NUS National University of Singapore | NUS Centre for Cancer Research
Yong Loo Lin School of Medicine

Issue 15 | Special Edition

N2CR INSIGHTS

THE QUARTERLY NEWSLETTER OF N2CR

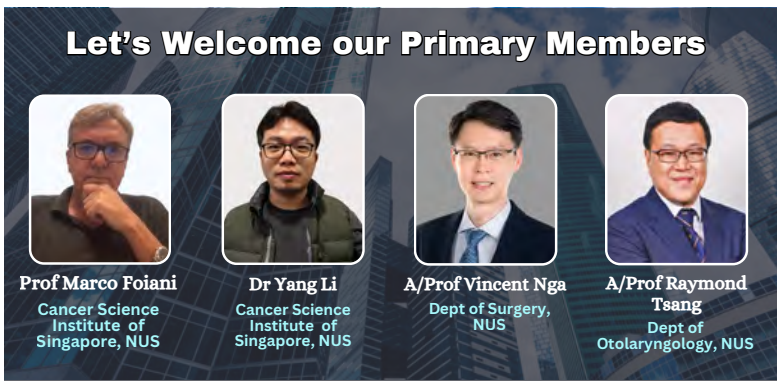
LATEST NEWS AND ACHIEVEMENTS

N2CR Retreat 2025

A huge thank you to everyone who joined us for this year's retreat at the Grand Copthorne Waterfront Hotel. Your contributions and enthusiasm were invaluable.

We hope you found the retreat beneficial and enjoyed the riverside food and drinks. Thank you for being part of the N2CR community and look forward to seeing you at our future events.

Click here to read more & watch the video!



Here's what's up!

Latest News

NUS Lunch & Learn Seminar

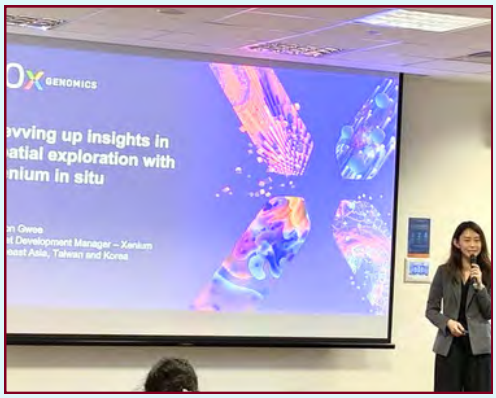
N2CR together with Darwin Science and Next Level Genomics, jointly organised a 'Lunch & Learn' session – Revolutionising Genomic Discovery: Spatial Genomics, Long-Read Sequencing & Digital PCR – on 26 May 2025.

Experts from NUS, Oxford Nanopore, PacBio, Next Level Genomics, and Sniper Technologies shared the latest advances in spatial multiomics, long-read sequencing, and digital PCR, showcasing how these tools are transforming genomic research and molecular diagnostics.

The session wrapped up with a lively Q&A and lunch. Thank you to all who joined us!

Industry talk by 10x Genomics

On 31 July 2025, Dr Leong Sai Mun hosted a seminar featuring experts from 10x Genomics. Dr Benson Lim shared how single cell and spatial multiomics deepen understanding of disease, while Ms Sharon Gwee introduced Xenium in situ for advanced spatial analysis. The session showcased innovative tools for uncovering cancer biology with greater precision.



Diana Koh Learning Series

N2CR is proud to have co-hosted the Diana Koh Breakthroughs in Cancer Learning Series 2025 with Cancer Science Institute of Singapore, National University Cancer Institute, Singapore, and NUS Yong Loo Lin School of Medicine at the Science Centre Singapore on 26 July 2025.

Prof Goh Boon Cher presented on "Cancer Research Today, Better Treatments Tomorrow" and Dr Dennis Kappei spoke on "Tying up Loose Ends – Using Telomeres to Tackle Sarcoma".

Congratulations to this year's winners of the Diana Koh Young Innovator Prize and Grant who also presented their work on cancer research.

Research News (Apr - July 2025)

Overcoming Drug Resistance in Leukemia

(Leukemia; Stephen JF Chong, ... Matthew S Davids, Shazib Pervaiz)

Venetoclax (VEN) is a targeted therapy used to treat chronic lymphocytic leukemia and acute myeloid leukemia. It works by blocking Bcl-2, a protein that prevents cells from undergoing programmed cell death, known as apoptosis, thus allowing cancer cells to survive. However, some cancer cells become resistant by switching to rely on another survival protein called Mcl-1.

This study led by N2CR members, Prof Shazib Pervaiz and Dr Stephen Chong, found that in VEN-resistant cells, increased levels of superoxide—a reactive oxygen molecule inside cells—activate a signaling protein called AKT which phosphorylates and stabilizes Mcl-1 to help cancer cells resist VEN and survive. Reducing superoxide or blocking AKT reverses this resistance. Combining VEN with an AKT inhibitor (capivasertib) significantly reduced resistant cancer cells and improved survival in mice, offering a promising new treatment strategy.

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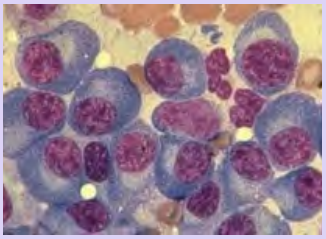
Research News (Apr - Jul 2025)

Enhancing Lenalidomide Efficacy in Multiple Myeloma

(Blood; Koh Mun Yee, ... Chng Wee Joo, Teoh Phaik Ju)



Multiple myeloma (MM) is a type of blood cancer that originates from abnormal plasma cells in the bone marrow, leading to serious complications such as bone damage, anaemia, kidney dysfunction, and an increased risk of infections.

A cornerstone of MM treatment involves immunomodulatory drugs (IMiDs), such as lenalidomide, which work by binding to the protein Cereblon (CRBN). This interaction triggers the breakdown of several proteins critical for the survival and growth of MM cells. However, many patients eventually develop resistance to lenalidomide, leading to disease relapse.

Recent research, co-led by N2CR members, Prof Chng Wee Joo, A/Prof Polly Chen, and Dr Teoh Phaik Ju, has identified a new mechanism of resistance beyond the previously understood CRBN pathway, involving the RNA-editing enzyme, named ADAR1. The study reveals that ADAR1 interferes with lenalidomide's activity by altering the structure of double-stranded RNA (dsRNA). This mechanism would lead to the suppression of the immune response triggered by lenalidomide, thus, reducing its effectiveness in killing myeloma cells.

These findings highlight ADAR1 as a promising therapeutic target to overcome lenalidomide resistance in MM. With ADAR1 inhibitors currently in preclinical development, combining them with lenalidomide could offer a more effective therapeutic approach and improve patient outcomes.

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Genetic Testing in Asian Cancer Patients: Early Detection and Prevention

(ESMO Open; Cheo SW ... John EL Wong, Lee Soo Chin)

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Multiple primary cancers (MPC) often indicate a hereditary cancer predisposition syndrome. In a study led by Prof Lee Soo Chin, 19% of 3514 cancer patients who underwent germline genetic testing through a cancer genetics clinic had MPC and 29.4% of these MPC patients tested positive for at least one pathogenic germline variants (PGVs), compared to 20.8% positivity rate among patients with single primary cancer. PGVs are inherited genetic mutations that increase the risk of developing certain diseases, including cancer.

The findings underscore the importance of comprehensive genetic testing for MPC patients to better identify and manage hereditary cancer risks. This approach will refine genetic testing, enhance early detection, personalise cancer treatment and prevention strategies, thereby advancing the field of precision medicine.

Phase I Study of Selinexor with Nivolumab and Ipilimumab in Asian Solid Tumours

(Therapeutic Advances in Medical Oncology; Joan R Choo, ... Lee Soo Chin, David SP Tan)

A Phase I clinical trial, led by N2CR clinician-scientist A/Prof David Tan, tested a new drug combination—Selinexor, nivolumab (NIVO), and ipilimumab (IPI)—in Asian patients with advanced solid tumours/cancers and had stopped responding to standard treatment options. Selinexor, a nuclear transport inhibitor which affects how proteins move within cells, was combined with two immunotherapy drugs, NIVO and IPI.

The study found the combination was generally safe, with manageable side effects like fatigue and nausea. Out of the 12 patients enrolled, 11 were evaluable for response and 6 were evaluable for dose-limiting-toxicity. A patient showed tumour shrinkage and 3 had stable disease for several months and 7 had progressive disease. All patients had previously already failed treatment with immunotherapy, suggesting this new combination may improve responses to immune checkpoint inhibitors and warrants further investigation.

Read More

Upcoming Events

N2CR Postdoc & Graduate Student Club Begins a New Chapter with Dr Stephen Chong as Club President and First Speaker

Talk title:
Building a collaborative future -
A postdoctoral community at NUS

12 to 1 pm Friday, 5 Sep 2025
Lvl 13 CONFERENCE ROOM, MD6

DR STEPHEN CHONG
LKY FELLOW

POSTDOC & GRADUATE STUDENT CLUB N2CR