

JAIMIE MARIE STEWART, PH.D.

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FACULTY APPOINTMENTS

University of California, Los Angeles
Assistant Professor of Bioengineering

July 2023 - Present
Los Angeles, CA

EDUCATION & TRAINING

California Institute of Technology
Postdoctoral Fellow
in the Division of Engineering and Applied Science

August 2018 - June 2023
Pasadena, CA

University of California, Riverside
Ph.D. in Bioengineering

June 2018
Riverside, CA

University of Illinois, Chicago
B.S. in Bioengineering
Concentration in Cell & Tissue Engineering
Minor in Italian & Italian American Studies

May 2013
Chicago, IL

RESEARCH

California Institute of Technology
Postdoctoral Researcher
Professor Paul W.K. Rothmund's Laboratory

August 2018 - June 2023
Pasadena, CA

Statement of work: Design, synthesis, and characterization of DNA and RNA structures for the detection of biomolecules.

Highlighted honors and awards:

- Life Sciences Research Foundation Fellowship Sponsored by Merck
- Ford Foundation Postdoctoral Fellowship
- Kavli Nanoscience Institute Prize Postdoctoral Fellowship
- NSF Alliances for Graduate Education and the Professoriate Postdoctoral Fellowship

University of California, Riverside
Graduate Student Researcher
Professor Elisa Franco's Laboratory (Now at UCLA)

September 2013 – June 2018
Riverside, CA

Dissertation: Design and Synthesis of RNA Nanostructures.

Highlighted honors and awards:

- GEM Associate Fellowship
- Ernest Propes Fellowship

TEACHING

Mount Saint Mary's University, Los Angeles
Adjunct Instructor
Scientific Concepts (PHS 1)

Fall 2019, Fall 2020
Los Angeles, CA

Taught and lectured class of ~35 undergraduate students for two full semesters on foundational scientific principles that govern our environment, with an emphasis on chemistry and physics topics. Created syllabus, lecture notes, and other learning materials. Wrote and graded homework, quizzes, and exams.

SELECTED PUBLICATIONS

- Jeon B.J., Guareschi M.M., **Stewart J.M.**, Arroyo-Currás N., Dauphin-Ducharme P, Lukeman P.S., Plaxco K.W., and Rothemund P.W.K. Modular DNA origami-based electrochemical detection of DNA and proteins. *arXiv [Preprint] 2023 December 11*. Available from: <https://arxiv.org/abs/2312.06554>
- Stewart J.M.**, Li S., Tang A., Klocke M.A., Gobry M.V., Fabrini G., Di Michele L., Rothemund P.W.K., Franco E. Modular RNA motifs for orthogonal phase separated compartments. *bioRxiv [Preprint]*. 2023 October 08. Available from: <https://www.biorxiv.org/content/10.1101/2023.10.06.561123v1>
- Fabrini G., Nuccio S.P., **Stewart J.M.**, Li S., Tang A., Rothemund P.W.K., Franco E., Di Antonio M., Di Michele L. Co-transcriptional production of programmable RNA condensates and synthetic organelles. *bioRxiv [Preprint]*. 2023 October 08. Available from: <https://www.biorxiv.org/content/10.1101/2023.10.06.561174v2>
- Stewart J.M.**, Subramanian H.K.K., and Franco E. (2022) Assembly of RNA Nanostructures from Double-Crossover Tiles. *Cell-Free Gene Expression* (pp. 293-302). Humana, New York, NY.
- Stewart J.M.**, Geary C. and Franco E. (2019) Design and Characterization of RNA Nanotubes. *ACS Nano*; 13, 5: 5214–5221.
- Rackley L., **Stewart J.M.**, Salotti J., Krokhotin A., Shah A., Viard M., Juneja R., Smollett J., Roark B.K., Vivero-Escoto J., Johnson P.F., Dobrovolskaia M.A., Dokholyan N.V., Franco E. and Afonin K.A. (2018) RNA Fibers as optimized nanoscaffolds for siRNA coordination and reduced immunological recognition. *Advanced Functional Materials*; 28, 48: 1805959.
- Stewart J.M.**, Subramanian H.K.K. and Franco E. (2017) Self-assembly of multistranded RNA motifs into lattices and tubular structures. *Nucleic Acids Research*; 45, 9: 1–9.
- Stewart J.M.**, Viard M., Subramanian H.K.K., Roark B.K., Afonin K.A. and Franco E. (2016) Programmable micron-scale RNA structures for coordinated delivery of siRNAs. *Nanoscale*; 8, 40: 17542–17550.
- Stewart J.M.** and Franco E. (2015) Self-assembly of large RNA structures: learning from DNA nanotechnology. *DNA and RNA Nanotechnology*; 2, 1: 23–35.

GRANTS

Sloan Matter-to-Life Seed Grant, *The Alfred P. Sloan Foundation*, 2023

SELECTED TALKS

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| Caltech/Joint NIH Symposium (Invited)
<i>Exploiting the molecular code of RNA for self-assembly, biological function, and applications</i> | September 21, 2023
<i>Los Angeles, CA</i> |
| Cold Spring Harbor Laboratory: Synthetic Biology Course (Invited)
<i>Harnessing the molecular code of RNA for structure, function, and applications</i> | August 2, 2023
<i>Cold Spring Harbor, NY</i> |
| GRC: RNA Nanotechnology
<i>Modular RNA Motifs for Phase Separation and Molecular Organization</i> | January 10, 2023
<i>Ventura, CA</i> |
| GRS: RNA Nanotechnology (Invited)
<i>Keynote Talk: Functional Nucleic Acid Nanoparticles</i> | January 7, 2023
<i>Ventura, CA</i> |
| UCLA/Caltech T32 iTEAM Program Fall Symposium (Invited)
<i>Transitioning from a Postdoctoral Fellow to an Assistant Professor: New Phases for Programmable RNA Materials</i> | September 12, 2022
<i>Los Angeles, CA</i> |
| Intersections Science Fellows Symposium
<i>Towards Programmable RNA materials</i> | November 3, 2021
<i>Virtual</i> |
| Stanford.Berkeley.UCSF Next Generation Faculty Symposium
<i>Towards programmable RNA materials</i> | October 19, 2021
<i>Virtual</i> |

DNA Nanotech for Medicine & Biology Webinar Series (Invited) <i>Programming RNA for nanoscale self-assembly</i>	March 17, 2021 <i>Virtual</i>
KNI at Caltech Special Seminar <i>Synthesis and characterization of RNA condensates</i>	February 24, 2021 <i>Virtual</i>
Virtual Seminars in Biomedical Science (Invited) <i>Programming RNA for self-assembly and cellular regulation</i>	December 3, 2020 <i>Virtual</i>
AfroBiotech Conference, hosted by the SBE <i>Design, synthesis, and characterization of DNA origami for the detection of biomolecules</i>	October 28, 2019 <i>Atlanta, GA</i>
GRS: RNA Nanotechnology <i>Self-Assembly of multi-Stranded RNA motifs into lattices and tubular structures with functional capabilities</i>	January 21, 2017 <i>Ventura, CA</i>
DNA22 Self-assembly of multi-stranded RNA motifs into lattices and tubular Structures	September 7, 2016 <i>Munich, DE</i>

SYNERGISTIC ACTIVITIES

Guest Editor November 2023 – Present
Article Collection: Recent Advancements in RNA Technologies, Diagnostics, and Therapeutics in Frontiers in Bioengineering and Biotechnology.

Define research topic and scope. Actively engage with co-editors, authors, reviewers, and manage peer-review process.

Co-Chair of Program Committee 2023 – Present
International Conferences on DNA Computing and Molecular Programming (DNA30)

Run the review process, supervising the Leibniz International Proceedings in Informatics (LIPICS) and prepare the online poster abstract booklet for the conference.

RNA Editor June 2021 – Present
The Art of Molecular Programming Society

Collaborate with executive board, editorial teams, and content specialists to collect the principles of molecular programming of DNA, RNA, and proteins, with a focus on RNA, for the open source grassroots initiative, the Art of Molecular Programming Textbook. Solicit prospective authors and oversee the review process. Uphold the mission of the Art of Molecular Programming Society and for select manuscripts that provide innovative and impactful contributions to the field.

Program Committee Member 2020 – 2023
International Conferences on DNA Computing and Molecular Programming (DNA26, DNA27, DNA28, DNA29)

Review papers and posters and actively participate in the discussions to decide which to accept for publication and presentation at the conference.

EAS Diversity, Equity, and Inclusion Committee Member April 2021 – October 2022
*California Institute of Technology
Pasadena, CA
Division of Engineering and Applied Science*

Develop recommendations for useful and actionable measures EAS can undertake to achieve its objectives for diversity, equity, and inclusion, and recommend metrics for measuring success in increasing the diversity of the EAS Division and Caltech community.

Dean Search Committee Member July 2017 – March 2018
*University of California, Riverside
Riverside, CA
Bourns College of Engineering*

Served as the graduate student committee member to assist in identifying important characteristics of the next dean and gather recommendations for distinct persons who are exceptional scholars with demonstrated commitment to UCR's College of Engineering educational missions and goals.

Graduate Student Representative

University of California, Riverside

Chancellor's Advisory Committee on LGBT Students, Faculty & Staff

Represented the graduate student community to ensure that all LGBT students, staff, and faculty enjoy a positive personal and professional experience while members of the UCR community.

September 2016 – June 2018

Riverside, CA

AWARDS & HONORS

ISFS Fellow, *The Intersections Science Fellows Symposium*, 2021

Next Generation Faculty Fellow, *Stanford.Berkeley.UCSF Next Generation Faculty Symposium*, 2021

Featured in Highlighting the African American Scientist, *Gladstone Institutes*, 2021

LSRF Fellowship sponsored by Merck Research Laboratories, *LSRF*, 2020

100 Inspiring Black Scientists in America, *Cell Mentor*, 2020

Ford Foundation Postdoctoral Fellowship, *NASEM*, 2019

KNI Prize Postdoctoral Fellowship, *Caltech*, 2019

NSF AGEP Scholar, *California Alliance*, 2018

Best Presentation, Startups for Innovators, *UCR*, 2017

Ernest Propes Endowed Graduate Fellowship, *UCR*, 2016

Lambda Graduate Student Award, *UCR*, 2015

Gold Project Award, *Wyss Institute, Harvard University*, 2014

GEM Ph.D. Associate Fellowship, *The GEM Consortium*, 2013