

Article

Baseline Levels of Influenza-Specific B Cells and T Cell Responses Modulate Human Immune Responses to Swine Variant Influenza A/H3N2 Vaccine

| Subject | Day 0 (Vac 1) | | Day 8 | | | Day 21 (Vac 2) | | | Day 28 | | | Day 42 | | |
|---------|------------------|--------|-----------------------------|-----|--------|-----------------------------|-----|--------|-----------------------------|-----|--------|-----------------------------|----|--|
| | Titer | Titer | Ratio to Baselin e | sc1 | Titer | Ratio to Baselin e | sc1 | Titer | Ratio to Baselin e | sc1 | Titer | Ratio to Baselin e | sc | |
| ID01 | 113.14 | 80 | 0.7 | N | 80 | 0.7 | N | 160 | 1.4 | N | 160 | 1.4 | N | |
| ID02 | 56.57 | 80 | 1.4 | N | 160 | 2.8 | N | 160 | 2.8 | N | 160 | 2.8 | N | |
| ID03 | 10 | 20 | 2 | N | 28.28 | 2.8 | N | 20 | 2 | N | 20 | 2 | N | |
| ID04 | 40 | 80 | 2 | N | 56.57 | 1.4 | N | 160 | 4 | Y | 80 | 2 | N | |
| ID05 | 40 | 160 | 4 | Y | 160 | 4 | Y | 160 | 4 | Y | 160 | 4 | Y | |
| ID06 | 20 | 80 | 4 | Y | 160 | 8 | Y | 160 | 8 | Y | 320 | 16 | Y | |
| ID07 | 28.28 | 28.28 | 1 | N | 40 | 1.4 | N | 20 | 0.7 | N | 20 | 0.7 | N | |
| ID08 | 10 | 226.27 | 22.6 | Y | 320 | 32 | Y | 320 | 32 | Y | 160 | 16 | Y | |
| ID09 | 20 | 80 | 4 | Y | 452.55 | 22.6 | Y | 640 | 32 | Y | 640 | 32 | Y | |
| ID10 | 10 | 20 | 2 | N | 20 | 2 | N | 20 | 2 | N | 20 | 2 | N | |
| ID11 | 20 | 640 | 32 | Y | 320 | 16 | Y | 452.55 | 22.6 | Y | 452.55 | 22.6 | Y | |
| ID12 | 113.14 | 452.55 | 4 | Y | 160 | 1.4 | N | 160 | 1.4 | N | 320 | 2.8 | N | |
| ID13 | 5 | 10 | 2 | N | 20 | 4 | N | 20 | 4 | N | 20 | 4 | N | |
| ID14 | 40 | 80 | 2 | N | 80 | 2 | N | 80 | 2 | N | 80 | 2 | N | |
| ID15 | 10 | 80 | 8 | Y | 113.14 | 11.3 | Y | 80 | 8 | Y | 160 | 16 | Y | |
| ID16 | 56.57 | 80 | 1.4 | N | 80 | 1.4 | N | 80 | 1.4 | N | 80 | 1.4 | N | |
| ID17 | 20 | 160 | 8 | Y | 320 | 16 | Y | 320 | 16 | Y | 320 | 16 | Y | |
| ID18 | 113.14 | 226.27 | 2 | N | 226.27 | 2 | N | 320 | 2.8 | N | 320 | 2.8 | N | |
| ID19 | 40 | 160 | 4 | Y | 160 | 4 | Y | 226.27 | 5.7 | Y | 320 | 8 | Y | |
| ID20 | 20 | 20 | 1 | N | 40 | 2 | N | 40 | 2 | N | 40 | 2 | N | |
| ID21 | 28.28 | 640 | 22.6 | Y | 640 | 22.6 | Y | 640 | 22.6 | Y | 452.55 | 16 | Y | |
| ID22 | 28.28 | 160 | 5.7 | Y | 160 | 5.7 | Y | 160 | 5.7 | Y | 160 | 5.7 | Y | |
| ID23 | 20 | 80 | 4 | Y | 80 | 4 | Y | 80 | 4 | Y | 80 | 4 | Y | |
| ID24 | 40 | 160 | 4 | Y | 320 | 8 | Y | 320 | 8 | Y | 640 | 16 | Y | |
| ID25 | 28.28 | 40 | 1.4 | N | 113.14 | 4 | Y | 113.14 | 4 | Y | 160 | 5.7 | Y | |

Table S1. Summary of HAI antibody titer and seroconversion.



| Subject | Day 0 (Vac 1 | | Day 8 | | | Day 21 (Vac 2) | | | Day 28 | | | Day 42 | | |
|---------|-----------------|-------|-----------------------------|-----------------|-------|-----------------------------|-----|-------|-----------------------------|-----------------|-------|-----------------------------|-----|--|
| | Titer | Titer | Ratio to Baselin e | sc ¹ | Titer | Ratio to Baselin e | sc1 | Titer | Ratio to Baselin e | sc ¹ | Titer | Ratio to Baselin e | sc1 | |
| ID01 | 254 | 317 | 1.2 | N | 334 | 1.3 | N | 304 | 1.2 | N | 405 | 1.6 | N | |
| ID02 | 165 | 210 | 1.3 | N | 412 | 2.5 | Ν | 501 | 3 | N | 644 | 3.9 | N | |
| ID03 | 20 | 54 | 2.7 | N | 54 | 2.7 | N | 47 | 2.4 | N | 45 | 2.3 | N | |
| ID04 | 148 | 175 | 1.2 | N | 159 | 1.1 | N | 309 | 2.1 | N | 154 | 1 | N | |
| ID05 | 5 | 337 | 67.4 | Y | 632 | 126.4 | Y | 548 | 109.6 | Y | 372 | 74.4 | Y | |
| ID06 | 5 | 267 | 53.4 | Y | 708 | 141.6 | Y | 677 | 135.4 | Y | 748 | 149.6 | Y | |
| ID07 | 5 | 21 | 4.2 | N | 35 | 7 | Ν | 32 | 6.4 | N | 20 | 4 | N | |
| ID08 | 10 | 735 | 73.5 | Y | 655 | 65.5 | Y | 594 | 59.4 | Y | 319 | 31.9 | Y | |
| ID09 | 5 | 79 | 15.8 | Y | 696 | 139.2 | Y | 671 | 134.2 | Y | 670 | 134 | Y | |
| ID10 | 27 | 39 | 1.4 | N | 75 | 2.8 | Ν | 75 | 2.8 | N | 82 | 3 | N | |
| ID11 | 26 | 699 | 26.9 | Y | 685 | 26.3 | Y | 801 | 30.8 | Y | 658 | 25.3 | Y | |
| ID12 | 5 | 5 | 1 | N | 5 | 1 | N | 5 | 1 | N | 5 | 1 | N | |
| ID13 | 11 | 42 | 3.8 | N | 232 | 21.1 | Y | 179 | 16.3 | Y | 234 | 21.3 | Y | |
| ID14 | 79 | 135 | 1.7 | N | 208 | 2.6 | Ν | 214 | 2.7 | N | 281 | 3.6 | N | |
| ID15 | 14 | 156 | 11.1 | Y | 284 | 20.3 | Y | 156 | 11.1 | Y | 314 | 22.4 | Y | |
| ID16 | 102 | 278 | 2.7 | N | 188 | 1.8 | Ν | 238 | 2.3 | N | 161 | 1.6 | N | |
| ID17 | 67 | 655 | 9.8 | Y | 1797 | 26.8 | Y | 1551 | 23.1 | Y | 957 | 14.3 | Y | |
| ID18 | 315 | 567 | 1.8 | N | 659 | 2.1 | N | 653 | 2.1 | N | 658 | 2.1 | N | |
| ID19 | 242 | 654 | 2.7 | N | 686 | 2.8 | Ν | 659 | 2.7 | N | 680 | 2.8 | N | |
| ID20 | 37 | 51 | 1.4 | N | 67 | 1.8 | N | 61 | 1.6 | N | 74 | 2 | N | |
| ID21 | 5 | 1227 | 245.4 | Y | 3693 | 738.6 | Y | 3448 | 689.6 | Y | 1559 | 311.8 | Y | |
| ID22 | 13 | 565 | 43.5 | Y | 541 | 41.6 | Y | 440 | 33.8 | Y | 292 | 22.5 | Y | |
| ID23 | 33 | 192 | 5.8 | Y | 229 | 6.9 | Y | 232 | 7 | Y | 213 | 6.5 | Y | |
| ID24 | 75 | 433 | 5.8 | Y | 823 | 11 | Y | 705 | 9.4 | Y | 1206 | 16.1 | Y | |
| ID25 | 22 | 111 | 5 | Y | 215 | 9.8 | Y | 254 | 11.5 | Y | 281 | 12.8 | Y | |

Table S2. Summary of neutralization antibody titer and seroconversion.

Table S3. HAI and MN response by demographic and baseline characteristics of participants.

| Characteristics | | HAI Respons | e at Day 42 | MN Response at Day 42 | | | |
|--------------------------------|----|-----------------------|-------------------|-------------------------|-------------------|--|--|
| | Ν | GMT (95% CI) | Seroconversion - | GMT (95% CI) | Seroconversion - | | |
| | | | % (95% CI) | | % (95% CI) | | |
| Age | | | | | | | |
| 18 – 49 (N=X) | 19 | 121.70 (72.93-203.09) | 47.4 (24.4-71.1) | 268.22 (157.44-456.93) | 42.1 (20.3-66.5) | | |
| 50+ (N=X) | 6 | 190.27 (52.06-695.48) | 66.7 (22.3-95.7) | 229.21 (28.39-1850.35) | 83.3 (35.9-99.6) | | |
| Gender | | | | | | | |
| Female | 11 | 128.33 (60.45-272.45) | 63.6 (30.8-89.1) | 285.47 (140.25-581.05) | 63.6 (30.8-89.1) | | |
| Male | 14 | 141.37 (74.15-269.55) | 42.9 (17.7-71.1) | 238.76 (98.58-578.30) | 42.9 (17.7-71.1) | | |
| Race | | | | | | | |
| Asian | 4 | 160.00 (44.77-571.78) | 50.0 (6.8-93.2) | 414.29 (154.26-1112.65) | 50.0 (6.8-93.2) | | |
| Black | 8 | 174.48 (67.37-451.86) | 50.0 (15.7-84.3) | 331.89 (113.31-972.14) | 37.5 (8.5-75.5) | | |
| Multi-Racial | 1 | 160.00 (NC) | 100.0 (2.5-100.0) | 281.00 (NC) | 100.0 (2.5-100.0) | | |
| White | 12 | 106.79 (49.00-232.72) | 50.0 (21.1-78.9) | 185.38 (69.20-496.61) | 58.3 (27.7-84.8) | | |
| Prior IIV ¹ Receipt | | | | | | | |
| None | 5 | 171.48 (35.91-818.89) | 60.0 (14.7-94.7) | 437.74 (109.60-1748.34) | 40.0 (5.3-85.3) | | |
| 2011/12 or 2012/13 IIV | 20 | 127.73 (77.04-211.75) | 50.0 (27.2-72.8) | 226.37 (119.73-428.00) | 55.0 (31.5-76.9) | | |

¹IIV: Inactivated Influenza Vaccine; NC = Not calculated due to insufficient data



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