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New research to investigate next generation ‘trans-amplifying’ mRNA vaccines

07 March 2024 | News

Promising technology to be tested in preclinical studies funded by CEPI

Scientists in the US are set to test a new vaccine approach that could overcome some of the challenges associated with the latest mRNA vaccine designs and more rapidly create pandemic-busting vaccines in as little as 100 days.

With up to $1 million in funding from Norway-based Coalition for Epidemic Preparedness Innovations (CEPI), researchers at Amplitude Therapeutics will perform preclinical studies that assess whether their trans-amplifying mRNA vaccine approach could provide a simplified alternative to the self-amplifying mRNA vaccine technique being used today.

Trans-amplifying mRNA vaccines, which consist of two separate, shorter RNA fragments—one encoding the antigen and one encoding the replicase—may provide an important solution. By separating out the target antigen and replicase sequences, the vaccine could be more easily produced in vaccine manufacturing facilities. Compared to conventional mRNA vaccines, the design could also mean up to 100 times less antigen-encoded RNA is needed per dose and the replicase enzyme can be produced ahead of an outbreak as it does not need to be combined with the target antigen sequence.

This is the first partnership to be announced as part of CEPI’s call for vaccine R&D and manufacturing innovations which could be critical to helping the world better prepare for future epidemics and pandemics in support of the 100 Days Mission.