**Supplemental Table 1: <50>50 Anti-SARS-CoV-2 spike IgG, <30>30 Neutralizing antibodies**

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|  |  |  | **Anti-SARS-CoV-2 spike IgG** | | | | | **Neutralizing antibodies** | | | | |
| **Variable** | **Group** | **N** | **Median (IQR)** | **P-value** | **< 50** | **> 50** | **P-value** | **Median (IQR)** | **P-value** | **< 30%** | **> 30%** | **P-value** |
| Age | <60 | 61 | 4348.6 (774.5-16067.8) | 0.454 | 6 (10%) | 55 (90%) | 0.651 | 89.6 (51.6-96.3) | 0.447 | 9 (19%) | 38 (81%) | 0.673 |
|  | 60-70 | 91 | 2816.7 (423.6-15757.4) |  | 13 (14%) | 78 (86%) |  | 91.5 (41.8-96.3) |  | 16 (22%) | 57 (78%) |  |
|  | >70 | 65 | 2341.9 (379.9-11919) |  | 10 (15%) | 55 (85%) |  | 83.1 (24.9-96.1) |  | 16 (27%) | 44 (73%) |  |
| Disease  Group | Acute Leukemia | 75 | 6425.7 (998-21269.8) | 0.179 | 6 (8%) | 69 (92%) | 0.06 | 95.5 (51-96.4) | 0.265 | 12 (18%) | 53 (82%) | 0.45 |
|  | MDS and MPN | 41 | 2248.1 (456.9-9885) |  | 4 (10%) | 37 (90%) |  | 89.1 (50.9-96.1) |  | 6 (18%) | 28 (82%) |  |
|  | Chronis Leukemia | 8 | 2664.8 (767.8-11806.4) |  | 1 (12%) | 7 (88%) |  | 60.3 (19.9-88.5) |  | 2 (40%) | 3 (60%) |  |
|  | MM and amyloid | 40 | 1140.2 (407.9-3370.1) |  | 5 (12%) | 35 (88%) |  | 74 (28.8-89.9) |  | 9 (25%) | 27 (75%) |  |
|  | Low grade lymphoma | 8 | 3918.2 (676.6-25000) |  | 0 (0%) | 8 (100%) |  | 71.6 (13.6-96.9) |  | 2 (33%) | 4 (67%) |  |
|  | High grade lymphoma and HD | 35 | 4689.2 (11.9-20864.4) |  | 10 (29%) | 25 (71%) |  | 90.5 (5-96.2) |  | 7 (28%) | 18 (72%) |  |
|  | T cell lymphoma | 6 | 4748.7 (41.2-14279) |  | 2 (33%) | 4 (67%) |  | 53.1 (2.6-96.4) |  | 3 (50%) | 3 (50%) |  |
|  | Other: AA, Systemic Mastocytosis, BPDCN | 4 | 14658.6 (4999.1-23249.2) |  | 1 (25%) | 3 (75%) |  | 96.3 (95.2-96.6) |  | 0 (0%) | 3 (100%) |  |
| Time groups per type of cellular treatment | Early Allo | 19 | 445.6 (112.3-5728.2) | 0.002 | 4 (21%) | 15 (79%) | <0.001 | 74.9 (12.3-95.7) | 0.014 | 5 (36%) | 9 (64%) | 0.013 |
|  | Mid Allo | 55 | 3409.3 (683.8-20901.2) |  | 6 (11%) | 49 (89%) |  | 88.5 (46.5-96.3) |  | 10 (20%) | 39 (80%) |  |
|  | Late Allo | 75 | 6786.6 (1833.5-17535.7) |  | 6 (8%) | 69 (92%) |  | 94.6 (60.3-96.3) |  | 11 (18%) | 50 (82%) |  |
|  | Early Auto | 20 | 718 (16.1-6300.1) |  | 7 (35%) | 13 (65%) |  | 44.8 (0-83.2) |  | 7 (47%) | 8 (53%) |  |
|  | Late Auto | 41 | 2512.3 (673-10598.8) |  | 1 (2%) | 40 (98%) |  | 85.9 (52.3-96.3) |  | 5 (14%) | 32 (86%) |  |
|  | CAR T cell | 7 | 9.7 (8.2-1647.3) |  | 5 (71%) | 2 (29%) |  | 0 (0-22.6) |  | 3 (75%) | 1 (25%) |  |
| Time from transplant to vaccine | <12 months | 42 | 421 (13.2-4154.1) | 0.001 | 14 (33%) | 28 (67%) | 0.001 | 56 (0.6-90.3) | 0.022 | 13 (43%) | 17 (57%) | 0.044 |
|  | 12-24 months | 45 | 3292.7 (456.9-20281.6) |  | 5 (11%) | 40 (89%) |  | 92.4 (45.3-96.2) |  | 8 (20%) | 32 (80%) |  |
|  | 24-36 months | 32 | 1879 (749.6-21788.6) |  | 3 (9%) | 29 (91%) |  | 69.7 (44.2-96.4) |  | 6 (21%) | 23 (79%) |  |
|  | >36 months | 98 | 6191 (1203.7-15826.2) |  | 7 (7%) | 91 (93%) |  | 93.8 (59-96.3) |  | 14 (17%) | 67 (83%) |  |
| Prior COVID Infection | Yes | 15 | 25000 (25000-25000) | <0.001 | 1 (7%) | 14 (93%) | 0.699 | 96.5 (93.1-97) | 0.005 | 2 (13%) | 13 (87%) | 0.526 |
|  | No | 202 | 2701.2 (428.4-11517.5) |  | 28 (14%) | 174 (86%) |  | 86.5 (32.9-96.1) |  | 39 (24%) | 126 (76%) |  |
| BNT162b2 (Pfizer-BioNTech) |  | 152 | 2263 (373.4-10237) | 0.001 | 23 (15%) | 129 (85%) | 0.283 | 76.5 (26.1-95.9) | <0.001 | 33 (26%) | 93 (74%) | 0.121 |
| mRNA-127(Moderna) |  | 65 | 8380.1 (1819.5-25000) |  | 6 (9%) | 59 (91%) |  | 95.6 (85.1-96.9) |  | 8 (15%) | 46 (85%) |  |
| Re-immunization prior to COVID vaccine | Yes | 97 | 1396.5 (268.9-9160.5) | 0.008 | 14 (14%) | 83 (86%) | 0.693 | 76.9 (19.5-95.7) |  | 25 (31%) | 56 (69%) | 0.021 |
|  | No | 120 | 5899.6 (942.4-20340.1) |  | 15 (12%) | 105 (88%) | 0.693 | 94.1 (56.1-96.3) |  | 16 (16%) | 83 (84%) |  |
| Immune suppression with  Tacrolimus/cyclosporine or Ruxolitinib (among Allo only) | Yes | 46 | 4430.4 (319-15835.9) | 0.485 | 5 (11%) | 41 (89%) | >0.99 | 89.3 (18.1-96.1) |  | 13 (32%) | 27 (68%) | 0.036 |
|  | No | 103 | 5019.8 (936.8-17529.2) |  | 11 (11%) | 92 (89%) | >0.99 | 94.6 (56.6-96.3) |  | 13 (15%) | 71 (85%) |  |
| Steroids treatment (among Allo only) | Yes | 21 | 543.9 (16.1-5786.1) | 0.002 | 7 (33%) | 14 (67%) |  | 21 (0-74) | 0.001 | 9 (56%) | 7 (44%) | 0.001 |
|  | No | 128 | 5960.4 (952-20340.1) |  | 9 (7%) | 119 (93%) | 0.002 | 95.1 (56.6-96.4) |  | 17 (16%) | 91 (84%) |  |
| Daratumumab  (among auto only) | Yes | 12 | 513 (226.6-1486.9) | 0.045 | 1 (8%) | 11 (92%) |  | 59 (8.8-81.4) | 0.119 | 4 (36%) | 7 (64%) | 0.253 |
|  | No | 49 | 3297 (655-19,499) |  | 7(14%) | 42 (86%) | >0.99 | 80.5 (44.8-96.3) |  | 8 (20%) | 33(80%) |  |
| IMiDs | Yes | 20 | 1176.6 (417.3-3370.1) | 0.183 | 2 (10%) | 18 (90%) |  | 59 (12.2-88.1) | 0.078 | 6 (32%) | 13 (68%) | 0.317 |
|  | No | 41 | 2757.1 (419.4-21010.8) |  | 6 (15%) | 35 (85%) | >0.99 | 85.9 (51.5-96.5) |  | 6 (18%) | 27 (82%) |  |
| Chemotherapy (other) | Yes | 11 | 419.4 (205.8-2634.7) | 0.024 | 2 (18%) | 9 (82%) | 0.645 | 51.9 (19.5-92.6) |  | 3 (30%) | 7 (70%) | 0.697 |
|  | No | 206 | 3698.4 (522-16029.5) |  | 27 (13%) | 179 (87%) |  | 89.7 (41.7-96.3) | 0.249 | 38 (22%) | 132 (78%) |  |
| CD4 Count | <200 | 29 | 373.5 (10.4-1713.5) | <0.001 | 10 (34%) | 19 (66%) | 0.012 | 44.8 (2.7-84.9) | 0.003 | 10 (48%) | 11 (52%) | 0.011 |
|  | ≥200 | 108 | 4806.5 (946.4-19172.7) |  | 14 (13%) | 94 (87%) |  | 94.1 (49.3-96.4) |  | 18 (19%) | 75 (81%) |  |
|  | Missing | 80 |  |  |  |  |  |  |  |  |  |  |
| CD19 Count | <50 | 27 | 10.5 (4.8-221.6) | <0.001 | 18 (67%) | 9 (33%) | <0.001 | 0 (0-28.9) | <0.001 | 14 (74%) | 5 (26%) | <0.001 |
|  | ≥50 | 110 | 5395.3 (1208.9-19204.4) |  | 6 (5%) | 104 (95%) |  | 94.3 (61.4-96.3) |  | 14 (15%) | 81 (85%) |  |
|  | Missing | 80 |  |  |  |  |  |  |  |  |  |  |
| Mitogen  level | <40 | 12 | 20.4 (1-863.3) | 0.001 | 7 (58%) | 5 (42%) | <0.001 | 0 (0-62.6) | 0.001 | 8 (67%) | 4 (33%) | 0.001 |
|  | ≥40 | 110 | 4151.4 (574.7-15911.2) |  | 12 (11%) | 98 (89%) |  | 94.1 (47.3-96.3) |  | 17 (19%) | 74 (81%) |  |
|  | Missing | 95 |  |  |  |  |  |  |  |  |  |  |
| IgG level | <500 | 34 | 664.5 (26.7-13023) | 0.006 | 10 (29%) | 24 (71%) | 0.003 | 46.5 (0-94.3) | 0.009 | 11 (38%) | 18 (62%) | 0.022 |
|  | ≥500 | 117 | 3794.6 (925.5-19220.3) |  | 10 (9%) | 107 (91%) |  | 89.9 (58.4-96.3) |  | 17 (17%) | 83 (83%) |  |
|  | Missing | 66 |  |  |  |  |  |  |  |  |  |  |
| All immune criteria for vaccination met prior to COVID vaccine | Not Met | 52 | 643.3 (19.2-5235.6) | <0.001 | 15 (29%) | 37 (71%) | <0.001 | 46.5 (1.3-95) | <0.001 | 17 (40%) | 26 (60%) | 0.001 |
|  | Met | 59 | 6772.5 (2107.2-19750.9) |  | 1 (2%) | 58 (98%) |  | 95.5 (83.4-96.4) |  | 5 (10%) | 47 (90%) |  |
|  | Missing | 106 |  |  |  |  |  |  |  |  |  |  |