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Singapore to establish Biological Data Centre prototype

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National University of Singapore (NUS) Medicine is collaborating with DayOne, a Singapore-headquartered global data centre developer and operator and Cortical Labs, a biological computing startup in Melbourne, to establish a Biological Data Centre prototype at NUS Life Sciences Institute.

Leveraging NUS Medicine's deep expertise in neurobiology research, the cells will be cultured and grown under the supervision of Professor Rickie Patani, a Professor of Neuroscience at NUS Medicine and the Director of the Neurobiology Programme at NUS Life Sciences Institute.

The prototype is a key part of efforts by DayOne and Cortical Labs to build Singapore's first major Biological Data Centere, a first of its kind outside Australia.

A bio data centre is a next-generation computing facility that utilises "wetware"- living biological neurons grown from stem cells, instead of traditional silicon chips to process information and power AI systems. Unlike standard data centres that rely on energy-intensive servers, a bio data centre harnesses the natural efficiency of brain-like organoids, which can function on a fraction of the wattage required by digital computers.

The initial validation phase at NUS Medicine is structured to transition into a live deployment environment within a DayOne commercial data centre facility in Singapore. As Singapore expands data centre capacity under tighter sustainability guardrails, the government is making at least 200MW of new capacity in DC-CFA-2 available, while reinforcing higher standards for energy efficiency and greener energy pathways under the Infocomm Media Development Authority's Green Data Centre Roadmap. The initial deployment at NUS will comprise a single rack of 20 Cortical Cloud units.