



NMIN's Grand Challenges

NMIN's third call for research funding proposals is centred on its Grand Challenges Program. Two research and development foci frame the associated Call for Expressions of Interest (EOI):

- Thrust 1: The 1000-fold Efficacy Challenge, and
- Thrust 2: Targeted Gene Therapies

NMIN's Grand Challenges Program has a \$3M funding envelope to support large, multidisciplinary project teams that address major basic and applied research questions whose resolution will keep Canadian researchers at the forefront of innovation in nanomedicine technologies.

These funds are intended to provide support for exciting, ambitious programs of research that offer enormous potential benefit.

It is expected that this program will build upon the outcomes of NMIN's initial research investments (Rounds 1 and 2, 2019-2020) and will enable recruitment of new investigators with specialized expertise.

The call for EOIs was issued on 2 September 2021, and two "town hall" meetings, one for each Thrust, were held online with NMIN investigators on 10 September to discuss the details of the call.

Thirteen (13) EOIs were received by the program's 20 September 2021 application deadline.

These 13 EOIs will be reviewed by NMIN Research Leaders, and discussed with selected applicants in in-person program development meetings in October 2021.

Integrated EOIs comprising a broader program of research will be reviewed by the Research Management Committee (RMC) and invitations will be issued to Grand Challenges teams in each Thrust to submit a full application later in 2021 for external review, RMC feedback, and funding recommendations to the Board.

Final funding decisions will be announced in early 2022.

MESSAGE FROM THE EXECUTIVE DIRECTOR

A survey of nanomedicine-related organizations undertaken mid-2021 by [Nanomedicine Canada](#), which was recently established by [NanoCanada](#) with support from [NGEN](#), revealed that respondents experience three common challenges/obstacles to growth.

In priority order, these are:

- access to funding;
- access to collaborative opportunities; and
- access to highly qualified personnel.

Other more organization-specific challenges identified include: access to pilot/testing services, global markets, and Canadian manufacturing capabilities; understanding the regulatory environment; and support for clinical trials.

In response to these needs, Nanomedicine Canada, with input from a Steering Committee on which I serve as NMIN's representative, is spearheading the formation of a national nanomedicines cluster to strengthen Canada's nanomedicines ecosystem.

Nanomedicine Canada is also building a centralized nanomedicines cluster participant database. This repository will facilitate information-sharing, collaboration and partnership

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Dr. Warren Chan: new co-leader of Theme III

NMIN's Scientific Director Dr. Christine Allen has named Dr. Warren Chan the new co-leader of NMIN's Theme III: Diagnostics research team.

Dr. Chan succeeds Dr. Shana Kelley, who stepped down from the role in June 2021, and joins Dr. Gilbert Walker, who has been the Theme's co-leader since the Network's inception.



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development to help position Canadians as world leaders in the advancement of nanomedicines and as partners of choice for international collaborations.

As Canada's national Networks of Centres of Excellence (NCE) in nanomedicines innovations, NMIN is actively contributing to the development of a national nanomedicine ecosystem.

NMIN's investments in national teams of investigators conducting nanomedicines research with high commercial potential are fostering development of the next generation of scientific and business leaders in the field, and catalyzing new multidisciplinary and



cross-sectoral relationships across laboratories, institutions, disciplines, sectors and generations that will persist beyond NMIN's NCE funding lifetime, which ends in 2024.

In this newsletter, I am pleased to share numerous examples of NMIN's investments in capacity building and networking that will contribute to the development, maturation and leadership of Canada's nanomedicines innovation ecosystem—in addition to realizing the achievement of our Network's vision, mission and NCE mandate.

Dr. Diana Royce, Ed.D.
Executive Director, NMIN

Enquiries or comments

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RESEARCHER NEWS

NMIN Investigator Dr. Shana Kelley has been appointed as a Fellow of the Royal Society of Canada – a recognition awarded to Canada's most distinguished scholars, artists and scientists.



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NMIN Investigator Dr. Devika Chithrani's article in *Conversation* on her NMIN-supported research was the highest read article for the month of June and was also carried by UVic's "Ideas in Action," *The National Post* and *The Daily Beast*.



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NMIN Investigator Dr. Sabrina Leslie has been awarded CFI funding to set up a single-molecule and single-cell microscopy platform for therapeutics research and development at the University of British Columbia.



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NMIN Research Leader Dr. Pieter Cullis and the contributions of his research to the development of mRNA vaccines continue to garner high-profile recognition, most recently in *Forbes*, *Nature*, and *Nature Reviews Materials*.



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NMIN Investigator Dr. Sarah Hedtrich's forward-looking work developing human-centred 3D organ models—'organs on a chip'—to potentially replace insufficiently predictive animal models profiled in *Trek*.



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NEW NanoCore ADMINISTRATIVE LEAD

Effective 1 October 2021, **Dr. Karen Chan** (BSc, PhD) assumes the role of Administrative Lead for NMIN's NanoCore core facility.

She succeeds **Dr. Dominik Witzigmann**, who is now the Co-Founder and CEO of NanoVation, an NMIN spin-off company.



Dr. Chan is a Postdoctoral Fellow in the Cullis Lab at UBC. She can be contacted at kytchan@mail.ubc.ca.

NMIN's Highly Qualified Personnel (HQP) Program

HQP Research Presentations

The fifth round of this series highlighting NMIN research and the presentation skills of NMIN HQP took place on 30 September.

Round 5
NMIN HQP Research Presentations



Wanda Janaeska
University of Toronto



Presley MacMillan
University of Toronto



Jennyfer Zapata-Farfan
Polytechnique Montreal

VIDEOS & POSTERS

HQP AWARDS & PROFESSIONAL ACTIVITIES

NMIN HQP Dr. Noor Aibani won a 3rd place poster award at the Controlled Release Society (CRS) 2021 annual conference for her poster: [Design and in-vivo evaluation of lipid nanoparticles with a triple adjuvant to achieve enhanced immunity against Bordetella pertussis.](#)



NMIN HQP Dr. Miffy Cheng presented a talk as part of 2021 Vancouver Nanomedicine Day, on the topic [Customizable multifunctional metal nanotexaphyrin as a radio-theranostics agent for cancer imaging and therapy.](#)



EVENTS

Recent NMIN Lectures

Designing nanomaterials for therapeutics & biosensing
28 September 2021



Dr. Molly Stevens
Professor of Biomedical Materials and Regenerative Medicine, and Research Director for Biomedical Material Sciences at the Institute of Biomedical Engineering, Imperial College London

VIDEO

Lipid & RNA Nanomedicines to Control Bleeding & Thrombosis
21 September 2021



Dr. Christian Kastrup
Associate Professor, Biochemistry and Molecular Biology
Michael Smith Laboratories, UBC

VIDEO

Vancouver Nanomedicine Day 2021

NMIN supported this annual event, organized by Dr. Urs Hafeli (UBC), for the 3rd consecutive year.

The six-hour event included presentations by NMIN investigators Drs Afsaneh Lavasanifar and Blair Leavitt, and by NMIN HQP Dr. Miffy Cheng. NMIN investigators Drs Colin Ross and Star Li served as session moderators, and NMIN Executive Director Dr. Diana Royce updated attendees on the Network's accomplishments.

The keynote speaker, Dr. Drew Weissman, discussed his work on LNP-based mRNA therapies, which involved collaboration with NMIN Research Leader Dr. Pieter Cullis; contributed to the development of COVID-19 vaccines; and won Dr. Weissman the 2021 Horwitz Prize.

Over 700 people from 40 countries registered for the event.

The event program, presentation abstracts, speaker details and numerous video recordings of the presentations are available on the [event webpage](#), hosted on NMIN's website.

AN ONLINE EVENT
Virtual VANCOUVER NANOMEDICINE DAY
September 16, 2021
University of British Columbia
Vancouver, BC



KEYNOTE SPEAKER
Drew Weissman
University of Pennsylvania, USA

NMIN SPEAKERS
Afsaneh Lavasanifar
University of Alberta
Blair Leavitt
University of British Columbia

INVITED SPEAKERS
David Brayden
University College Dublin, Ireland
Anna Rosell
Vall d'Hebron Institute of Research, Barcelona, Spain

VIRTUAL EVENT

For questions:
URS.HAFELI@UBC.CA

<https://www.nanomedicines.ca/nmd-2021/>

VIDEOS



Webinars cultivate an entrepreneurial mindset

NMIN's three-part webinar series "Business Models for NanoMedicine Researchers" leveraged experts from SFU's Invention to Innovation program (i2I) and Chang Institute for Entrepreneurship to offer researchers and trainees insight on securing funding and employment, commercializing their research, and becoming scientific entrepreneurs.

[Recordings of the webinars are available on NMIN's website.](#)

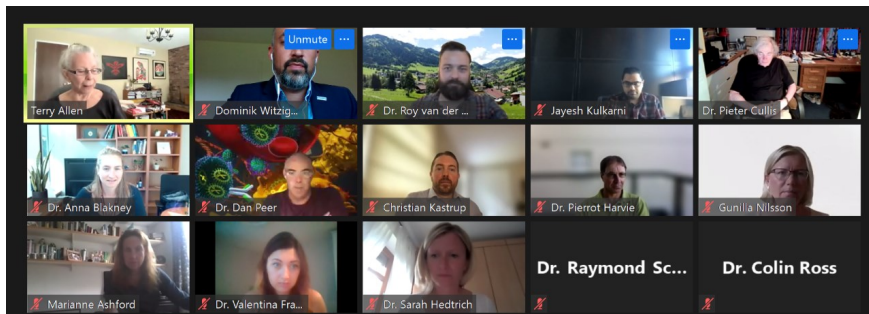
NMIN-AstraZeneca workshop at CRS 2021

"Lipid nanoparticle technology to Enable Nucleic Acid Therapeutics and Vaccines," the NMIN-AstraZeneca co-organized Industry Educational Workshop held as part of the 2021 Controlled Release Society (CRS) annual meeting, attracted over 300 registrants from 40 different countries and featured over 20 leading researchers in the field, including a number directly involved in the development of successful mRNA vaccines for COVID-19.

Overwhelmingly positive participant feedback characterized the event as "excellent," "wonderful and informative," and as "a fantastic session with great talks and discussion." Over 100 questions were fielded from participants over the course of the seven-and-a-half hour program.

"We hoped to generate a discussion about the potential of LNP-RNA technology and, based on the participants' response, the topic was clearly very timely," comments event co-organizer Dr. Dominik Witzigmann, Co-Founder of NanoVation, an NMIN spin-off company that has created 11 new jobs to date.

"I think the biggest thing attendees took away from the workshop was that LNPs can function as a 'plug and play' platform for developing new RNA vaccines and therapeutics," adds fellow co-organizer Dr. Valentina Francia (NMIN's Theme II: Gene Therapy Accelerator).



Details about the event program and speakers can be found on the [NMIN website](#). Recordings of all CRS 2021 sessions, including the sessions of this workshop, can be accessed [on-demand through CRS](#).

Upcoming NMIN Events

Due to ongoing pandemic concerns, NMIN's 2021 Trainee Symposium and Scientific Meeting will *not* be held as in-person events this fall, as previously planned.

NMIN's 2021 Trainee Symposium will be delivered as a series of virtual events through fall/winter 2021-22. The **2022 Trainee Symposium** will be held as in-person event 16-17 November 2022 in Toronto.

The NMIN Scientific Meeting has been postponed to 17-19 November 2022, at the King Edward Hotel in Toronto.

Please direct questions or concerns to the NMIN HQP & Events Coordinator, Leah Graystone: leahgraystone@nanomedicines.ca



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[@NMIN_NCE](https://twitter.com/NMIN_NCE)

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