**Table S1. Summary of Antibody Responses 4 Weeks Following PNC Vaccination**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **Antepartum** | **Postpartum** |
| **Serotype** | **Measure** | **PCV-10** **(N=114)** | **PPV-23** **(N=110)** | **PCV-10** **(N=50)** | **PPV-23** **(N=51)** |
| 1 | Geometric mean (95% CI) | 1.2 (1,1.44) | 1.88 (1.50,2.37) | 1.83 (1.33,2.51) | 4.41 (3.29,5.93) |
|  | % with >2-fold rise (95% CI) | 77% (68%,85%) | 84% (75%,90%) | 83% (70%,93%) | 88% (76%,95%) |
|  | % with >0.35 ug/ml (95% CI) | 90% (83%,95%) | 93% (86%,97%) | 94% (83%,99%) | 100% (93%,100%) |
|  | % with >1 ug/ml (95% CI) | 58% (48%,67%) | 69% (60%,78%) | 68% (53%,80%) | 92% (81%,98%) |
|  | % with >4 ug/ml (95% CI) | 14% (8%,22%) | 25% (18%,35%) | 22% (12%,36%) | 59% (44%,72%) |
| 4 | Geometric mean (95% CI) | 2.69 (2.19,3.29) | 1.02 (0.83,1.25) | 4.49 (3.16,6.38) | 1.59 (1.15,2.20) |
|  | % with >2-fold rise (95% CI) | 90% (83%,95%) | 61% (51%,70%) | 92% (80%,98%) | 83% (70%,93%) |
|  | % with >0.35 ug/ml (95% CI) | 96% (91%,99%) | 85% (77%,91%) | 98% (89%,100%) | 96% (87%,100%) |
|  | % with >1 ug/ml (95% CI)  | 82% (74%,89%) | 48% (39%,58%) | 88% (76%,95%) | 61% (46%,74%) |
|  | % with >4 ug/ml (95% CI) | 39% (30%,48%) | 11% (6%,18%) | 62% (47%,75%) | 20% (10%,33%) |
| 5 | Geometric mean (95% CI) | 1.18 (0.96,1.45) | 1.01 (0.81,1.27) | 1.82 (1.28,2.58) | 2.07 (1.59,2.70) |
|  | % with >2-fold rise (95% CI) | 49% (40%,59%) | 42% (32%,52%) | 54% (39%,69%) | 74% (60%,85%) |
|  | % with >0.35 ug/ml (95% CI) | 83% (75%,90%) | 84% (75%,90%) | 90% (78%,97%) | 96% (87%,100%) |
|  | % with >1 ug/ml (95% CI) | 55% (46%,65%) | 51% (41%,61% | 66% (51%,79%) | 84% (71%,93%) |
|  | % with >4 ug/ml (95% CI)  | 10% (5%,17%) | 12% (6%,19%) | 24% (13%,38%) | 31% (19%,46%) |
| 6B | Geometric mean (95% CI) | 2.75 (2.16,3.49) | 3.47 (2.55,4.71) | 3.64 (2.58,5.14) | 4.43 (2.97,6.62) |
|  | % with >2-fold rise (95% CI) | 67% (57%,75%) | 75% (66%,83%) | 79% (65%,90%) | 92% (81%,98%) |
|  | % with >0.35 ug/ml (95% CI)  | 92% (86%,96%) | 91% (84%,96%) | 96% (86%,100%) | 96% (87%,100%) |
|  | % with >1 ug/ml (95% CI) | 76% (67%,84%) | 76% (67%,84%) | 84% (71%,93%) | 86% (74%,94%) |
|  | % with >4 ug/ml (95% CI) | 39% (30%,48%) | 48% (39%,58%) | 56% (41%,70%) | 55% (40%,69%) |
| 7F | Geometric mean (95% CI) | 1.28 (1.05,1.58) | 1.61 (1.27,2.04) | 1.57 (1.11,2.24) | 2.37 (1.70,3.30) |
|  | % with >2-fold rise (95% CI) | 74% (65%,81%) | 77% (68%,85%) | 69% (54%,81%) | 84% (71%,93%) |
|  | % with >0.35 ug/ml (95% CI) | 89% (81%,94%) | 90% (83%,95%) | 94% (83%,99%) | 88% (76%,96%) |
|  | % with >1 ug/ml (95% CI) | 58% (48%,67%) | 65% (55%,73%) | 62% (47%,75% | 84% (71%,93%) |
|  | % with >4 ug/ml (95% CI) | 16% (10%,24%) | 22% (15%,31%) | 18% (9%,31%) | 35% (22%,50%) |
| 14 | Geometric mean (95% CI) | 9.35 (7.07,12.36) | 7.70 (5.44,10.90) | 10.13 (6.38,16.08) | 24.09 (14.51,40.00) |
|  | % with >2-fold rise | 72% (63%,80%) | 77% (68%,85%) | 69% (54%,81%) | 86% (73%,94%) |
|  | % with >0.35 ug/ml (95% CI) | 96% (90%,99%) | 94% (87%,97%) | 98% (89%,100%) | 94% (84%,99%) |
|  | % with >1 ug/ml (95% CI) | 93% (87%,97%) | 86% (79%,92%) | 92% (81%,98%) | 94% (84%,99%) |
|  | % with >4 ug/ml (95% CI) | 78% (69%,85%) | 64% (54%,73%) | 78% (64%,88%) | 90% (79%,97%) |
| 23F | Geometric mean (95% CI) | 1.76 (1.41,2.2) | 1.55 (1.20,2.02) | 2.05 (1.40,2.99) | 3.15 (2.14,4.65) |
|  | % with >2-fold rise (95% CI) | 73% (64%,81%) | 67% (58%,76%) | 80% (65%,90%) | 90% (78%,97%) |
|  | % with >0.35 ug/ml (95% CI) | 92% (85%,96%) | 85% (76%,91%) | 91% (80%,98%) | 94% (84%,99%) |
|  | % with >1 ug/ml (95% CI) | 69% (60%,78%) | 59% (49%,68%) | 70% (55%,83%) | 78% (65%,89%) |
|  | % with >4 ug/ml (95% CI) | 23% (15%,31%) | 26% (18%,36%) | 32% (19%,47%) | 47% (33%,62%), |
| 33F\* | Geometric mean (95% CI) | 0.51 (0.42,0.61) | 3.09 (2.43,3.92) | 0.56 (0.40,0.79) | 6.00 (4.18,8.63) |
|  | % with >2-fold rise (95% CI)  | 4% (1%,10%) | 88% (80%,93%) | 2% (0%,11%) | 94% (83%,99%) |
|  | % with >0.35 ug/ml (95% CI) | 68% (58%,76%) | 96% (91%,99%) | 68% (53%,80%) | 98% (90%,100%) |
|  | % with >1 ug/ml (95% CI) | 21% (14%,30%) | 80% (71%,87%) | 40% (26%,55%) | 90% (79%,97%) |
|  | % with >4 ug/ml (95% CI) | 4% (1%,10%) | 42% (32%,52%) | 0% (0%,7%) | 61% (46%,74%) |

**Table S2: Baseline Characteristics for Women with Memory B and T Cell Results**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Characteristic** | **Antepartum****PCV-10 (N=38)** | **Antepartum****PPV-23 (N=37)** | **Postpartum****PCV-10 (N=35)** | **Postpartum****PPV-23 (N=29)** |
| Race | Black | 24 (63%) | 26 (70%) | 20 (57%) | 20 (69%) |
|  | White | 13 (34%) | 9 (24%) | 8 (23%) | 6 (21%) |
|  | Other | 1 (3%) | 0 (0%) | 6 (17%) | 3 (10%) |
|  | Unknown | 0 (0%) | 2 (5%) | 1 (3%) | 0 (0%) |
| Ethnicity | Latino | 36 (95%) | 33 (89%) | 32 (91%) | 29 (100%) |
|  | Not Latino | 0 (0%) | 1 (3%) | 1 (3%) | 0 (0%) |
|  | Unknown | 2 (5%) | 3 (8%) | 2 (6%) | 0 (0%) |
| Age at randomization (years) | Mean (SD) | 28 (5) | 27 (7) | 29 (6) | 28 (7) |
| Gestational age at randomization (weeks) | Mean (SD) | 28 (5) | 27 (5) | N/A | N/A |
| CD4% | Mean (SD) | 33 (8) | 33 (10) | 35 (9) | 33 (11) |
| CD4 cells/µL | Mean (SD) | 634 (217) | 590 (284) | 781 (297) | 811 (428) |
| CD4>200 cells/µL | Yes | 37 (97%) | 35 (95%) | 33 (94%) | 28 (97%) |
| CD8 cells/µL | Mean (SD) | 803 (284) | 782 (392) | 822 (325) | 957 (302) |
| RNA copies/mL of plasma | Median (Q1-Q3) | 39 (39-58) | 39 (39-106)\* | 39 (39-39) | 39 (39-82) |
| RNA <40 copies/mL | Yes | 28 (74%) | 22 (61%)\* | 30 (86%) | 21 (72%) |
| ARV Use | Yes | 38 (100%) | 37 (100%) | 33 (94%) | 27 (93%) |

\*One participant had missing data

Abbreviations: Q1 and Q3: 25th and 75th percentiles; SD: standard deviation

**Table S3. B and T cell memory responses to vaccination**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Characteristic** | **Antepartum****PCV-10 (N=17)** | **Antepartum****PPV-23 (N=17)** | **Postpartum****PCV-10 (N=18)** | **Postpartum****PPV-23 (N=14)** |
| Pre-vaccination IgA | 0 (0,4)\* | 0 (0,4) | 0 (0,8) | 0 (0,8) |
| Post-vaccination IgA | 0 (0,4) | 0 (0,2) | 1 (0,12) | 0 (0,6) |
| Change from pre- to post- vaccination IgA | 0 (-4,2) | 0 (-4,2) | 0 (-6,6) | 0 (-6,6) |
| Pre-vaccination IgG | 2 (0,34) | 2 (0,16) | 3 (0,26) | 2 (0,14) |
| Post-vaccination IgG | 3 (0,22) | 4 (0,18) | 5 (0,24) | 2 (0, 24) |
| Change from pre- to post- vaccination IgG | 0 (-30,6) | 2 (-12,10) | 0 (-12,24) | -2 (-12,18) |
| Pre-vaccination IFN | 5 (0,28) | 6 (0,172) | 13 (0,94) | 6 (0,164) |
| Post-vaccination IFN | 4 (0,86) | 4 (0,188) | 8 (0,70) | 11 (0,76) |
| Change from pre- to post- vaccination IFN | 6 (-12,86) | 0 (-68,68) | 2 (-30,60) | 2 (-88,28) |
| Pre-vaccination IL17A | 3 (0,76) | 6 (0,144) | 11 (0,62) | 4 (0,128) |
| Post-vaccination IL17A | 6 (0,66) | 6 (0,148) | 6 (0,84) | 10 (2,62) |
| Change from pre- to post- vaccination IL17A | 1 (-26,22) | 0 (-70,36) | 0 (-22,62) | 6 (-74,40) |

\* Numbers represent median (min-max) SFC/106 PBMC

**Table S4: Demographic and HIV Disease Characteristics for Women with Biomarker Data**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Characteristic** | **Antepartum****PCV-10 (N=38)** | **Antepartum****PPV-23 (N=38)** | **Postpartum****PCV-10 (N=25)** | **Postpartum****PPV-23 (N=28)** |
| Race | Black | 21 (55%) | 24 (63%) | 15 (60%) | 19 (68%) |
|  | White | 12 (32%) | 10 (26%) | 4 (16%) | 5 (18%) |
|  | Other | 5 (13%) | 2 (5%) | 6 (24%) | 4 (14%) |
|  | Unknown | 0 (0%) | 2 (5%) | 0 (0%) | 0 (0%) |
| Ethnicity | Latino | 35 (92%) | 35 (92%) | 25 (100%) | 28 (100%) |
|  | Not Latino | 1 (3%) | 0 (0%) | 0 (0%) | 0 (0%) |
|  | Unknown | 2 (5%) | 3 (8%) | 0 (0%) | 0 (0%) |
| Age at randomization (years) | Mean (SD) | 27 (5) | 27 (7) | 30 (7) | 28 (6) |
| Gestational age at randomization (weeks) | Mean (SD) | 27 (5) | 27 (5) | N/A | N/A |
| CD4% | Mean (SD) | 32 (6) | 32 (10) | 34 (10) | 32 (11) |
| CD4 cells/µL | Mean (SD) | 631 (196) | 612 (276) | 730 (326) | 771 (455) |
| CD4>200 cells/µL | Yes | 38 (100%) | 36 (95%) | 23 (92%) | 26 (93%) |
| CD8 cells/µL | Mean (SD) | 850 (283) | 851 (411) | 785 (298) | 912 (355) |
| RNA copies/mL of plasma | Median (Q1-Q3) | 39 (39-77) | 39 (39-217)\* | 39 (39-39) | 39 (39-61) |
| RNA <40 copies/mL | Yes | 27 (71%) | 22 (59%)\* | 21 (84%) | 21 (75%) |
| ARV Use | Yes | 38 (100%) | 38 (100%) | 23 (92%) | 26 (93%) |

\*One participant had missing data

Abbreviations: Q1 and Q3: 25th and 75th percentiles; SD: standard deviation

**Table S5: Biomarker concentrations**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Biomarker** | **Antepartum** **PCV-10** **(N=38)** | **Antepartum** **PPV-23** **(N=35)** | **Postpartum** **PCV-10** **(N=25)** | **Postpartum** **PPV-23** **(N=28)** |
| CCL-11 | 313.6 (217.3-536.9)\* | 237.4 (114.9-407.2) | 669.7 (198.5-914.8) | 585.7 (199.8-980.4) |
| CCL-13(MCP-4) | 168.7 (109.4-227.6) | 138 (81.5-196.3) | 297.9 (159.3-569.2) | 288 (123.6-460.1) |
| CCL-17 | 35.7 (23.8-52.3) | 32.7 (23.4-52.8) | 72.8 (59.5-130) | 77.2 (64.7-138.2) |
| CCL-2(MCP-1) | 97.7 (77.8-120.1) | 85.6 (65.1-104.4) | 160.5 (108.2-195.5) | 134.7 (101.1-164.7) |
| CCL-22(MDC) | 605.6 (498.4-761.1) | 542.5 (444.5-644.4) | 884.1 (786.9-1122.9) | 1045.6 (891.8-1331.8) |
| CCL-26(Eotaxin 3) | 58.4 (30-85.7) | 61 (16-90.5) | 42.5 (15.8-84.1) | 57.7 (12-94.7) |
| CCL-3(MIP-1) | 12.5 (11-17.3) | 12 (9-14.7) | 13.5 (11.5-19.3) | 13.2 (10.9-16.2) |
| CCL-4(MIP-1) | 54.5 (44.2-80.5) | 55.1 (43.6-74.9) | 52.6 (37-68.8) | 53.8 (40.4-70.5) |
| CXCL-10 (IP-10) | 445.1 (293.1-600) | 444.6 (303.5-600.8) | 600.4 (418.2-1326.2) | 681.6 (396.6-1185) |
| IFN | 7.9 (4.9-11.6) | 7.4 (5.4-9.4) | 5.7 (4.9-9.8) | 8.1 (5.1-14.3) |
| IL-10 | 0.3 (0.2-0.5) | 0.4 (0.2-0.5) | 0.3 (0.2-0.5) | 0.3 (0.2-0.5) |
| IL-12p70 | 0.09 (0.05-0.1) | 0.1 (0.07-0.2) | 0.09 (0.06-0.1) | 0.1 (0.07-0.1) |
| IL-13 | 0.2 (0.01-0.4) | 0.25 (0.02-0.6) | 0.07 (0.01-0.3) | 0.2 (0.02-0.5) |
| IL-15 | 2.6 (2.1-2.9) | 2.6 (2.4-3) | 2.2 (2-2.5) | 2.1 (1.8-2.4) |
| IL-16 | 113.1 (89-151) | 127.2 (91-151.8) | 151.2 (116.8-173.6) | 172.3 (153.7-221.9) |
| IL-17A | 1.2 (0.8-1.5) | 1.5 (1.1-2) | 1.9 (1.4-2.4) | 2.5 (1.9-3.4) |
| IL-1 | 0.1 (0.01-0.8) | 0.2 (0.02-0.7) | 0.1 (0.02-0.4) | 0.4 (0.1-1) |
| IL-2 | 0.2 (0.2-0.3) | 0.2 (0.1-0.3) | 0.3 (0.2-0.3) | 0.3 (0.2-0.5) |
| IL-4 | 0.01 (0.01-0.02) | 0.01 (0.01-0.02) | 0.01 (0.006-0.01) | 0.007 (0.004-0.02) |
| IL-5 | 0.2 (0.1-0.4) | 0.2 (0.1-0.6) | 0.2 (0.1-0.4) | 0.2 (0.1-0.4) |
| IL-6 | 0.6 (0.5-0.9) | 0.6 (0.4-1) | 0.6 (0.5-0.8) | 0.7 (0.4-1) |
| IL-7 | 4.9 (4-6.1) | 4.8 (3.7-7.6) | 4.4 (3.5-5.9) | 4.1 (3.4-5.4) |
| IL-8 | 6.1 (4-14.8) | 5.7 (4.2-9.9) | 6.8 (4.7-8.5) | 6.1 (4.9-9.8) |
| TNF | 2.3 (1.9-3.2) | 2.7 (1.8-3.5) | 2.9 (2.4-4.1) | 3.1 (2.7-4.3) |
| VEGF-A | 0.3 (0-1) | 0.4 (0-1.2) | 13.3 (9.3-19.9) | 18.1 (12.3-23.9) |

\* Numbers represent median (25th-75th percentiles) pg/ml