



### NMIN Grand Challenges, Round 4 Research, & Strategic Initiatives Research & Commercialization Funding

NMIN's three final funding opportunities, aimed at maximizing the impact and legacy of Network research completed to date, are now open to applications from Investigators

**NMIN's Grand Challenges Program** has a \$3M funding envelope to support large, multidisciplinary program teams within two programmatic thrusts.

Of the four Expressions of Interest submitted to this program, the Research Management Committee (RMC) invited two to submit full applications:

**Thrust 1**—The 1000-fold Efficacy Challenge: *Developing nanomedicines to treat lung localized viral infections and associated inflammatory consequences: Development and use of aerosolized nano-medicines (ANM therapeutics)*, led by M. Bally and K. Wasan.

**Thrust 2**—Targeted Gene Therapies: *Development, optimization, and evaluation of novel nanoparticle formulations for extra-hepatic targeted gene therapy*, led by A. Blakney.

Following external and RMC review, final Board funding decisions for this program are expected in May 2022.

**NMIN's Round 4 call for follow-on research funding** supports the extension of completed NMIN Round 1, Round 2, and Strategic Initiatives - Research projects that demonstrate high commercialization and/or clinical translation potential. Matching funds, an achievable two-year timeframe, and a clearly identified commercial or clinical endpoint are required. Applications for up to \$200,000 will be accepted until 30 September 2022 or until the funding envelope for this program is exhausted, whichever comes first.

**NMIN's SI-Commercialization (SI-Comm) program** supports commercialization efforts emerging from existing NMIN-funded research projects, and/or facilitates the development of promising Canadian nanomedicine companies. Multiple applications for different stages of commercialization support are permitted. Applications for one-year grants of up to \$50,000 will be accepted on an ongoing basis up to 31 March 2023. Applications are reviewed by NMIN's Commercialization Advisory Board, which then makes funding recommendations to the RMC.

For further information on these programs, contact NMIN's Manager, Research Administration, Dr. Rasika Kulkarni: [rasikakulkarni@nanomedicines.ca](mailto:rasikakulkarni@nanomedicines.ca).

### MESSAGE FROM THE EXECUTIVE DIRECTOR

With NMIN three-and-a-half years into its five-year NCE mandate (2019-2024), its management, research leaders and Board members have initiated focused discussions on the Network's options for legacy strategies that address the question: How might the momentum of NMIN's vibrant research, innovation and capacity-building activities be maintained and its research, knowledge translation and capacity building assets continue to be leveraged for the benefit of Canada when its NCE funding ends?

Various network legacies have already taken root: Collaborative ties will continue to bind network participants and facilitate ongoing, multi-disciplinary research. A cohort of early-career nanomedicine professionals will emerge from NMIN's trainee network with an arsenal of skills and connections enabling immediate contributions across sectors in this field. Knowledge and new intellectual property (IP) generated by NMIN research teams will lead to additional discoveries, as well as new therapies and diagnostics benefiting the economy and people's health. Companies spun-off from the Network (of which there are currently three) will continue to further advance social and economic impacts of nanomedicine innovations.

Beyond these anticipated "organic" outcomes, NMIN aims to ensure a degree of continuity for the architecture that enabled them: NMIN's programs, Core Facilities and platforms, and its multi-disciplinary and cross-sectoral network structure.

The forms that this continuity might take are varied.

NMIN's Core Facilities ([NanoCore](#), [PharmaCore](#) and [eHTA](#)—profiled elsewhere in this newsletter) could be developed into sustainable academic contract research organizations based in university settings providing services to national and global clientele.

By partnering with existing R&D organizations that secure [Strategic Innovation Fund](#) support, aspects of NMIN's research program could continue as thrusts within a broader national R&D network de-risking early-stage nanomedicine technologies and facilitating their commercialization in collaboration with industry partners.

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Components of NMIN's research and capacity-building programs might also find new life under alternative funding arrangements. For example, NMIN expertise could be channeled into a UBC-led LNP Formulation Hub Initiative; NSERC's [CREATE](#) program might be a future funding option to sustain NMIN's capacity building programs; and SSHRC's [NFRF-Transformation Stream](#) grants could enable continuation of NMIN's research Themes and/or Grand Challenges research program initiatives.

NMIN's leaders are actively exploring these and other post-NCE opportunities.

We invite all members of the NMIN community to contribute ideas to the process of envisioning and planning the network's legacy when its NCE mandate ends.

Please reach out to NMIN's Scientific Director, Dr. Christine Allen, or contact me directly to share your ideas or to inform us of opportunities we could explore to continue to leverage NMIN's potential as a means of advancing the field of nanomedicines beyond the end of its NCE mandate in March 2024

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

**Enquiries or comments**  
[dianaroyce@nanomedicines.ca](mailto:dianaroyce@nanomedicines.ca)

## RESEARCHER NEWS

NMIN Scientific Director Dr. Christine Allen [published](#) an Op-ed in the *Hill Times* about the need for Canada to invest in the life sciences ecosystem to prepare for future health threats.



[READ MORE](#)

NMIN Research Leader Dr. Pieter Cullis received the [VinFuture Prize](#) and was mentioned in the *New York Times* for his contributions to mRNA vaccines; he was also named to the [Order of Canada](#) and in *Vancouver Magazine's* 2022 [Power 50](#) list.



[READ MORE](#)

NMIN Investigator Dr. Shana Kelley was [profiled](#) as a new faculty member by Northwestern University, and [published](#) in *Nature* about her research into treating cancer effectively with a new approach to cell therapy.

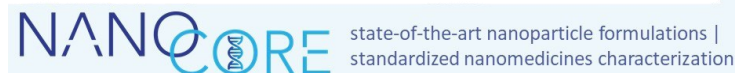


[READ MORE](#)

## PROPELLING YOUR RESEARCH FROM LAB TO MARKET

### NMIN's Core Facilities

The Network's three Core Facilities offer investigators invaluable expertise to help assess the viability of their research plans, and to move their discoveries and innovation swiftly along the pathway to commercialization.



The Translational NanoMedicines Formulation & Characterization (NanoCore) Core Facility supports the preparation of readily manufacturable, potent therapies.

[Introductory video](#) | [Fast Facts](#)



The Preclinical, Scale-up Manufacturing & Project Management (PharmaCore) Core Facility helps identify the best nanomedicines for development, and facilitates collaboration and the formation of companies.

[Introductory video](#) | [Fast Facts](#)



The early Health Technology Assessment (eHTA) Core Facility provides education, coaching, and contract research services on the use of eHTA to inform a broad range of R&D and commercialization-related activities and decisions.

[Introductory video](#) | [Fast Facts](#)

## NEW Theme I ACCELERATOR

As of January 2022, Dr. Nidhikumari Raval (MS, PhD) is the [Research & KTEE Accelerator](#) for NMIN's research Theme I: Targeted Drug Delivery.

Dr. Raval has research expertise in innovative drug and non-viral gene lipid/polymer-based targeted delivery systems.

She also has experience as a regulatory affairs officer with a multinational data science company and as a formulation scientist with a UK-based pharmaceutical company.

She can be contacted at [nidhinraval@gmail.com](mailto:nidhinraval@gmail.com).





## An NMN Research IP Primer

### Tips & facts about managing your Intellectual Property

Connect with your institutional Technology Transfer Office (TTO) early: They're the experts who can help determine next steps and advise on things to avoid (such as premature disclosure).

Use a Technology Readiness Level (TRL) scale: [TRL scales](#) map researchers' projects onto a development timeline, facilitating planning toward commercial end-points.

Keep in mind the five requirements for obtaining a patent—The innovation must be:

- patentable subject matter
- new ('novelty')
- inventive
- useful ('utility')
- without prior use

See NMN's online IP/  
patenting tools

What is in a Portfolio of Documents/Pre-Clinical Technical Dossier? Contents may include: invention disclosure documents, mechanisms of action and safety profile validation, toxicology studies, documents for company spin-out, etc.

Who to inform when you disclose IP: As per the NCE Network Agreement, NMN investigators should simultaneously disclose results with IP potential to their institutional TTO and NMN.

When to reach out – other research outputs: NMN checks in twice a year for information on research outputs, but investigators are encouraged to share project updates at any time with the NMN Administrative Centre or Theme Accelerators.

## NMN IP & Research Outputs by the Numbers

Research outputs to date from NMN-funded projects

**3** spin-off companies  
**16** new jobs created

**4** provisional patents  
**3** invention disclosures

**1** licence granted  
**4** under negotiation

**21** partnership agreements  
**18** portfolios of documents/Pre-clinical Technical Dossiers prepared

## TOOLS FOR ADVANCEMENT

### New resources added to the NMN website

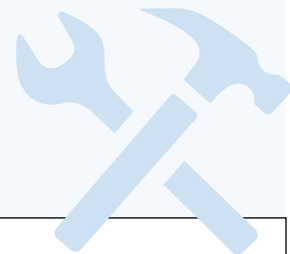
#### Research Commercialization

- Entrepreneurship
- IP Protection
- Company/start-up formation & business models
- Enterprise & research funding: grants, incentives & investors
- Going international

#### Science Communication & KMB

#### Equity, Diversity & Inclusion (EDI)

#### Career Advancement



## PARTNER RESOURCES ON AI

Videos on *The Evolving Landscape of AI Implementation in New Drug Discovery & Development* are available from NMN partner [CQDM](#).



### Scientific Integrity Resource

## Retraction Watch

Tracking retractions as a window into the scientific process

Founded by science writer Dr. Ivan Oransky, MD, this blog provides investigative coverage—and maintains a database—of retractions by scientific journals, to provide insight into cases of scientific fraud and the self-correcting nature of science.

When *Retraction Watch* started in 2010, there were 400 retractions a year in peer-reviewed journals. This number has grown to 3,300 retractions in 2021, a 725% increase.

<https://retractionwatch.com/>

# NMIN's Highly Qualified Personnel (HQP) Program

## Make it simple: Science in clear language

Communicating about your research in accessible, clear language will help you to secure funding and ensure your discoveries have real-world impact. For this reason, NMIN's [\*NanoMedicines Translated\*](#) program offers its HQP expert training in effective science communication.

"The language of the academy and that of everyday conversation are completely different," notes Sylviane Duval, the Knowledge Transfer Professional who facilitates *NanoMedicines Translated*.

"Over many years, it's been my great pleasure to help scientists bridge the gap so they can gain public support for their work and, most of all, translate results into usable tools and knowledge that benefit society."

Sylviane is founder of [\*OpenTheBox\*](#) consultancy, focusing on knowledge transfer and science communications training for researchers. She is also co-founder of the Institute for Knowledge Mobilization and a member of Evidence for Democracy's Network of Experts. She has served on boards supporting the ethical and accessible communication of science (including Plain Language International) and as Vice-President of Science Writers & Communicators of Canada.

"Together, we'll take your publication, boil it down to the nitty-gritties, then build the key messages back up in plain language," explains Sylviane of her role in *NanoMedicines Translated*.

"You will experience a huge sense of satisfaction knowing that, because people can understand and relate to your work, they'll be more likely to fund you and they can tell others about it."

"More directly, you'll learn new ways of thinking about what you write and how to express yourself. You can apply both of these skills in just about every facet of your life."



**NANOMEDICINES TRANSLATED**

NMIN's NanoMedicines Translated Program engages NMIN HQP in a hands-on learning process to produce clear-language summaries of their NMIN-supported, peer-reviewed research publications.

Participants in the program produce a communications tool by which to disseminate their research to the broader public and acquire knowledge translation skills.

[Visit the NMIN website](#)

for more information about *NanoMedicines Translated*, including eligibility requirements, benefits of participation, and how to apply.

## HQP Research Presentations

The seventh round of this series highlighting NMIN HQP's research and presentation skills took place on 24 February.

### Round 7 NMIN HQP Research Presentations



Po-Han Chao  
University of British Columbia



Tiffany Ho  
University of Toronto



Ariadne Tuckmantel Bido  
University of Victoria

VIDEOS & POSTERS

## NMIN DOCTORAL & MASTER'S-LEVEL GRADUATE AWARDS

Five Doctoral awards are available providing stipends of \$30,000 a year for up to two years; and seven Master's awards are available providing stipends of \$17,500 for one year.

**Applicants must be** full-time graduate students in good academic standing pursuing a PhD or master's degree at a Canadian university or Canadian partner institution, and must be supervised by an NMIN Investigator or committee member.

<https://www.nanomedicines.ca/training/#grad>



APPLICATION DEADLINE:  
**7 MARCH 2022**



## Up-coming Lectures



A circular portrait of Prof. Dr. Gert H. W. van den Brink, a middle-aged man with grey hair, smiling slightly. He is wearing a dark blue jacket over a white shirt. The background is a soft-focus yellow-green outdoor setting.



Click on the images for more info & to register

**Vaccine**

**Vaccine nanoparticles**

**for respiratory virus applications-  
influenza, porcine  
PRRSV**



**Enquiries or comments** | **Dr. Diana Royce** | *NMIN Executive Director* | [dianaroyce@nanomedicines.ca](mailto:dianaroyce@nanomedicines.ca)