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CEPI funds Nagasaki University's 'Nanoball' technology to help defeat Disease X

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Innovation could be freeze-dried and stored for extended periods of time

A new 'nanoball' vaccine platform developed by experts in Japan will be tested as part of new research, supported by Norway-based Coalition for Epidemic Preparedness Innovations (CEPI), looking for promising tools that could help fight an infectious disease outbreak with pandemic potential.

Researchers at Nagasaki University have developed the pioneering innovation as a novel approach to aid the delivery of messenger RNA (mRNA) vaccines in the body.

With up to $5 million in new funding from CEPI, the Nagasaki team will conduct preclinical studies to investigate whether their next-generation technology, where the mRNA is instead encased in nano-sized, negatively-charged particles, could overcome challenges and confront the next worrisome threat.

With support from NEC Oncoimmunity (NOI), the new research will focus on testing an AI-enabled nanoball mRNA vaccine to protect against severe fever with thrombocytopenia syndrome virus (SFTSV). The emerging tick-borne virus, a member of the Phenuivirus family, poses a serious public health threat in Japan and wider East Asia.

If the project is successful, the platform has the potential to be rapidly adapted to develop vaccine candidates against other pathogens, including a novel or as-yet-identified 'Disease X' that could cause a serious epidemic or pandemic.

The innovation could also be freeze-dried and stored for extended periods of time at either fridge or room temperature. Without the need for complex cold-chain requirements, this could open up the possibility of expanding access to nanoball vaccine doses in low- and-middle income countries.