# Supplementary Appendix.

## Supplementary table 1. The cumulative incidences of engraftment at day 50 in patients with WBC < 100 cells/μl at each day according to their sources.

| PBSCs | BM | CB |
|-------|----|----|
| day | n | Incidence | 95%CI | day | n | Incidence | 95%CI | day | n | Incidence | 95%CI |
| 10 | 137 | 96% | (90-99) | 10 | 508 | 95% | (93-97) | 10 | 81 | 83% | (72-90) |
| 11 | 85 | 94% | (84-98) | 11 | 436 | 95% | (92-97) | 11 | 64 | 80% | (67-88) |
| 12 | 52 | 90% | (78-96) | 12 | 399 | 94% | (92-96) | 12 | 56 | 77% | (63-86) |
| 13 | 41 | 88% | (72-95) | 13 | 369 | 94% | (91-96) | 13 | 49 | 78% | (63-87) |
| 14 | 24 | 79% | (55-91) | 14 | 305 | 93% | (89-95) | 14 | 43 | 77% | (60-87) |
| 15 | 18 | 78% | (48-92) | 15 | 229 | 91% | (86-94) | 15 | 39 | 80% | (62-90) |
| 16 | 13 | 69% | (34-88) | 16 | 182 | 90% | (84-93) | 16 | 34 | 82% | (63-92) |
| 17 | 12 | 67% | (30-87) | 17 | 145 | 87% | (80-91) | 17 | 30 | 80% | (59-91) |
| 18 | 7 | 57% | (13-86) | 18 | 121 | 85% | (77-90) | 18 | 25 | 76% | (52-89) |
| 19 | 5 | 40% | (3.1-79) | 19 | 91 | 80% | (70-87) | 19 | 17 | 71% | (40-88) |
| 20 | 5 | 40% | (3.1-79) | 20 | 60 | 72% | (58-81) | 20 | 12 | 58% | (24-82) |
| 21 | 4 | 25% | (0.2-73) | 21 | 43 | 63% | (46-75) | 21 | 8 | 50% | (11-81) |
| 22 | 4 | 25% | (0.2-73) | 22 | 31 | 52% | (33-68) | 22 | 8 | 50% | (11-81) |
| 23 | 4 | 25% | (0.2-73) | 23 | 25 | 52% | (31-70) | 23 | 7 | 43% | (5.9-78) |
| 24 | 2 | 0% | 0 | 24 | 21 | 48% | (25-67) | 24 | 6 | 33% | (1.8-74) |
| 25 | 17 | 41% | (18-64) | 25 | 17 | 41% | (18-64) | 25 | 6 | 33% | (1.8-74) |
| 26 | 15 | 47% | (20-70) | 26 | 6 | 33% | (1.8-74) | 26 | 6 | 33% | (1.8-74) |
| 27 | 13 | 46% | (18-71) | 27 | 6 | 33% | (1.8-74) | 27 | 6 | 33% | (1.8-74) |
| 28 | 13 | 46% | (18-71) | 28 | 6 | 33% | (1.8-74) | 28 | 6 | 33% | (1.8-74) |
| 29 | 12 | 42% | (14-68) | 29 | 5 | 40% | (1.7-81) | 29 | 5 | 40% | (1.7-81) |
| 30 | 9 | 22% | (2.3-55) | 30 | 4 | 25% | (0.2-73) | 30 | 4 | 25% | (0.2-73) |
| 31 | 9 | 22% | (2.3-55) | 31 | 3 | 0% | 0 | 31 | 3 | 0% | 0 |
| 32 | 9 | 25% | (2.5-59) | 32 | 9 | 25% | (2.5-59) | 32 | 9 | 25% | (2.5-59) |
| 33 | 7 | 29% | (2.7-65) | 33 | 7 | 29% | (2.7-65) | 33 | 7 | 29% | (2.7-65) |
| 34 | 5 | 20% | (0.4-63) | 34 | 5 | 20% | (0.4-63) | 34 | 5 | 20% | (0.4-63) |
| 35 | 3 | 0% | 0 | 35 | 3 | 0% | 0 | 35 | 3 | 0% | 0 |

WBC: white blood cell, PBSCs: peripheral blood stem cells, BM: bone marrow, CB: cord blood.
KAWAJIRI et al.  

Kinetics of engraftment in allo-SCT

Supplementary table 2. Univariate analyses for cumulative incidence of engraftment at day 50 in all patients and patients with WBC < 100 cells/µl at day 14, day 21 and day 28.

|                      | all n = 1355 | day14 n = 372 | day21 n = 55  | day28 n = 21 |
|----------------------|-------------|---------------|--------------|-------------|
|                      | Cumulative incidence (95%CI) p | Cumulative incidence (95%CI) p | Cumulative incidence (95%CI) p | Cumulative incidence (95%CI) p |
| Sex                  |             |               |             |             |
| female               | 97% (95-98) | 91% (94-95) 0.01 | 57% (33-78) 0.70 | 11% (6.4-22) 0.05 |
| male                 | 93% (92-95) | 90% (85-93)   | 59% (40-74)   | 58% (23-82)  |
| Sex combination      |             |               |             |             |
| others               | 96% (94-97) | 91% (87-94) 0.11 | 55% (38-68) 0.59 | 31% (11-55) 0.35 |
| female to male       | 92% (88-94) | 87% (77-93)   | 60% (32-89)   | 60% (1.9-94)  |
| Age                  |             |               |             |             |
| <40 years            | 95% (92-96) | 91% (85-95) 0.86 | 53% (25-76) 0.52 | 40% (1.7-81) 0.87 |
| ≥40 years            | 95% (93-96) | 90% (85-93)   | 60% (43-73)   | 38% (15-61)  |
| PS                   |             |               |             |             |
| 0-1                  | 95% (94-96) | 90% (97-93) 0.35 | 59% (44-71) 0.60 | 38% (18-59)  NA |
| 2-4                  | 86% (70-94) | 83% (33-97)   | 100% (100-100) |             |
| Conditioning         |             |               |             |             |
| Intensity            |             |               |             |             |
| myeloablative        | 95% (92-96) | 91% (87-95) 0.29 | 57% (33-78) 0.91 | 29% (3.0-64) 0.72 |
| reduced intensity    | 95% (92-96) | 88% (92-92)   | 59% (40-74)   | 43% (16-68)  |
| Use of TBI           |             |               |             |             |
| no                   | 96% (94-97) | 91% (84-95) 0.08 | 50% (26-70) 0.75 | 0% (0.0) 0.04 |
| yes                  | 93% (91-95) | 90% (85-93)   | 63% (44-77)   | 57% (26-79)  |
| Stem cell source     |             |               |             |             |
| PBSCs                | 97% (95-98) | 79% (55-91) <0.01 | 25% (2.0-73) 0.35 | 0% (0.0) 0.64 |
| BM                   | 95% (93-96) | 93% (93-95)   | 63% (46-78)   | 46% (18-71)  |
| CB                   | 81% (72-87) | 77% (60-87)   | 50% (11-81)   | 33% (1.8-74)  |
| Relation to donor    |             |               |             |             |
| unrelated            | 93% (91-95) | 91% (87-93) 0.75 | 62% (47-74) 0.13 | 42% (20-63) 0.59 |
| related              | 97% (95-98) | 83% (63-90)   | 20% (6.4-63) 0.03 | 0% (0.0)  |
| HLA disparity, allele|             |               |             |             |
| B/B                  | 95% (91-97) | 92% (86-96) 0.42 | 53% (26-74) 0.24 | 38% (6.7-73) 0.72 |
| GvH direction        |             |               |             |             |
| others               | 94% (90-96) | 91% (85-95)   | 68% (40-85)   | 33% (1.8-74)  |
| HLA disparity, allele|             |               |             |             |
| B/B                  | 95% (91-97) | 92% (86-96) 0.25 | 50% (23-72) 0.15 | 29% (2.8-65) 0.69 |
## Kinetics of engraftment in allo-SCT

| Factor                                  | No                  | Yes                 |
|-----------------------------------------|---------------------|---------------------|
| **HVG direction**                       |                     |                     |
| HLA disparity, serological, 6/6          | 96% (95-97)         | 91% (87-94) 0.01    |
| GVH direction, others                   | 90% (87-93)         | 87% (79-92) 0.60    |
| HLA disparity, serological, 6/6          | 97% (95-98)         | 92% (88-98) <0.01   |
| GVH direction, others                   | 89% (86-92)         | 89% (77-91) 0.62    |
| **Anti-HLA antibody**                   |                     |                     |
| no                                      | 92% (84-96) 0.72    | 86% (69-94) 0.40    |
| yes                                     | 100% (100-100)      | 100% (100-100)      |
| **Presence of DSA**                     |                     |                     |
| no                                      | 100% (8-100) 0.02   | 100% (100-100) NA   |
| yes                                     | 100% (100-100)      |                     |
| **Immunosupression**                    |                     |                     |
| CI+MTX                                  | 95% (93-96) 0.39    | 91% (87-94) 0.68    |
| CI+MMF                                  | 97% (82-99)         | 89% (11-99)         |
| **Use of ATG**                          |                     |                     |
| no                                      | 95% (93-96) <0.01   | 90% (86-93) 0.06    |
| yes                                     | 94% (90-97)         | 91% (76-97) 0.67    |
| **Disease risk**                        |                     |                     |
| Low                                     | 97% (92-99) 0.01    | 91% (71-97) 0.29    |
| Intermediate                            | 96% (94-98)         | 92% (86-95) 0.53    |
| High                                    | 93% (89-95)         | 88% (80-92) 0.68    |
| Very High                               | 90% (81-95)         | 86% (58-95) 0.20    |
| **Documented infection**                |                     |                     |
| no                                      | 96% (95-97) <0.01   | 94% (90-96) <0.01   |
| yes                                     | 62% (44-75)         | 80% (71-87) 0.40    |
| **Documented infection or FN**          |                     |                     |
| no                                      | 96% (95-97) <0.01   | 94% (88-97) 0.94    |
| yes                                     | 77% (66-85)         | 89% (83-92) 0.54    |
| **History of previous SCT**             |                     |                     |
| no                                      | 96% (95-97) <0.01   | 92% (88-94) 0.51    |
| yes                                     | 89% (84-92)         | 82% (70-90) 0.56    |
| **Donor chimerism around day 28**       |                     |                     |
| < 90%                                   | 96% (95-97) 0.05    | 50% (48-67) 0.51    |
| ≥ 90%                                   | 62% (44-75)         | 46% (27-64) 0.33    |

Note: Values in parentheses represent 95% confidence intervals.
WBC: white blood cell, PS: performance status, TBI: total body irradiation, PBSCs: peripheral blood stem cells, BM: bone marrow, CB: cord blood, HLA: human leukocyte antigen, GVH: graft-versus-host, HVG: host-versus-graft, DSA: donor-specific antibodies, CI: Calcineurin inhibitor, MTX: methotrexate, MMF: mycophenolate mofetil, ATG: antithymocyte globulin, FN: febrile neutropenia, SCT: stem cell transplantation.
Supplementary figure 1. Cumulative incidences of mortality without engraftment and re-transplantation of all patients. (a) death without mortality, (b) re-transplantation. PBSCs: peripheral blood stem cells, BM: bone marrow, CB: cord blood.

Supplementary figure 2. Cumulative incidences of engraftment in CB recipients, according to use of MMF or MTX. CB: cord blood. CI: calcineurin inhibitors. MTX: methotrexate, MMF: mycophenolate mofetil,