

NNMEN NANOMEDICINES INNOVATION NETWORK RÉSEAU D'INNOVATION NANOMÉDECINES Scientific Meeting & Trainee Symposium

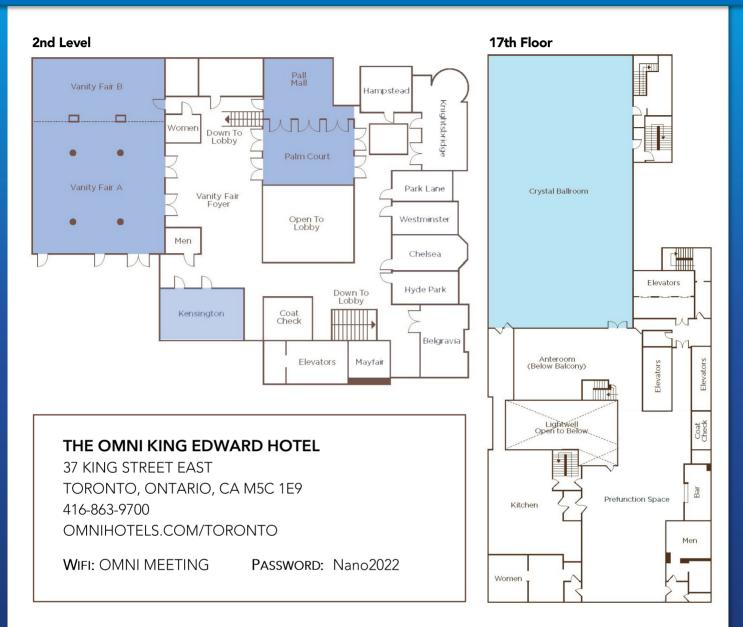


Scientific Meeting: 17-19 November 2022 | Trainee Symposium: 19-20 November 2022 The Omni King Edward Hotel | Toronto

PROGRAM

#NMIN2022 nanomedicines.ca

VENUE MAPS & STAFF CONTACTS



NMIN STAFF CONTACTS

Marshall Beck	Digital Initiatives Consultant	416-828-8877
Leah Graystone	HQP & Events Coordinator	905-348-7170
Cathy Jiang	Accountant	647-219-2867
Rasika Kulkarni	Manager, Research Administration	437-225-0228
Divya Rao	HQP Programs & Network Events Manager	431-726-0615
Diana Royce	Executive Director	905-580-2227

Dear friends and colleagues:

Welcome to NMIN's 2022 Scientific Meeting and Trainee Symposium, in the heart of downtown Toronto.

This is NMIN's second scientific forum, and its first post-COVID Network-wide event. At this gathering of Network participants and invited guests I look forward to our collective discussion of nanomedicines-related state-of-the-art science, taking stock of the Network's progress to date, and to collectively contributing to NMIN's future research directions, legacy opportunities and long-term social and economic impacts.

Since NMIN's first Scientific Meeting in September 2019, a great deal has transpired both in terms of an unforeseen global health crisis and the evolution of NMIN and its research programs. We are now at the stage where the Network's focus is shifting toward maximizing its impact through accelerated translation of Network research into social and economic benefits for Canadians. This Scientific Meeting will showcase the outcomes of important areas of NMIN research, and feature the legacy outcomes generated to date.

Immediately following the Scientific Meeting, NMIN's Trainee Symposium will offer a full day of trainee-focused capacity-building and networking opportunities. While NMIN has made available a wide variety of online capacity-building programs during the pandemic, nothing can replace the value of face-to-face interactions.

The research prowess of NMIN's scientists and trainees will be on full display throughout the Scientific Meeting presentations as well as in NMIN's 2022 Poster Competition.

Beyond the formal program, this event will offer opportunities for exiting connections to be strengthened and new connections—both professional and personal—to be made that increase our effectiveness and broaden our perspectives.

We hope you find the next four days to be fruitful and rewarding.



Gilbert Walker Scientific Director & CEO



Afsaneh Lavasanifar Associate Scientific Director



Diana Royce Executive Director

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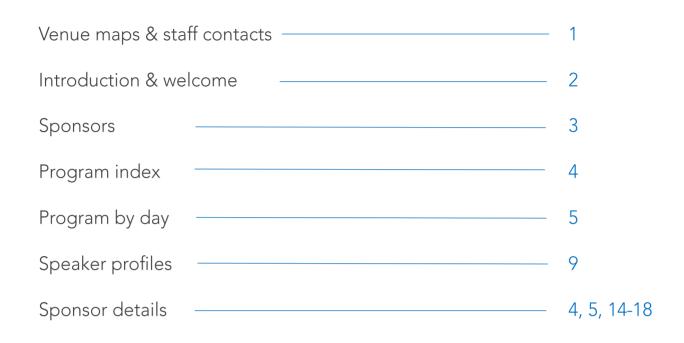




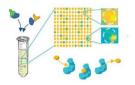




PROGRAM INDEX



ScopeSys :-



SCOPESYS is a Canadian technology company that is bringing new insights to nanomedicines through innovations in high-resolution microscopy. Spun out of the LESLIELAB at UBC, this early-stage startup is currently translating the value of its unique multi-scale microscopy technology platform *via* select industry partnerships. This platform is based on Dr. Sabrina Leslie's Convex Lens-induced Confinement (CLiC) technology which combines HIGH-

THROUGHPUT measurements with SINGLE-MOLECULE & SINGLE-CELL resolution, operating in PHYSIOLOGICAL conditions. No linking chemistry needed, CLiC confines molecules in NANOGEOMETRIES which we customize to match the measurement and quality-control needs. Applications range from oligotherapeutic drugs, to viruses and vaccines, to myriad nanoparticles such as mRNA LIPID NANOPARTICLE VACCINES. The platform is powered by a state-of-the-art SOFTWARE ANALYSIS ENGINE that can compute distributions of biophysical properties of HETEROGENEOUS drug, target, and delivery vehicles, such as kinetic interaction rates and affinities, linked to their conformational states, and other steric and dynamic properties. By taking a closer look at the microscopic properties of molecular complexes and their correlation with e.g. therapeutic performance, SCOPESYS & PARTNERS will be able to serve society's needs with new health products.

SCOPESYS' vision is to *BRING SINGLE-MOLECULE DETAILS TO LIFE*, working hand-in-hand with nanoproduct developers. Together we will de-construct, understand, and optimize the interactions of medicines at the level at which they ultimately function, *ONE MOLECULE AT A TIME*. By persevering and shedding new light into medical insights which may otherwise remain in the dark, and embracing the complexity of biology, our team helps solve hard problems.

www.scopesys.ca or contact@scopesys.ca



Scientific Meeting

THURSDAY 17 NOVEMBER 2022

1:00 pm	Registration opens	Crystal Ballroom Anteroom, 17th Floor
2:00 – 2:30 pm	Opening Remarks Inès Holzbaur	Crystal Ballroom, 17th Floor
2:30 – 3:45 pm	On the front lines of genomic medicine development: Insights into LNP design & scalable microfluidic manufacturing Opening Keynote Lloyd Jeffs, Precision NanoSystems Moderator: Inès Holzbaur Crystal Ballroom, 17th Floor	
3:45 – 5:30 pm	NMIN Spin-Off Company Presentations Mod Vega Biolmaging Technologies Inc. Cécile Darviot, Co-Founder SeraGene Therapeutics Christian Kastrup, Co-Founder & Board Chair NorthMiRs Inc. Samantha McWhirter, Founding Chief Officer Liberum Biotech Aidan Tinafar, Co-Founder & CEO NanoVation Therapeutics Inc. Jayesh Kulkarni, Co-Founder & CSO NanoStar Pharmaceuticals Star Li, Co-Founder & CEO	derator: Inès Holzbaur Crystal Ballroom, 17th Floor
5:30 – 7:30 pm	Opening Reception	Crystal Ballroom, 17th Floor
7:30 – 10:00 pm	Poster display set-up	Kensington, 2nd Floor



FRIDAY 18 NOVEMBER 2022			
7:00 – 8:45 am	Breakfast Registration (8:00 am)	Pall Mall/Palm Court Vanity Fair Foyer, 2nd Floor	
9:00 – 9:10 am	Opening Remarks Gilbert Walker	Vanity Fair Ballroom, 2nd Floor	
9:10 – 10:50 am	Research Session A: NMIN Legacy Core Facilities Moderator: Diana Royce PharmaCore—The Preclinical, Scale-up Manufacturing & Project Management Core Facility Nancy Dos Santos, Operational Lead NanoCore—The Translational NanoMedicines Formulation and Characterization Core Facility Karen Chan, Operational Lead eHTA—The early Health Technology Assessment (eHTA) Core Facility Nick Dragojlovic, Technical Lead		
10:50 – 11:20 am	Break		
11:20 am – 1:00 pm	Research Session B: Triggered Relea Moderator: David Martin Gold nanoparticle-mediated laser trigger du Michel Meunier, Polytechnique Montréal Liposomal encapsulation of cationic peptide Bob Hancock, University of British Columbia Genome screening for nanoparticle target r Warren Chan, University of Toronto Triggered Release: The Future of Cancer Ch Pieter Cullis, University of British Columbia	rug and gene delivery es: Organoid and animal models eceptors	
1:00 – 2:00 pm	Lunch	Pall Mall/Palm Court, 2nd Floor	
2:00 – 3:30 pm		bia	
3:30 – 4:15 pm	mRNA: The potential beyond the pa Invited presentation Shehzad Iqbal, Moderna Canada Moderator:		
4:15 – 6:30 pm	Poster Presentations and Judging R	eception Kensington, 2nd Floor	
FREE TIME			
7:00 – 10:00 pm	Gala Dinner and Recognition Ceremo	Ony Crystal Ballroom, 17th Floor	

Activities take place in the Vanity Fair Ballroom, 2nd Floor, unless otherwise indicated.

SATURDAY 19 NOVEMBER 2022			
7:00 – 8:45 am	Breakfast Registration (8:00 am) Pall Mall/Palm Court Vanity Fair Foyer, 2nd Floor		
9:00 – 9:15 am	Opening Remarks Afsaneh Lavasanifar Vanity Fair Ballroom, 2nd Floor		
9:15 – 10:30 am	Research Session D: Immunotherapy Research Moderator: Terry Allen Targeted interferon immunotherapy mediated by lipid nanoparticle drug delivery Shyh-Dar Li, University of British Columbia Copper: What was I thinking? Marcel Bally, BC Cancer Lipid nanoparticle delivery of immune therapy in diabetes Bruce Verchere, University of British Columbia		
10:30 – 11:00 am	Break		
11:00 am – 12:40 pm	 Research Session E: Cancer Diagnostics & Therapeutics Research Moderator: Marcel Bally Nanodelivery of novel inhibitors of DNA repair for enhanced cancer therapy Afsaneh Lavasanifar, University of Alberta A nanomedicinal approach to exploit the full potential of radiotherapy Devika Chithrani, University of Victoria Building a Biofunctionalization Toolbox for Nanomedicine Keith Pardee, University of Toronto A high throughput tool for screening macrophage interactions with cancer cells Gilbert Walker, University of Toronto 		
12:40 – 1:40 pm	Lunch Pall Mall/Palm Court, 2nd Floor		
1:40 – 2:45 pm	Panel Discussion: NMIN Legacy Opportunities for Impact Moderator: Diana Royce NMIN Commercialization Advisory Board (CAB) members: Brenna Rauw, CAB Chair; Modern Meadow Helen Loughrey, National Research Council Canada Linh Le, flextrapower Technologies Andrew Sinclair, Technology Executive Gary Skarja, Starfish Medical		
2:45 – 4:00 pm	The Future of Medicine Closing Keynote Pieter Cullis, University of British Columbia Moderator: Rachel Fernandez		
4:00 – 4:15 pm	Closing Remarks Gilbert Walker		
4:15 – 7:00 pm	Joint Reception: Scientific Meeting & Trainee SymposiumVanity Fair Foyer, 2nd Floor& Poster tear-downKensington, 2nd Floor		

Activities take place in the Vanity Fair Ballroom, 2nd Floor, unless otherwise indicated.

Trainee Symposium

SUNDAY 20 NOVEMBER 2022

7:00 – 8:45 am	Breakfast Registration (8:00 am) Pall Mall/Palm Court Vanity Fair Foyer, 2nd Floor
9:00 – 9:05 am	Opening Remarks Diana Royce Vanity Fair Ballroom, 2nd Floor
9:05 – 10:30 am	Multisectoral Career Panel Moderator: Gilbert Walker The skills Canada needs, where the jobs are, & how to secure one in nanomedicines Jayesh Kulkarni, NanoVation Therapeutics Helen Loughrey, National Research Council Canada Michael May, CCRM Elaine Copsey, Precision NanoSystems Padmaja Subbarao, Precision Child Health Initiative, The Hospital for Sick Children
10:30 – 11:00 am	Break
11:00 am – 12:30 pm	Early Career Panel Moderator: Diana Royce How I secured a job after NMIN: The process, what worked, & what I know now that I wish I knew then Richard Piffer de Campos, NRC Nanotech Facility Dean Chamberlain, Saskatchewan Cancer Agency Maryam Hejazi, Entos Pharmaceuticals Noorjahan Aibani, Precision NanoSystems
12:30 – 2:00 pm	Networking Lunch with Panel Members & NMIN Researchers Host: Nashmia Zia Pall Mall/Palm Court
2:00 – 4:20 pm	Mock Grant Review Workshop The "ins and outs" of the Tri-Council Grant Review process Jennifer Mitchell, University of Toronto Afsaneh Lavasanifar, University of Alberta Gilbert Walker, University of Toronto
4:20 – 4:30 pm	Closing Remarks Gilbert Walker



Noorjahan Aibani

Research Associate, Precision NanoSystems Inc. Expertise includes LNP research and development.



Terry Allen

Professor Emerita, Pharmacology & Oncology, University of Alberta; visiting professor, The University of British Columbia. Expertise includes drug delivery, especially the development of long-circulating liposomes (Doxil), ligand-targeted liposomes and ligand-target LNPs.



Marcel Bally

Professor, UBC, and Head and Distinguished Scientist, Department of Experimental Therapeutics, BC Cancer. Expertise includes biochemistry, pharmacology/ toxicology, nanoscale drug delivery formulations and preclinical models including a variety of orthotopic and metastatic cancer models as well as pharmacodynamic analysis.



Dean Chamberlain

Jean E Murray Chair of Cancer Research, Research Scientist, Saskatchewan Cancer Agency and Assistant Professor, Division of Oncology, University of Saskatchewan. Expertise includes the development of new tools and assays to improve the selection of treatment regimens for cancer patients.



Karen Chan

NanoCore Operational Lead, NMIN, and Postdoctoral Fellow at the Cullis Lab, UBC. Expertise includes optimizing lipid nanoparticle formulations for the delivery of diverse cargoes, with an emphasis on the encapsulation of nucleic acids for gene therapy applications.



Warren Chan

Director of Biomedical Engineering, Canada Research Chair in Nanobioengineering, and Distinguished Professor at the University of Toronto. Expertise includes nanomaterial interactions with biological systems and bio-molecule sensing.



Devika Chithrani

Associate Professor, Physics and Astronomy/ Medical Physics, University of Victoria. Expertise includes nanotechnology, radiation therapy, drug delivery, tissue engineering, and gold nanoparticles.



Elaine Copsey

VP, Biomanufacturing Operations, Precision NanoSystems Inc. Expertise includes senior operations management across multiple streams of pharma/ biotech including small molecule (solid and liquid), vaccines and medical devices, driving strategic improvements in manufacturing, whse, supply chain, quality, PMO and operational effectiveness.

Pieter Cullis

Professor, Department of Biochemistry and Molecular Biology, UBC. Expertise includes the development of liposomal nanoparticle (LNP) drug delivery systems for the treatment of disease, notably cancer and its complications.



Cécile Darviot

Co-founder, Vega Biolmaging; PhD candidate, Department of Engineering Physics, Polytechnique Montréal. Expertise includes plasmonics, optics and biophysics.



Nancy Dos Santos

PharmaCore Operational Lead, NMIN, Director IDP, BC Cancer. Expertise includes pharmacology/toxicology, oncology, lipid nanoparticles, drug delivery, preclinical models, and drug development.



Nick Dragojlovic

Research Associate, Faculty of Pharmaceutical Sciences, UBC; Technical Lead, NMIN's eHTA Core Facility. Expertise includes using health economics, health outcomes, and policy research to help maximize the value delivered by new health technologies to health system stakeholders.



Rachel Fernandez

Associate Vice-President, Research & Innovation, and Professor, Department of Microbiology and Immunology, University of British Columbia. Expertise includes the molecular mechanisms of microbial pathogenesis, particularly the mechanisms that allow colonization and carriage of *Bordetella pertussis*.



Bob Hancock

Killam Professor of Microbiology & Immunology, UBC; Associate Faculty Member of the Wellcome Trust Sanger Institute; Canada Research Chair in Health & Genomics. Expertise includes



small cationic peptides as novel antimicrobials & modulators of innate immunity, development of novel treatments for antibiotic resistant infections, systems biology of innate immunity, inflammatory diseases & Pseudomonas aeruginosa, & antibiotic uptake & resistance.

Maryam Hejazi

Research and Development Scientist, Entos Pharmaceuticals. Expertise includes animal model research, biotechnology, cell culture, DNA extraction, and stem cells.



Inès Holzbaur

Co-Founder and Managing Partner, AmorChem; Board Chair, NMIN. Expertise includes venture capital investing in early-stage life sciences innovation.





Shehzad Iqbal

Country Medical Director, Moderna Canada. Expertise includes immunology and infectious diseases with a focus on the development of therapeutic and vaccine interventions.



Lloyd Jeffs

Senior Director Biopharma Services, Precision NanoSystems Inc. Expertise includes developing lipid-based nanotherapeutics, including formulation and process development, scale-up and technology transfer.



Christian Kastrup

Senior Investigator, Versiti Blood Research Institute, and Professor, Medical College of Wisconsin. Expertise includes using biotechnology to understand and control blood clotting proteins.



Jayesh Kulkarni

Chief Scientific Officer, NanoVation Therapeutics. Expertise includes the design and development of lipid-based drug delivery systems for small molecule therapeutics, proteins, and genetic drugs.



Afsaneh Lavasanifar

Professor, Faculty of Pharmacy & Pharmaceutical Sciences, University of Alberta; Chief Scientific Officer and Vice President, Meros Pharma; Associate Scientific Director, NMIN. Expertise includes pharmaceutics and drug delivery.



Linh Le

Founder and CEO, *flextrapower*, Founding Partner, BUYO Bioplastics. Expertise includes entrepreneurship, venture building, and supporting the commercialization of scientific and technological innovation with the potential to transform human health outcomes.



Sabrina Leslie

Michael Smith Laboratory researcher, Associate Professor of Physics & Astronomy, The University of British Columbia. Expertise includes the interface of physics and biology with a particular interest in quantifying the dynamics of individual molecules.



Shyh-Dar (Star) Li

Angiotech Professor in Drug Delivery, Faculty of Pharmaceutical Sciences, The University of British Columbia. Expertise includes developing innovative drug delivery systems to enhance cancer chemotherapy.

Helen Loughrey

Investment Innovation Advisor, National Research Council Canada. Expertise includes biopharmaceutical R&D and advancing drug leads through preclinical to clinical studies.



David Martin

Managing Director and Head of Equity Research, Bloom Burton & Co. Expertise includes identifying investment opportunities for publicly traded healthcare and emerging biotechnology companies.



Michael May

President & CEO, Centre for Commercialization of Regenerative Medicine (CCRM). Expertise includes developing technologies, launching new companies and catalyzing investment in the field of regenerative medicine, including cell and gene therapy.



Samantha McWhirter

Chemistry Graduate Student, University of Toronto. Expertise includes bioanalytical nanotechnology, with particular interest in using gold nanoparticles for leukemia diagnostics.



Michel Meunier

Professor of engineering physics and biomedical engineering and head of the Laser Processing and Plasmonics Laboratory at Polytechnique Montréal. Expertise includes developing and modelling new laser processes of materials for nanotechnology and biomedical applications, and developing new plasmonic nanostructures for biophotonic applications.



Jennifer Mitchell

Professor, Cell & Systems Biology & Associate Chair, Research, University of Toronto. Expertise includes animal biology, bioinformatics / computational biology, developmental biology, genetics / genomics, molecular biology, and systems biology.



Keith Pardee

Associate Professor, Leslie Dan Faculty of Pharmacy, University of Toronto. Expertise includes synthetic biology; the development of in vitro devices to host cell-free synthetic gene networks; the development of molecular diagnostic tools for communicable diseases like Zika virus; distributed drug manufacturing; and regenerative medicine.



Richard Piffer de Campos

Research Associate, National Research Council Canada. Expertise includes digital microfluidics, with emphasis on development of bead-based immunoassays for global health and clinical chemistry applications.





Brenna Rauw

GM, Biomedical & Beauty, Modern Meadow. Expertise includes the commercialization of biomedical technologies.



Diana Royce

Executive Director, NMIN. Expertise includes development, start-up and management of national research teams and multi-sectoral research networks; strategic planning; knowledge translation and transfer; and meeting facilitation.



Andrew Sinclair

Commercialization Advisory Board (CAB) Member, NanoMedicines Innovation Network. Expertise includes technology commercialization, research & development and start-ups.



Gary Skarja

Bio Services Program Manager at StarFish Medical. Expertise includes the development of new medical materials & devices, regenerative medicine technologies and single-use biomanufacturing tools at companies ranging from pre-revenue start-ups to a multibillion dollar global organization.



Padmaja Subbarao

Respirologist, Associate Chief of Clinical Research, Co-Lead of Precision Child Health, & Senior Scientist in Translational Medicine, Hospital for Sick Children; Professor, Department of Paediatrics, University of Toronto; Director, CHILD Cohort Study. Expertise includes epidemiology, infant & preschool lung function, & the early determinants & development of asthma.



Aidan Tinafar

Co-Founder, Liberum Biotech. Expertise includes manufacturing proteins for use as therapeutics, industrial catalysts and biomedical research tools.



Gilbert Walker

Distinguished Professor, Department of Chemistry, Faculty of Arts & Science, University of Toronto; Chief Technical Officer, Sylleta Inc. Expertise includes biomolecular interaction analysis, and using polymers to produce nanostructured materials with electromagnetic, mechanical, and physiological properties.



Ellen Wasan

Associate Professor, College of Pharmacy and Nutrition, University of Saskatchewan. Expertise includes preformulation, early-stage drug development and lipid-based drug delivery systems.

Bruce Verchere

Professor, Depts of Pathology & Laboratory Medicine and Surgery, University of British Columbia; Investigator, Childhood Diabetes Labs, BC Children's Hospital Research Institute; Director, Centre for Molecular Medicine & Therapeutics. Research aims to

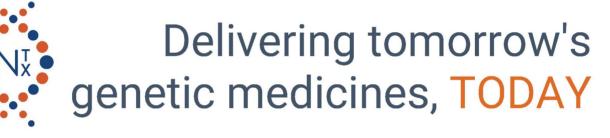


understand pancreatic islet function and dysfunction in type 1 and type 2 diabetes, with the goal of developing therapeutics that attenuate immune responses and improve and restore insulin production in diabetes and following transplantation.

Nashmia Zia

Graduate student, University of Toronto; NMIN Theme 3 Research & KTEE Accelerator. Research includes the development of SERS-tagged drug loaded nanoparticles for targeted therapy of acute myeloid leukemia.

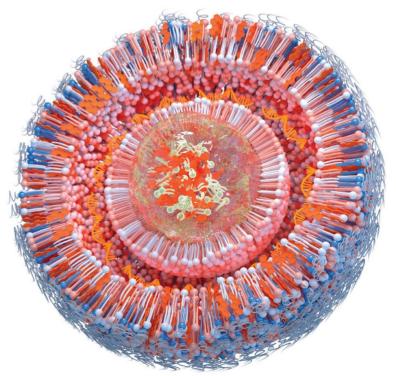




NanoVation Therapeutics (NTx) provides a leading one-stop-shop IP portfolio to empower your genetic medicines.

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About Us

CTI Life Sciences Fund (CTI) is a VC firm that focuses on creating, building, and nurturing early-stage life sciences companies. As the first Canadian life-sciences VC firm that raised \$100M, CTI proved that a Canada-focused investment strategy could generate competitive returns on a global scale. The firm is supported by the most prestigious LPs in Canada (e.g., BDC Capital, FSTQ, IQ ,CDPQ and Teralys Capital). The firm also built a stellar reputation with top local & global co-investors to generate deal-flow and syndicate deals. CTI is closing its Fund III to continue its impact on the global healthcare and VC ecosystem.

>\$370M

across 3 funds

10+ successful exits

3 FDA approved treatments

The Team

CTI has assembled a team of individuals with complimentary and comprehensive skill sets that span all the verticals of life-sciences VC investments.



Laurence Rulleau Managing Partner



Youssef Bennani Managing Partner



Shermaine Tilley Managing Partner



Ken Pastor Managing Partner

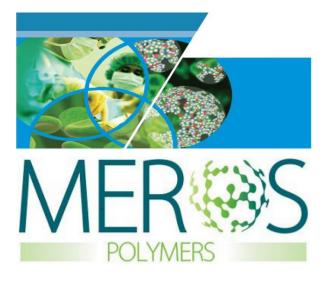


Xin Hang Principal



Paul Cassar Associate

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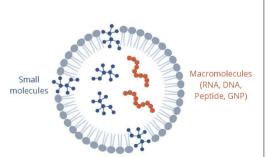
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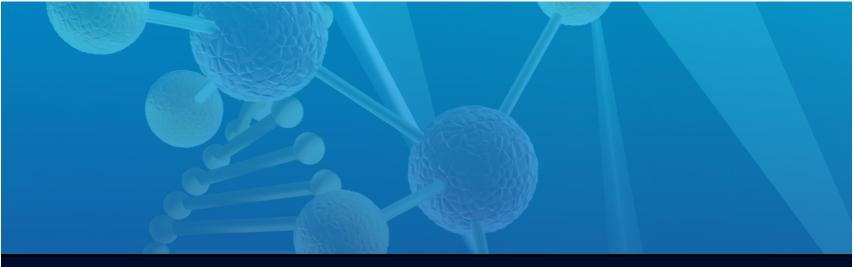
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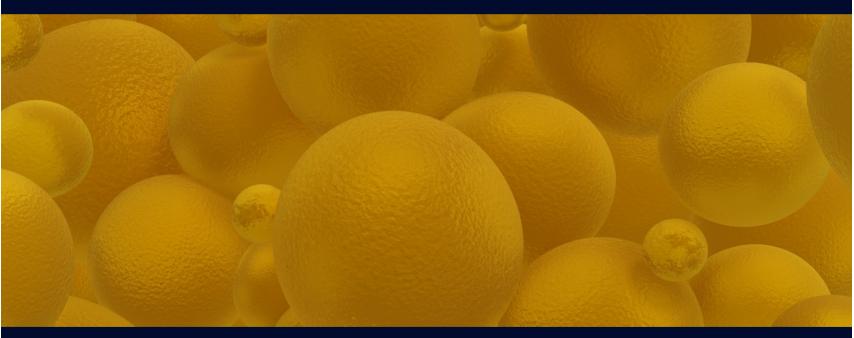


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