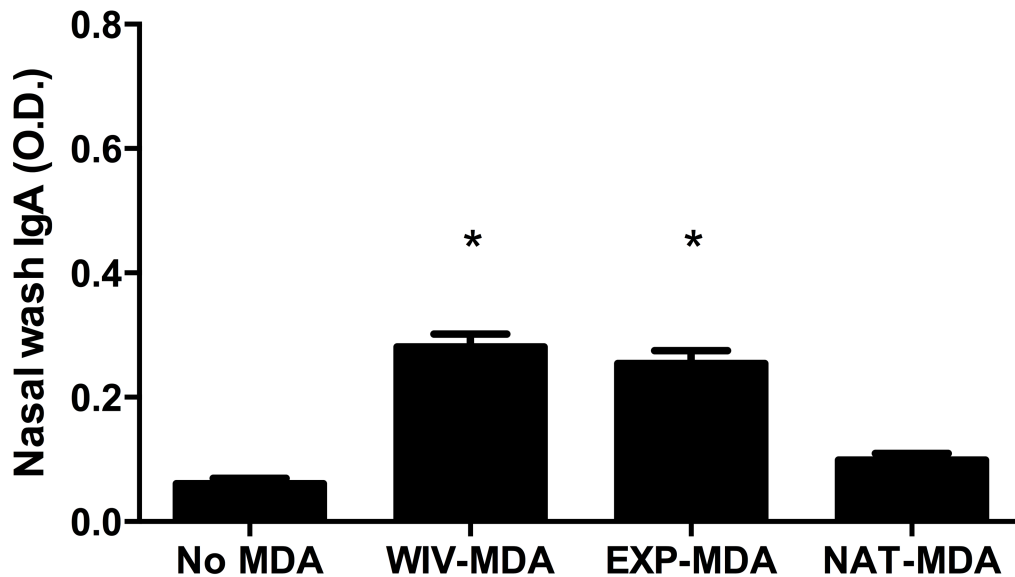
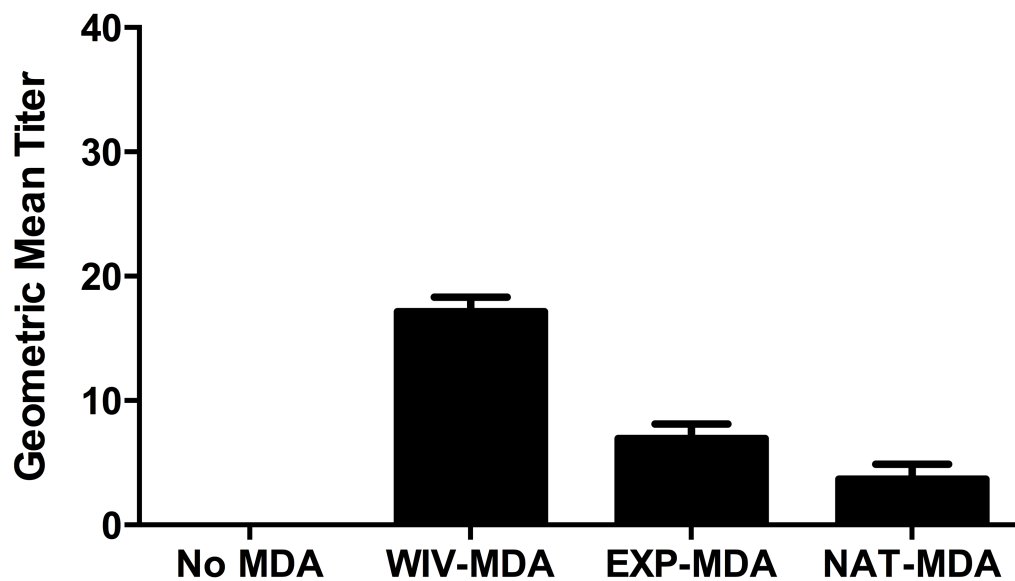


**Fig. S1.** Nasal wash antibody levels in 3 day-old piglets due to maternally-derived antibodies (MDA) induced by natural exposure of dams (NAT) or boosting seropositive dams with H1N1pdm09 WIV or experimental infection (EXP). (A) Mean optical density (O.D.) in whole-virus ELISAs for nasal wash IgA against H1N1pdm09 antigen. (B) Reciprocal geometric mean neutralization titers against homologous antigen. Asterisks indicate significant difference from the no MDA control group ( $P \leq 0.05$ ).

### A. ELISA



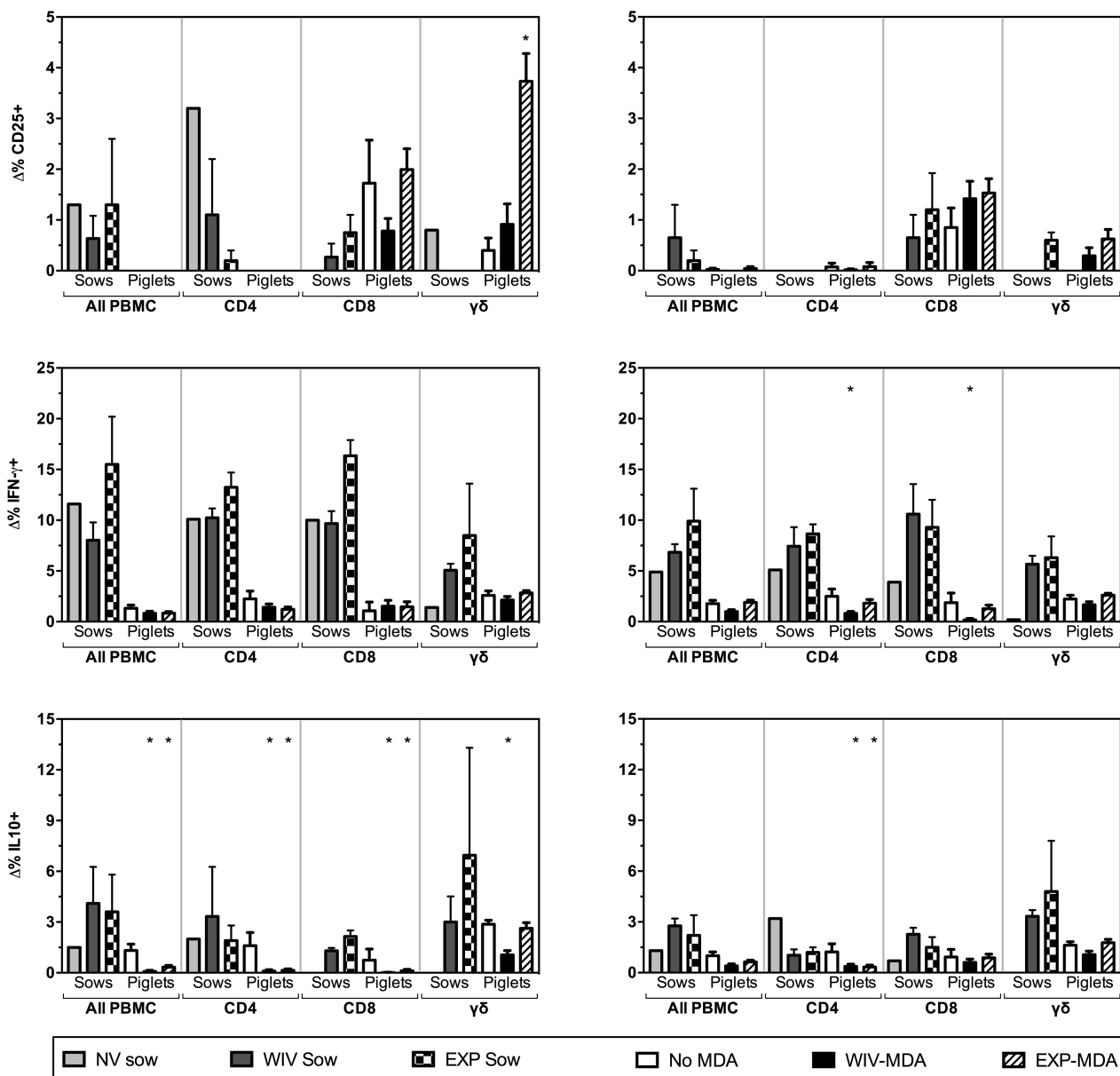
### B. Neutralization



**Fig. S2.** IAV-specific T cells subset responses for surface CD25 and intracellular IFN- $\gamma$  and IL-10 in PBMC of three-week-old piglets with no MDA or MDA elicited by boosting seropositive dams with H1N1pdm09 WIV or experimental infection (EXP), stimulated by recall homologous H1N1pdm09(2:6) or heterologous H1N2- $\delta$ 1(1:7) viruses. Sows' detectable values are included for illustration purpose only. Asterisks indicate statistically significant differences from No MDA control group ( $P \leq 0.05$ ).

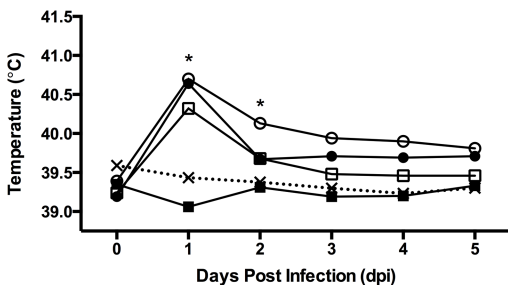
### H1N1pdm09 antigen

### H1N2- $\delta$ 1 antigen

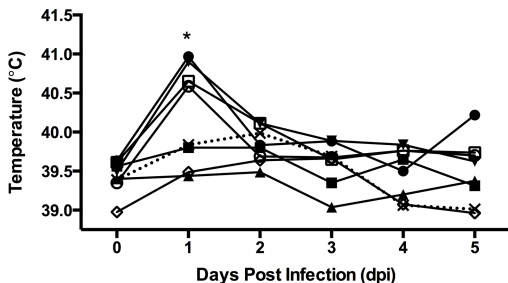


**Fig. S3.** Mean rectal temperatures of pigs with maternally-derived antibodies (MDA) from (A) naïve sows vaccinated with H1N2- $\delta$ 1(1:7) WIV in Study 1 or from (B) seropositive sows vaccinated with H1N1pdm09 WIV or experimentally infected with H1N1pdm09 (EXP-MDA), or from a non-boostered H1N1pdm09 naturally exposed sow (NAT-MDA) in Study 2. Pigs were challenged with homologous or heterologous viruses and temperatures were taken daily. Asterisks indicate significant difference from the NC and/or from No MDA controls within the same challenge virus ( $P \leq 0.05$ ).

### A. Study 1



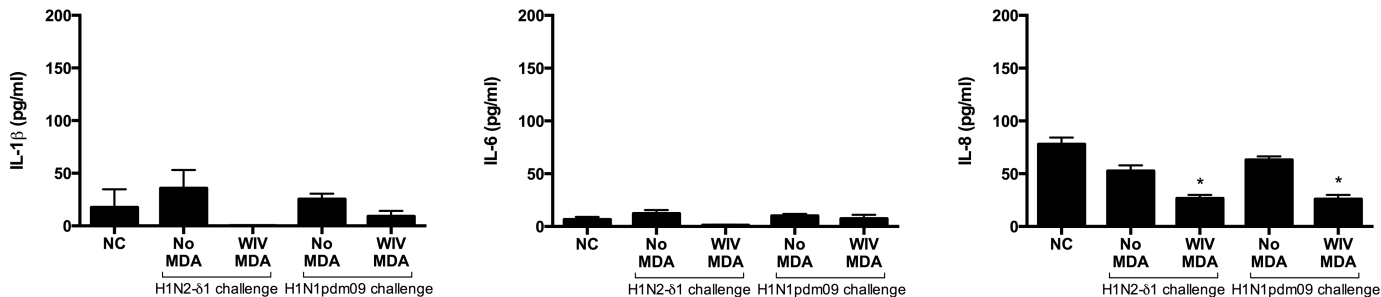
### B. Study 2



- x· NC
- No MDA/homologous
- WIV-MDA/homologous
- ▲ EXP-MDA/homologous
- No MDA/heterologous
- WIV-MDA/heterologous
- ▼ EXP-MDA/heterologous
- ◇ NAT-MDA/heterologous

**Fig. S4.** Mean IL-1 $\beta$ , IL-6, and IL-8 cytokine concentrations (pg/ml) in cell free bronchoalveolar lavage fluid (BALF) at 5 days post infection (dpi) with homologous or heterologous viruses from pigs with no MDA or MDA elicited by (A) vaccinating naïve sows with H1N2- $\delta$ 1(1:7) WIV in Study 1 or (B) boosting seropositive dams with H1N1pdm09 WIV or experimental infection (EXP) in Study 2. Asterisks are significantly different from the No-MDA challenged controls ( $P \leq .05$ ).

### A. Study 1



### B. Study 2

