**Supplementary Information 1: Hemagglutination-inhibition immunogenicity in the per-protocol immunogenicity cohort by seasonal influenza vaccination history**

|  | **Previous Vaccination†** | **A/H1N1** | **A/H3N2** | **B/Yamagata** | **B/Victoria** |
| --- | --- | --- | --- | --- | --- |
|  |  | **Day 0** | **Day 21** | **Day 0** | **Day 21** | **Day 0** | **Day 21** | **Day 0** | **Day 21** |
| **Seropositivity‡ rate, % (95% CI)** |
| Adult, N=62 | Yes | 96.8(83.3, 99.9) | 100(88.8, 100) | 96.8(83.3, 99.9) | 100(88.8, 100) | 100(88.8, 100) | 100(88.8, 100) | 100(88.8, 100) | 100(88.8, 100) |
| No | 67.7(48.6, 83.3) | 100(88.8, 100) | 71.0(52.0, 85.8) | 100(88.8, 100) | 90.3(74.2, 98.0) | 100(88.8, 100) | 90.3(74.2, 98.0) | 100(88.8, 100) |
| Older adult, N=57 | Yes | 91.3(79.2, 97.6) | 100(92.3, 100) | 93.5(82.1, 98.6) | 100(93.7 100) | 100(92.3, 100) | 100(92.3, 100) | 100(92.3, 100) | 100(92.3, 100) |
| No | 90.9(58.7, 99.8) | 100(71.5, 100) | 81.8(48.2, 97.7) | 100(71.5, 100) | 100(71.5, 100) | 100(71.5, 100) | 100(71.5 100) | 100(71.5, 100) |
| **GMT, value (95% CI)** |
| Adult, N=62 | Yes | 86.5(56.7, 132.0) | 276.7(206.8, 370.3) | 41.3(26.1, 65.5) | 342.2(240.9, 486.1) | 133.7(89.2, 200.4) | 306.0(223.4, 419.0) | 95.6(68.7, 133.0) | 282.9(207.7, 385.3) |
| No | 25.9(14.4, 46.5) | 765.3(499.0, 1174.0) | 24.7(14.5, 42.2) | 334.6(215.2, 520.3) | 52.9(29.5, 94.6) | 374.2(257.8, 543.1) | 49.5(30.7, 79.6)  | 473.2(341.5, 655.7) |
| Older adult, N=57 | Yes | 33.9(23.4, 48.9) | 151.8(111.2, 207.0) | 44.8(30.1, 66.5) | 281.6(196.3, 403.9) | 88.2(70.2, 110.8) | 194.6(157.6, 240.3) | 114.9(82.7, 159.5) | 259.2(196.3, 342.3)  |
| No | 22.0(11.0, 43.9) | 248.7(115.6, 534.9) | 31.0(11.1, 87.1) | 438.5(229.9, 836.4) | 45.4(24.7, 83.5) | 425.0(267.3, 675.7) | 54.8(29.3, 102.8)  | 452.5(236.2, 867.1) |
| **SPR, % (95% CI)** |
| Adult, N=62 | Yes | 87.1(70.2, 96.4) | 100(88.8, 100) | 51.6(33.1, 69.8) | 100(88.8, 100) | 90.3(74.2, 98.0) | 100(88.8, 100) | 87.1(70.2, 96.4) | 100(88.8, 100) |
| No | 41.9(24.5, 60.9) | 100(88.8, 100) | 41.9(24.5, 60.9) | 96.8(83.3, 99.9) | 58.1(39.1, 75.5) | 100(88.8, 100) | 67.7(48.6, 83.3) | 100(88.8, 100) |
| Older adult, N=57 | Yes | 58.7(43.2, 73.0) | 93.5(82.1, 98.6) | 60.9(45.4, 74.9) | 95.7(85.2, 99.5) | 89.1(76.4, 96.4) | 100(92.3, 100) | 89.1(76.4, 96.4) | 100(92.3, 100) |
| No | 36.4(10.9, 69.2) | 100(71.5, 100) | 45.5(16.7, 76.6) | 100(71.5, 100) | 54.5(23.4, 83.3) | 100(71.5, 100) | 63.6(30.8, 89.1) | 100(71.5, 100) |
| **SCR, % (95% CI)** |
| Adult, N=62 | Yes | – | 45.227.3, 64.0 | – | 80.6(62.5, 92.5) | – | 25.8(11.9, 44.6) | – | 45.2(27.3, 64.0) |
| No | – | 77.4(58.9, 90.4) | – | 77.4(58.9, 90.4) | – | 74.2(55.4, 88.1) | – | 77.4(58.9, 90.4) |
| Older adult, N=57 | Yes | – | 56.5(41.1, 71.1) | – | 71.7(56.5, 84.0) | – | 26.1(14.3, 41.1) | – | 28.3(16.0, 43.5) |
| No | – | 81.8(48.2, 97.7) | – | 72.7(39.0, 94.0) | – | 72.7(39.0, 94.0) | – | 63.6(30.8, 89.1) |
| **MGI, value (95% CI)** |
| Adult, N=62 | Yes | – | 3.2(2.3, 4.5) | – | 8.3(5.4, 12.7) | – | 2.3(1.7, 3.0) | – | 3.0(2.1, 4.1) |
| No | – | 29.6(13.5, 64.8) | – | 13.5(8.3, 22.2) | – | 7.1(4.4, 11.3) | – | 9.6(5.6, 16.4) |
| Older adult, N=57 | Yes | – | 4.5(3.2, 6.3) | – | 6.3(4.5, 8.8) | – | 2.2(1.8, 2.6) | – | 2.3(1.8, 2.9) |
| No | – | 11.3(4.1, 31.1) | – | 14.1(4.9, 40.8) | – | 9.4(4.2, 21.0) | – | 8.3(3.1, 21.9) |

†Received seasonal influenza vaccine during the preceding season; ‡Seropositive defined as titer ≥1:10; GMT, geometric mean titer; SCR, seroconversion rate defined as the proportion with antibody titer <1:10 at baseline and with post-vaccination titer of ≥1:40, or pre-vaccination titer of ≥1:10 and a ≥4-fold post-vaccination increase in titer; SPR, seroprotection rate, defined as proportion of subjects with titer ≥1:40; MGI, mean geometric increase, defined as the fold increase in GMT after vaccination compared with pre-vaccination; CI, confidence interval; Adult, aged 18–60 years; Older, aged >60 years