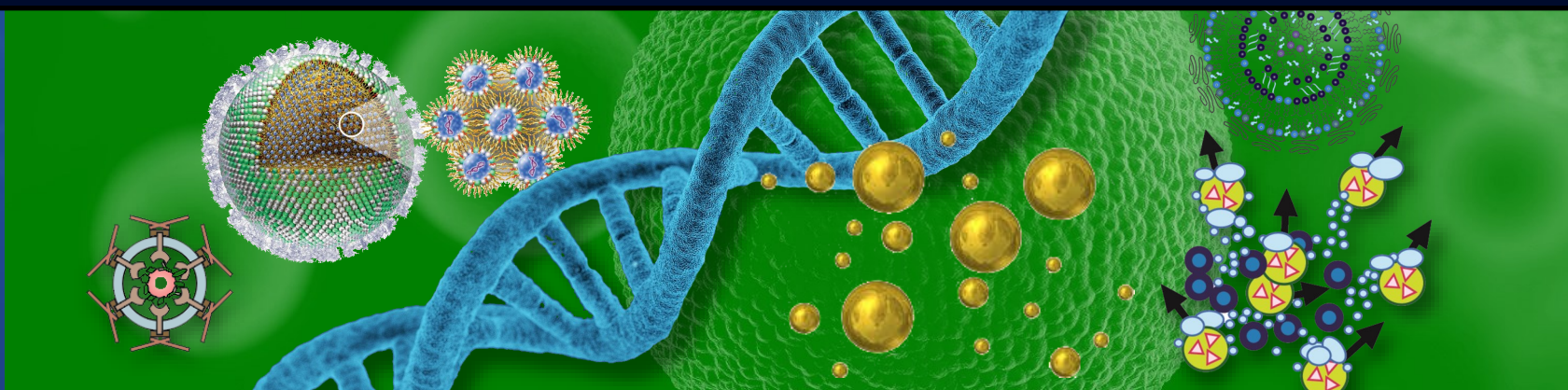


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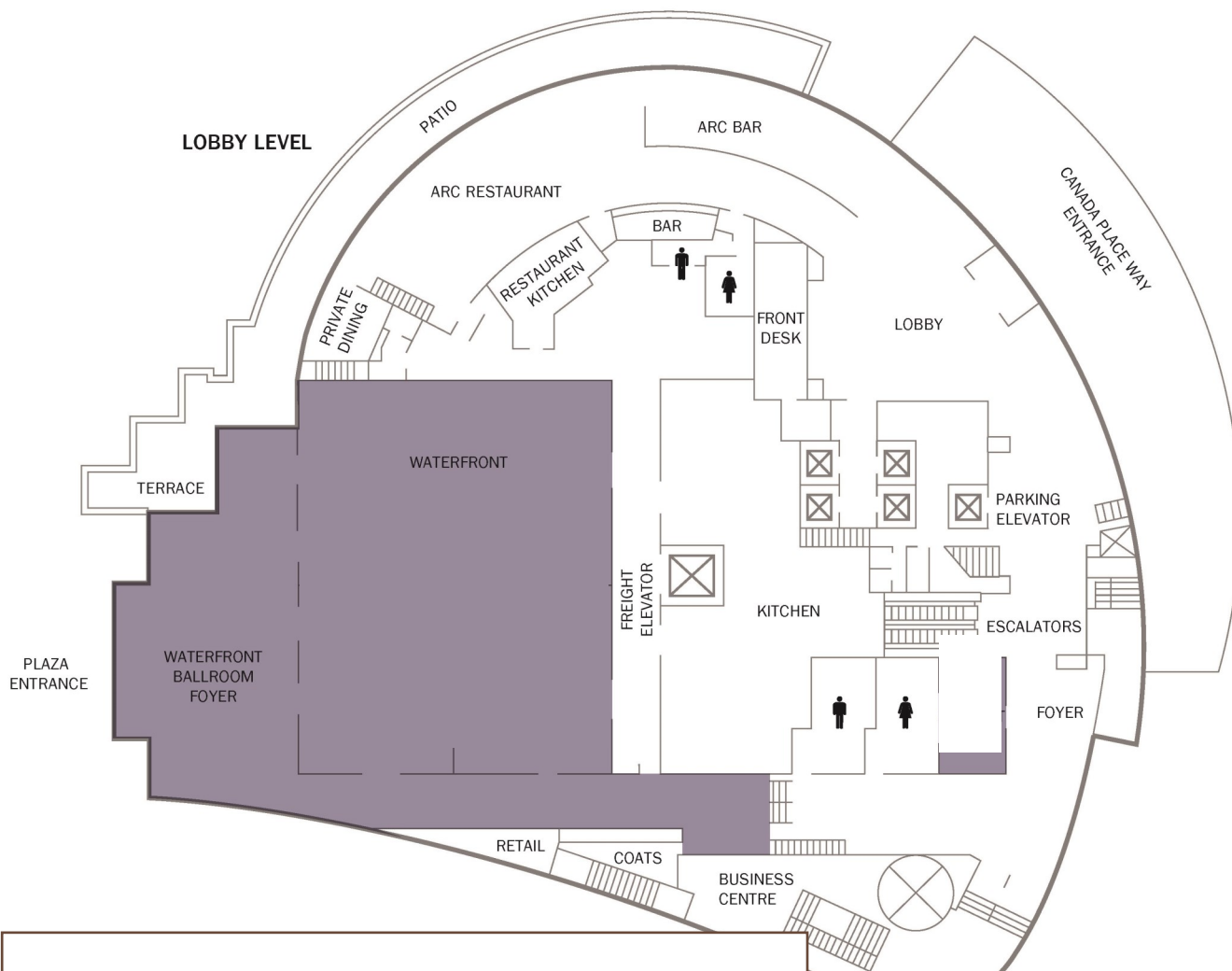
RESEARCH CONFERENCE



24 - 27 January 2024 | Fairmont Waterfront Hotel | Vancouver, BC, Canada

PROGRAM

#NMIN2024
nanomedicines.ca



FAIRMONT WATERFRONT HOTEL

900 CANADA PLACE WAY
VANCOUVER, BRITISH COLUMBIA, CA V6C 3L5
604-691-1991

FAIRMONT.COM/WATERFRONT-VANCOUVER

WIFI: FAIRMONT_MEETING PASSWORD: NMIN24

All event activities take place in the Waterfront Ballroom unless otherwise indicated in the program.

Breakfasts and lunches are served in the MacKenzie Room (see map on p.4).

NMIN STAFF CONTACTS

Marshall Beck	Digital Initiatives Consultant	416-828-8877
Divya Rao	HQP Program & Network Events Manager	431-726-0615
Diana Royce	Executive Director	905-580-2227
Kim Wright	Registration Desk Manager	905-330-2777

INTRODUCTION & WELCOME

Dear friends and colleagues:

Welcome to the NanoMedicine Innovation Network's (NMIN's) 2024 Research Conference on Vancouver's spectacular harbourfront.

This culminating event of the NMIN network gathers Canada's foremost nanomedicine researchers and innovators for four days of rich, collegial scientific exchange and networking.

When the COVID pandemic was declared in March 2020, the year after NMIN's launch, no one foresaw how nanomedicines—and specifically the work of NMIN researchers—would be catapulted into the global limelight due to their role in helping halt the pandemic, validating the Network's vision and propelling the field forward. This intersection of a community's vision and drive with opportunity born of crisis helps explain how NMIN has come so far, so fast.

The trajectory of the Network, its outputs to date and its anticipated legacies will be explored and duly celebrated at this Conference, which boasts a stellar line-up of speakers from within and beyond the Network. Panel sessions will explore the future plans and potential of the three Core Facilities, nanomedicines research, and spin-off companies resulting from NMIN discovery and development support. The diverse range of research represented within the Network and its talented trainees will be showcased in trainee research presentations and an adjudicated trainee poster competition.

This event will also offer opportunities for existing connections to be strengthened and new connections to be made. NMIN's network-building efforts have and will continue to increase our collective research impact and broaden future collaborative opportunities, positioning the NMIN community to continue to advance the field of nanomedicines even as NMIN completes its NCE mandate.

Thank you for joining us to celebrate the significant accomplishments and promising future of Canada's world-renowned community of nanomedicine researchers and innovators.

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

MANY THANKS TO OUR SPONSORS

DIAMOND



PLATINUM



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BRONZE



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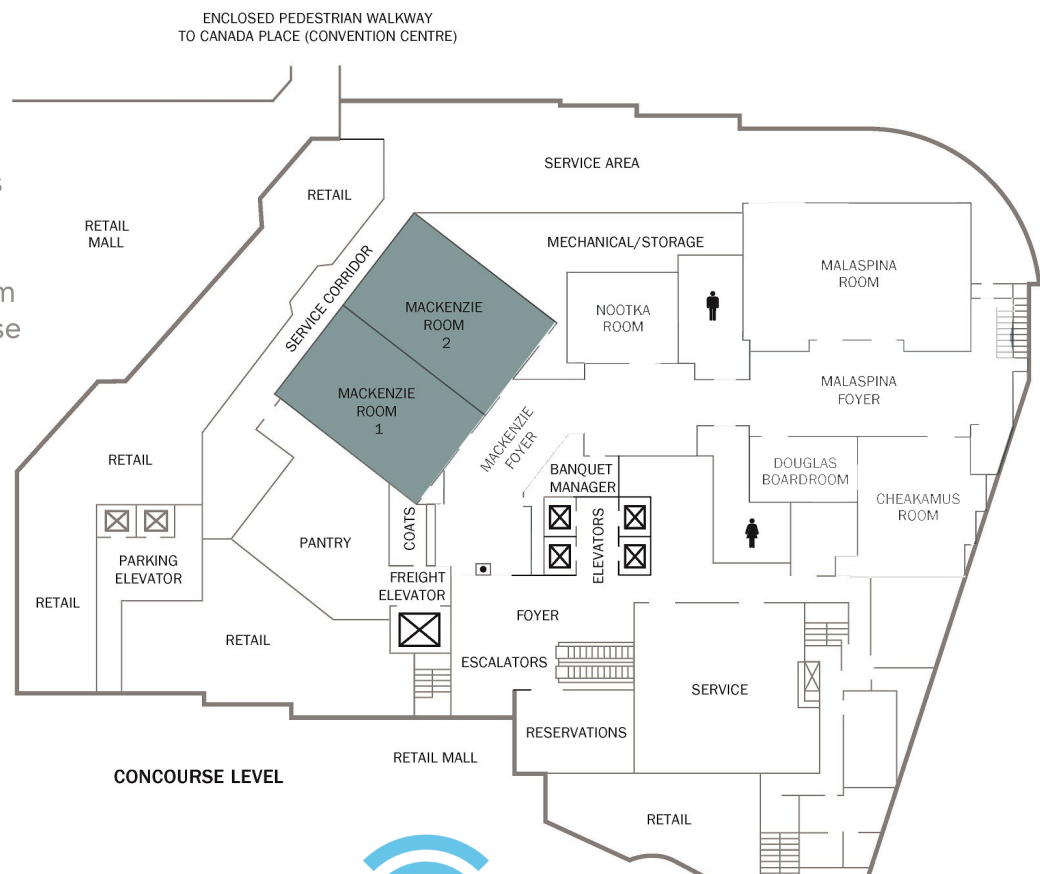


Malvern
Panalytical
a spectris company

PROGRAM INDEX

Main venue map & staff contacts	1
Introduction & welcome	2
NMIN 2024 Conference Sponsors	3
Program index & secondary menu map	4
Program by day	5
Silhouette Quartet profile (Gala Dinner)	9
Keynote speaker profiles	10
Moderator & speaker profiles	11
Nanomedicine expertise survey information	16
NMIN spin-off company profiles	17
Sponsor ads	23

Event breakfasts and lunches are served in the MacKenzie Room on the Concourse level, one level down via the escalators.



WiFi [Fairmont_Meeting](#) Pwd [NMIN24](#)



WEDNESDAY 24 JANUARY 2024		
12:00 pm	<i>Registration opens</i>	Waterfront Ballroom Foyer
3:00 – 3:30 pm	Opening Remarks Inès Holzbaur	
3:30 – 5:00 pm	Opening Keynote <i>Shaping the Future: Healthcare Ecosystems for Bold Impact + World-Class Innovation</i> <i>Fresh perspectives on building and sustaining innovation ecosystems</i> Andrea Kates, SUMA Partners Moderator: Inès Holzbaur	
5:00 – 7:00 pm	<i>Opening Networking Reception</i>	Waterfront Ballroom Foyer
7:00 – 10:00 pm	Board Invitational Dinner (by invitation only)	Malaspina Room (Concourse level)
7:30 – 10:00 pm	Poster display set-up	Waterfront Ballroom Foyer

THURSDAY 25 JANUARY 2024		
7:00 – 8:45 am	<i>Breakfast</i> - MacKenzie Room (Concourse level) <i>Registration</i> (8:00 am) - Waterfront Foyer	
9:00 – 9:15 am	Opening Remarks Gilbert Walker	
9:15 – 10:15 am	Industry Keynote <i>Next generation LNP technologies for enabling nucleic acid medicines</i> Dominik Witzigmann, NanoVation Therapeutics Moderator: Gilbert Walker	
10:15 – 11:00 am	<i>Break</i>	
11:00 am – 12:30 pm	<div> NMIN Spin-off Companies Panel Moderator: Parimal Nathwani <i>Vega BioImaging Technologies Inc.</i> Cécile Darviot, CEO <i>SeraGene Therapeutics Inc.</i> Erika Siren, CEO <i>NorthMiRs Inc.</i> Samantha McWhirter, CEO </div> <div> <i>Liberum Biotech Inc.</i> Keith Pardee, Co-Founder <i>NanoStar Pharmaceuticals Inc.</i> Shyh-Dar Li, Co-Founder </div>	
12:30 – 2:00 pm	<i>Networking Lunch</i>	MacKenzie Room (Concourse Level)

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THURSDAY 25 JANUARY 2024 continued

2:00 – 2:45 pm	<p>NMIN Theme II: Gene Therapy – High Commercial Potential Research <i>Sponsored by The Morris and Rosalind Goodman Family Foundation</i> Moderator: Christian Kastrup</p> <p><i>Developing LNP-Mediated Genetic Therapies for Inherited Brain Diseases</i> Blair Leavitt, University of British Columbia</p> <p><i>Single-molecule and single-cell microscopy of mRNA-lipid-nanoparticles: applying nanoscale physics to advance nanomedicines</i> Sabrina Leslie, University of British Columbia</p> <p><i>In vivo evaluation of new lipid nanoparticles for improved genome editing</i> Colin Ross, University of British Columbia</p>
2:45 – 3:30 pm	<p>NMIN Theme I: Targeted Drug Delivery Research Moderator: Marcel Bally</p> <p><i>Targeted immunotherapy of cancer mediated by lipid nanoparticles</i> Shyh-Dar Li, University of British Columbia</p> <p><i>Lipid nanoparticles targeting phagocytic cells for the treatment of diabetes</i> Bruce Verchere, University of British Columbia</p> <p><i>Lipid nanoparticle adjuvants for mucosal vaccines</i> Ellen Wasan, University of Saskatchewan</p>
3:30 – 4:00 pm	Break
4:00 – 4:30 pm	<p>NMIN Theme II: Gene Therapy Research Moderator: Kaley Wilson</p> <p><i>A Long-Acting siRNA-LNP Prophylactic Treatment for Rare Bleeding Disorders Tested in Large Animal Models</i> Christian Kastrup, University of British Columbia</p>
4:30 – 5:45 pm	<p>NMIN Grand Challenges Program Panel: Development, optimization & evaluation of novel nanoparticle formulations for gene therapy targeted to extra-hepatic tissues <i>Sponsored by Evonik Corporation</i> Moderator: Anna Blakney</p> <p>Nicolas Bertrand, Laval University Pieter Cullis, University of British Columbia Ken Harder, University of British Columbia Sabrina Leslie, University of British Columbia Colin Ross, University of British Columbia</p>

FREE TIME

6:30 – 10:00 pm	<p>Poster Viewing & Judging Champagne Reception Waterfront Ballroom Foyer</p>
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Activities take place in the Waterfront Ballroom (Lobby level), unless otherwise indicated.

FRIDAY 26 JANUARY 2024

7:00 – 8:45 am	Breakfast - MacKenzie Room (Concourse level) Registration (8:00 am) - Waterfront Foyer
9:00 – 9:05 am	Opening Remarks Afsaneh Lavasanifar
9:05 – 9:45 am	NMIN Theme III: Diagnostics – Research Program Panel: Diagnostics for Nanoparticle Tumour Delivery Moderator: Warren Chan Bram Bussin, University of Toronto Warren Chan, University of Toronto Zahra Sepahi, University of Toronto
9:45 – 10:45 am	NMIN Theme III: Diagnostics Research Moderator: Inès Holzbaur <i>Innovation Headroom for a More Accurate PD-L1 Companion Diagnostic in Early-Stage NSCLC</i> Larry Lynd, University of British Columbia <i>A platform to screen for upregulation of soluble calreticulin as a tool to develop nanomedicines targeting acute myeloid leukemia</i> Gilbert Walker, University of Toronto <i>Nanoparticle-enhanced, Impedance-based Biosensor Development for Cancer Diagnostics</i> David Wishart, University of Alberta
10:45 – 11:15 am	Break
11:15 am – 12:15 pm	NMIN Trainee Research Presentations Moderator: Nicolas Bertrand
12:15 – 1:45 pm	Networking Lunch MacKenzie Room (Concourse Level)
1:45 – 2:45 pm	NMIN Trainee Research Presentations Moderator: Nicolas Bertrand
2:45 – 4:00 pm	NMIN Legacy Core Facilities Panel Moderator: Diana Royce Nancy Dos Santos, Core Operational Lead, PharmaCore Karen Chan, Core Operational Lead, NanoCore Nick Dragojlovic, Technical Lead, eHTA
4:00 – 4:30 pm	Break

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FRIDAY 26 JANUARY 2024 continued

4:30 – 5:30 pm	<p>Research Keynote</p> <p><i>The unlimited potential of mRNA-based Gene Therapies: Why work on anything else?</i></p> <p>Pieter Cullis, University of British Columbia Moderator: Lesley Esford</p> <p>Sponsored by Cytiva</p>
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FREE TIME

6:30 – 10:00 pm	<p><i>Gala Dinner & Awards featuring the Silhouette Quartet</i></p> <p>Sponsored by STEMCELL Technologies</p>
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SATURDAY 27 JANUARY 2024

7:00 – 8:45 am	Breakfast - MacKenzie Room (Concourse level) Registration (8:00 am) - Waterfront Foyer
9:00 – 9:05 am	Opening Remarks Diana Royce
9:05 – 10:05 am	<p>Major problems in development of precise drug delivery systems</p> <p>Sponsored by Faculty of Pharmaceutical Sciences, The University of British Columbia</p> <p>Moderator: Pieter Cullis</p> <p>Pieter Cullis, University of British Columbia</p> <p>Harrison Fan, University of British Columbia</p> <p>Eric Jan, University of British Columbia</p> <p>Jay Kulkarni, NanoVation Therapeutics</p> <p>Arash Momeni, University of British Columbia</p>
10:05 – 10:30 am	<p>NMIN Theme I: Targeted Drug Delivery Research Moderator: Marcel Bally</p> <p><i>Developing Proteolipid Vehicles for the Effective Delivery of Payloads as Cancer Therapeutics</i></p> <p>John Lewis, University of Alberta</p>
10:30 – 11:00 am	Break
11:00 am – 12:15 pm	<p>NMIN Theme I: Targeted Drug Delivery Research Moderator: Shyh-Dar Li</p> <p><i>Developing Drug Combination Products With an Eye Towards Treating Late Stage Respiratory Infections</i></p> <p>Marcel Bally, BC Cancer</p> <p><i>Advanced formulations for antibiofilm and antiinflammatory peptides</i></p> <p>Robert Hancock, University of British Columbia</p> <p><i>Nanodelivery of Novel Inhibitors of DNA Repair: An "NMIN CREATE collaboration" story</i></p> <p>Afsaneh Lavasanifar, University of Alberta</p>

Activities take place in the Waterfront Ballroom (Lobby level), unless otherwise indicated.

SATURDAY 27 JANUARY 2024 continued

12:15 – 1:30 pm	<i>Networking Lunch</i> MacKenzie Room (Concourse Level)
1:30 – 2:30 pm	<p>Invited Keynote <i>Building Tools at the Interface between Synthetic Biology and Nanomedicine</i> Keith Pardee, University of Toronto Moderator: Terry Allen</p>
2:30 – 3:15 pm	<p>Nanomedicine Innovations & Ecosystem Developments Panel: Current & Future Opportunities for Canadian Scientists & Companies Moderator: Gilbert Walker <i>Sponsored by Moderna Canada</i></p> <p>Guojun Chen, Assistant Professor, Department of Bioengineering, McGill University Pieter Cullis, Board Chair & Co-Founder, NanoVation Therapeutics & Nanovation Capital Helen Loughrey, Innovation Investment Advisor, National Research Council Canada Michael Parr, Director, Formulation and Process Development, Evonik Canada John Stylianou, Director of Biology, adMare BioInnovations Sherry Zhao, Regional Director, Pacific, Mitacs</p>
3:15 – 3:30 pm	NMIN Legacy & Concluding Remarks Gilbert Walker
3:30 pm	<i>Conference Close</i>

Silhouette Quartet

The Silhouette Quartet, performing at the conference's gala dinner, is currently the UBC Senior Quartet in Residence. Violinist **Amy Zhang** has won multiple awards in festivals and competitions and is a member of the UBC Symphony Orchestra. American violinist **Jake Balmuth** performs the standard repertoire on modern instruments and also Baroque and classical music on period instruments. Cellist **Aireleen Zhu** has performed as soloist with Richmond Delta Youth Orchestra and Vancouver Philharmonic Orchestra and won many awards. Violist **Caroline Olsen** is a versatile musician, performing as a core player with the Kamloops Symphony Orchestra, and is principal violist of Symphony 21 in Vancouver.



KEYNOTE SPEAKERS



Pieter Cullis

Professor, Department of Biochemistry & Molecular Biology, The University of British Columbia; Founding Director, Centre for Drug Research & Development; Founding Scientific Director, NMIN; OC, FRS

Dr. Cullis' laboratory has been responsible for fundamental advances in the generation, loading and targeting of liposomal systems for intravenous delivery of conventional and genetic drugs. This work has contributed to five drugs approved by regulatory agencies in the U.S. and Europe. The techniques he pioneered were employed to develop the LNP delivery system for mRNA vaccines, including those used in response to the COVID-19 pandemic. Dr. Cullis has co-founded 11 biotechnology companies that now employ over 400 people, has published over 400 scientific articles, is an inventor of over 100 patents, and has received dozens of prestigious honors and awards, including the Canada Gairdner International Award and the Tang Award in 2023.



Andrea Kates

Global innovation leader and ecosystem specialist; partner, SUMA.com, author From Stuck to Scale (launch Spring 2024)

Andrea Kates is a Silicon Valley-based innovation advisor, former tech CEO, and author of the award-winning book, *Find Your Next*, a complete guide to cross-industry innovation. She has led innovative healthcare initiatives for organizations including Roche, Texas Medical Center, Genentech, Arthritis Society Canada, Mayo Clinic, and Siemens. Andrea advises large enterprises, innovative organizations, governments, and nonprofits to drive impact for their stakeholders, customers, investors, partners, and communities and has spearheaded significant transformation across multiple industries. A dynamic thought leader, Andrea is in high demand globally as a speaker and has delivered keynotes at some of the world's most prestigious conferences. She is currently a Senior Fellow with The Conference Board (ecosystems + technology) and faculty advisor with MIT Legatum Center and NextMed.Health.



Keith Pardee

Associate Professor, Leslie Dan Faculty of Pharmacy, University of Toronto; Canada Research Chair in Synthetic Biology and Human Health; Medicine by Design Investigator

Dr. Pardee is working at the intersection of synthetic biology and human health. His lab is pioneering the development of in vitro devices to host cell-free synthetic gene networks for broad applications in research and human health. Using freeze-dried, cell-free enzyme systems, the lab builds low-cost molecular diagnostics (e.g. Zika, COVID-19) and low-burden platforms for cell-free biomanufacturing of lab reagents and biologic therapeutics. These efforts have led to the co-founding of three trainee-led ventures (LSK Technologies, Liberum Biotech, En Carta Diagnostics). <https://www.pardeelab.org>



Dominik Witzigmann

CEO, NanoVation Therapeutics Inc.

Dr. Witzigmann is the CEO of NanoVation, which he cofounded to translate next-generation LNP technologies into the clinic. An entrepreneurial scientist working at the interface of pharmaceutical technology, biology, and chemistry, he is an inventor on several patents and has published over 50 scientific articles related to nanomedicines enabling tissue- and cell-specific drug and gene delivery. He obtained his Ph.D. in Pharmaceutical Technology from the University of Basel in Switzerland and worked on research projects at University College London, the German Cancer Research Center, and the Universities of Basel and of Zurich before joining Pieter Cullis' UBC team to focus on RNA delivery using LNP systems. Dr. Witzigmann co-founded and led NMIN's NanoCore to support >30 projects with advanced nucleic acid delivery technologies, and served on the Board of the Controlled Release Society Focus Group "Gene Delivery and Genome Editing."

SPEAKERS & MODERATORS



Terry Allen

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



Marcel Bally

Professor, UBC; Head & Distinguished Scientist, Department of Experimental Therapeutics, BC Cancer; NMIN Research Leader (Theme I). Expertise includes biochemistry, pharmacology/toxicology, nanoscale drug delivery formulations & preclinical models, & pharmacodynamic analysis.



Nicolas Bertrand

Assistant Professor, Faculty of Pharmacy, Université Laval. Chair of NMIN's HPAC. Expertise includes the preparation of nanoparticle libraries, preclinical pharmacokinetics, & studying interactions between nanomedicines and biological systems.



Anna Blakney

Assistant Professor, Michel Smith Laboratories, UBC. Expertise includes bioengineering, molecular biology & immunology approaches to developing next-generation RNA vaccines and therapies, as well as science communication.



Bram Bussin

PhD Candidate, University of Toronto. Expertise includes liver macrophage biology, protein corona, genomic screening for nanomedicine, cancer nanomedicine.



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

Canada Research Chair in Nanobioengineering and Distinguished Professor, Biomedical Engineering, at the University of Toronto; NMIN Research Leader (Theme III). Expertise includes nanomaterial interactions with biological systems & bio-molecule sensing.



Guojun Chen

Assistant Professor, Biomedical Engineering and Goodman Cancer Institute, McGill University. Expertise includes engineering intelligent biomaterials for drug delivery, towards precision medicine; & exploiting the interactions between biomaterials & biological systems for therapeutic applications.

SPEAKERS & MODERATORS



Cécile Darviot

Co-founder, Vega BioImaging; 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, & policy research to assess the potential value delivered by new health technologies to health system stakeholders.



Leslie Esford

Executive Director, SFU VentureLabs; Vice-Chair, NMIN Board of Directors. Expertise includes company innovation & commercialization, securing finance, & scientific research & development in the life sciences.



Harrison Fan

Research Scientific Engineer, UBC. Expertise includes designing & assembling magnetic field-generating apparatuses & electronic control systems for the purpose of enabling the triggered release of cargo from lipid nanoparticle carriers.



Kenneth Harder

Associate Professor, Microbiology & Immunology, Life Sciences Institute, UBC. The Expertise includes the development of systems biology approaches & genetically engineered mouse models to identify immunological perturbations associated with cancer, obesity, Alzheimer's Disease & intestinal inflammation; multiomic approaches to the study of LNP formulation design & LNP-based cancer therapies.



Bob Hancock

Killam Professor of Microbiology & Immunology, UBC. Expertise includes small cationic peptides as novel antimicrobials & modulators of innate immunity; novel treatments for antibiotic resistant infections; systems biology of innate immunity; inflammatory diseases & *Pseudomonas aeruginosa*, & antibiotic uptake & resistance.



Inès Holzbaur

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

SPEAKERS & MODERATORS



Eric Jan

Professor & Michael Smith Scholar, Biochemistry & Molecular Biology, UBC. Expertise includes mRNA translational control mechanisms, with emphasis on viral internal ribosome entry site mechanisms.



Christian Kastrup

Affiliate Professor, Michael Smith Laboratories, UBC; Senior Investigator, Versiti Blood Research Institute, and Professor, Medical College of Wisconsin. NMIN Research Leader (Theme II). Expertise includes using biotechnology to understand & control blood clotting proteins.



Jay Kulkarni

CSO, NanoVation Therapeutics Inc. Expertise includes the design and development of lipid nanoparticle systems, especially lipid-based drug delivery systems for small molecule therapeutics, proteins, & 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 pharmaceuticals & drug delivery.



Blair Leavitt

Professor, Department of Medical Genetics, University of British Columbia, CEO and Co-Founder, Incisive Genetics Inc. Expertise includes developing new treatments for genetic brain disorders like Huntington's disease & other neurodegenerative diseases.



Sabrina Leslie

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



John Lewis

Professor, Department of Oncology, Faculty of Medicine & Dentistry, University of Alberta, Translational Prostate Cancer Research Group. Expertise includes intravital imaging of the tumour microenvironment, & the evaluation of novel nanoparticles for the diagnosis, treatment, & study of prostate cancer.



Shyh-Dar (Star) Li

Professor of Nanomedicine and Chemical Biology, Faculty of Pharmaceutical Sciences, UBC; NMIN Research Leader (Theme II). Expertise includes developing innovative drug delivery systems to enable novel therapies.

SPEAKERS & MODERATORS



Helen Loughrey

Innovation Investment Advisor, National Research Council Canada. Expertise includes R&D; life science industry needs; building partnerships with Pharma, Biotech, Research organizations, governments, & foundations; negotiation; & leadership by enthusiasm.



Larry Lynd

Professor & Dean *pro tem*, Pharmaceutical Sciences, UBC. Expertise includes the integration of epidemiologic and health economic analyses on health outcomes & early health technology assessment, & the testing & treatment of rare diseases & multiple sclerosis.



Arash Momeni

Post-doctoral Fellow, Cullis Lab, UBC. Expertise includes nanoparticles; inorganic & organic chemistry & their application in the biomedical field; & developing nanoparticles for lipid-based platforms with a triggered release potential.



Samantha McWhirter

CEO, NorthMiRs Inc. Expertise includes bioanalytical nanotechnology, with particular interest in using gold nanoparticles for leukemia diagnostics.



Parimal Nathwani

President & CEO, Toronto Innovation Acceleration Partners (TIAP); NMIM Board Director. Expertise includes various aspects of the biotechnology industry including corporate finance, business development, transactions, intellectual property management, technology development & operations.



Michael Parr

Director, Formulation and Process Development, Evonik Canada. Expertise includes drug delivery systems, formulation, viral vector design, GLP & GMP activities & clinical development.



Rahbar Rahimpour

Director, R&D Strategic Alliances, Moderna Canada. Expertise includes biomedical, biotechnology and life sciences, spanning R&D, project management, business development, IP, innovation, financing, strategy development, innovation, leadership & management, start-up & entrepreneurship.



Colin Ross

Professor, Pharmaceutical Sciences, & Acting Associate Dean, Research, UBC. Expertise includes pharmacogenetics, genomics, drug development, drug safety, adverse drug reactions, predictive genetics, & genetic/clinical factors of drug response.

SPEAKERS & MODERATORS



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; & meeting facilitation.



Zahra Sepahi

PhD Candidate, Biomedical Engineering, University of Toronto. Expertise includes nanoparticle-protein interactions & nanoparticle drug delivery design.



Erika Siren

CEO, Seragene Therapeutics. Expertise includes rare disease & women's health, & developing RNA-based therapies for treating blood coagulation disorders using Seragene's promising nanomedicine technology.



John Stylianou

Director of Biology, adMare BioInnovations. Expertise includes leading cross-functional project teams to drive the progress of biomedical innovation with the potential to yield groundbreaking therapeutics.



Gilbert Walker

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



Ellen Wasan

Associate Professor, College of Pharmacy and Nutrition, University of Saskatchewan. Expertise includes pre-formulation, early-stage drug development & lipid-based drug delivery systems for applications in infectious disease.



Kaley Wilson

Director Business Development and Principal, Quark Venture. Expertise includes identifying and performing due diligence on potential investment opportunities in health science, growing companies & implementing global sales & marketing strategies.



David Wishart

Professor, Biological Sciences, University of Alberta. Expertise includes metabolomics, analytical chemistry, food chemistry, natural product chemistry, molecular biology, protein chemistry & neuroscience.

SPEAKERS & MODERATORS



Bruce Verchere

Professor, Pathology & Laboratory Medicine & Surgery, UBC; Investigator, Childhood Diabetes Labs, BC Children's Hospital Research Institute; Director, Centre for Molecular Medicine & Therapeutics. Expertise includes pancreatic islet function & dysfunction in diabetes; developing therapeutics to attenuate immune responses & improve & restore insulin production in diabetes & after transplantation.



Sherry Zhao

Regional Director, Pacific, Mitacs. Expertise includes working with major industry clients to support their innovation pipelines.



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Be included!

To facilitate collaborative research among nanomedicine researchers Canada-wide...

NMIN is creating an online database of Canadian nanomedicines researchers and the areas of expertise in their labs.



Thank you for supporting this important legacy initiative, intended to facilitate collaboration among nanomedicine researchers and labs—within and beyond the NMIN Network, now and in the future.

Afsaneh Lavasanifar

Associate Scientific Director, NMIN; Professor, Pharmacy & Pharmaceutical Sciences, University of Alberta

Liberum

Liberum Biotech

Vision

To improve health of humans, animals, and the environment via sustainable synthetic biology solutions.

Products & Services



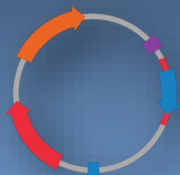
Reagents



Cartridges



Protein Synthesis



Library Design

AI-based protein design meets rapid prototyping

Our cell-free system is the best of its kind and allows for lightening-speed generation of real-world data. Looping in biology means you receive actionable results at lower cost and faster than all currently available solutions.

Liberum makes small-scale protein production 10-100 times faster than conventional methods.

Our technology enables scale-up of cell-free reactions such that milligram scale production of proteins becomes viable.

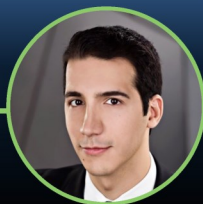
Our products and services can support and accelerate the protein discovery efforts of your industrial biotech company, pharmaceutical company, or academic lab.

liberumbio.com

PROTEIN DISCOVERY >> ACCELERATED

By combining machine learning with cell-free biology, we make enzyme and antibody discovery easier, faster and less expensive.

Leadership



Aidan Tinafar
Co-Founder & CEO



Alexander Klenov
Co-Founder & TEO



Keith Pardee
Co-Founder

Liberum Biotech

199 - 151 Charles Street W,
Kitchener, Ontario

aidan@liberumbio.com
liberumbio.com

NorthMiRs



NorthMiRs Inc.

Vision

To address the underlying immune dysregulation of sepsis using nanotechnology-enabled gene therapies.

Problem

Sepsis is an exaggerated, systemic immune response to an infection that often leads to multiple organ failure. Patients with sepsis-induced cardiac dysfunction experience high mortality rates, lengthy recovery times, and serious long-term effects.

Sepsis is the most common cause of death in critically ill patients and the most expensive reason for hospitalization.

The current standard of care for sepsis is inadequate. NorthMiRs aims to change this.

NorthMiRs Inc.

80 Saint George Street, Toronto ON, M5S 3H4 Canada
Samantha.McWhirter@northmirs.com

NorthMiRs' team provides comprehensive expertise from benchtop to clinic.

NorthMiRs' therapeutic is the **most effective and comprehensive solution** because it uses **unique microRNAs** to regulate the immune response of the host.

Solution

From prior work in mesenchymal stem cell therapy for sepsis, NorthMiRs has determined the key components responsible for the therapeutic effects and refined them into a stable, synthetic, and scalable package.

miRNA regulates protein synthesis, some of which is associated with disease. NorthMiRs has identified specific miRNA whose levels are reduced in the hearts of septic patients. Lipid nanoparticle delivery of this specific miRNA ensures the efficacy of therapy. NorthMiRs' lead candidate, NM-001, has been shown to be anti-inflammatory, anti-microbial and protects organs from injury.

TREATING SEPSIS >> SAVING LIVES

NorthMiRs' lead candidate, NM-001, is using miRNA to heal the hearts of septic patients at risk of multi-organ failure.

Founding Team

Formulation experts



Gilbert Walker
Expert in
nanoparticle design



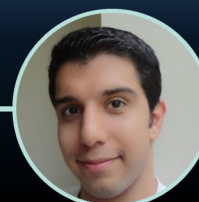
Samantha McWhirter
CEO



Logan Zettle
Formulation
Scientist



Claudia dos Santos
Clinician-scientist expert
in acute lung injury



Amin Ektesabi
Preclinical
Scientist



Chirag Vaswani
Preclinical
Scientist

Preclinical research experts



SeraGene Therapeutics Inc.

Vision

A world where no person at risk of bleeding or thrombosis is denied the protection they need.

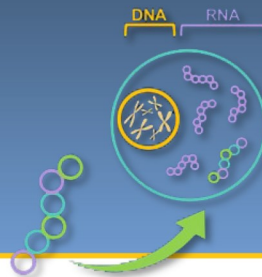
Mission

To create next generation RNA therapies that provide long-lasting protection for all patients with bleeding disorders or at risk of thrombosis, including those ineligible for current therapies.

Core Technology

RNA agents that modulate the level of specific coagulation factors in blood to prevent and treat bleeding and thrombosis.

SeraGene's therapeutics modulate the amount of specific coagulation proteins in the blood.



SeraGene Therapeutics harnesses nanomedicine technologies to develop the next generation of hematological therapeutics.

SeraGene leverages an expansive network of thought leaders and hematology clinicians and researchers, and a library of intellectual property on RNA delivery.

Providing long-lasting therapies that protect patients from chronic bleeding and thrombosis—and the associated long-term effects—improves patient quality of life, and provides value to the medical system by saving the time of healthcare professionals and reducing each patient's health burden.

SeraGene Therapeutics Inc.

Vancouver, BC, Canada

a.stirilchuk@seragenetx.com

RNA THERAPIES >> TO TREAT BLEEDING DISORDERS & THROMBOSIS

SeraGene's RNA agents are targeted to correct coagulation disorders long-term.

Leadership



Erika Siren
CEO



Amy Strilchuk
Director, Partnerships



Lin Jiin Juang
Director, CSO



Christian Kastrop
Board Chair



Pieter Cullis
Director



Katherine Badior
Co-Founder



VEGA BIOIMAGING

An NMIN spin-off company



Vega BioImaging Technologies Inc.

Vision

To enable precision medicine in cancer through precise biopsy characterization

Mission

To provide novel immunolabelling that allows quantitative and multi-target protein detection for a personalized cancer diagnosis

Core Technology



Multiplexed nanoparticle-based immunolabelling (US10.239.122) that allows for unprecedented sensitivity and protein quantitation

Compatible with standard FFPE samples and H&E routine!

Vega BioImaging provides reliable and sensitive companion diagnostic tests for cancer



Pharmaceutical firms obtain reproducible testing that improves patient stratification



Pathologists acquire more accurate patient profiles more quickly



Patients receive the treatment most appropriate for their profile

vegabioimaging.com

PROTEIN QUANTITATION >> FOR MORE ACCURATE DIAGNOSTICS

Providing precise results quickly, to empower researchers & clinicians

Leadership



Cécile Darvot
Co-Founder & CEO



Arnaud Latreille
COO



Julien Fillion
AI Lead



Sergiy Patskovsky
Co-Founder



Michel Meunier
Co-Founder


Vega BioImaging

Montreal, QC, Canada

cecile@vegabioimaging.com

vegabioimaging.com

NANOVATION therapeutics™

An NMIN spin-off company 

Vision

To improve patient outcomes by improving the safety, cost-effectiveness and scalability of current and future gene therapies.

Mission

To develop next-generation platform technologies using lipid nanoparticles (LNPs) for the safe and efficient delivery of nucleic acids to a variety of tissues.

Portfolio

- Novel, proprietary, economical **lipids for nucleic acid delivery** with proven efficacy *in vivo* and *in vitro*
- **Lipid nanoparticle (LNP) formulations** to encapsulate a variety of payloads (siRNA, mRNA, pDNA, etc.)
- Novel proprietary **RNA caps** that greatly increase the efficiency of mRNA translation
- Different **mRNA constructs**

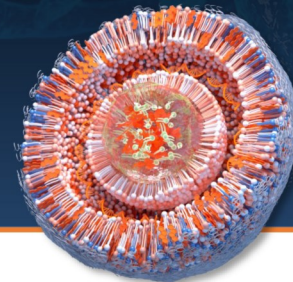
NanoVation Therapeutics™ (NTx) provides a one-stop IP portfolio to empower the development of genetic medicines.

We partner to deliver genetic medicines, beginning with mRNA synthesis and LNP formulation, through to ensuring efficacy, potency and safety, and culminating with the option for our partners to license customized platform technologies.

Toolbox

Our toolbox has two components:

- **Cargo**, comprised of mRNA modifications, and
- **Delivery Systems**, comprised of unique ionizable lipid libraries, LNP compositions, and surface modifications



**WE INNOVATE
WE DELIVER**

NTx is delivering tomorrow's genetic medicines, TODAY™

NanoVation Therapeutics™

4th Floor, 2405 Wesbrook Mall, Vancouver, BC V6T 1Z3, Canada
nanovationtx.com

Leadership



Pieter Cullis
Co-Founder, Board Chair



Marco Ciufolini
Co-Founder, VP Chemistry



Dominik Witzigmann
Co-Founder, CEO



Jayesh Kulkarni
Co-Founder, CSO



Eric Jan
Co-Founder

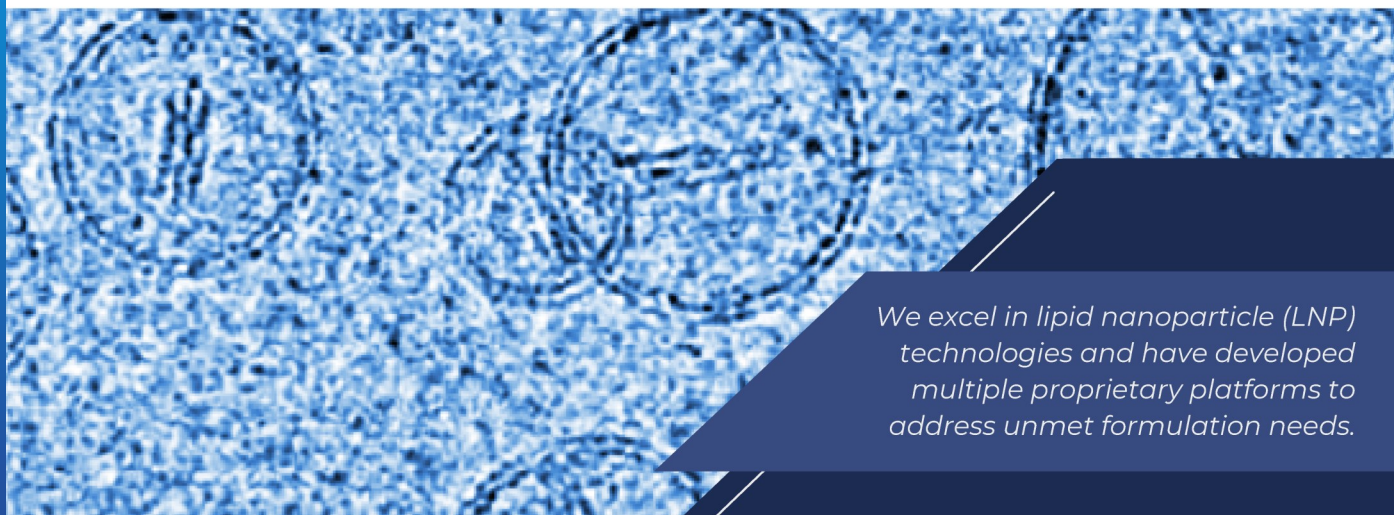


Christian Kastrup
Co-Founder



NanoStar
Pharmaceuticals

ENABLING NOVEL THERAPIES
THROUGH DRUG DELIVERY



We excel in lipid nanoparticle (LNP) technologies and have developed multiple proprietary platforms to address unmet formulation needs.

WE OFFER:

NanoStar crafts innovative polymers and lipids and uses advanced engineering methodologies to formulate drug-loaded nanoparticles that precisely target tissues and cells.

We are overcoming drug delivery challenges in order to treat conditions that currently have limited therapeutic solutions.

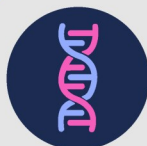
CONTACT US



info@nanostarpharma.com



2405 Wesbrook Mall
Vancouver, BC
Canada, V6T 1Z3



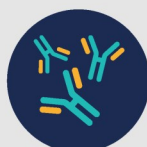
LNPS FOR NUCLEIC ACIDS

- Clinically approved LNP formulations & in-house proprietary formulations
- Increased cytosolic release
- In-vivo POC testing & non-GLP scale up



LNPS FOR SMALL MOLECULES

- Development & optimization of liposomal formulation & drug loading
- Micelles, emulsions, & self-emulsifying drug delivery systems
- Increased solubility, enhanced safety, efficacy, & prolonged pharmacokinetics



NEEDLE-FREE DELIVERY OF BIOLOGICS

- Proteins, enzymes, hormones, peptides, polysaccharides, & monoclonal antibodies
- Topical, sublingual, intranasal, & ophthalmic delivery

NanoStar. Start to Cure.

AN NMIN SPINOFF COMPANY





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Expertise Delivers Accelerated RNA-LNP Development

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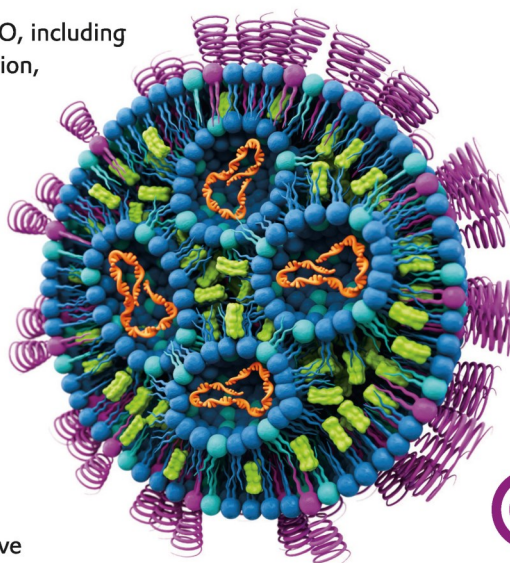
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Gene Delivery
Technologies



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THE MORRIS & ROSALIND

GOODMAN

FAMILY FOUNDATION 

THANKS TO NMIN'S NETWORK MEMBERS & THE NCE PROGRAM



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MONTRÉAL**



Queen's
UNIVERSITY



**UNIVERSITÉ
LAVAL**



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Toronto Western
Princess Margaret
Toronto Rehab
Michener Institute



**UNIVERSITY OF
ALBERTA**



**THE UNIVERSITY
OF BRITISH COLUMBIA**



**UNIVERSITY OF
TORONTO**



**UNIVERSITY OF
SASKATCHEWAN**



**University
of Victoria**



**UNIVERSITY OF
WATERLOO**



NCE

Networks of Centres
of **Excellence** of Canada

The background of the entire page is a dark blue gradient. At the top, there is a lighter blue horizontal band containing a stylized molecular structure. This structure consists of several spheres of varying sizes, some with a textured, crystalline surface, connected by thin, light blue rods. The overall aesthetic is scientific and modern.

NM_{IN}

#NMIN2024
nanomedicines.ca