a NIH-funded project, the novel semisynthetic saponin TQL1055 was evaluated for its potential to augment the immunogenicity of influenza antigens.

Figure 1: TQL1055 Enhances the Antibody Response to a Recombinant Antigen Influenza Vaccine (Flublok®) and Exhibits Antigen Dose-Sparing Effects

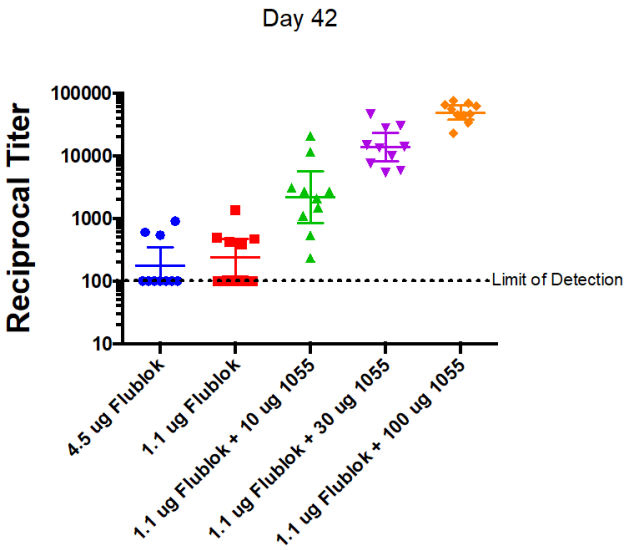
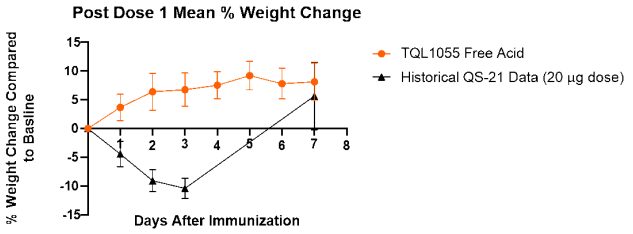


Figure 2: TQL1055 Exhibits Improved Systemic Tolerability Over QS-21.



Methods: Groups of 10 C57BL/6J mice were immunized subcutaneously (SC) with Flublok® (H3N2 antigen) alone at either a 4.5 mcg or 1.1 mcg dose, or at a 1.1 mcg dose in combination with 10, 30 or 100 mcg TQL1055 on Days 0 and 21. Sera were analyzed at days 0, 21 and 42 by ELISA for H3N2-specific IgG. Body weights were measured serially.

Results. A 2-dose series of 1.1 mcg Flublok with TQL1055 elicited anti-H3N2 antibodies in all mice. This effect was TQL1055 dose-dependent, with GMTs of 2178 in the 10 mcg group, 13674 in the 30 mcg group and 48959 in the 100 mcg group. The GMT in all TQL1055 groups was higher than the GMT of 176 in the group receiving 4.5 mcg of Flublok alone. Mice receiving TQL1055 gained weight steadily after immunization, compared with a maximum weight loss of >10% in mice receiving 20 mcg of QS-21.

Conclusion. TQL1055 exhibits robust adjuvant activity for influenza antigens, demonstrating a dose-sparing effect and improved systemic tolerability compared with QS-21. Taken together, these finding support further evaluation of its potential as an adjuvant for influenza vaccines.

Disclosures. Chloe Buzz, BS, Adjuvance Technologies (Employee) Eric Farris, PhD, Adjuvance Technologies (Employee) Sean R. Bennett, MD PhD, Adjuvance Technologies (Employee) Pat Frenchick, PhD, Adjuvance Technologies (Consultant) Tyler Martin, MD, Adjuvance Technologies (Employee, Shareholder)

1238. The Novel Semisynthetic Saponin Adjuvant TQL1055 Enhances the Antibody Response to Pertussis Vaccine with an Improved Tolerability Profile over QS-21

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Session: P-57. New Vaccines

Background. Acellular pertussis vaccines are better tolerated but less immunogenic than older whole cell vaccines. Novel adjuvants may be useful to enhance their immunogenicity. First-generation natural saponins are potent immuno-enhancers but are highly reactogenic. The novel semisynthetic saponin TQL1055 was evaluated for its potential to enhance the immunogenicity of a commercially available acellular pertussis vaccine as part of a National Institute of Allergy and Infectious Disease (NIAID) funded project.

Methods. Groups of 10 female C57BL/6J mice were immunized subcutaneously (SC) with Adacel® (containing 0.5 mcg pertussis toxin antigen) alone or in combination with QS-21 at 20 mcg/dose or TQL1055 at 50 mcg/dose on Days 0 and 28. Serum antibody titer to pertussis antigen was determined by ELISA (Alpha Diagnostics) at Days 0, 28, and 42 and geometric mean titers (GMT) in IU/mL were determined. Body weights were measured serially for 7 days after dose 1.

Results. At 28 days following dose 1, mice receiving TQL1055 had an anti-pertussis toxin IgG GMT of 8492, compared with 2263 in mice receiving QS-21 ($p = 0.005$). At Day 42, 14 days after dose 2, the GMTs increased to 18719 in the TQL1055 group and 10851 in the QS-21 group ($p = 0.0653$ vs TQL1055 dose 2; $p = 0.6038$ vs TQL1055 dose 1). Mice in the Adacel and TQL1055 groups gained weight steadily after dose 1, while mice in the QS-21 group had an average weight loss of 10% from baseline at 3 days after dose 1 ($p < 0.0001$).

Figure 1: TQL1055 Enhances the Antibody Response to Adacel® (Commercial Acellular Pertussis Vaccine) in C57BL/6J Female Mice

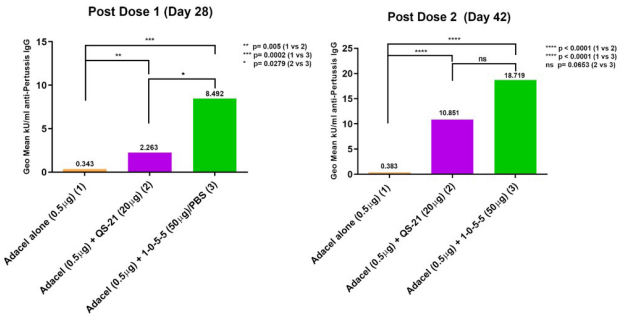
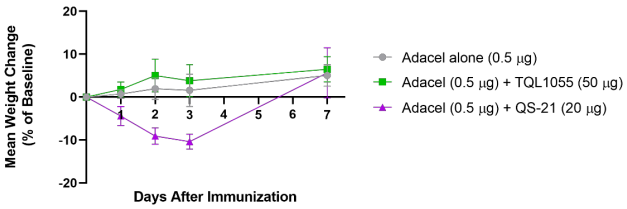


Figure 2: TQL1055 Shows Enhanced Tolerability (measured by decreased weight loss) Compared to QS-21 Following Subcutaneous Injection in C57BL/6J Female Mice



Conclusion: TQL1055 enhanced the antibody response to a commercial acellular pertussis vaccine to a greater degree than QS-21. Additionally, TQL1055 was better tolerated than QS-21, with no weight loss after vaccination. These findings suggested that TQL1055 may improve the performance of acellular pertussis vaccines without an increase in reactogenicity.

Disclosures. Chloe Buzz, BS, Adjuvance Technologies (Employee) Sean R. Bennett, MD PhD, Adjuvance Technologies (Employee) Phil Livingston, MD, Adjuvance Technologies (Consultant, Shareholder) Eric Farris, PhD, Adjuvance Technologies (Employee) Tyler Martin, MD, Adjuvance Technologies (Employee, Shareholder)

1239. Different Dose Levels of a Respiratory Syncytial Virus Maternal Vaccine Candidate (RSVPreF3) Administered to Non-pregnant Women in a Randomized Clinical Trial Are Immunogenic and Well Tolerated

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Session: P-57. New Vaccines

Background. Respiratory syncytial virus (RSV) is a leading cause of bronchiolitis and pneumonia in childhood. Maternal immunization could help to protect infants from RSV-associated infections in their first months of life. We evaluated the safety, reactogenicity and immunogenicity of the RSV maternal (RSVPreF3) vaccine candidate in non-pregnant women, at different dose levels.

Methods. In this phase I/II, observer-blind, multicenter study (NCT03674177), healthy non-pregnant women aged 18–45 years were randomized (1:1:1:1) and received 1 dose of either 30, 60 or 120 µg of RSVPreF3 vaccine (30/60/120 RSVPreF3 group) or placebo. Solicited adverse events (AEs) (until day 7 [D7] post-vaccination), unsolicited AEs (until D30 post-vaccination), hematological and biochemical laboratory abnormalities (at D8 and D31 post-vaccination) were recorded. Serious AEs (SAEs) were collected until D181 and immune responses until D91 post-vaccination. Exploratory analysis was performed at D31 to compare immunogenicity of different dose levels.