



30 June 2021

A parting message from NM_{IN}'s founding Scientific Director & CEO

Over three years ago, we collectively launched a national endeavour to unite and to accelerate development of the nanomedicines and biotechnology communities across Canada.

OVERCOMING OBSTACLES

The enormous undertaking of preparing an NCE application took about a year and a half, from early 2017 to August 2018. With NM_{IN} being one of the few selected for funding came the monumental task of getting the whole thing up and running, which we did in record time thanks to our remarkable team. The first two rounds of funding were just out the door when the pandemic hit.

Reflecting on developments since NM_{IN}'s launch in January 2019, we have had an eventful few years, and had to overcome a number of obstacles. The initial pandemic shutdown in early 2020 posed significant challenges for virtually every lab across Canada and it's a testament to the enthusiasm of our members that, despite this, we have come together in a purposeful way and have kept NM_{IN} research advancing at an impressive pace.

Most importantly, we have truly managed to unify the community: people who weren't talking together much before are doing so now, and out of this interdisciplinarity comes real innovation.

CREATING COMMUNITY

I'm most proud of this: we're bringing together people with world-class expertise in different areas, and from this, new therapeutics and diagnostics are emerging. For example, we are connecting experts in the most advanced delivery technologies with experts in advanced animal models or microbiology, allowing us to do gene editing more precisely and to express a protein that might be missing in a hereditary disease.

This, too, is a function of NM_{IN}'s core facilities, Nanocore and Pharmacore, which bring together complementary forms of expertise to enable important discoveries and advances. Because of this collaborative context, in our network we can see gene therapy in the eye coming into focus, and we're getting close to enabling triggered release of small molecule drugs in the region of a tumor, and to using gene therapy in tissues other than the liver—like in bone marrow or the lung. Working collaboratively, we have begun initiatives in these areas that I'm convinced will lead to new therapeutics.

It's an enormously exciting endeavor that we've embarked on together.

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NM_{IN} welcomes new Scientific Director & CEO

Dr. Christine Allen
University of Toronto

NM_{IN} welcomes Dr. Allen as its new Scientific Director & CEO, effective 1 July 2021. An internationally recognized researcher in nanomedicines and a pioneer in the development of image-guided drug delivery, Dr. Allen has been involved with NM_{IN} since its initial planning phase.

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NM_{IN} thanks Dr. Shana Kelley for Diagnostics Theme leadership

Dr. Shana Kelley, NM_{IN}'s *Theme III: Diagnostics* research co-lead since the Network's inception, is moving on effective 30 June 2021.

Dr. Kelley's responsibilities as Director of the University of Toronto's Precision Medicine initiative ([PRiME](#)), which she founded in 2019, and the growth of her two start-up companies ([Arma Biosciences](#) and [Cellular Analytics](#)), unfortunately preclude her continuation as an NM_{IN} Theme Leader.



NM_{IN} Board members and staff, as well as Dr. Kelley's fellow research leaders and NM_{IN} colleagues, thank her for her invaluable contributions to NM_{IN}'s start-up and research program leadership.

Dr. Kelley will remain a Network investigator and continues to serve as PI on two [NM_{IN} projects](#).



Two new papers on LNPs

NM_{IN}-supported research using lipid nanoparticles (LNPs) was recently featured in two publications emerging from the labs of UBC-based NM_{IN} researchers Drs Pieter Cullis and Dominik Witzigmann.

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A parting message from NMIN's founding Scientific Director & CEO—continued

I often say that what we're working on here is the third generation of pharmaceuticals. The first generation was small molecule drugs, the second generation was biologics, and now we're working on gene therapies and precision delivery of small molecule drugs. In essence, all diseases are now coming into focus using these systems: everything from Alzheimer's to Parkinson's to cardiovascular disease to cancers. All of these disorders are now becoming very attackable.

UNLIMITED POTENTIAL

For a young investigator, this is a time of remarkable opportunity. We are finally developing the tools to go after diseases at their core. We're not trying to treat things symptomatically and suppress the symptoms; we're going after the root causes and trying to correct the mechanisms.

Of course, lipid nanoparticles have now very much become a topic of interest—and not just of scientific interest, but of interest to the global public thanks to the crucial role of LNPs in COVID vaccines. It's as if we've broken through the opposition and it's open field running right now; we have to have to take advantage of this. Enormous resources are pouring into this area, with new companies starting up, and the prospects for future employment couldn't be better. There's unlimited potential in terms of not just academic jobs, but in employment in these industries of the future.

What a pleasure it's been for me to see this field explode as it has. I've been working in the field for 40 years and only in the last few has the potential of lipid nanoparticles been fully recognized. It illustrates the importance of sticking with it—and of sticking together: in the early '80s, it was just me and four other postdocs in the lab, but we've stuck together all these years and our success would not have been possible without that long-term association... and a little luck. From the point of view of my personal journey, it represents an amazing culmination of my research career.

PULLING DISCOVERIES OUT OF THE LAB

As I leave the role of NMIN's Scientific Director, I plan to move to the "other side." In NMIN we're producing new technologies and new abilities to treat disease, and we're trying to push these innovations out, trying to interest companies in licensing products or forming start-ups around them. This is the side that needs more attention. I've started something in the range of 11 companies and I really enjoy the whole start-up scene, so I anticipate moving to a much greater degree to this side of the innovation equation.

I hope to get a small fund together and to focus particularly on the activities of NMIN to provide some "pull"—pulling the various discoveries out of NMIN and commercializing them in one small start-up company. I believe that is what is needed now: not just the push of the new science that's evolving, but also the pull. If something is ready for prime time, let's make it happen. And I want to contribute to the pull, not just in terms of marshalling the money; I think it's very important for scientists to be directly involved in these start-up enterprises, to be part of selecting the teams and providing mentorship.

I also find myself in the position where people actually ask me for advice, so I give it. In terms of government investment in this area, I think I can be quite instrumental in trying to pull additional resources into this field. And universities are now recognizing that this is an area they should emphasize more from training and other points of view. Influencing things in these arenas is a real and present opportunity.

SHARED JOURNEY

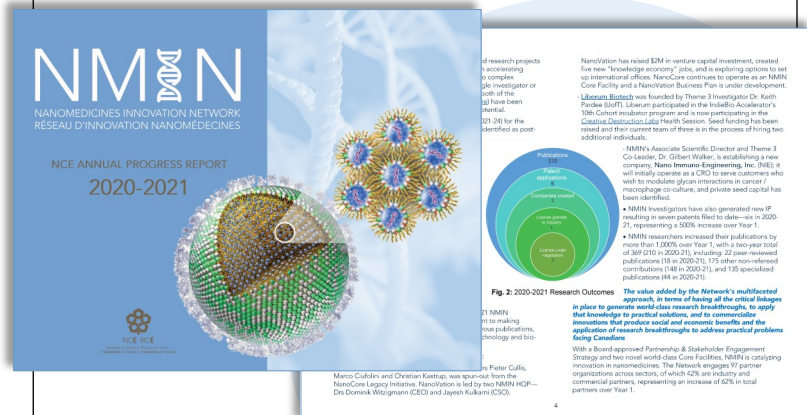
But as I move on to these new challenges, I will also remain very involved in NMIN as a researcher and research leader. I'm proud of what we have built together and grateful to all the members of NMIN who have helped us arrive at where we are today: our Board members, our researcher leaders, our investigators, our trainees, our partners and our staff.

The incoming Scientific Director is bringing fresh ideas and will move NMIN forward. I'll be here to contribute if needed but I expect it will be a seamless transition, and I look forward to our continuing this journey together.

Dr. Pieter Cullis, PhD., FRSC, FNAI (USA)
Scientific Director & CEO, NMIN

Dr. Cullis steps down as NMIN's Scientific Director & CEO effective 30 June 2021.

NMIN Report compiles 2020-21 accomplishments



NMIN submitted its second Annual Progress Report to the NCE on 15 June 2021, summarizing the network's progress as of the end of 2020-21.

Among the accomplishments reported: NMIN has made 32 research investments, including 24 research projects, 2 commercialization-facilitating research platforms, and 6 strategic research initiatives (including two COVID-19-related projects) resulting in 7 patents filed and 369 publications.

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Up-coming NMIN Research Planning Workshops

Theme I (Targeted Drug Delivery) and Theme II (Gene Therapy) workshops will be held on 21 and 7 July 2021, respectively, with the participation of Theme I & II PIs, their trainees, and NMIN Research Leaders, to discuss research plans and progress.

NanoCore partners with Precision NanoSystems

NMIN's NanoCore core facility has established a partnership with Precision NanoSystems Inc. (PNI) that will enhance the Core's capacities while offering training opportunities to HQP and researchers. The partnership entails the provision by PNI of two specialized instruments to a UBC lab for NMIN's use.



An expert team to boost NMIN's translational efforts

A team of renowned experts in IP development, protection and commercialization will serve on NMIN's newly formed Commercialization Advisory Board (CAB), to assess applications and provide advice and mentorship to NMIN investigators.

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Building a Canadian Nanomedicine Cluster

NMIN is collaborating with its partner organization NanoCanada to build a Canadian Nanomedicine Cluster that will offer a hub for collaboration and partnerships, provide a database of expertise and capabilities, and showcase Canada's leadership on the global stage.

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NMIN-AstraZeneca workshop on LNPs

Don't miss this workshop, part of the CRS 2021 Annual Meeting, featuring academic and industry leaders.

[Details available on NMIN's website.](#)



Lipid Nanoparticle Technology is Revolutionizing Nucleic Acid Therapeutics and Vaccines

A CRS Industry Educational Workshop

co-organized by AstraZeneca and the NanoMedicines Innovation Network (NMIN)
as part of the 2021 CRS Virtual Annual Meeting

28 July 2021 | 12-9 pm EDT

<https://www.nanomedicines.ca/crs-industry-workshop/>

NMIN Researcher News



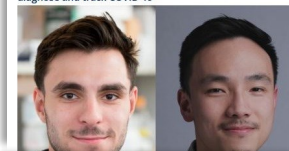
Dr. Pieter Cullis interviewed on CBC's [Quirks & Quarks](#) on the role of his research in COVID-19 vaccines.

'We need to prepare': U of T's Christine Allen on investing in biomanufacturing, life sciences research



Dr. Christine Allen interviewed in [UofT News](#) on investing in biomanufacturing and life sciences research.

Researchers develop quantum dot smartphone device to diagnose and track COVID-19



Development in Dr. Warren Chan's lab of a quantum dot smartphone device to diagnose and track COVID-19 featured in [UofT News](#).

U of T precision medicine program offers training in cross-disciplinary science



Drs. Shana Kelley and Christine Allen [discuss cross-disciplinary precision medicine training program](#) at Uof T.

MOLECULAR YOU SIGNS AGREEMENT FOR ROCHE TO USE ITS MOLECULAR PROFILING TECHNOLOGY

Published: June 01, 2021
Vancouver, BC - June 1, 2021 - Molecular You, the Vancouver-based data-driven health intelligence company, today announced the signing of a Master Services Agreement with Hoffmann-La Roche Limited (Roche Canada). This agreement enables Roche to use Molecular You's comprehensive molecular profiling technology.

Dr. Pieter Cullis [discusses the agreement](#) between his precision medicine company Molecular You and Roche.

CONTROLLED RELEASE SOCIETY
CRS 2021
VIRTUAL ANNUAL MEETING
BREAKTHROUGH DELIVERY SCIENCE
July 25-29, 2021
Sponsored by NMIN | Program coming soon
[MORE INFORMATION](#)

NMIN Lecture with Dr. Afsaneh Lavasanifar

The third NMIN Lecture was held on 29 June 2021 with NMIN investigator Dr. Afsaneh Lavasanifar (University of Alberta) presenting on "Nano-delivery of Novel Inhibitors of DNA Repair for Enhanced Cancer Therapy."

Over 36 people attended; survey respondents ranked it an average of 5/5 for overall usefulness.



[Watch the video](#)

Round 3 of NMIN's HQP Presentation Series took place on 27 May 2021. [View the posters and presentations.](#)

Next: HQP Research Presentations Round 4
29 July 2021 12:30-1:30 pm PDT | 3:30-4:30 pm EDT

[More information](#)

HQP Research Presentation Series ROUND 3



Kent Chen
Cuprous Pharmaceuticals



Sheldon Decombe
U of T



Forugh Sanadeh
U of T

NMIN Postdoctoral Fellowship in Diagnostics awarded



With NMIN investigator Dr. Warren Chan (University of Toronto), Dr. Yih Yang (Ian) Chen is developing an at-home nucleic acid test for SARS-COV-2.

[READ MORE](#)

Call open for NMIN Postdoctoral Fellowship Award in Gene Therapy

One award, providing a stipend of \$40,000 a year for a maximum of two years, is available in the area of Gene Therapy to enable an exceptional postdoctoral fellow to pursue nanomedicine academic research training with Canadian experts.

Application deadline:
Friday, July 23, 2021

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First recipients of NMIN's Advanced Training Certification fêted

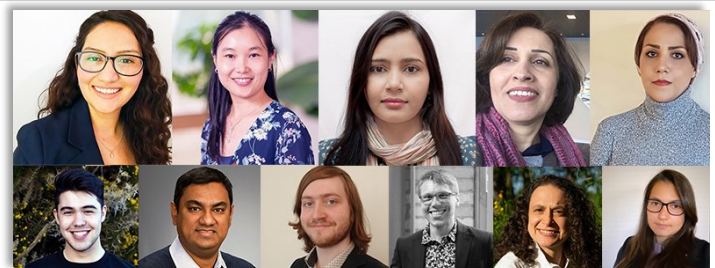
The nine inaugural recipients of "Silver" [ATC certification](#) were recognized in an online ceremony on 29 June 2021, hosted by Executive Director Dr. Diana Royce, and co-hosted by Associate Scientific Director Dr. Gilbert Walker and HQP Program Advisory Committee (HPAC) Chair Dr. Nicolas Bertrand. ATC certification recognizes a high degree of engagement in Network activities.

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Meet the 2021-22 NMIN HQP Leadership Team

The 11 newly elected members of NMIN's HQP Network (NHN) Executive Committee span the country and a range of disciplines. They will play a leadership role in the planning and realization of NMIN's HQP programs and activities and over the next year.

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Inaugural NMIN Undergraduate Studentships awarded

The six inaugural [NMIN Undergraduate Studentship](#) awardees will receive a stipend of \$1,500 a month for a maximum of three months between June 2021 and April 2022, to work on a nanomedicines-related research project under the supervision of an NMIN investigator.

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Newsletter inquiries or comments
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