**Supplementary Table 1:** Additional patient information stratified by immune response*

|                                | Entire Cohort n=53 | + Immune Response n=27 | - Immune Response n=26 | p    |
|--------------------------------|---------------------|------------------------|------------------------|------|
| **Age (years)**                | 14.0 (IQR: 7, 43.5) | 14 (IQR: 6, 33)        | 15 (IQR: 8, 44)        | 0.608|
| **Gender**                     |                     |                        |                        | 0.340|
| Male                           | 32 (60.4%)          | 18 (56.2%)             | 14 (43.8%)             |      |
| Female                         | 21 (39.6%)          | 9 (42.9%)              | 12 (57.1%)             |      |
| **Diagnosis**                  |                     |                        |                        | 0.215|
| Malignant                      | 41 (77.4%)          | 19 (46.3%)             | 22 (53.7%)             |      |
| Nonmalignant                   | 12 (22.6%)          | 8 (66.7%)              | 4 (33.3%)              |      |
| **Conditioning**               |                     |                        |                        | 0.478|
| Myeloablative                  | 42 (79.2%)          | 22 (52.4%)             | 20 (47.6%)             |      |
| Reduced                        | 1 (1.9%)            | 1 (100.0%)             | 0 (0.0%)               |      |
| Nonmyeloablative               | 10 (18.9%)          | 4 (40.0%)              | 6 (60.0%)              |      |
| **Cell Source**                |                     |                        |                        | 0.858|
| Marrow                         | 24 (45.3%)          | 12 (50.0%)             | 12 (50.0%)             |      |
| Cord                           | 7 (13.2%)           | 3 (42.9%)              | 4 (57.1%)              |      |
| PBSC                           | 22 (41.5%)          | 12 (54.5%)             | 10 (45.5%)             |      |
| **GVHD prophylaxis**           |                     |                        |                        | 0.371|
| CNI+MMF                        | 18 (34.0%)          | 9 (50.0%)              | 9 (50.0%)              |      |
| CNI+MTX                        | 26 (47.2%)          | 11 (40.0%)             | 15 (60.0%)             |      |
| CNI+MTX+ATG                    | 6 (11.3%)           | 5 (83.3%)              | 1 (16.7%)              |      |
| CNI+PTCY                       | 1 (1.9%)            | 1 (100.0%)             | 0 (0.0%)               |      |
| CNI+Sirolimus                  | 2 (3.8%)            | 1 (50.0%)              | 1 (50.0%)              |      |
| aGVHD >/=2                     | 21 (39.6%)          | 6 (28.6%)              | 15 (71.4%)             | 0.008|

* chi square analysis

** t test for age
| Donor | Day of biomarker | CAMV | EBV | Ada | HPIV | BK | Flu | HPIV6 | CMV | PRAME | Spraw | WT1 | MAGS-AS | AGWDH-2 | Age In Years | Immune response | FTY | E | Rega | TMIK | Conditioning | Cell source | GVHD prophylaxis |
|-------|----------------|------|-----|-----|------|----|-----|-------|-----|-------|-------|-----|--------|--------|---------------|-----------------|------|---|----|------|-------------|------------|----------------|
| CN- HSCT.022.056 | 56 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 2 | 1 | 11 | 2 | 28 | 1669 | Full | Marrow | CNI + MTX | ATG |
| CN- HSCT.026.061 | 61 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 24 | 1 | 34 | 0 | 13 | 2250 | Full | Marrow | CNI + MTX | ATG |
| CN- HSCT.028.028 | 28 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | NA | 18 | 1 | 25 | 180 | 17 | 6158 | Full | Marrow | CNI + MTX | ATG |
| CN- HSCT.12.056 | 56 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 6 | 1 | 12 | 2 | 36 | 3455 | Full | Marrow | CNI + MTX | ATG |
| CN- HSCT.20.056 | 56 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 6 | 1 | 12 | 2 | 36 | 3455 | Full | Marrow | CNI + MTX | ATG |
| FH.HSCT.054.ons et GVHD (day 21) | 21 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 53 | 0 | 10 | 13 | 81 | 11548 | Full | PBSC | CNI + MTX |
| FH- HSCT.002.UNSC1 (D48) | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 53 | 0 | 10 | 13 | 81 | 11548 | Full | PBSC | CNI + MTX |
| FH- HSCT.005.0100 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 42 | 0 | 19 | 61 | 26 | 15281 | NonMyel oabative | PBSC | CNI + MMF |
| FH.HSCT.021.028 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 61 | 1 | 21 | 6 | 87 | 10434 | NonMyel oabative | PBSC | CNI + MMF |
| FH.HSCT.035.056 | 56 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 61 | 1 | 21 | 6 | 87 | 10434 | NonMyel oabative | PBSC | CNI + MMF |
| FH.HSCT.038.028 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 83 | 61 | 0 | 4 | 2 | 31 | 6059 | Full | PBSC | CNI + MTX |
| FH.HSCT.039.056 | 56 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 49 | 1 | 9 | 5 | 51 | 5721 | Full | PBSC | CNI + MTX |
| FH.HSCT.040.028 | 28 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 50 | 33 | 1 | 10 | 6 | 30 | 2479 | Full | PBSC | CNI + MTX |
| FH.HSCT.043.028 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 36 | 61 | 0 | 45 | 20 | 54 | 9872 | NonMyel oabative | Marrow | CNI + MMF |
| FH.HSCT.044.028 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 52 | 44 | 0 | 5 | 8 | 22 | 3667 | NonMyel oabative | PBSC | CNI + MMF |
| FH- HSCT.053.Onset GVHD (D28) | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 28 | 13 | 0 | 65 | 7 | 13 | 2163 | Full | Cord | CNI + MMF |
| FH- HSCT.064.Onset GVHD (Day 21) | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 21 | 8 | 0 | 106 | 141 | 157 | 3027 | Full | Cord | CNI + MMF |
| FH.HSCT.072.028 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 33 | 12 | 0 | 79 | 96 | 124 | 2834 | Full | Cord | CNI + MMF |
| FH.HSCT.177.021 | 21 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 42 | 8 | 1 | 7 | 2 | 13 | 604 | Full | Cord | CNI + MMF |
| FH.HSCT.003.0270 | 270 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 3 | 1 | 11 | 11 | 33 | 2586 | Full | Cord | CNI + MMF |
| FH.HSCT.020.0100 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 20 | 0 | 21 | 0 | 284 | 3511 | NonMyel oabative | Cord | CNI + MMF |
| FH.HSCT.028.060 | 60 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 15 | 1 | 29 | 278 | 35 | 5440 | Full | Marrow | CNI + MTX |
| FH.HSCT.041.030 | 30 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 54 | 1 | 7 | 4 | 150 | 3174 | NonMyel oabative | PBSC | CNI + MMF |
| HSCT.056.d30 | 30 | 0 | 0 | 0 | 1 | 57 | 59 | 0 | 143 | 24 | 53 | 6980 | NonMyel oablative | PBSC | CNI + MMF |
| HSCT.059.d60 | 60 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 43 | 0 | 19 | 8 | 30 | 8185 | Full | PBSC | CNI + sirolimus |
| HSCT.067.d30 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 43 | 0 | 19 | 8 | 30 | 8185 | Full | PBSC | CNI + sirolimus |
| HSCT.070.d21 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 128 | 45 | 1 | 18 | 7 | 23 | 3099 | Reduced | PBSC | CNI + MMF |
| HSCT.082.d21 | 21 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 123 | 70 | 1 | 50 | 21 | 41 | 5793 | NonMyel oablative | PBSC | CNI + MMF |
| HSCT.084.d21 | 21 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 123 | 70 | 1 | 50 | 21 | 41 | 5793 | NonMyel oablative | PBSC | CNI + MMF |
| HSCT.016.d30 | 30 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 13 | 1 | 124 | 205 | 2 | 6769 | Full | PBSC | CNI + MTX |
| HSCT.020.d177 | 177 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 4 | 1 | 15 | 101 | 60 | 2034 | Full | Marrow | CNI + MMF |
| TC.HSCT.001.d56 | 56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 8 | 0 | 16 | 23 | 18 | 1427 | Full | Marrow | CNI + MTX |
| TC.HSCT.005.d13 | 13 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | NA | 21 | 1 | 131 | 75 | 26 | 8987 | Full | Marrow | CNI + MTX |
| TC.HSCT.006.d10 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 4 | 0 | 303 | 55 | 385 | 13135 | Full | Marrow | CNI + MTX |
| TC.HSCT.007.d02 & 8 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 7 | 1 | 20 | 0 | 14 | 2468 | Full | PBSC | CNI + MTX + Steroids |
| TC.HSCT.008.d56 | 56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 12 | 0 | 23 | 10 | 17 | 3440 | Full | Marrow | CNI + MTX |
| TC.HSCT.010.d28 | 28 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 14 | 1 | 19 | 52 | 47 | 2393 | Full | PBSC | PFcy + CNI |
| TC.HSCT.031.d10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 4 | 0 | 12 | 48 | 22 | 2927 | Full | Marrow | CNI + MTX |
| TC.HSCT.015.d28 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 54 | 3 | 0 | 11 | 10 | 15 | 3859 | Full | Marrow | CNI + MTX |
| TC.HSCT.016.d10 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 6 | 1 | 44 | 23 | 3786 | Full | Marrow | CNI + MTX + MTX + ATG |
| TC.HSCT.017.d28 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 31 | 17 | 0 | 24 | 317 | 37 | 4085 | Full | Marrow | CNI + MTX |
| TC.HSCT.018.d56 | 56 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 20 | 1 | 33 | 16 | 26 | 4085 | Full | Marrow | CNI + MTX |
| TC.HSCT.019.d10 | 0 | 100 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 166 | 10 | 1 | 116 | 48 | 49 | 9725 | Full | PBSC | CNI + MTX |
| TC.HSCT.020.d56 | 56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 4 | 0 | 9 | 16 | 23 | 5753 | Full | Marrow | CNI + MTX |
| TC.HSCT.023.d10 | 0 | 100 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 7 | 1 | 7 | 8 | 20 | 1093 | Full | Marrow | CNI + MTX |
| TC.HSCT.029.d56 | 56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 18 | 0 | 14 | 19 | 25 | 3682 | Full | Marrow | CNI + MTX |
| TC.HSCT.036.d10 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 1 | 0 | 21 | 35 | 28 | 1928 | Full | Marrow | CNI + MTX |
| TC.HSCT.038.d56 | 56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 4 | 1 | 35 | 78 | 12 | 4421 | Full | Cord | CNI + MMF |
| TC.HSCT.034.d28 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 81 | 8 | 0 | 46 | 11 | 9 | 2255 | Full | Marrow | CNI + MTX |