September 15-17, 2023 | Cambridge, MA
nanodds.org

ONSITE AGENDA

21st Annual Nanomedicine and Drug Delivery Symposium

nanoDDS

Highlighting groundbreaking discoveries and developments
in nanomedicine and drug delivery

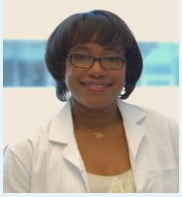
The key annual event for researchers developing next-generation delivery vehicles—targeted, responsive, biodegradable nanomaterials to make diagnostics more sensitive and drugs more effective

Speakers Include:

Guillermo Ameer

Darrell Irvine

Paula Hammond



Dean Ho

Chad Mirkin

Omid Farokhzad

2023 Nanomedicine and Drug Delivery Symposium

nanoDDS

Discovering how nanostructure can revolutionize medicine

September 15-17, 2023 | Cambridge, MA

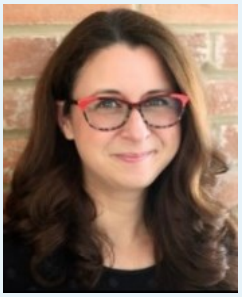
Meet Your Speakers:

Yao Zhang
Johnson & Johnson

Amir Nashat
Polaris Partners

Daniel Siegwart
UT Southwestern

Daniel Anderson
MIT



Kathryn Whitehead
Carnegie Mellon University

Jinming Gao
UT Southwestern

Xiaoyuan Chen
National University of Singapore

Matthew Stanton
Generation Bio

Joelle Straehla
Dana-Farber Cancer Institute

Giovanni Traverso
MIT

Christine Kitsos
Intellia Therapeutics

Antonin de Fougerolles
Evox Therapeutics

2023 Nanomedicine and Drug Delivery Symposium

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Michelle Teplensky
Boston University

Samir Mitragotri
Harvard University

J. Christopher Love
MIT

Vasant Jadhav
Alnylam

James Mulé
Moffitt Cancer Center

Piotr Grodzinski
National Cancer Institute

Chad Mirkin
Northwestern University

Paula Hammond
MIT

Vincent Ling
Takeda

Ke Cheng
Columbia University

Milan Mrksich
Northwestern University

Anastasia Khvorova
UMass Chan Medical School

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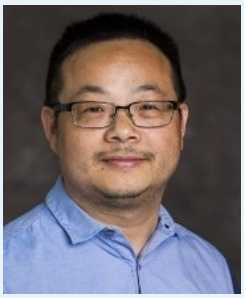
Salvador Borros Gomez
Institut Quimic de Sarria

Omid Farokhzad
Seer, Inc.

Kei Kishimoto
Selecta Biosciences

Theresa Reineke
University of Minnesota



Qiaobing Xu
Tufts University

Mark Grinstaff
Boston University

Philippe-Alexandre Gilbert
Gates Foundation

Brendan Frey
Deep Genomics

Lee Goldfryd
Mana.bio

Dean Ho
National University of Singapore

Conference Day One
Friday, September 15, 2023

7:30 am – 8:30 am Registration & Continental Breakfast
8:30 am – 8:45 am **Welcome & Opening Remarks** by Co-Chairs: Natalie Artzi & Jinjun Shi

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8:45 am – 9:20 am Plenary: **Guillermo Ameer**, Sc.D.

Daniel Hale Williams Professor of Biomedical Engineering; McCormick School of Engineering;
Daniel Hale Williams Professor of Surgery, Feinberg School of Medicine;
Founding Director, Center for Advanced Regenerative Engineering, Northwestern University

Talk Title: *Regenerative Biomaterials: Enabling Clinical Regenerative Medicine*

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9:20 am – 12:25 pm **SESSION ONE: Immunodelivery**
Chair: Natalie Artzi

Thank you to our Sponsor:

UNC CENTER FOR NANOTECHNOLOGY IN DRUG DELIVERY

9:20 am – 9:55 am Keynote: **Samir Mitragotri**, Ph.D.

Hiller Professor of Bioengineering, Hansjörg Wyss Professor of Biologically Inspired Engineering,
Harvard University; Core Faculty, Wyss Institute

Talk Title: *Hitchhiking and Backpacking through Biological Barriers*

- Biological cells have an innate ability to navigate through body's biological barriers
- We use polymeric particles that associate with circulatory cells and circumvent biological barriers
- Discoidal polymeric particles (backpacks) ride on immune cells and control their behavior

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9:55 am – 10:15 am **Kei Kishimoto**, Ph.D.

Chief Scientific Officer, Selecta Biosciences

Talk Title: *Preclinical and Clinical Development of ImmTOR Tolerogenic Nanoparticles for Inducing Antigen-Specific Immune Tolerance*

- Biodegradable synthetic nanoparticles encapsulating the immunomodulator rapamycin selectively induces immune tolerance to co-administered target antigens
- Ability of ImmTOR to prevent immunogenicity of a fungal-derived uricase enzyme has been successfully demonstrated in clinical trials
- ImmTOR combined with regulatory T cell-selective interleukin-2 shows profound synergistic activity in models of autoimmune disease

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10:15 am – 10:35 am **Jinming Gao**, Ph.D.

Elaine Dewey Sammons Distinguished Chair in Cancer Research; Professor of Biomedical Engineering, Cell Biology, Otolaryngology and Pharmacology;
Director, NCI U54 Nano-Immune-Engineering Center, UT Southwestern Medical Center

Talk Title: *Nano-Engineering of Innate and Adaptive Immunity against Cancer*

- Proton transistor nanoparticles target acidic pH for cancer immunotherapy
- “Shock-and-lock” STING activation primes innate response
- Tumor-activatable cytokine delivery for T cell activation

10:35 am – 11:05 am **Coffee & Networking Break**

11:05 am – 11:25 am **Kathryn Whitehead**, Ph.D.

Professor, Department of Chemical Engineering, Department of Biomedical Engineering, Carnegie Mellon University

Talk Title: *Macrophage-dependent mRNA delivery to the pancreas using lipid nanoparticles*

- Overview of mRNA as a therapeutic; Overview of RNA delivery challenges; Overview of LNPs and our particular ionizable lipids; Screening
- Extrahepatocellular delivery (e.g. pancreas)
- Role of macrophages / extracellular vesicles

11:25 am – 11:45 am **Xiaoyuan Shawn Chen**, Ph.D.

Director of Research; Nasrat Muzayyin Chair Professor, Medicine and Technology, National University of Singapore

Talk Title: *Cancer Nanoimmunotheranostics*

- Brief introduction of theranostics and nanotheranostics
- Tumor microenvironment modulation by nanomedicine
- Imaging T cell activities

11:45 am – 12:05 pm **Qiaobing Xu**, Ph.D.

Professor, Biomedical Engineering, Chemical and Biological Engineering; Assistant Professor, Medicine; Tufts University

Talk Title: *Combinatorial Library of Synthetic Biodegradable Lipid Nanoparticles for Cancer Immunotherapy*

- Design and development of combinatorial synthetic bioreducible and biodegradable lipid nanoparticles (LNPs) for intracellular mRNA delivery
- Utilization of a library screening strategy to identify optimal LNPs for organ and cell targeted mRNA delivery
- Applications of the optimized LNPs in cancer immunotherapy

12:05 pm – 12:25 pm **Mark Grinstaff**, Ph.D.

William Fairfield Warren Distinguished Professor of Biomedical Engineering, Chemistry, Materials Science and Engineering, Medicine; Director, Nanotechnology Innovation Center, Boston University;
Director, T32 Program in Translational Research in Biomaterials, NIH

Talk Title: *Acidifying Nanoparticles Rescue Dysfunctional Metabolic Function in Non-Alcoholic Fatty Liver Disease and Type 2 Diabetes*

- New approach to treating metabolic diseases
- First example of this type of nanoparticle and function
- In vitro and In vivo efficacy in two disease models - NAFLD and T2D

12:25 pm – 2:00 pm **Lunch Break & Poster Session**

2:00 pm – 4:25 pm **SESSION TWO: AI for Nanodelivery**
Chair: Jinjun Shi

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2:00 pm – 2:35 pm Keynote: **Dean Ho**, Ph.D.

Head, Department of Biomedical Engineering; Provost's Chair Professor;
Director, The Institute for Digital Medicine, Yong Loo Lin School of Medicine;
Director, The N.1 Institute for Health; National University of Singapore

Talk Title: *Medicine Made For You*

- We will highlight our multiple prospective, interventional human clinical trials that dynamically optimize cancer therapy
- Our clinical platforms use only a patient's own data to optimize only their own care
- We will discuss our process of integrating transformative drug optimization and personalized combination therapy into clinical treatment workflows

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2:35 pm – 2:55 pm **Brendan Frey**, Ph.D.

Founder and CEO, Deep Genomics;
Tenured Professor, Department of Electrical and Computer Engineering, University of Toronto;
Canada Research Chair in Information Processing and Machine Learning

Talk Title: *How AI Is Reshaping Drug Discovery*

- Introduction to AI and deep learning
- AI for discovering biology, cargo and vehicles
- Successes, failures and the future of AI

2:55 pm – 3:15 pm **Theresa Reineke**, Ph.D.

Prager Chair in Macromolecular Science, Distinguished McKnight University Professor, Department of Chemistry, University of Minnesota

Talk Title: *Parallel Synthesis, Characterization, and Machine Learning Yields Efficient Polymer Vehicles for CRISPR Gene Editing and Plasmid DNA Payloads*

- Architectural design and chemical synthesis of delivery vehicles that enable versatility in nucleic acid payload encapsulation
- Rapid physicochemical characterization of delivery systems and screening for efficacy and toxicity
- AI tools to discern parameters important to performance with promise for prediction

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3:15 pm – 3:45 pm **Coffee & Networking Break**

3:45 pm – 4:05 pm **Lee Goldfryd**, BASc

Product Manager, Mana.bio

Talk Title: *Utilizing Machine Learning Approach to Unlock Extra-Hepatic Delivery of Lipid Nanoparticles*

- Utilizing lab-generated data and available public data to design novel non-viral ex-liver cell-specific RNA delivery solutions
- Generating high throughput in vitro data to rapidly identify LNP drug delivery vehicles for given payloads
- Using Design-Build-Test-Learn cycles to accelerate Drug Development

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4:05 pm – 4:25 pm **Daniel Anderson**, Ph.D.

Professor of Chemical Engineering and Institute for Medical Engineering and Science, MIT

Talk Title: *Nonviral delivery of RNA and Genome Editors*

- Discussion of progress mRNA delivery to lung
- Discussion of the development of targeting mRNA delivery to hematopoietic stem cells
- Development of next generation LNP and PNP formulations

CONFERENCE DAY TWO:

Saturday, September 16, 2023

7:00 am – 8:15 am Registration & Breakfast

8:15 am – 8:20 am Conference Chair Recap Day 1, Welcome Day 2

8:20 am – 8:55 am Plenary: **Paula Hammond**, Ph.D.

Vice Provost for Faculty, Institute Professor, Department Head of Chemical Engineering, MIT

Talk Title: *Designer polymer coated nanocarriers for targeted therapies*

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8:55 am – 11:20 am **SESSION THREE:** Vaccine Delivery
Chair: Ana Jaklenec

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8:55 am – 9:30 am Keynote: **Darrell Irvine**, Ph.D.

Underwood-Prescott Professor, Biological Engineering and Materials Science and Engineering, MIT;
Associate Director, Koch Institute for Integrative Cancer Research;
Investigator, Howard Hughes Medical Institute

Talk Title: *Engineering Vaccines for Natural and Synthetic T Cells*

- Vaccine components can be efficiently targeted to lymph nodes via the concept of albumin hitchhiking
- Lipid-polymer conjugates can both use albumin as a molecular chaperone and promote decoration of immune cells in lymph nodes
- Lymph node targeting can be used to activate both native T cells and to stimulate engineered chimeric antigen receptor T cells for cancer

9:30 am – 9:50 am **J. Christopher Love**, Ph.D.

Raymond A. [1921] and Helen E. St. Laurent Professor of Chemical Engineering, Koch Institute for Integrative Cancer Research at MIT; Scientific Advisor, Alloy Therapeutics, Inc.

Talk Title: *Next-Generation Manufacturing for Accessible Biologic Medicines*

- Conventional biomanufacturing solutions are complex and may constrain new capacity in regions with limited resources
- Holistic biological and process engineering for intensified, continuously operating microbial processes can realize simplified production and purification of recombinant proteins
- Examples of developing new vaccine and biopharmaceutical products for accessible production

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9:50 am – 10:10 am **Philippe-Alexandre Gilbert**, Ph.D.

Senior Program Officer, Chemistry, Manufacturing, and Controls, Vaccine Development, Bill & Melinda Gates Foundation

Talk Title: *Harnessing mRNA, Single Injection, and MAP Technologies for Future Vaccine Advancements: Unlocking Synergistic Potential and Sustainable Industrial Output*

- The Gates Foundation has made significant investments in mRNA technology, Single Injection delivery, and Microneedle Array Patches (MAP)
- The potential impact of this synergy is expected to be substantial, particularly in the context of future vaccine presentations such as combination vaccines
- One crucial aspect we prioritize is the capacity of these technologies to achieve robustness and consistency as well as their industrialization to achieve scalability

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10:10 am – 10:40 am **Coffee & Networking Break**

10:40 am – 11:00 am **Michelle Teplensky**, Ph.D.

Assistant Professor, Department of Biomedical Engineering, Boston University

Talk Title: *Harnessing Nanoscale Structure to Program Immunity against Infectious Disease*

- Understanding the relationship between vaccine components within nanoscale architecture drives specific immunity
- Harnessing this understanding produces a vaccine that raises robust, specific neutralizing antibodies which protect mice from lethal infection
- Structural concepts expand beyond a specific construct or platform and apply towards both cancer and infectious disease

---

11:00 am – 11:20 am **Ke Cheng**, Ph.D.

Professor, Biomedical Engineering, Columbia University; Chair, NIH Biomaterials and Biointerfaces

Talk Title: *Inhalable Vaccines and Bioadhesives for Disease Prevention*

- Exosome based VLP vaccine for COVID-19
- Inhalable biomaterials to "shield" the body from COVID-19 and other pathogens
- Data from rodents and nonhuman primates

11:20 am – 12:55 pm **Lunch Break & Poster Session**

12:55 pm – 2:50 pm **SESSION FOUR:** Clinical Translation
Chair: Tatiana Novobrantseva

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12:55 pm – 1:20 pm Keynote: **Amir Nashat**, Ph.D.

Executive Partner, Polaris Partners

Talk Title: *Opportunities and challenges to creating a nanodelivery startup in today's environment*

- The opportunities for new nanodelivery technologies to solve major problems in medicine
- Challenges that face startups in the field
- The impact of the current economy and state of the pharma industry

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1:20 pm – 1:45 pm Keynote: **Giovanni Traverso**, M.D., Ph.D.

Associate Professor, Department of Mechanical Engineering, MIT;
Gastroenterologist, Brigham & Women's Hospital, Harvard Medical School

Talk Title: *Advances in GI Delivery*

- Oral delivery of nucleic acids
- Polymers for GI-targeted formulations
- Drug-device combinations for GI delivery

1:45 pm – 1:50 pm Panel Introduction by Session Chair, Tatiana Novobrantseva

1:50 pm – 2:50 pm **Clinical Translation Panel:**

Yao Zhang, Ph.D.
Senior Director, Johnson & Johnson External Innovation

Piotr Grodzinski, Ph.D.
Chief, Nanodelivery Systems and Devices Branch,
Division of Cancer Treatment and Diagnosis, National Cancer Institute

Vincent Ling, Ph.D.

Senior Director, Center for External Innovation [Business Development],
Takeda Pharmaceuticals

Philippe-Alexandre Gilbert, Ph.D.

Senior Program Officer, Chemistry, Manufacturing, and Controls,
Vaccine Development and Surveillance, Bill & Melinda Gates Foundation

Amir Nashat, Ph.D.

Executive Partner, Polaris Partners

Giovanni Traverso, M.D., Ph.D.

Associate Professor, Department of Mechanical Engineering, MIT;
Gastroenterologist, Brigham & Women's Hospital, Harvard Medical School

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2:50 pm – 3:20 pm **Coffee Break**

3:20 pm – 4:20 pm **Selected Poster Oral Presentations**

4:20 pm – 4:55 pm Plenary: **Chad Mirkin**, Ph.D.

Director, International Institute for Nanotechnology;
George B. Rathmann Professor of Chemistry, Professor of Chemical and Biological Engineering,
Professor of Biomedical Engineering, Professor of Materials Science & Engineering,
Professor of Medicine–Hematology-Oncology, Northwestern University

Talk Title: *Foundational Tools, Techniques, and Materials As Outputs of the Modern Age of Nanotechnology*

- This presentation will highlight my group's role over the last 30 years in shifting paradigms related to nanostructures, especially with respect to immunotherapy and vaccine design and development based on spherical nucleic acids (SNAs)
- And high-throughput materials discovery through nanocombinatoric chemistry and the concept of megalibrary and AI
- And stereolithography and additive manufacturing based on high-area rapid printing (HARP)

5:00 pm – 7:00 pm **Reception**

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CONFERENCE DAY THREE:

Sunday, September 17, 2023

7:15 am – 8:15 am Registration & Continental Breakfast

8:15 am – 8:20 am Conference Chair Recap Day 2, Welcome Day 3

8:20 am – 8:55 am Plenary: **Omid Farokhzad**, M.D., MBA

Chair, CEO and Founder, Seer, Inc.

Talk Title: *Protein Corona: From Drug Delivery to Proteomics*

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8:55 am – 10:50 am **SESSION FIVE:** Nucleic Acid Delivery
Chair: Laura Sepp-Lorenzino

Thank you to our Sponsor:

Mass General Brigham
Gene and Cell Therapy Institute

8:55 am – 9:30 am Keynote: **Daniel Siegwart**, Ph.D.

W. Ray Wallace Distinguished Chair in Molecular Oncology Research;
Professor, Department of Biochemistry,
Co-Director, Chemistry and Cancer Program, Simmons Comprehensive Cancer Center;
Director, Program in Genetic Drug Engineering and Drug Delivery Program in Biomedical Engineering, UT Southwestern Medical Center

Talk Title: *Multiplexed SORT LNPs for enhancing CRISPR/Cas gene editing cancer therapy through modulating tumor mechanical properties*

- This presentation will describe selective organ targeting (SORT) lipid nanoparticles (LNPs) to enable mRNA delivery and genome editing in extrahepatic organs and tumors
- A multiplexed LNP approach involving co-delivery of focal adhesion kinase (FAK) siRNA, Cas9 mRNA, and sgRNA (siFAK + CRISPR-LNPs) will be described
- Modulating the stiffness of tumor tissue using gene editing can enhance gene editing in tumors, which offers a new strategy for synergistic LNPs and other nanoparticle systems to treat cancer

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9:30 am – 9:50 am **Matthew Stanton**, Ph.D.

Chief Scientific Officer, Generation Bio

Talk Title: *Overcoming Obstacles to Non-Viral DNA Delivery*

- Non-viral and in particular LNP mediated delivery of DNA presents distinct obstacles such as avoiding acute innate immune stimulation and accessing the nucleus of post-mitotic cells
- By focusing on both payload (DNA structure) and selective biodistribution
- We will show how we are specifically addressing these challenges

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9:50 am – 10:10 am **Antonin de Fougerolles**, Ph.D.

CEO, Evox Therapeutics, Ltd.

Talk Title: *Exosome Therapeutics: Engineering Nature's Nanoparticle System to Deliver Genetic Medicines*

- Overview of Evox's exosome engineering platform to load and release drugs: Exosomes to deliver AAV and expand the applicability of gene therapy
- Extra-hepatic delivery of genome editors using exosomes
- Targeted exosomes to improve delivery to specific organs and cells

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10:10 am – 10:30 am **Anastasia Khvorova**, Ph.D.

Professor, RNA Therapeutic Institute, UMass Chan Medical School

Chemical Engineering of Therapeutic SiRNAs for Extrahepatic Delivery

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10:30 am – 10:50 am **Vasant Jadhav**, Ph.D.

Senior Vice President, Head of RNAi Platform, Alnylam Pharmaceuticals

Talk Title: *Expanding the Scope of RNAi Therapeutics*

- Major technological advances over last two decades have led to harnessing the power of RNAi technology as a new class of medicines
- The presentation will include key milestones in RNAi
- Sources of continuous innovation at Alnylam and latest advances in extra-hepatic delivery for expanding the scope of RNAi therapeutics

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10:50 am – 11:10 am **Coffee Break**

11:10 am – 1:20 pm **SESSION SIX:** Analytics for Nanodelivery
Chair: Natalie Artzi

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11:10 am – 11:45 am Keynote: **Milan Mrksich**, Ph.D.

Vice President for Research, Henry Wade Rogers Professor of Biomedical Engineering, Northwestern University; Founding Director of the Center for Synthetic Biology

Talk Title: *MegaMolecules as Antibody Mimics for Diagnostics and Therapeutics*

- The megamolecule strategy allows the efficient assembly of complex molecular scaffolds
- The scaffolds can be functionalized with a variety of affinity domains to create multi-specific compounds
- These megamolecules offer new opportunities as immunotherapies

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11:45 am – 12:05 pm **Christine Kitsos**, Ph.D.

Vice President, In Vivo and Ex Vivo Analytical Development, Intellia Therapeutics

Talk Title: *Analytical Considerations in the Clinical Development of Cell and Gene Therapies*

- Analytical development life cycle during the stages of clinical development to commercial
- The complexities of analytical development in the cell and gene therapy space
- Using a specific example of a modality where developing robust analytical tools can influence forward progress in the clinic

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12:05 pm – 12:25 pm **Joelle Straehla**, M.D.

Pediatric Hematology-Oncologist, Dana-Farber Cancer Institute/Boston Children's Cancer and Blood Disorders Center;
Instructor, Pediatric Oncology, Harvard Medical School;
Clinical Investigator, MIT Koch Institute for Integrative Cancer Research

Talk Title: *Principles of Pooled Screening in Nanomedicine*

- Key differences in screen design when pooling cells, nanoparticles, or genetic/chemical perturbagens
- Both nanomaterials properties and intrinsic cellular features contribute to nanoparticle delivery
- Nanoparticle biomarkers can shed light on unexplored mechanisms of cellular interactions

12:25 pm – 12:45 pm **Salvador Borros Gomez**, Ph.D.

Director of Institut Quimic de Sarria, Head of Materials Engineering Group,
Professor, Institut Quimic de Sarria–Ramon Llull University

Talk Title: *Targeting vs. Protein Corona: Design of a Novel Vector for Improved mRNA Vaccines*

- Design, Synthesis, and validation of a novel family of polymeric-based mRNA-delivery vectors
- Preventing non-specific adsorption of biomolecules allows for proper control of cargo delivery
- The use of proprietary zwitterionic moieties controls the biological identity of the nanoparticle

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12:45 pm – 1:20 pm Plenary: **James Mulé**, IPh.D.

Associate Center Director, Translational Science, Moffitt Cancer Center

Talk Title: *A critical need to bioengineer lymphoid structures to improve human clinical immunotherapies*

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1:20 pm – 1:25 pm **Closing Remarks** by Co-Chairs: Natalie Artzi & Jinjun Shi

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Posters:

FRIDAY	
Poster Presenter-Friday	**Poster Title-Friday**
1. Daniel, Marie-Christine	Dendronized gold nanoparticles for the targeted delivery of chemotherapeutic agents
3. Lopez, Ciana	Genetically engineered macrophages and polymeric prodrugs for therapy across cancer and pulmonary infectious disease
5. Tang, Yan	Lung-selective mRNA delivery of synthetic lipid nanoparticles for the treatment of pulmonary lymphangioleiomyomatosis
7, Puigmal-Dominguez, Nuria	Microneedle-mediated delivery of immunomodulators restores immune privilege in hair follicles and reverses Alopecia Areata
9. Kularatne, Ruvanthi	Antigen presenting cell targeted lipid nanoparticles for efficient mRNA vaccine delivery
11. Singla, Divya	Multi-layered Nucleic Acid Nanocapsules (NANs) for mRNA delivery: room temperature stabilization and controlled release via enzyme and pH responsive triggers
13. Attia, Mohamed	Enhancing drug delivery with supramolecular amphiphilic macrocycle nanoparticles: Selective targeting of CDK4/6 inhibitor Palbociclib to melanoma
15. Jiang, Allen	Combinatorial development of nebulized mRNA delivery formulations for the lungs

17. Boyer, Timothy	Amphiphilic cationic peptide for rapid cartilage transport and intracellular drug delivery
19. Douglas-Green, Simone	Protein corona impacts targeting and affinity of layer-by-layer nanoparticles
21. Iyer, Vedant	design and synthesis of a novel antibody drug conjugate of neratinib, a drug used in her2+ breast cancer
23. Yu, Subin	Spatiotemporal Light-enhanced Bioorthogonal Catalytic Pro-Photosensitizer Cleavage Reaction for Combinatorial Photothermal and Photodynamic Cancer Treatment
25. Pohl, Kerstin	Breaking through the boundaries of purity analysis of long guiding RNAs for new CRISPR gene editing systems
27. Oldenburg, Steven	Development and Commercialization of Nanomaterials for Topical and Injectable Therapeutics: From R&D to GMP
29. Marciniak, Michael	Gold nanoparticles for diagnostic and targeted HIFU treatment
31. Nagai de Lima, Patricia	Developing methylene blue-loaded liposomes for photodynamic therapy against Candida auris biofilms
33. Beltran-Huarac, Juan	Magneto-Mechanical Actuation Induces Endothelial Permeability
35. Wang, Mingming	PD-L1 Nano-ERASER: A novel intracellular PD-L1 degradation approach and its application in Alzheimer's disease therapy
37. Patel, Manthan	Investigating the relationship between endosomal escape and inflammation induced by RNA lipid nanoparticles

39. Ikemoto, Anne	Investigating Drug Delivery using Blood Brain Barrier Cerebral Assembloids
41. Rosenn, Eric	Computer Learning Directed Development of Delivery Constructs Enhancing Nutraceutical Compounds Penetration Across the Blood Brain Barrier
43. Kaskow, Justin	Cytosolic delivery of STING protein fragments for cancer immunotherapy
45. Rajith Singh, Manan	novel biodegradable ionizable lipids for the delivery of mrna to lungs and genome editing in lung epithelia
47. Koide, Hiroyuki	Synthetic hydrogel nanoparticles that capture histones in the bloodstream of living mice for sepsis therapy
49. Kim, Byungji	Stimulate vs. Inhibition: Role of the type 1 interferon response in humoral immunity elicited by self-replicating RNA vaccines
51. Chapman, Asheley	Targeted Deletion of Germinal Center Immunodominant B cells using Antigen-Drug Conjugates
53. Lee, Seunga	prevention of renal ischemia reperfusion injury using polymeric prodrug nanoparticles with H2O2-triggered echogenicity and anti-inflammatory activity
55. Lesani, Pooria	Carbon dots enhanced plasma polymerized coatings for implant infection resistance
57. Yousefpour, Parisa	Controlling the kinetics of gene expression from lipid nanoparticle-formulated RNA to enhance cancer immunotherapy
59. Mondal, Basudeb	Development of mannose-6-phosphate ligand decorated nanocarriers for lysosomal cargo delivery

61. Shi, Shanshan	Engineered brain targeted ceria nanoparticles for Alzheimer's disease therapy
63. Lu, Xiuling	Overcoming tumor penetration barrier using mesoporous silica nanoparticles containing radionuclide Ho-166
65. Sahoo, Jugal Kishore	Synthesis, characterization of mucin-inspired silk glycopolymers and their application in attenuating microbial virulence
67. O'Brien, Erin	Delivery of IL-4 mRNA via lipid nanoparticles for the intracellular control of macrophage phenotype
69. Eygeris, Yulia	Thiophene-based lipids for mRNA delivery to pulmonary and retinal tissues
71. Park, Joon Ho	Cationic dendrimer nanoformulation improves therapeutic efficacy of anabolic and anti-catabolic therapeutics in osteoarthritis
73. Witten, Jacob	Combinatorial development of nebulized mRNA delivery formulations for the lungs
75. He, Weilong	Systematically tuned metalloporphyrinic framework and metallophthalocyanine network for highly efficient aerobic, photo- and asymmetric catalysis
77. Lewis, Parker	Nanoparticle delivery doubles the antinociceptive effect of a CGRP receptor antagonist in oral cancer pain models
79. DeRidder, Louis	A rapidly clinically translatable, closed-loop drug delivery system for personalization of drug dosingA rapidly clinically translatable, closed-loop drug delivery system for personalization of drug dosing
81. Song, Hao	Nature-inspired nanoparticles for gene and vaccine delivery

83. Andrianopoulou, Angeliki	Influence of total lipid content on physicochemical and biological properties of hybrid lipid-polymer nanoparticles
85. Kim, Nuri	Enhancement of tumor-targeted anticancer therapeutic efficacy and alleviation of side effects by stimuli-responsive polymeric prodrug nanoparticles
87. Schmitt, Chantal	Enhanced and disease specific drug delivery using Polyoma-virus deduced engineered protein nanoparticles
89. Glassmann, Alexander	Enhanced and disease specific drug delivery using Polyoma-virus deduced engineered protein nanoparticles
91. Joanitti, Graziella	Cytotoxicity of nanoemulsion based on a native plant oil derived from Brazilian biodiversity (Caryocar brasilense) on cell proliferation and key organelles of triple-negative breast cancer cells.
93. Chen, Fengqian	Expanding the Potential of Doxorubicin-Loaded Cryopreserved Platelets for Targeted Cancer Drug Delivery
95. Xu, Xiao	Use of a Liver-Targeting Immune-Tolerogenic mRNA Lipid Nanoparticle Platform to Treat Peanut-induced Anaphylaxis by Single and Multi-epitope Nucleotide Sequence Delivery
97. Kim, Kyoungtea	Polymeric nanoparticle-mediated delivery of resiquimod improves treatment outcomes in SHH-medulloblastoma

SATURDAY	
Poster Presenter-Saturday	**Poster Title-Saturday**
2. Kenny-Serrano, Julianna	Nanotherapeutic screens across cancer cell states in pediatric neuroblastoma models
4. Yao, Yao	Surface-stabilized protein nanoparticles: an all-in-one platform for enhanced non-viral gene delivery.
6. Berger, Adam	Endothelial-targeting layer-by-later assembled wound dressings to promote angiogenesis and closure of diabetic wounds
8. Pangeni, Rudra	New air-jet dry powder insufflator for high efficiency aerosol delivery to the lungs of small animals
10. Vlasova, Kseniya	Novel material for mRNA delivery and genome editing in the lungs
12. Mohamed, Esraa	Enhancing Bone Regeneration: A Novel Composite for Localized Insulin and Vitamin D Delivery with Nonviral Gene Therapy
14. Raimondo, Theresa	Therapeutic macrophage-gene silencing using siRNA-lipid nanoparticles in metastatic ovarian cancer
16. Li, Sixuan	Uncovering Nucleic Acid Payload and Size of Lipid Nanoparticles via A High-throughput Single Nanoparticle Analyzer
18. Hirata, Shinya	Development of multi-functionalized liposomes with high affinity for target proteins for intracellular protein delivery

20. Xhyliu, Fjorela	Polycation-stabilized synthetic protein nanoparticles for gene delivery
22. García, Amador	Nonionic amphiphilic lipid-polymers as alternative to lipid-PEG
24. Bej, Raju	Mucin-Inspired Singe-Chain Polymer (MIP) Fibers as Broad-Spectrum Virus Inhibitors
26. Espy, Carolann	Disrupting IL-6 and TNFα cytokine pathways to prevent LNP-based inflammation
28. Jiang, Zhaowei	Dual stimuli-responsive silver loaded nanoparticles eliminate Staphylococcus biofilms
30. Goldbloom-Helzner, Leora	Optimization of Aptamer Surface Conjugation onto Extracellular Vesicles (EVs) using Single Nanovesicle Analysis Technologies
32. Xue, Yonger	Cholesterol-Amino-Phosphate (CAP) Derived Lipid Nanoparticles for Delivery of Self-Amplifying RNA and Restoration of Spermatogenesis in Infertile Mice
34. Pang, Hongbo	Increasing tumor delivery of nanomedicine through pharmacological regulation of extracellular vesicles
36. Bhadran, Abhi	Reversible cross-linked thermoresponsive polycaprolactone micelles for enhanced stability and controlled release
38. Nguyen, Thanh	Single-administration microarray patch with built-in booster releases for self-boosting vaccines and other therapeutics
40. Zhong, Xingjian	QDs enabled multiplexed in vivo SWIR imaging for anatomical structures

42. Wang, Aiden	PROTAC-conjugated bottlebrush polymers for systemic drug delivery
44. Chhabra, Akshit	Integration of Tumor-on-a-chip with Artificial Intelligence
46. Berardi, Anthony	Self-reporting molecular sensors for probing the chemical environment of nanoparticles
48. Murthy, Namratha	Microfluidic Nebulizer for Enhanced LNPs-Mediated mRNA Delivery for Cystic Fibrosis
50. Pryor, Mae	Layer-by-layer nanoparticles for the targeted delivery of type I interferon in ovarian cancer
52. Dong, Shuyun	Targeted Depletion of PD-1+ Immune Cells as a Potential Therapeutic Strategy for Autoimmune Disease: Development and Utilization of PD-1 Immunotoxin
54. Hassan, Laboni	Trehalose-based coacervates for local bioactive protein delivery to the central nervous system
56. Trivedi, Rudra	Optimizing Nanoparticle Size through Systematic Experimentation: A Design of Experiments Approach for Enhanced Drug Delivery Systems
58. Pal, Suman	Nucleic Acid Nanocapsules for Enhanced Cytosolic Delivery of Therapeutic DNA-Surfactant Conjugates: Cellular Mechanism of Entry and Behavior in Serum
60. Nelson, Elizabeth	Long-term live cell imaging of nanoparticle delivery to subcellular components by combining optical and fluorescent techniques
62. Zhang, Yiming Jason	Vaccines combining slow delivery with follicle targeting of immunogen increase both B cell clonal expansion and diversity

64. Matayoshi, Katsuki	Development of mRNA-loaded LNPs with novel pH-responsive dipeptide-conjugated lipids
66. Liu, Haijun	Glutathione-Scavenging Nanoparticle-Mediated PROTACs Delivery for Targeted Protein Degradation and Amplified Antitumor Effects
68. Ali, Moustafa	Gold Nanotechnology Utilized in Inhibiting Metastasis
70. Das, Riddha	Hybrid lipid nanoparticles prime dendritic cells for nucleotide delivery
72. Zamora, Marco	Combination physicochemical and antibody-mediated targeting enhances uptake and expression capacity in the lung
74. Pollard, Rachel	The impact of nanoparticle physicochemical properties on their association, internalization, and trafficking in sensory neurons
76. Youden, Brian	Degradable multifunctional gold-liposomes as an all-in-one theranostic platform for image-guided radiotherapy
78. Fakih, Hassan	Exploring the potential of a novel albumin-binding amphiphilic conjugate for improved siRNA delivery
80. Hu, Yizong	In vivo monocyte programming by polymeric mRNA supramolecular assemblies
82. Dusane, Apurva	Promising targeted therapy for Fuchs' endothelial corneal dystrophy (FECD) assisted with cRGD conjugated ubiquinol loaded nanoparticles
84. Li, Chengyi	Antigen-Clustered Nanovaccine Achieves Long-Term Tumor Remission through Promoting B Cell Immunity and Tertiary Lymphoid Structures

86. Stone, Matthew	Structural characterization of the ionizable lipid MC3 and its oxidative impurities using high-energy free electron-based fragmentation
88. Omo-Lamai, Serena	Physicochemical Targeting of Lipid Nanoparticles to the Lungs Induces Clotting: Mechanisms and Solutions
90. Phruttiwanichakun, Pornpoj (Jay)	CST6 cmRNA delivery for bone regeneration
92. Wen, Hanning	Albumin nanoparticle-loaded PI3K gamma inhibitor for triple-negative breast cancer treatment
94. Wang, Wenliang	Ultrasound triggered mechanoluminescenct nanotransducers for noninvasive optogenetics
96. Cryer, Alexander	Conjugated STING agonist nanoparticles enhance antitumor immunity in multiple tumor models