Synthesizing squalene to reduce need for shark liver oil

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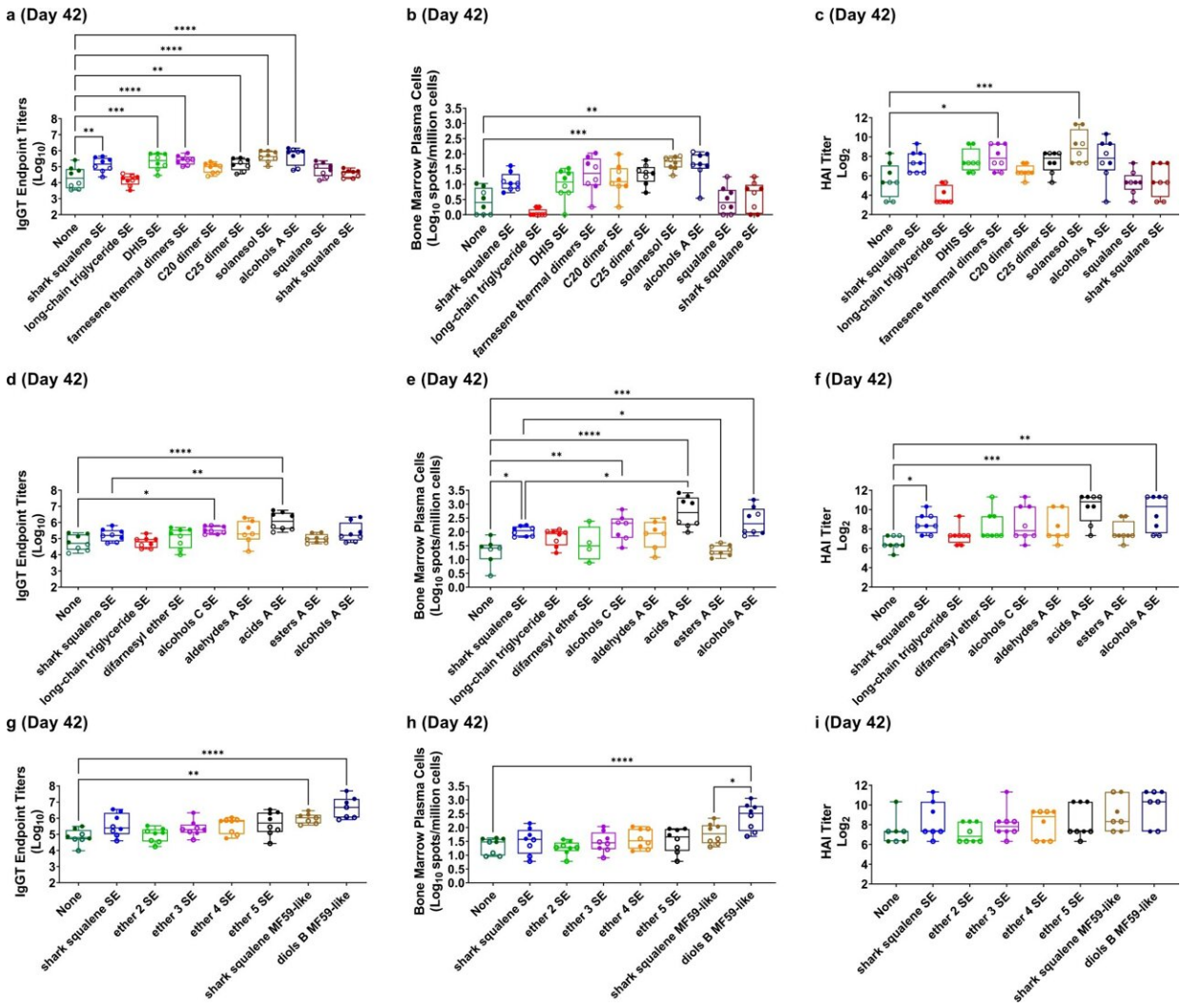

Effects of terpenoid oil emulsions on antigen-specific HAI, total IgG, and long-lived antibody-secreting plasma cells in mice immunized intramuscularly with split, inactivated H5N1 influenza antigen mixed with terpenoid emulsions.

Vaccine antigen was mixed with the indicated terpenoid oil emulsion immediately prior to intramuscular immunization of C57BL/6 mice (male [open circles] and female [closed circles]) such that each animal received 10 ng of antigen in 100 µL of 2% v/v terpenoid emulsion. Negative control groups received antigen alone (None) or antigen mixed with long-chain triglyceride emulsion. Three separate experiments each with different terpenoids as indicated are represented (**a–c**, **d–f**, and **g–i**). Data are represented as box-whisker plots with bars representing median values, boxes representing 1st–3rd quartiles, and whiskers representing the maximum and minimum values. Statistical evaluation of each terpenoid emulsion group compared to antigen alone (negative control) and shark squalene emulsion (positive control) was performed by one-way ANOVA with Sidak's correction for multiple comparisons or Kruskal–Wallis test with Dunn's correction for multiple comparisons as indicated; *p-value