Brazil (at the University of Brasilia, Universidade Federal de Juiz de Fora, and Universidade do ABC), and one in Bogotá, Colombia (Universidad Colegio Mayor de Cundinamarca). In 2019, I taught CMB 605 at Penn, a journal club-based course for PhD students focusing on a variety of topics related to cell and molecular biology. Also in 2019, I was invited to give the commencement speech at the "la Caixa" Foundation award ceremony for students.

Previously, at MIT, I led a group of five undergraduate students from the Chemical Engineering Department in a project aimed to develop novel technologies to treat biofilms that grow on medical implant devices. I also successfully recruited and supervised Marcelo Torres, a visiting Ph.D. student from Brazil (he published 15 papers derived from his work that year), and Albert Thomas Magnell, a first-year graduate student, both in the Department of Biological Engineering at MIT. Albert's work has resulted in a manuscript (in preparation). Through the Imperial-MIT undergraduate program, I recruited Peter Sarvari, an undergraduate who worked with me this past summer (2017) and whose work is currently being put together for publication. Their recruitment involved conducting phone and in-person interviews, applying for a fellowship, and coordinating their arrival at MIT. Iva Gramatikov, an MIT undergraduate, also worked with me for a year from September 2017-September 2018 through the Microbiome SuperUROP program. From 2017-2019, I mentored and supervised undergraduate student Liam Herndon. His work focused both on developing deep learning methods for peptide antibiotic discovery, and on integrating antibiotics into nanorobots to target bacteria. We have submitted two papers based on the results he obtained. I also successfully obtained a MIT MISTI grant for Liam to work on the nanorobot project at IBEC in Barcelona during the summer of 2018. While at MIT, I also mentored undergraduate students Lily Huo and Roland Rocafort (1 paper submitted), the latter of which also went to do research at IBEC in Barcelona during the summer of 2019. I also instructed a course on peptide engineering principles for undergraduate students at MIT. Finally, in 2017 I was selected to participate in, and completed successfully, the MIT Kaufman Teaching Certificate Program.

While at UBC, I was the primary advisor for three undergraduates. I advised Paul Kim, a Biochemistry and Microbiology undergraduate student from June 2015 to 2016. I was awarded a \$5,000 grant by UBC that allowed Paul to perform research under my guidance. This project led to a high-quality manuscript (*EBioMedicine* 2016, 12:219-226). Paul is now a medical student at University of Toronto. I have continued to mentor him and have served as his reference for entry into medical school. Previously (June to October 2012), I served as the primary supervisor of Javier Vela, a UBC undergraduate student in the Microbiology and Immunology program. Javier's data helped initiate a fruitful project which has derived into a manuscript that is currently in preparation, and I served as a reference that helped him obtain a permanent job at the biotechnology company STEMCELL Technologies. I was also the primary advisor, from May 2010 to May 2011, to Lucy Jiang, a UBC Microbiology and Immunology undergraduate. Our investigations led to a publication in *Antibiotics* (2014;3:509-526). Lucy is now a medical student at UBC. I closely guided the Master thesis of Alexander Guevara Agudelo from Universidad Colegio Mayor de Cundinamarca in Bogotá, Colombia on the use of bioinspired antimicrobial peptides. Alexander successfully defended his thesis in May 2017, when I acted as committee member, and is preparing two manuscripts. He is now a Ph.D. student at Université Laval. At UBC I was a teaching assistant in 2011-2012 for the Environmental Microbiology Laboratory (MICB 401) where I taught 25 undergraduate students. Broadly, the students learned methods used by environmental microbiologists to assess the diversity and abundance of microorganisms in various environmental samples. My role included teaching, mentoring, guiding students

through experiments, facilitating group work, assessing student progress through practical experimentation and quizzes, and meeting with students individually to provide feedback.

## **Teaching/Mentoring Experience** (Affiliation; *Post-Graduate Activities*)

### *Teaching*

2023 Invited to give a Lecture for BIOE 450: Advances in Biotechnology (Stanford University).

2023 – 2023 GCB/CAMB 752 –Seminar in Genomics, led the Proteomics class (UPenn)

2022 – 2022 Postdoctoral Fellow Angelica Cesaro poster accepted by Gordon Research Conference.

2022 – 2022 GCB/CAMB 752 –Seminar in Genomics, led the Proteomics class (UPenn)

2020 – 2022 SUIP and PREP research seminar and teaching. (UPenn)

2020 – 2020 Molecular Medicine Master's program. (Drexel)

2020 – 2020 BE699 and BE100 (UPenn)

2019 – 2019 Cell and Molecular Biology (CAMB 605) course. (UPenn)

2017 – 2017 Co-Instructor, Peptide Engineering Advanced Undergraduate Course (MIT)

2017 – 2017 MIT Kaufman Teaching Certificate Program

2010 – 2011 Teaching Assistant, Environmental Microbiology Laboratory (UBC)

### *Visiting Professors*

2019 – 2021 Katya Anaya (in the de la Fuente Lab at UPenn)

### *Postdocs*

2023 – Present Rakesh Krishnan (in the de la Fuente Lab at UPenn)

2023 – Present Changge Guan (in the de la Fuente Lab at UPenn)

2023 – Present Ajay Yagati (in the de la Fuente Lab at UPenn)

2022 – Present Mojtaba Bagheri (in the de la Fuente Lab at UPenn)

2021 – Present Fangping Wan (in the de la Fuente Lab at UPenn)

2021 – Present Angela Cesaro (in the de la Fuente Lab at UPenn)

2019 – Present Marcelo Torres (in the de la Fuente Lab at UPenn)

2019 – 2021 Marcelo Melo (in the de la Fuente Lab at UPenn)

2019 – 2020 Esther Broset (in the de la Fuente Lab at UPenn)

### *Lab Coordinators/Technicians*

2020 – 2021 Yemaiza Ojeda-Lassalle (in the de la Fuente Lab at UPenn)

### *Research Administrative Coordinators*

2023 – Present Ellie Azebe-Osime (in the de la Fuente Lab at UPenn)

### *Administrative Assistant*

2021 – 2022 Jillian Mallon (in the de la Fuente Lab at UPenn)

### *Graduate Students*

2023 – Present Yeshwanth M. (BE PhD student in the de la Fuente Lab at UPenn).

2021 – 2022 Vivian Belenky (BE PhD student in the de la Fuente Lab at UPenn).

2021 – 2021 Hannah Kim (BMB PhD student in the de la Fuente Lab at UPenn).

2021 – 2021 Jacqueline Peng (GCB PhD student in the de la Fuente Lab at UPenn).

2021 – 2021 Patrick Exconde (BMB PhD student in the de la Fuente Lab at UPenn).

2021 – 2021 Carter Merenstein (GCB PhD student in the de la Fuente Lab at UPenn).

2020 – 2021 André Lopes Ferreira (Visiting PhD student in the de la Fuente Lab at UPenn, Universidade Estadual de Campinas - Unicamp).

2020 – 2021 Lucas Felipe de Lima (Visiting PhD student in the de la Fuente Lab at UPenn, Universidade Estadual de Campinas - Unicamp).

2020 – 2021 Nick Palmer (BMB PhD student in the de la Fuente Lab at UPenn).

2020 – 2021 Paulina Tran (IMUN MD/PhD student in the de la Fuente Lab at UPenn).

2020 – 2020 Lucía Ageitos (Visiting graduate student in the de la Fuente Lab at UPenn, University of A



Coruña).  
 2019 – 2021 Andreia Boaro (Visiting graduate student in the de la Fuente Lab at UPenn, Universidade Federal do ABC).  
 2019 – 2020 Sebahat Oztekin (Visiting graduate student in the de la Fuente Lab at UPenn).  
 2019 – 2019 Angela Cesaro (Visiting graduate student in the de la Fuente Lab at UPenn).  
 2017 – 2018 Marcelo Torres (MIT and Universidade Federal do ABC, Brazil)  
 2016 – 2017 Albert Thomas Magnell (MIT)  
 2015 – 2017 Alexander Guevara (Universidad Colegio Mayor de Cundinamarca in Bogotá, Colombia; *Cromasoft Biotechnology*)  
 2015 – 2017 Beatriz Torres Meneguetti (Universidade Católica Dom Bosco, Campo Grande, Brazil).  
 2015 – 2017 Ingrid Batista (Universidade Católica Dom Bosco, Campo Grande, Brazil).

#### *Master Students*

2021 – 2023 Shuangzhe Lin (researcher in the de la Fuente Lab at UPenn).  
 2021 – 2021 Deeksha Hegde (researcher in the de la Fuente Lab at UPenn).  
 2020 – 2021 Jacqueline Maasch (researcher in the de la Fuente Lab at UPenn).

#### *Undergraduate Students*

2023 – Present Stella Grynberg (student in the de la Fuente Lab at UPenn).  
 2022 – Present Saadia P. Jimenez-Neco (Informal mentoring; University of Puerto Rico at Cayey).  
 2021 – 2022 Daphne Kontogiorgos-Heintz (student in the de la Fuente Lab at UPenn).  
 2021 – 2021 Kelesha Nelson (student in the de la Fuente Lab at UPenn).  
 2020 – 2020 Jake Gurevitch (student in the de la Fuente Lab at UPenn).  
 2019 – 2020 Adriana Namie Mejía (visiting student in the de la Fuente Lab at UPenn).  
 2019 – 2019 Roland Rocafort (MIT) (MIT MISTI summer student)  
 2018 – 2019 Lily Huo (MIT)  
 2017 – 2019 Liam K Herndon (MIT)  
 2017 – 2018 Iva Monique T Gramatikov (MIT)  
 2017 – 2017 Peter Sarvari (MIT/Imperial College London | *Graduate Student at USC*)  
 2015 – 2016 Natzem Lima (MIT; *MakerFellow at MIT | Litte Devices Lab*)  
 2015 – 2016 Veronica Toro (MIT; *MD Candidate at Stanford University School of Medicine*)  
 2015 – 2015 Paul Kim (University of Victoria; *MD Candidate, University of Toronto*)  
 2012 – 2012 Javier Vela (UBC; *STEMCELL Technologies*)  
 2010 – 2011 Lucy Jiang (UBC; *MD Candidate, UBC*)

#### *High School Students*

2022 – Present Maya Mohanty [American Junior Academy of Science (AJAS)].  
 2021 – 2021 Samantha Zimmer  
 2019-2021 Ishani Ranjan (*summer student in the de la Fuente Lab at UPenn | Undergraduate Student at UCSD*).  
 2018-2018 Marina del Pozo Flores (Richi Innovation Camp, Boston, MA).

### **Theses Review Roles**

#### **PhD theses.**

PhD Candidacy Committee Chair. Matthew Aronson. University of Pennsylvania, Department of Bioengineering. 2023  
 PhD Candidacy Committee Member. Angela O'Donnell. University of Texas at Austin, Department of Microbiology. 2022.  
 PhD Candidacy Committee Member. Sahla Syed. University of Pennsylvania, Department of Chemical and Biomolecular Engineering. 2021.  
 PhD Candidacy Committee Member. Robert Trudeau. University of Pennsylvania, Department of Chemical and Biomolecular Engineering. 2021.  
 External Reviewer. Soraya Rumbo Feal. Transcriptional analysis reveals new factors involved in the biofilm formation ability of *Acinetobacter baumannii*. Universidade da Coruña. Programa de doutoramento en Ciencias da Saúde. 2018.

## **MSc theses.**

External Reviewer. Fredy Alexander Guevara. Evaluación de la actividad anti-biopelícula de péptidos sintéticos análogos a la catelicidina humana LL-37 en aislamientos clínicos de *Staphylococcus* spp. en Bogotá, Colombia. Universidad Nacional de Colombia. Thesis defended on May 30, 2017.

## **Scientific Review and Editorial Roles**

**Selected Peer-review Roles:** Science, Cell, Nature Nanotechnology, Nature Microbiology, Nature Chemical Biology, Nature Communications, Science Translational Medicine, Nature Medicine, Science Advances, Nature Biomedical Engineering, Nature Machine Intelligence, Proceedings of the National Academy of Sciences of the United States of America (PNAS), Lancet Infectious Diseases, Journal of the American Chemical Society (JACS), Cell Chemical Biology, Chemical Reviews, ACS Nano, Cell Reports Medicine, Molecular Systems Biology, Angewandte Chemie, Nature Communications Biology, The Lancet's EBioMedicine, Biomaterials, Nature Frontiers – Microbiology, Nature Scientific Reports, Nature – Biofilms and Microbiomes, Clinical Infectious Diseases, Antimicrobial Agents and Chemotherapy, Applied Environmental Microbiology, The FASEB Journal, Organic & Biomolecular Chemistry, Biochimica et Biophysica Acta, Journal of Medical Microbiology, FEBS Journal, Eurosurveillance, Virulence, Antibiotics (Basel), Drug Design, Development and Therapy, Marine Drugs, Molecules, International Journal of Peptide Research and Therapeutics, Therapeutic Advances in Medical Oncology, Biofouling, Biotechnology Advances, Reviewer for book titled “Membrane-active Antimicrobial Peptides: An Alternative to Conventional Antibiotics” edited by Drs. Frances Separovic, John Wade, and Neil O’Brien-Simpson, Journal of Applied Microbiology, Vaccines, ACS Journal of Chemical Information and Modeling, International Journal of Molecular Sciences, Frontiers in Oncology, Biochemical Journal, International Journal of Antimicrobial Agents, Water Research, Sensors, Cellular and Molecular Life Sciences, PeerJ, BMC Complementary and Alternative Medicine, Acta Biomaterialia, Materials Science & Engineering C, Germs, Journal of Food Science, ACS Applied Materials & Interfaces, Colloids and Surfaces B: Biointerfaces, Current Protein & Peptide Science, Pharmaceutics, Journal of Innate Immunity, International Microbiology, Coatings, Protein & Peptide Letters, Frontiers in Bioengineering and Biotechnology, RSC Advances, Archives of Microbiology, Critical Reviews in Food Science and Nutrition, Critical Reviews in Biotechnology, ACS Omega, Royal Society Open Science, Infection and Immunity, Current Topics in Medicinal Chemistry, Soft Matter, International Journal of Pharmaceutics, Phytotherapy Research, Colloids and Surfaces A: Physicochemical and Engineering Aspects, The Lancet Microbe, Chemical Communications, Journal of Agricultural and Food Chemistry, BMC Neuroscience, Peptides, Peptide Science, Clinical and Translational Medicine, Expert Opinion On Biological Therapy, Biomolecules, ISME Journal, Bioinformatics, Frontiers Chemistry, Molecular Therapy - Methods & Clinical Development, Drug Discovery Today, ChemBioChem, Cell Reports Physical Science, Chemical Engineering Journal, Critical Reviews in Microbiology, The American Journal on Addictions, Military Medical Research, Applied Microbiology and Biotechnology, mBio, Bioactive Materials, Advanced Healthcare Materials, Database, Advanced Therapeutics, ACS Chemical Biology, Amino Acids, Frontiers in Cellular and Infection Microbiology, Advanced Functional Materials, BMC Molecular and Cell Biology, Frontiers in Microbiology, Biosensors and Bioelectronics, ChemMedChem, Gut Microbes, Advanced Science, Molecular Informatics, Briefings in Bioinformatics, Chemical Science.

## **Editorial Activities**

- 2023- *Drug Resistance Updates*. Associate Editor. IF= 22.841
- 2022- *Digital Discovery*. Associate Editor.
- 2022- *Bioengineering & Translational Medicine*. Guest Associate Editor. IF= 10.684
- 2022- *Digital Discovery*. Advisory Board.
- 2022- *ASM Microbiology Spectrum*. Editorial Board. IF= 9.043
- 2022- *In silico* Methods and Artificial Intelligence for Drug Discovery within the journal *Frontiers in Drug Discovery*
- 2022- *Frontiers in Microbiology*. Associate Editor. Specialty Section Antimicrobials, Resistance and Chemotherapy. IF = 6.064
- 2022- *Microbial Biotechnology*. Guest Editor. IF= 6.575
- 2022- *Frontiers in Bioinformatics*. Research Topic co-editor. “Machine Learning Approaches to Antimicrobials: Discovery and Resistance”.
- 2022- *BBA Advances*. Editorial Board.

2022- *Cell Reports Physical Science*. Editorial Advisory Board. IF= 7.832  
 2022- *Frontiers in Antibiotics*. Editorial Board.  
 2022- *Peptide Science*. Editorial Advisory Board.  
 2021- *Infection and Immunity*. Editorial Board.  
 2021- *Bioactive Materials*. Editorial Board. IF= 16.874  
 2021- *International Journal of Molecular Sciences* Section Molecular Biophysics. Editorial Board.  
 2020- *Peptide Science*. Guest Editor.  
 2020- *Nature Communications Biology*. Editorial Board Member. IF= 6.548  
 2020- *Antibiotics*. Editorial Board Member. IF= 5.222  
 2020- *Frontiers in Microbiology*. Guest Associate Editor.  
 2020- *ACS Infectious Diseases*. Editorial Advisory Board. IF= 5.578  
 2019- *Frontiers in Microbiology*. Guest Editor (Topic Editor). IF= 6.064  
 2019- *Frontiers in Medicine*. Guest Editor (Topic Editor). IF= 5.058  
 2015- *Frontiers in Microbiology*. Review Editor. Member of the Editorial Board.

### **Grant Review Invitations**

2023- MRC UKRI Future Leaders Fellowships  
 2023- NIH review panel on Chemical Biology and Probes (CBP) study section (declined)  
 2023- Invited to review for NIH study section. Small Business: Anti-Infective Therapeutics – DCAI (12) special emphasis panel study section.  
 2023- Invited to review for French ATIP-Avenir 2022 (LS1 panel) (CNRS and INSERM).  
 2022- Invited to review FWO applications for SBO5B-2023 – Biomedical & health sciences B.  
 2022- Invited to review research proposal for the Near-Term Grand Challenge AI funding competition (NTGC-AI) for King Abdullah University of Science and Technology (KAUST)  
 2022- Invited to review research proposal for the National Science Centre Poland  
 2022- Invited to review research proposal for the IMM Instituto de Medicina Molecular João Lobo Antunes  
 2022- Invited to review Research proposal titled 'A multimodal electrochemical circuit front end with integrated bio-fingerprinted analysis for rapid diagnosis of respiratory viruses in Internet-of-Medical-Things scenarios' for the ETH Zurich Research Commission  
 2022- Invited to review the Unmet Medical Needs call by the Regional Foundation for Biomedical Research (FRRB).  
 2022- Invited to the Special Emphasis Panel for ZGR1 BCMB-F (55) ESI MIRA (R35).  
 2022- Invited to review CIFAR Global Call for Ideas Letters of Intent  
 2022- Invited to review FWO applications for SBO5B-2021 – Biomedical & health sciences B.  
 2022- Invited to review Strategic Basic Research (SBO) for The Research Foundation – Flanders (FWO).  
 2022- Invited to review research proposal titled “Nutritional engineering of the gut microbiota: Investigation of biopolymer architectures impact on trajectories of microbiota in different individuals by Uri Lesme for the Israel Science Foundation (ISF).  
 2021- Invited to review Proyectos Semilla for CICA institute at University of A Coruna (Spain).  
 2021- Invited to review Nazarbayer University Research Review.  
 2021- Invited to review Swiss National Science Foundation Research Proposal.  
 2021- Invited to review The Wellcome Trust/DBT India Alliance Fellowship Application.  
 2021- Invited to review IFS-SEARCA Advance Grant.  
 2021- Invited, Special Emphasis Panel (SEP) to review applications that were submitted in response to the NIGMS announcement on "Support for Research Excellence (SuRE) Program (R16) (declined)  
 2021- Invited to review Small Business: Nonviral Anti-infective Therapeutics Special Emphasis Panel– AIDC (NIH).  
 2020- Invited to review NIH Topics in Drug Discovery, Clinical, and Field Research in Infectious Diseases Special Emphasis Panel.  
 2020- Invited to review French National Research Agency (ANR).  
 2020- Invited to review Israeli Ministry of Science and Technology grant.  
 2020- Invited to review ERC Starting Grant 2020 Call.  
 2020- Invited to review Cystic Fibrosis Canada Call.  
 2020- Invited to review CONACYT Science of Frontier 2019 Gobierno de Mexico  
 2020- Invited to review ERC Advanced Grant 2019 Call

2019- Invited by NIH HEAL initiative review to serve in study section “Optimization of Small Molecules and Biologics”.

2019- Invited by Deutsche Forschungsgemeinschaft (German Research Foundation).

2019- Invited to serve as expert external evaluator (Scientific Advisory Board) for CICA institute at University of A Coruna (Spain).

2019- Invited to serve in Life Science Evaluation Committee for Serrapilheira 2019- Invited to serve as expert grant reviewer for the National Center of Scientific and Technical Evaluation (NCSTE), Ministry of Education and Science, Republic of Kazakhstan.

2019- Invited to serve in Life Science Evaluation Committee for Serrapilheira Institute (Brazil).

2018- Selected for MISTI Global Seed Funds Evaluation Committee at MIT.

2018- Netherlands Organisation for Scientific Research, NWO.

## Research Support

### Ongoing Research Support:

- 5 R35 GM138201-02
  - Title: Combining chemical and computational tools for predictive models of microbiome communities
  - Scope: This award supports the PI's program to develop machine learning models to design antimicrobial peptides and engineer the microbiome.
  - Funding: \$250,000 per year
  - Total Award Amount (including Indirect Costs): \$1,822,722
  - Funded period: 09/05/2020-08/31/2025
  
- DTRA – HDTRA 12310001
  - Title: Nonnegative matrix factorization approach to identify host-pathogen interactions and develop medical countermeasures to stem outbreaks
  - Scope: To develop machine learning methods for early pathogen identification.
  - Funding: \$561,401 per year
  - Total Award Amount (including Indirect Costs): \$2,500,000
  - Funded period: 12/2022 - 11/2027
  
- DTRA – HDTRA1-14-24-FRCWMD
  - Title: Decrypting natural antibiotics to counter biological threats
  - Scope: To identify encrypted antimicrobial peptides within the human proteome for the design of synthetic variants as a source of new antibiotics.
  - Funding: \$561,401 per year
  - Total Award Amount (including Indirect Costs): \$1,803,999
  - Funded period: 06/17/2021-06/17/2025
  
- United Therapeutics Award
  - Title: Modulating endothelin activity through receptor specific inhibitors
  - Scope: This award supports the PI's program for computationally modeling neuropeptides.
  - Funding: \$75,270
  - Total Award Amount (including Indirect Costs): \$124,196
  - Funded period: 07/01/2020-08/01/2024
  
- Procter & Gamble
  - Title: Technology Identification through MoA driven Molecular Based Genetic Algorithm
  - Scope: The goal of the study will be to assess < 50 P&G relevant molecules to be tested on EV71 and evaluating two MoA (protein denaturation & capsid disruption).
  - Funding: \$286,958
  - Total Award Amount (including Indirect Costs): \$474,916
  - Funded period: 11/03/2021-11/14/2023

- IADR Innovation in Oral Care Award
  - Title: Low-cost Biosensing Mouthguard for Rapid Detection of Emerging and Oral Pathogens
  - Scope: The main goal is to optimize our miniaturized potentiostat used to detect samples infected with SARS-CoV-2 on a mobile device can also be integrated into a mouthguard for real-time continuous monitoring and multiplex it to detect additional pathogens.
  - Funding: \$22,901 per year
  - Total Award Amount (including Indirect Costs): \$50,000
  - Funded period: 06/01/2021-05/01/2023
  
- Brain & Behavior Research Foundation
  - Title: 2020 BBRF Young Investigator Grant
  - Scope: Development of a computational approach to reveal how structural changes in the neurokinin (NK) receptor and neuropeptides interfere with their interactions
  - Funding: \$35,000
  - Total Award Amount (including Indirect Costs): \$70,000
  - Funded period: 06/01/2023-06/01/2025 (extended)
  
- ITMAT's Pilot Grant program for Transdisciplinary Awards Program in Translational Medicine and Therapeutics
  - Title: Automated pathogen detection using biosensors coupled with machine learning
  - Funding: \$75,000 per year
  - Funded period: 02/01/2022-02/01/2024
  
- George Mason University (Defense Threat Reduction Agency)
  - Title: Host-based anti-microbial peptides as therapeutic strategies for alphavirus infections
  - Funding: \$30,769 per year
  - Total Award Amount (including Indirect Costs): \$50,000
  - Funded period: 12/07/2021-08/31/2024
  
- University of Pennsylvania – Presidential Professorship. Role: PI.
  - Funded period: 02/28/2020-02/28/2025.
  - Funds awarded to cover part of my annual salary.