

Efficacy of the Porcilis® APP vaccine to induce antibodies against toxins APX I, II,III and OMP

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INTRODUCTION

The etiologic agent of APP is *Actinobacillus pleuropneumoniae*. The organism is known to be involved in swine respiratory disease and often causes mortality in finisher swine.

There are two biotypes distinguished by their dependency for NAD (nicotinamide adenine dinucleotide) in culture. Within the two biotypes, at least 15 serotypes are commonly recognized.

The APP organism secretes 4 exotoxins, ApxI, ApxII, ApxIII and ApxIV, together called RTX toxins, and produces abundant endotoxin. The RTX toxins are cytotoxic and/or hemolytic.

The toxins produced vary among the 15 serotypes. Antibodies to the exotoxins are important in generating protective immunity.

MATERIALS AND METHODS

For this, APP negative piglets were vaccinated at 6 and 9 weeks of age through the intramuscular (IM) route with either Porcilis APP (G1, n=10), competitor toxoid vaccine (G2, n=10) or left unvaccinated as a negative control (G3, n=15).

Serum was collected at 6,9,11,13,15,17,19 and 21 weeks of age and tested with the following ELISA tests: APX I, APX II, APX III, OMP (R&D Service Lab, MSD Animal Health) and APX IV (IDEXX).

RESULTS

Pigs vaccinated with Porcilis APP displayed consistently higher APX I, APX II, APX III and OMP titres compared to pigs vaccinated with Vaccine 2.

Control pigs remained APX IV negative, indicating that all pigs were APP negative at the time of the study and that all antibodies induced were purely due to vaccination.

CONCLUSION

This study has shown that Porcilis® APP was able to generate and sustain higher levels of APX I, APX II, APX III and OMP antibodies in vaccinated pigs, throughout the monitoring period, compared to a competitor toxoid vaccine.

Figure 1.

APXI - Average antibody response after vaccination; with and without (dashed line) re-booster at 15 weeks of age

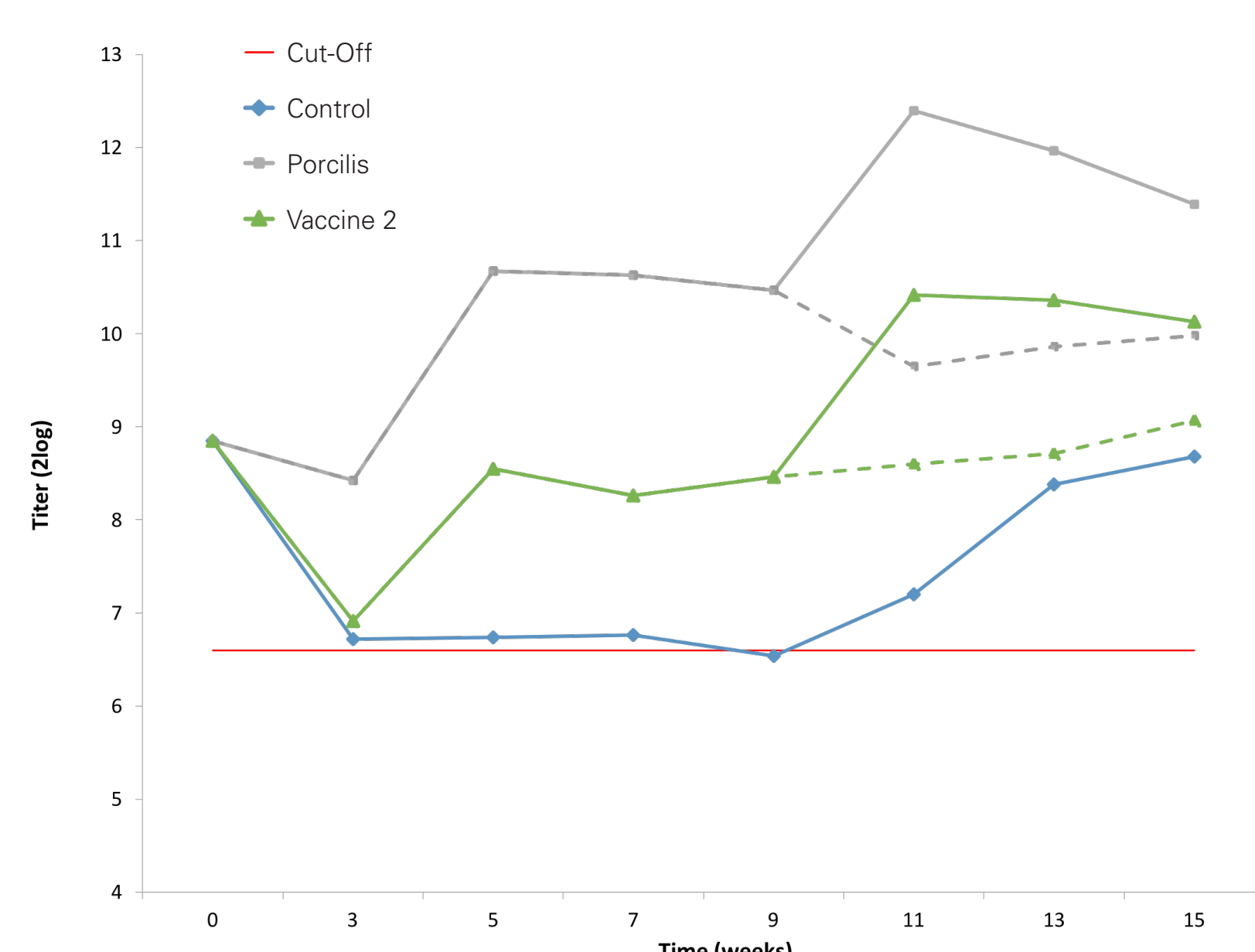


Figure 2.

APX II - Average antibody response after vaccination; with and without (dashed line) re-booster at 15 weeks of age

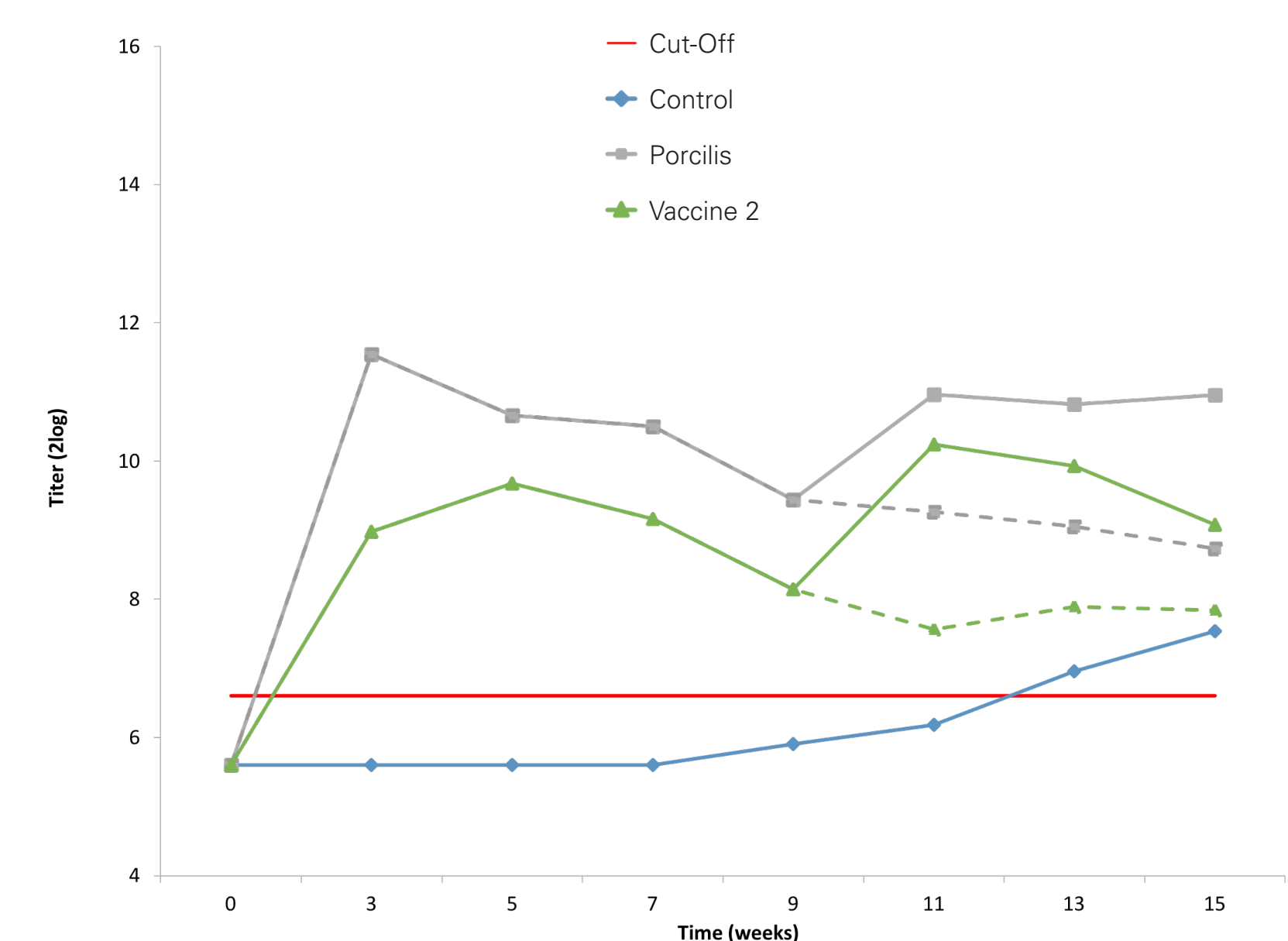


Figure 3.

APX III - Average antibody response after vaccination; with and without (dashed line) re-booster at 15 weeks of age

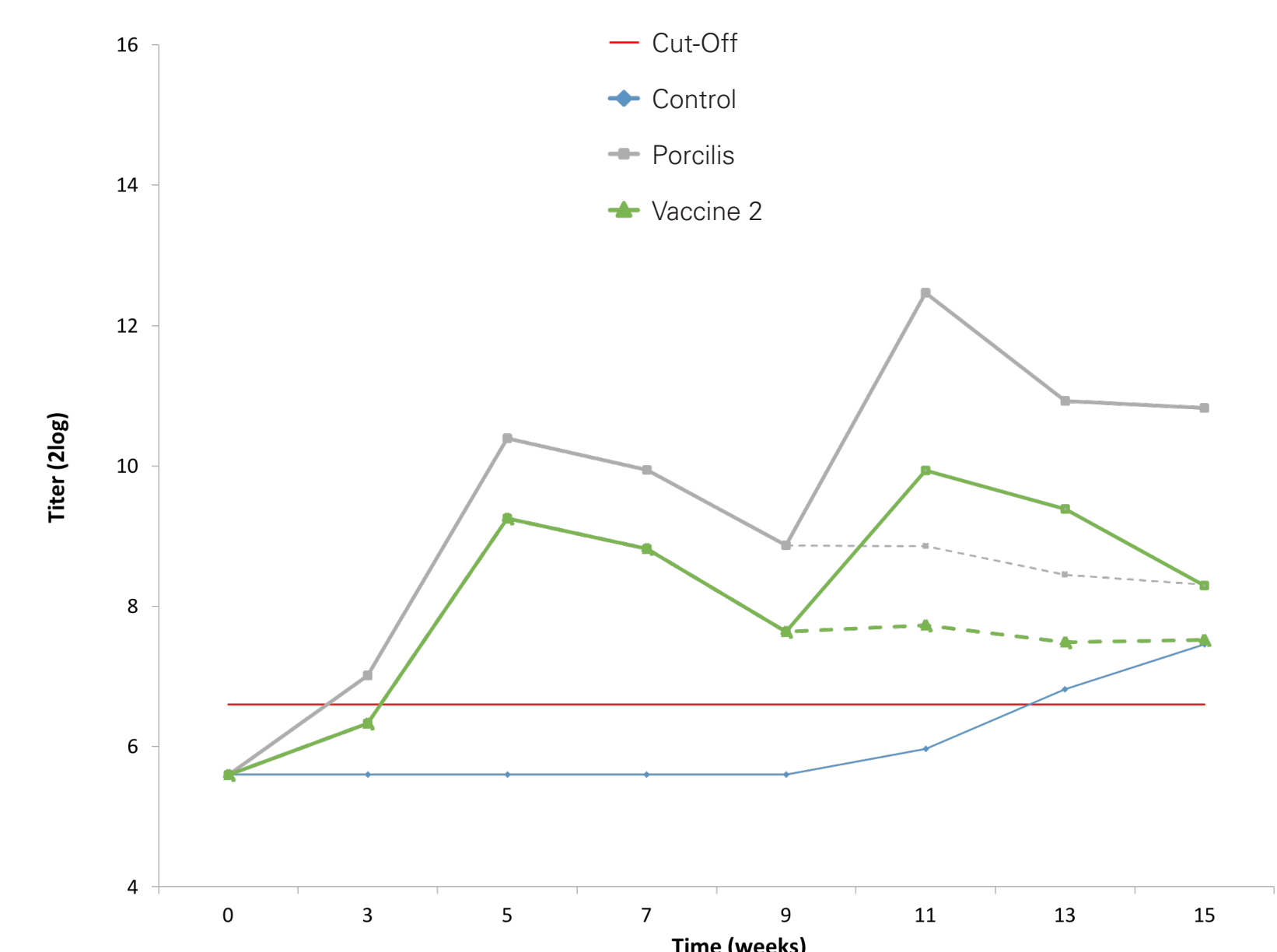
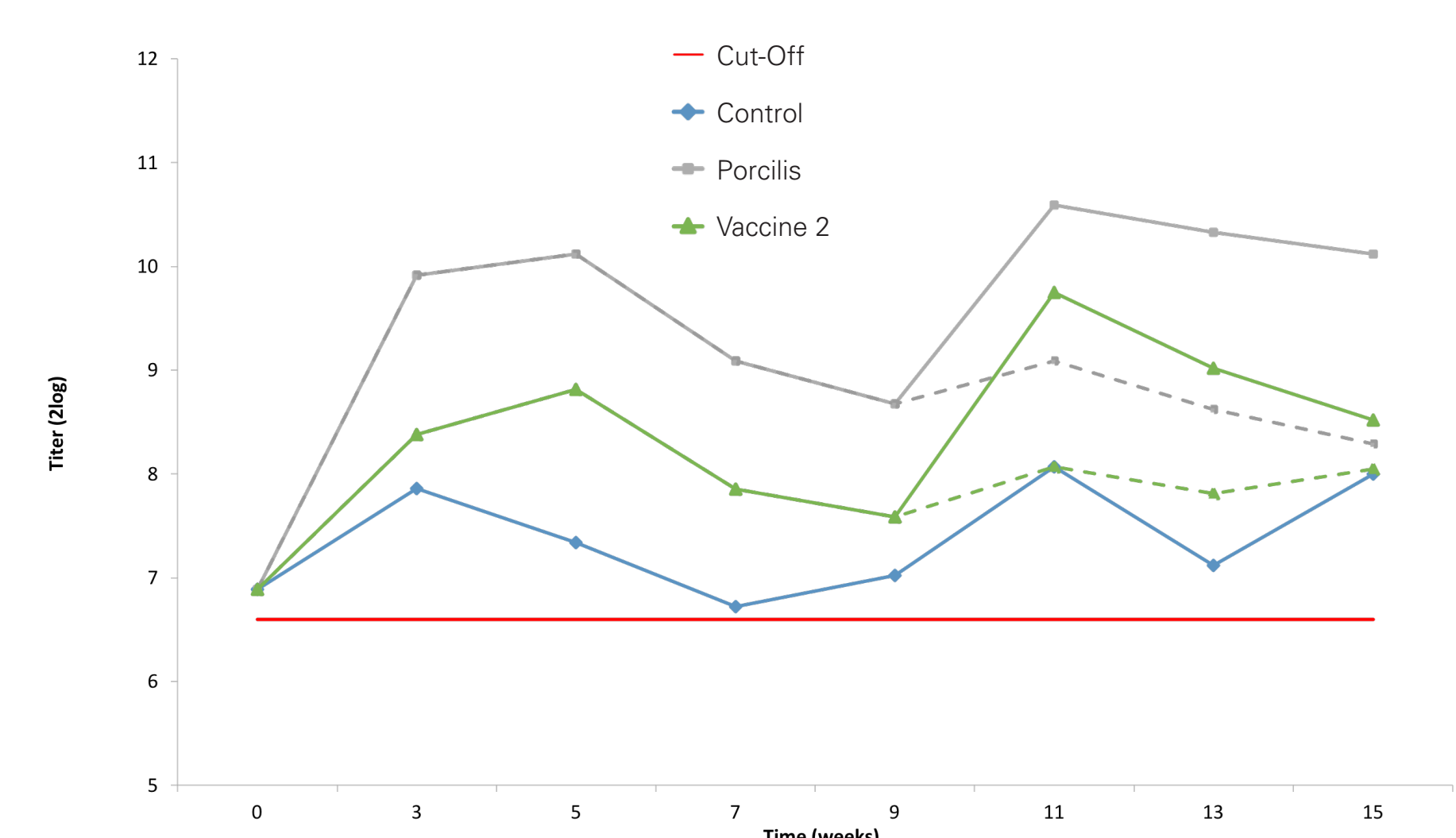


Figure 4.

OMP - Average antibody response after vaccination



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