

N2CR INSIGHTS

THE QUARTERLY NEWSLETTER OF N2CR



Latest News

N2CR Staff Retreat 2024

Thank you to everyone who made it down for the staff retreat on 8 March 2024 at Mount Faber Peak! We had a dazzling good time with the free cable car rides, scrumptious buffet spreads and an afternoon full of intellectually stimulating conversation. Let's toast to more camaraderie and scientific synergies!

Click to watch the video!



Interview with Dr Leong!

N2CR is starting a new video series to showcase the compelling and innovative scientific studies our researchers helm. In the first of this series, we chat with Dr Leong Sai Mun on his 10-year research on the altruistic behaviour of breast cancer cells. [Click to watch!](#)

N2CR Invited Speaker Series - March 2024

N2CR was delighted to host 2 invited speakers in March - Prof Liang Zhang from China Pharmaceutical University on 7 March, talked about the novel use of AI algorithms for advancing RNA-based therapies and Dr Yaara Oren from Tel Aviv University on 13 March 2024, who shared about her fascinating work on cell memory and how cells are able to recall prior exposure to drugs.



Dr Yaara Oren



Prof Liang Zhang

HERE'S WHAT'S UP!

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April

- N2CR Invited Speaker Seminar

May

- ECI Symposium 2024
- Educational Outreach

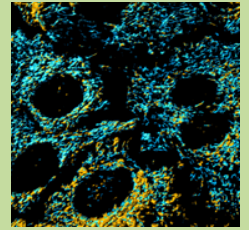
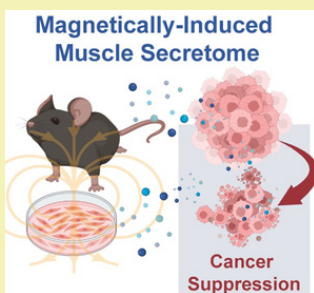
Follow us on social media!



Research News (Jan - Mar 2024)

Revealing Mitochondrial Secret to Cancer Therapy Resistance(Blood Cancer Discovery, Olesinski E.A., Bhatia K.S., Mahesh A.N. *et al.*)

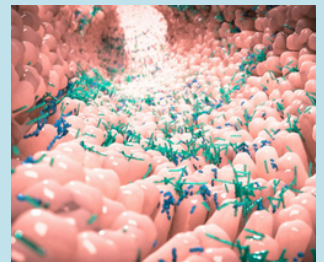
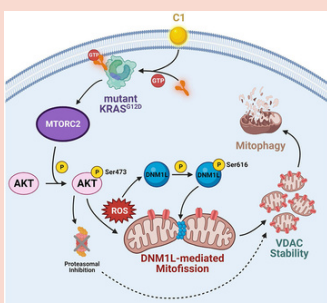
In many cancers, resistance to multiple drugs leads to relapse. Studying acute myeloid leukemia (AML) in mice with patient-derived samples, Dr Shruti Bhatt and team found that drug resistance is linked to reduced apoptosis. Even drugs targeting different pathways became ineffective. Using a test called dynamic BH3 profiling, we identified potential treatments for drug-resistant AML. This suggests that evading cell death drives drug resistance, highlighting the need for new treatment approaches. The team used PDXs established by Motomi Osato which are now part of N2CR resources.

[Read More](#)**Magnetic Stimulation Boosts Muscle's Cancer-Fighting Power**(Cells, Tai Y.K., Iverson J.K., Chan K.K.W. *et al.*)

N2CR members Associate Professor Alfredo Franco-Obregon and Dr. Alex Tai Yee Kit discovered that subjecting skeletal muscle to brief and non-invasive magnetic fields stimulated their secretion of anticancer factors. These muscle-derived factors inhibited the growth and spread of breast cancer and rivaled the potency of these same factors released from muscle in response to exercise. Their findings were deepened using a cancer model in chicken eggs and in cell-based assays and resulted in the identification of a potent anti-cancer agent. This discovery may open up new avenues for cancer treatment by leveraging on the body's natural ability to defend itself against breast cancer, but with a minimum of stress and strain.

[Read More](#)**Alterations in Colorectal Cancer Virome and its Persistence after Surgery**(Scientific Reports, Ho S., Law J.H., Png C.W. *et al.*)

In exploring the relationship between viruses in the gut and colorectal cancer (CRC), researchers led by A/Prof Tan Ker Kan and Dr Law Jia Hao collected stool samples from non-cancer individuals and from patients with CRC before and after surgery. They found key differences in gut viruses compared to non-cancer individuals, which in turn potentially affected healthy bacterial composition. After surgery, some of these changes reverted to a non-cancer state, indicating potential implications for CRC diagnosis and treatment. Understanding how gut viruses affect CRC could pave the way for novel diagnostic and surveillance tools, and more effective therapeutic strategies in the future.

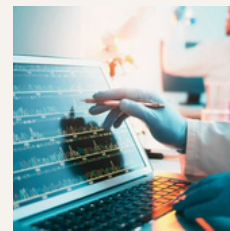
[Read More](#)**A New Pathway in Colorectal Cancer Cells Triggered by Drug-Activated Mutant KRAS**(Autophagy, Iskandar K., Foo J., Liew A.Q.X. *et al.*)[Read More](#)

Oncogenic KRAS mutations drive pancreatic, colorectal, and lung cancers, spurring interest in KRAS inhibitors. Professor Shazib Pervaiz, Dr Khartini Iskandar and team present a novel approach: exploiting mutant KRAS's oxidative stress induction with a small molecule to hyperactivate rather than inhibit it. This triggers AKT kinase, causing oxidative stress and mitochondrial fragmentation. MTOC2 inhibition restores cell function. These findings offer a promising strategy for targeting mutant KRAS-driven tumors, sidestepping previous challenges. Prof Pervaiz highlights the importance of identifying new pathways for drug design, tapping into cancer's reliance on mutant KRAS activation. This work underscores the potential of exploiting cancer vulnerabilities for therapy.

Identified: Proteins' role in the activation of a gene driving cancer growth

(Genome Research, Chua B.H., Anuar N.Z., Ferry L. *et al.*)

A hallmark of cancer cells is the ability to grow indefinitely, which in most tumors depends on the enzyme telomerase. Previous work had shown that the telomerase gene, TERT, is commonly switched on in cancer cells due to specific point mutations. Recent work by the research group of Dr Dennis Kappei now identified two proteins that can interact with these 'on-switch' mutations, making the TERT gene more active and hence sustaining cancer cell growth. Understanding how proteins interpret such changes in our DNA may eventually contribute to the development of better cancer treatments."



[Read More](#)

Upcoming Events

Early Cancer Intervention from Laboratory Discoveries to the Community

Focus Topics

- Early Carcinogenesis Research
- Advancements in Early Diagnosis and Intervention Technologies
- Community-Centric Screening Strategies



TAN Chorh Chuan
Prime Minister's Office, Singapore
Guest of Honour



YEOH Khay Guan
NUHS, Singapore
Keynote Speaker



Joseph SUNG
NTU, Singapore
Keynote Speaker



Nitzan ROSENFELD
University of Cambridge, UK
Keynote Speaker



Robert SCHARPF
Johns Hopkins Bloomberg School of Public Health, USA



George HANNA
Imperial College London, UK



Cristian TOMASETTI
Center for Cancer Prevention and Early Detection, USA

13 - 14
May 2024
NUS MD6
Lecture Theatre 35

Register Here!

Group registration is available!
Please enquire at N2CR@nus.edu.sg

Supported by:  Media Partner: 

And many more experts in the early cancer field!

N2CR Invited Speaker Seminar

With Dr Uri Ben-David from Tel Aviv University

Cancer Aneuploidy: From Evolutionary Pressures to Cellular Vulnerabilities



Tuesday, 9 April 2024
4 - 5 pm
at NUS MD 11 CRC Auditorium

[Learn more here!](#)



Diana Koh

Breakthroughs in Cancer Learning Series

SATURDAY 4 MAY 2024

Time: 0900-1200
Venue: Botanic Gardens Function Hall (@ Botany Centre Tanglin Gate)

A series of talks about cancer research for the public!

Talk 1:
Cancer: What's in our genes, and what isn't?

Talk 2:
What are we doing in Singapore to improve outcomes for sarcoma patients?





REGISTER NOW

INSPIRING YOUNG MINDS

A Day in the World of Cancer Research and Healthcare

AN EDUCATIONAL OUTREACH PROGRAMME BY N2CR FOR SEC 2 STUDENTS

27 MAY 2024
NUS CRC AUDITORIUM

[READ MORE!](#)

