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Acuitas Therapeutics' Lipid Nanoparticle Technology Supports Positive Phase I Data Published by AstraZeneca

Vancouver, B.C. – Acuitas Therapeutics, the global leader in lipid nanoparticle (LNP) delivery systems for nucleic acid therapeutics, recently announced that the company's partner, AstraZeneca, has published a new study in *Vaccine* titled "A novel SARS-CoV-2 mRNA virus-like particle vaccine is highly potent and well tolerated in adults in a Phase I randomized clinical trial."

In the study, AstraZeneca demonstrated that its two SARS-CoV-2 mRNA virus-like particle (VLP) vaccine candidates – AZD9839 and AZD6563 – achieved robust immunogenicity and favorable tolerability at only one-third the dosage of the BNT162b2, a licensed COVID-19 mRNA vaccine. The RNA components of this study were encapsulated in LNP contributed by Acuitas Therapeutics.

The emergence of SARS-CoV-2 triggered a global health crises that, while quickly mitigated by a rapid vaccine deployment, persists through new variant-driven outbreaks. To address this, next-generation vaccines must offer enhanced potency, durability, and broader coverage. One promising approach are VLP antigens, multiprotein structures that self-assemble into particles displaying multiple antigens to elicit stronger, longer-lasting antibody responses against more variants.

In this Phase I clinical trial, 166 healthy adults between the ages of 18-64 and 76 adults aged >65 years were randomized and subsequently vaccinated with either of the novel SARS-CoV-2 mRNA-VLP vaccines encoded by the Omicron BA. 4/5 (AZD9839) or the XBB. 1.5 variant (AZD6563) at two different dosages. The key findings of this clinical trial include:

- Variant-matched mRNA-LNP vaccines AZD6563 and BNT162b2 had similar immunogenicity at all three time points despite AZD6563 being administered at one-third (10 µg) the dosage of BNT162b2 (30 µg).
- AZD9839 and AZD6563 were well tolerated at 5 and 10 µg doses, with fewer reported adverse reactions and injection site pain compared to BNT162b2.
- Adjusted geometric mean titers (GMTs) increased from baseline with increasing dosages and remained higher than baseline at days 15, 29, and 180, across mRNA-LNP vaccine variants.

Click here to read the full publication.

About Acuitas Therapeutics

Acuitas Therapeutics Inc., the global leader in lipid nanoparticle (LNP) delivery systems for nucleic acid therapeutics, is a Vancouver-based company collaborating with pharmaceutical and biotech companies, academic researchers, and global health organizations to advance a broad range of medicines for a variety of diseases.

Acuitas' clinically validated LNP technology has had a profound global impact – most notably enabling the Pfizer-BioNTech COVID-19 vaccine, **COMIRNATY®**, which has protected billions of people in more than 180 countries. The technology also enables **ONPATTRO®** by Alnylam Pharmaceuticals, the first FDA-approved RNAi therapeutic for treating the rare and fatal disease transthyretin amyloidosis. More recently, Acuitas' LNP technology has delivered other groundbreaking firsts: the **first in-human proof of concept** for genome base editing and the **first personalized CRISPR therapy**.

Today, Acuitas is advancing next-generation LNP to support a variety of therapeutic modalities. This includes targeted LNP for extrahepatic and *in vivo* CAR T-cell therapies, epigenetic medicines to modulate gene expression without altering DNA, multivalent vaccines for infectious diseases — such as malaria, HIV/AIDS, and tuberculosis — as well as oncology vaccines, including personalized cancer vaccines.

For more information, visit www.acuitastx.com.

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