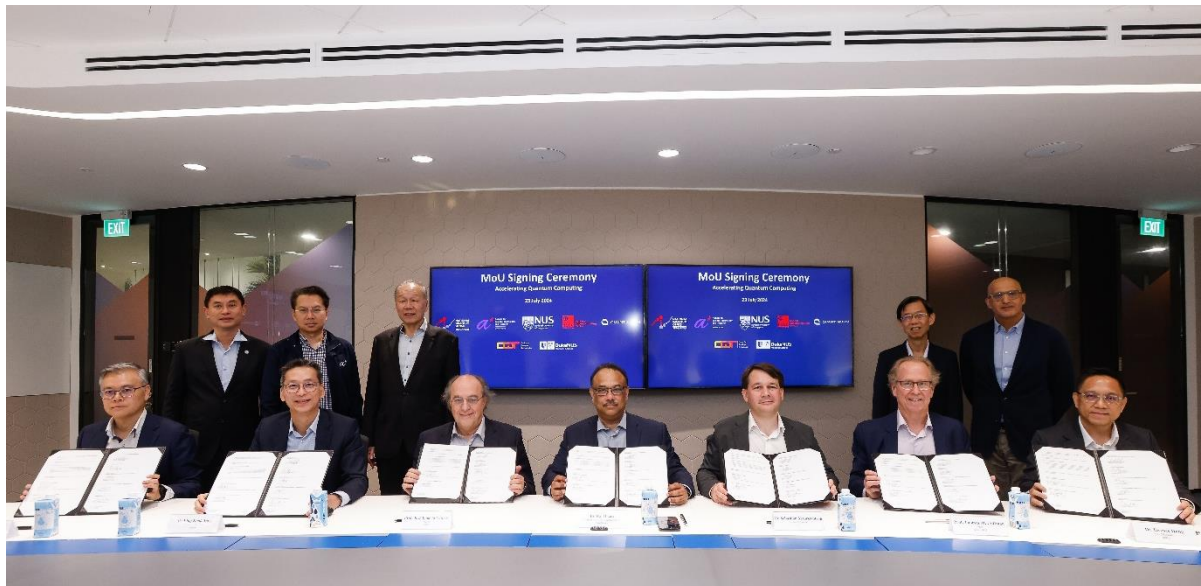




## **MEDIA RELEASE FOR IMMEDIATE RELEASE**

**24 July 2024, 9.00am (SGT)**

### **SINGAPORE INKS MOU WITH QUANTINUUM, ENABLING ACCESS TO THEIR ADVANCED QUANTUM COMPUTER**



*Caption: [From left to right, seated] The MoU signing was represented by Dr Su Yi, Executive Director, A\*STAR's Institute of High Performance Computing; Mr Ling Keok Tong, Executive Director, National Quantum Office; Prof José Ignacio Latorre, Director, Centre for Quantum Technologies; Dr Raj Hazra, President & CEO, Quantinuum, Dr Sebastian Maurer-Stroh, Executive Director, A\*STAR's Bioinformatics Institute; Prof Thomas M. Coffman, Dean, Duke-NUS Medical School; Dr Terence Hung, Chief Executive, National Supercomputing Centre Singapore.*

*[From left to right, standing] The MoU signing was witnessed by Prof Tan Sze Wee, Assistant Chief Executive, Biomedical Research Council, A\*STAR; Prof Yeo Yee Chia, Assistant Chief Executive, Innovation & Enterprise, A\*STAR; Prof Low Teck Seng, Co-chair, National Quantum Steering Committee; Mr Quek Gim Pew, Co-chair, National Quantum Steering Committee; Mr Ilyas Khan, Founder & Chief Product Officer, Quantinuum*

**SINGAPORE** – Singapore's National Quantum Office (NQO), Agency for Science, Technology and Research (A\*STAR), National University of Singapore (NUS), National Supercomputing Centre (NSCC) and Quantinuum signed a Memorandum of

Understanding (MoU) today, enabling access to Quantinuum's advanced quantum computer, and to explore and collaborate on quantum computing use cases, focusing on computational biology.

Under the MoU, the parties agree to leverage Quantinuum's H-Series and Helios quantum computers, to promote joint research and development (R&D) activities in various quantum computing applications. Helios is Quantinuum's next generation quantum processor that could exponentially increase the computing power of quantum computers.

The parties will also collaborate on developing hybrid computing solutions that include both classical and quantum computing infrastructures, leading to the creation of long-term strategic roadmaps. The MoU also enables collaborations in training and outreach through seminars, workshops and bespoke programmes to nurture quantum talent and contribute towards Singapore's growing quantum community.

Singapore has a strong background in computational biology and the collection of quality health datasets. Through this MoU, scientists from A\*STAR's Bioinformatics Institute (A\*STAR's BII), the Centre for Quantum Technologies (CQT) at NUS and Duke-NUS Medical School's Centre for Computational Biology will be able to leverage Quantinuum's machines to enhance capabilities in modelling complex biological systems, advancing drug discovery and personalised medicine. In addition, Quantinuum also plans to establish a dedicated R&D presence in Singapore, where researchers from both Quantinuum and Singapore could better exchange knowledge and expertise for further developments in quantum applications and algorithms.

As the largest quantum computing company that has demonstrated success in building the highest performing quantum computers, Quantinuum offers an integrated, end-to-end quantum computing platform. Quantinuum leverages trapped-ion technology – one of the most promising approaches for building the highest fidelity and scalable quantum computers - to develop use cases in a wide range of applications, including pharmaceuticals, material sciences, and finance.

This MoU is guided by Singapore's National Quantum Strategy, which aims to strengthen Singapore's position as a leading hub in the development and deployment of quantum technologies by bolstering scientific excellence in high impact areas of quantum research; strengthening Singapore's engineering capabilities in quantum technologies to accelerate translation into real world solutions; attracting, developing and retaining quantum talent; and anchoring company partnerships to build a vibrant and resilient quantum industry.

NQO oversees the development and execution of Singapore's National Quantum Strategy to advance Singapore's quantum technologies, talent and ecosystem development through the national-level quantum programmes. The National Quantum Computing Hub (NQCH), a national-level quantum programme and a joint initiative of CQT, A\*STAR's Institute of High Performance Computing (A\*STAR's IHPC) and the National Supercomputing Centre Singapore, will drive this collaboration with Quantinuum.

“This is a strategic collaboration with Quantinuum, following the launch of Singapore’s National Quantum Strategy in late May. Through the NQCH, the National Quantum Office has brought together key research performers to collaborate with Quantinuum on advancing R&D in quantum computing, which will give Singapore an edge in quantum use cases across various industries. Equally important, this MoU will give Singapore access to Quantinuum’s state-of-the-art H-Series and Helios quantum computers. The NQO will continue to foster mutually beneficial partnerships through our national-level quantum programmes, and we look forward to delivering outcomes that could benefit the research, innovation and enterprise (RIE) ecosystem together,” said **Ling Keok Tong, Executive Director, NQO**.

"Our collaboration underscores our commitment to advancing global quantum computing. By harnessing our cutting-edge H-Series quantum computers and leading quantum application software stack, we aim to pioneer transformative use cases in computational biology and life sciences, catalysing innovation across industries. Establishing an R&D hub in Singapore enhances our dedication to fostering a vibrant quantum ecosystem, driving scientific excellence, and nurturing top quantum talent. Together, we aim to make significant strides in quantum technologies, supporting Singapore's ambition to lead in the rapidly evolving technological landscape," stated **Dr. Rajeeb (Raj) Hazra, CEO of Quantinuum**.

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## **Annex A – Additional quotes from MoU signatories**

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## **About the National Quantum Office**

The National Quantum Office (NQO) was established with the support of the National Research Foundation (NRF) to drive the development and implementation of the Research, Innovation and Enterprise (RIE) strategy for Quantum in Singapore. The Office was set up in April 2022 and is hosted by A\*STAR, the Implementing Agency for Quantum. NQO, as a control tower, supports fundamental and translational research in Quantum through various strategic programmes that it oversees. It partners both public and private sectors to create a vibrant RIE quantum ecosystem in Singapore. For more information, visit <https://nqo.sg>.

## **About the Agency for Science, Technology and Research (A\*STAR)**

The Agency for Science, Technology and Research (A\*STAR) is Singapore's lead public sector R&D agency. Through open innovation, we collaborate with our partners in both the public and private sectors to benefit the economy and society. As a Science and Technology Organisation, A\*STAR bridges the gap between academia and industry. Our research creates economic growth and jobs for Singapore, and enhances lives by improving societal outcomes in healthcare, urban living, and sustainability. A\*STAR plays a key role in nurturing scientific talent and leaders for the wider research community and industry. A\*STAR's R&D activities span biomedical sciences to physical sciences and engineering, with research entities primarily located in Biopolis and Fusionopolis. For ongoing news, visit [www.a-star.edu.sg](http://www.a-star.edu.sg).

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## **About Quantinuum**

Quantinuum, the world's largest integrated quantum computing company, pioneers powerful quantum computers and advanced software solutions. Quantinuum's technology drives breakthroughs in materials discovery, cybersecurity, and next-gen quantum AI. With over 500 employees, including 370+ scientists and engineers, Quantinuum leads the quantum computing revolution across continents.

## **About Duke-NUS Medical School**

Duke-NUS is Singapore's flagship graduate entry medical school, established in 2005 with a strategic, government-led partnership between two world-class institutions: Duke University School of Medicine and the National University of Singapore (NUS). Through an innovative curriculum, students at Duke-NUS are nurtured to become multi-faceted

'Clinicians Plus' poised to steer the healthcare and biomedical ecosystem in Singapore and beyond. A leader in ground-breaking research and translational innovation, Duke-NUS has gained international renown through its five signature research programmes and 10 centres. The enduring impact of its discoveries is amplified by its successful Academic Medicine partnership with Singapore Health Services (SingHealth), Singapore's largest healthcare group. This strategic alliance has led to the creation of 15 Academic Clinical Programmes, which harness multi-disciplinary research and education to transform medicine and improve lives.

For more information, please visit [www.duke-nus.edu.sg](http://www.duke-nus.edu.sg)

### **About the Centre for Quantum Technologies**

The Centre for Quantum Technologies (CQT) is Singapore's flagship national research centre in quantum technologies. Supported under Singapore's National Quantum Strategy, the centre has nodes at partner institutions and coordinates research talent across the country.

CQT's partner institutions are universities – the National University of Singapore, Nanyang Technological University, Singapore, and the Singapore University of Technology and Design – and the Agency for Science, Technology and Research.

CQT brings together physicists, computer scientists and engineers to do basic research on quantum physics and to build devices based on quantum phenomena. Experts in this new discipline of quantum technologies are applying their discoveries in computing, communications, and sensing.

For more information, please visit [www.quantumlah.org](http://www.quantumlah.org)

### **About the National Supercomputing Centre Singapore**

Established in 2015, the National Supercomputing Centre (NSCC) Singapore manages Singapore's first national Petascale facility providing high performance computing (HPC) resources. As a National Research Infrastructure, NSCC supports private and public sector research including commercial companies, government agencies as well as higher education and research institutes. Through the support of its stakeholders including the Agency for Science Technology and Research (A\*STAR); Nanyang Technological University (NTU); National University of Singapore (NUS); Singapore University of Technology and Design (SUTD); the National Environment Agency (NEA) and Technology Centre for Offshore and Marine, Singapore (TCOMS); and funded by the National Research Foundation (NRF), NSCC catalyses national research and development initiatives, attracts industrial research collaborations and enhances Singapore's research capabilities. For more information, please visit: <https://nscg.sg>

## **ANNEX – Additional quotes from MoU signatories**

“A\*STAR’s BII is excited to bring its expertise in Computational Biology and Bioinformatics approaches to accelerate the development of quantum-classical hybrid algorithms, quantum algorithms, and applications through this MoU. The MoU will also facilitate knowledge exchange to enhance our understanding of quantum technologies, positioning us at the forefront of innovation in these critical fields,” said **Dr Sebastian Maurer-Stroh, Executive Director, A\*STAR’s Bioinformatics Institute**.

“Right now, many promising biological discoveries stall when it comes to finding the right drug candidate that is not only effective at treating the disease but is also well-tolerated by patients. The process of finding the right molecule is slow and often limited in how many variables can be accounted for in a single model. Augmenting our existing capabilities with quantum computing could resolve these limitations, leading to better drugs for patients faster,” said **Associate Professor Enrico Petretto, Director of the Centre for Computational Biology at Duke-NUS**, adding: “This partnership, which focuses on quantum applications in biology, will also benefit computational biologists-in-training seeking to deepen their understanding of how to incorporate quantum computing into their drug discovery work.”

“A\*STAR’s IHPC has been harnessing central processing units (CPUs) and graphics processing units (GPUs) to accelerate complex computations and optimise data-intensive tasks. With advancements in quantum computing technology, we are now integrating quantum processing unit (QPU) elements to push computational boundaries and drive innovation across various fields. Our partnership with Quantinuum is a step forward in improving applications such as drug discovery, potentially accelerating the development of new and effective drugs to improve healthcare outcomes and lower research costs”, said **Dr Su Yi, Executive Director, A\*STAR’s Institute of High Performance Computing**.

"I am excited to start this new collaboration between our scientific experts in Singapore and the multinational company Quantinuum. We bring know-how in quantum algorithms and computational biology to work with the Quantinuum team, which is building some of the highest performing quantum computers available in the world today," said **Professor José Ignacio Latorre, CQT Director and lead Principal Investigator for the National Quantum Computing Hub**.

“The past year has seen a worldwide trend of accelerated efforts to integrate and co-locate supercomputers and quantum computers, which reflects the strong symbiotic relationship between classical and quantum systems. Singapore’s tie-up with Quantinuum will be a significant step in helping NSCC learn, plan and develop our future hybrid computing infrastructure to serve the needs of our research community,” said **Terence Hung, Chief Executive, National Supercomputing Centre Singapore**.

“This partnership with Quantinuum will boost Singapore’s digital ecosystem as researchers and companies will be able to participate in the development and

experimentation of advanced quantum-based techniques. Quantinuum's investment in Singapore will deepen our capabilities in Quantum Computing and catalyse innovation in globally relevant areas of scientific discovery such as computational biology," said **Philbert Gomez, Vice President and Head, Digital Industry Singapore.**