

Tech to Accelerate Manufacturing of Nanomaterials

[Yen Ocampo](#), [July 13, 2022](#)



Dubbed as NTUitive, the innovation and enterprise company of Nanyang Technological University (NTU Singapore) [together](#) with the Cambridge Centre for Advanced Research and Education in Singapore (CARES) are now working together for the advancement of nanomaterials. In an automated factory that uses Industry 4.0 practices, the technologies will be taken to the next level.

After 20 months of hard work, NTUitive is proud to pilot this model of academia-government partnership, where we aim to bridge the gap between research and product-to-market through the funding and scale-up of promising projects with a specific outcome.

– **David Toh, CEO, NTUitive**

David added that the success of this multidisciplinary project between CARES and NTUitive will put Singapore in the lead position to produce novel nanomaterials, a field where the nation is already at the forefront.

Accelerated, Manufacturing Platform for Engineered Nanomaterials (AMPLE) is a project that is funded by the National Research Foundation of Singapore (NRF). It will develop both software and hardware infrastructure that will help nanomaterials, which are often used in antimicrobial coatings, energy storage devices, and composite materials, work more efficiently and produce more.

Compared to traditional technologies, the AMPLE approach is expected to be over 100 times more effective, reducing experimental workload and scaling up the complexity by a large amount and improving the quality of nanomaterials.

NTUitive will help AMPLE manage its intellectual property and will work closely with CARES on the development and commercialization of technology. NTUitive and NRF will also work together to manage the project's funding.

The money will come from the NRF's Central Gap Fund, which supports cross-collaboration between academia and industry and helps turn research results into scalable solutions that are good for Singapore's economy and society.

CARES was founded in 2013 by the National University of Singapore, the University of Cambridge, and NTU Singapore as part of the NRF Campus for Research Excellence and Technological Enterprise (CREATE) programme.

By developing a technology platform that is ready for the market and allows for the quick, economical, and scalable production of nanomaterial technologies, AMPLE will close this gap. The AMPLE technique is anticipated to be over 100 times more effective than current technologies, greatly decreasing experimental workload and scale-up complications and enhancing the quality of nanomaterials. Businesses will be able to quickly invent nanomaterial-based goods with less-polluting production processes because of the ensuing decrease in the budget and time needed for development.

The success of "RINGS" (Rapid Industrialization of Next Generation Materials), a proof-of-concept project funded by the Singapore-MIT Alliance for Research and Technology (SMART) Innovation Centre Innovate Grant and completed in 2021, served as the inspiration for AMPLE.

The RINGS team, made up of Dr Jose, Dr Kovalev, Prof. Lapkin, and CARES Research Engineer Kencha Satya, demonstrated successfully how they could scale up and enhance the process efficiency of the synthesis of highly antimicrobial zinc oxides by combining next-generation reactor technologies with machine learning.

The AMPLE project will show off the capability of rapidly scaling novel material technologies with high quality and low cost by collaborating with industrial partners in the pharmaceutical, energy, and functional coatings industries.

A Singapore-based spin-off will be established as part of the AMPLE initiative to take advantage of the cutting-edge technology for Singapore and the rest of the world. The Singapore spin-off is expected to have several positive effects and position Singapore as a pioneer in this fascinating and cutting-edge field of innovation.