ALLOGENEIC HEMATOPOIETIC STEM CELL (ALLO-HSCT) TRANSPLANT WITH OMIDUBICEL DEMONSTRATES SUSTAINED CLINICAL IMPROVEMENT VERSUS STANDARD MYELOABLATIVE UMBILICAL CORD BLOOD TRANSPLANTATION (UCBT): FINAL RESULTS OF A PHASE III RANDOMIZED, MULTICENTER STUDY

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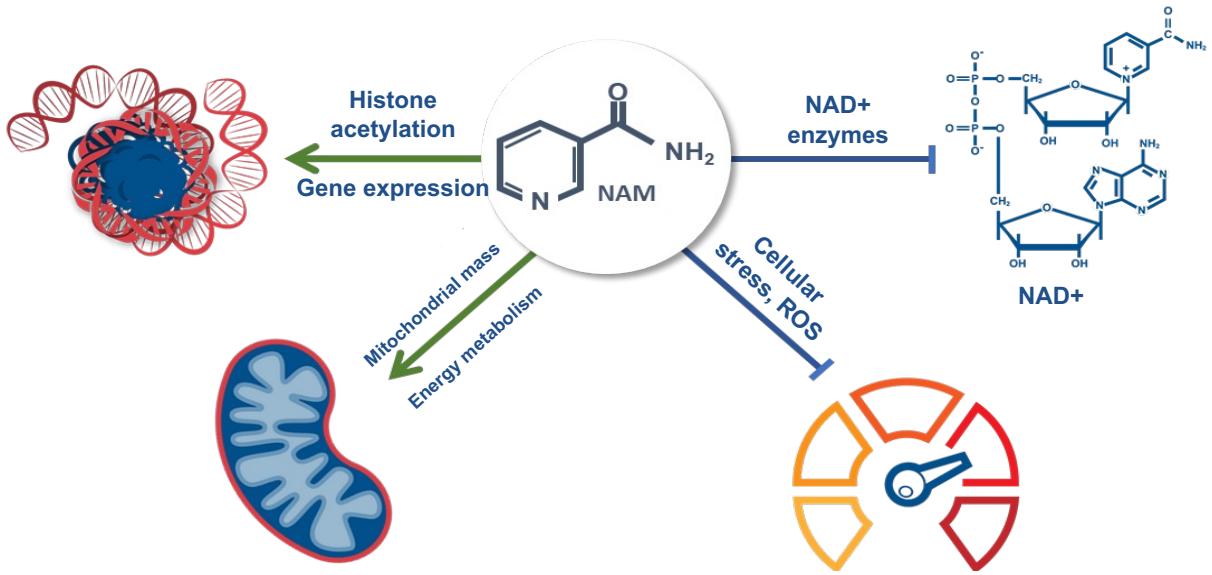
DISCLOSURES

- Gamida Cell – Research funding
- Equillium – Data and Safety Monitoring Board member
- Allovir – Advisory Board

NICOTINAMIDE (NAM): PRESERVES STEM CELLS BY MIMICKING THE BONE MARROW NICHE



NICOTINAMIDE

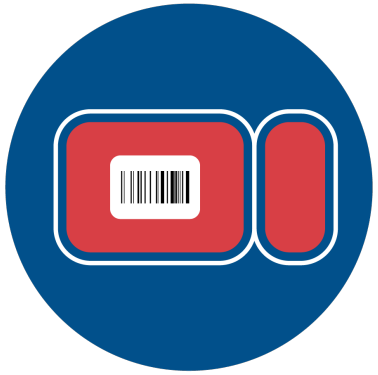
- Master regulator of NAD-related signaling pathways
- Enhances cellular functionality and phenotype
- Improves homing and retention to lymphoid tissues

UCB-derived CD34+ cells cultured in presence of NAM-based proprietary technology result in:

- Reduction in accelerated proliferation
- Inhibition of differentiation
- Reduction of cellular stress
- Down-regulation of signaling pathways that are typically activated upon removal of HSCs from their natural environment

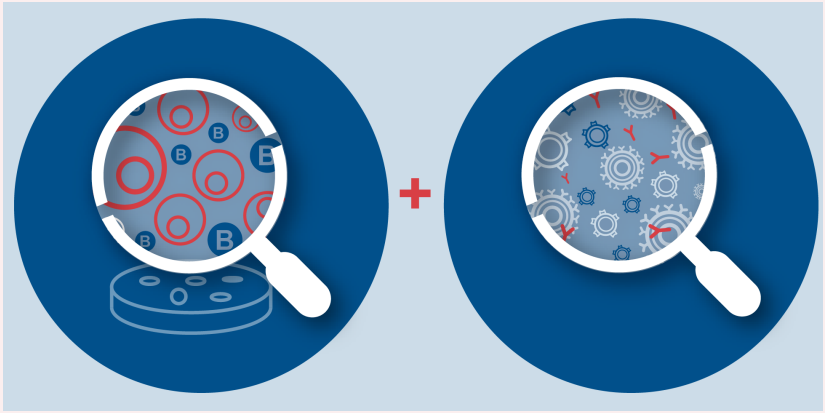
HSC, hematopoietic stem cell; NAD, nicotinamide adenine dinucleotide; NAM, nicotinamide; ROS, reactive oxygen species; UCB, umbilical cord blood.

OMIDUBICEL MANUFACTURING



CBU selected by treating physician from public cord blood bank

Omidubicel



NAM-Expanded Cells*

Stem cells cultured using proprietary NAM technology

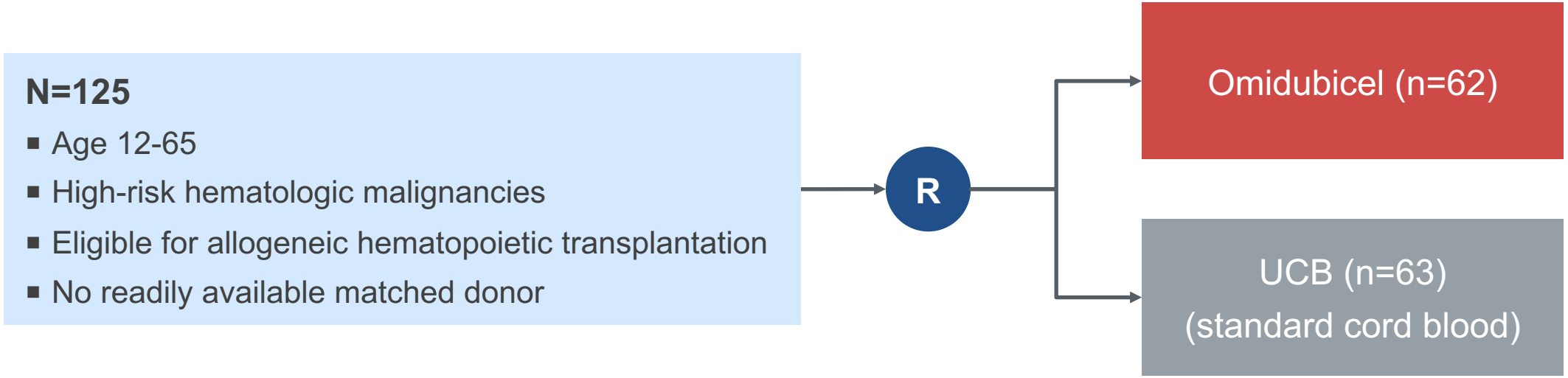
Non-Cultured Fraction*

Immune cells, including T cells

Omidubicel Infusion

*Fractions are cryopreserved for transport and thawed prior to infusion.
CBU, cord blood unit; NAM, nicotinamide.

PHASE 3 GLOBAL, RANDOMIZED STUDY TO EVALUATE THE EFFICACY OF OMIDUBICEL COMPARED TO STANDARD UCB TRANSPLANTATION



Primary endpoint: Time to neutrophil engraftment

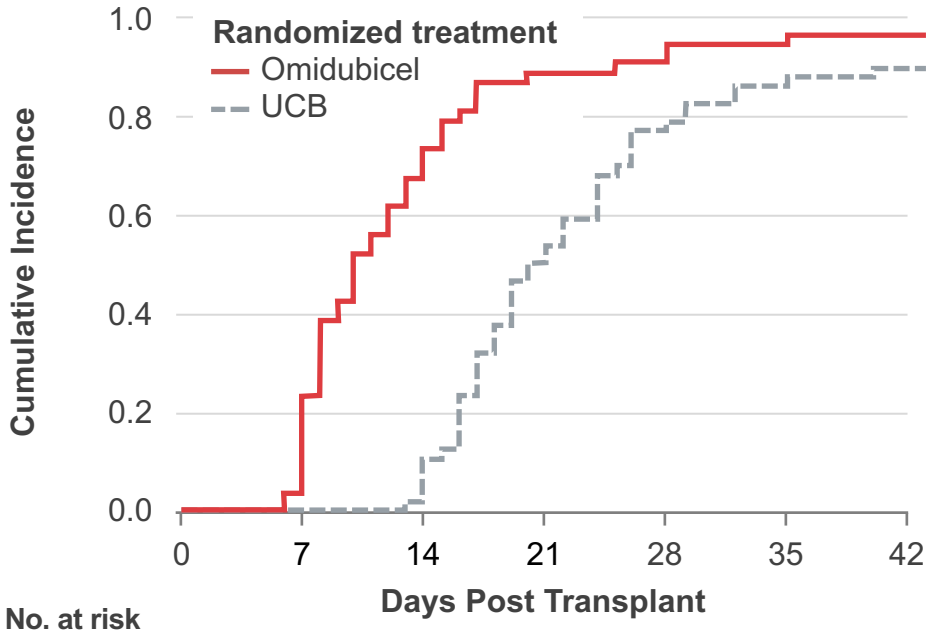
Secondary endpoints: Platelet engraftment, infections, hospitalizations

Additional endpoints: Adverse events, acute GvHD, chronic GvHD, non-relapse mortality, relapse, disease-free survival, overall survival

Clinicaltrials.gov identifier NCT02730299.
GvHD, graft versus host disease; R, randomization; UCB, umbilical cord blood.
Horwitz ME, et al. *Blood*. 2021;138(6):1429-1440.

TRANSPLANT WITH OMIDUBICEL: SIGNIFICANTLY FASTER TIME TO ENGRAFTMENT*

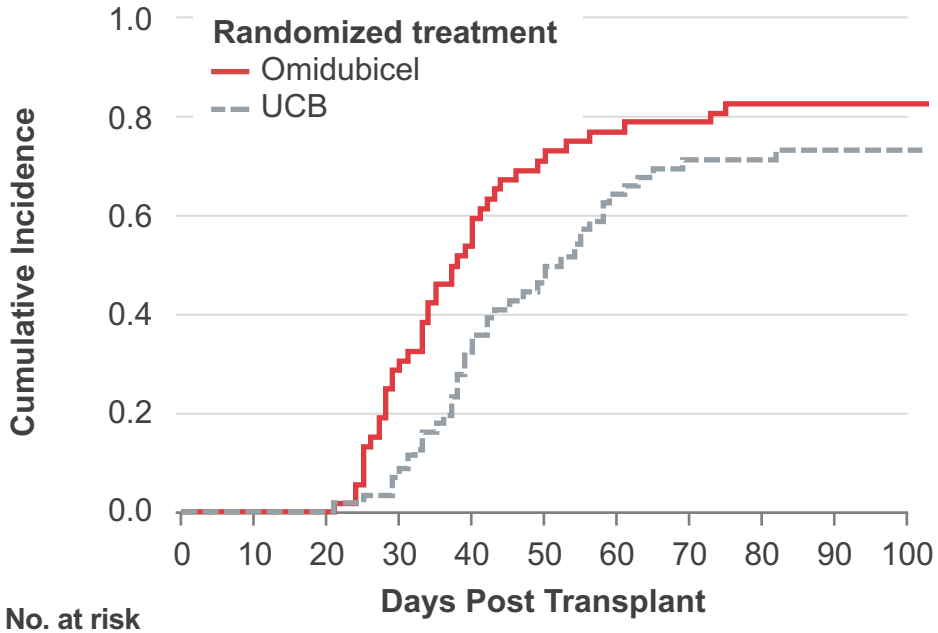
Neutrophil Engraftment † by Day 42



No. at risk							
Omidubicel	52	50	17	6	5	3	1
UCB	56	56	55	28	12	7	4

Median time to neutrophil engraftment† (days)	*P*-value
Omidubicel: 10 (95% CI: 8, 13)	<0.001
UCB: 20 (95% CI: 18, 24)	

Platelet Recovery † by Day 100



No. at risk											
Omidubicel	52	52	52	36	22	12	7	5	3	3	2
UCB	56	56	56	51	35	23	11	7	7	6	4

Median time to platelet engraftment† (days)	*P*-value
Omidubicel: 37 (95% CI: 33, 42)	0.023
UCB: 50 (95% CI: 42, 58)	

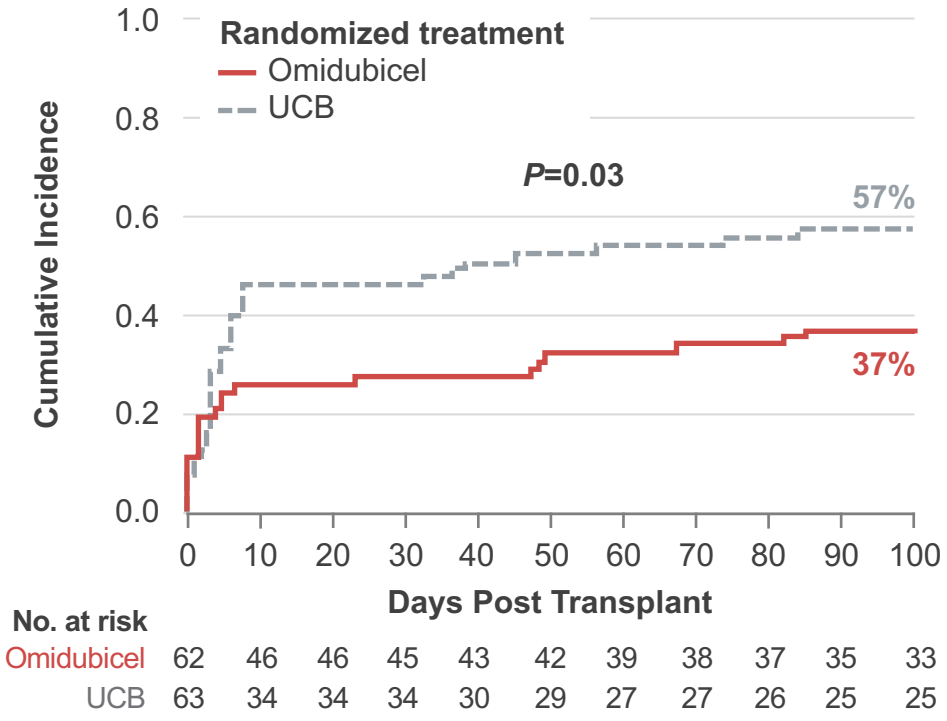
*As treated population (N=108). †The time to engraftment of neutrophils ≥500 cells/μL and platelets ≥20 000/μL was defined according to Center for International Blood and Marrow Transplant Research (CIBMTR) standards, requiring donor chimerism for neutrophil engraftment.

CI, confidence interval; UCB, umbilical cord blood.

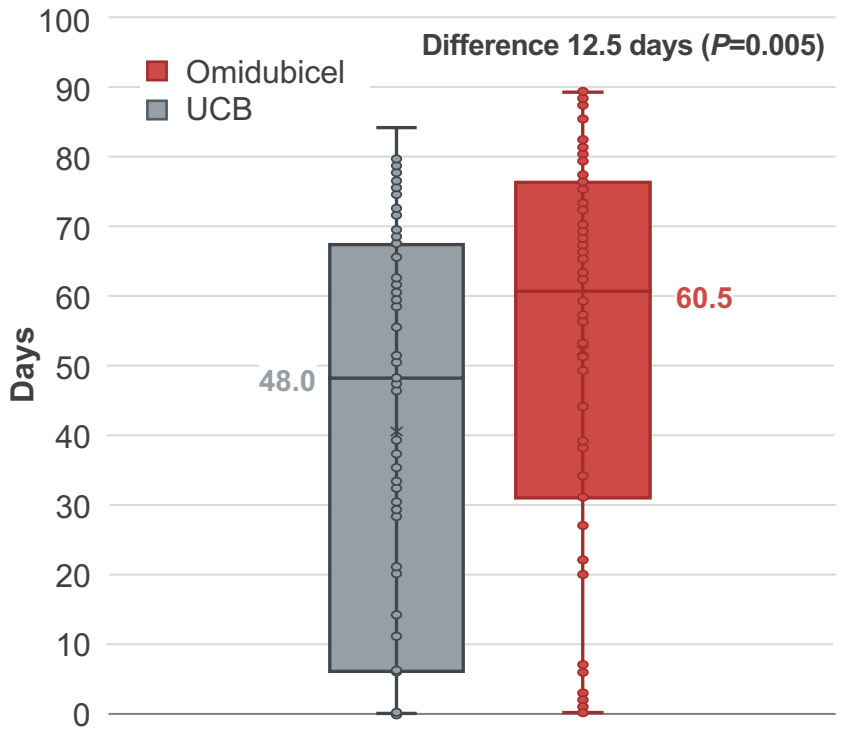
Horwitz ME, et al. *Blood*. 2021;138:1429-1440.

TRANSPLANT WITH OMIDUBICEL: REDUCED RISK OF BACTERIAL/FUNGAL INFECTIONS AND HOSPITALIZATION IN FIRST 100 DAYS*

Grade 2/3 Bacterial or Invasive Fungal Infections

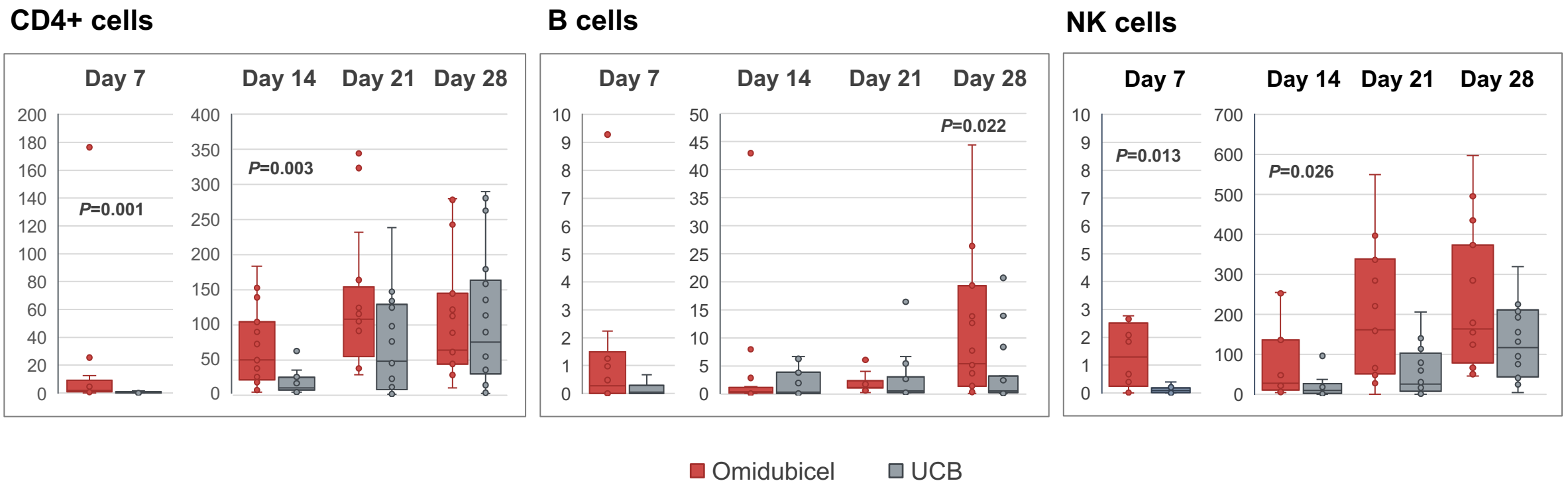


Days Alive and Out of the Hospital



*Intent-to-treat population 100 days following transplantation (N=125).
UCB, umbilical cord blood.
Horwitz ME, et al. *Blood.* 2021;138:1429-1440.

ROBUST EARLY RECOVERY OBSERVED FOR T CELL, B CELL, AND NK CELL SUBSETS (DAY 0 TO DAY 28)



NK, natural killer; UCB, umbilical cord blood.

1-YEAR UPDATE ANALYSIS

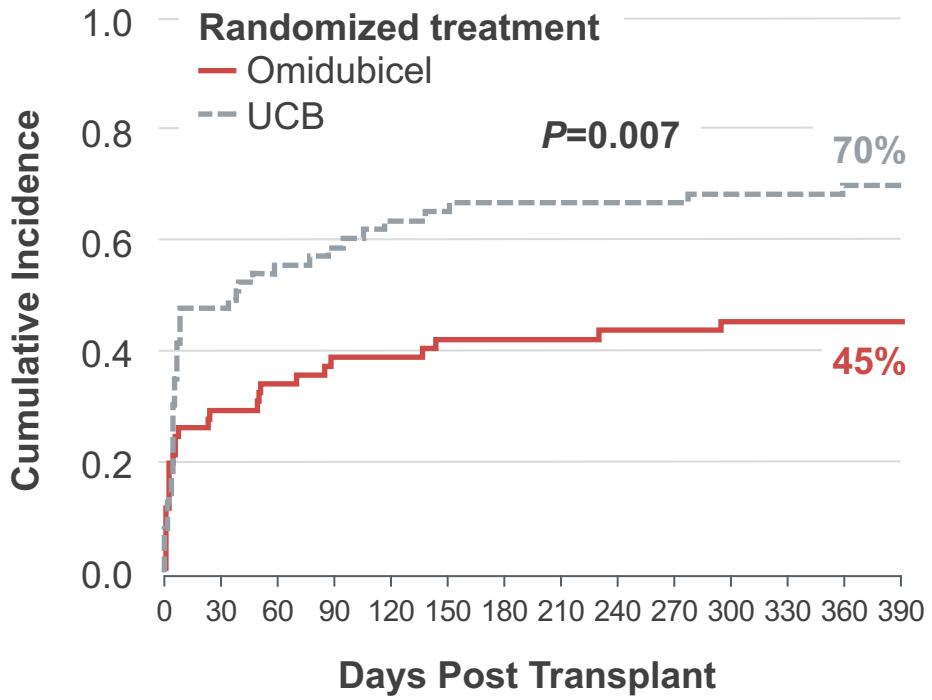
For this 1-year update analysis*:

1. All patients have completed 15 months of follow-up from randomization
   - Median follow-up (ITT population): 13.9 mo (omidubicel arm) and 14.1 mo (UCB arm)
2. The following endpoints were analyzed at 1 year post transplant:
   - Infectious complications
   - GvHD
   - NRM
   - OS
   - DFS and relapse
3. Kaplan-Meier analysis and competing risk analyses of cumulative incidence performed using Gray's method on ITT population

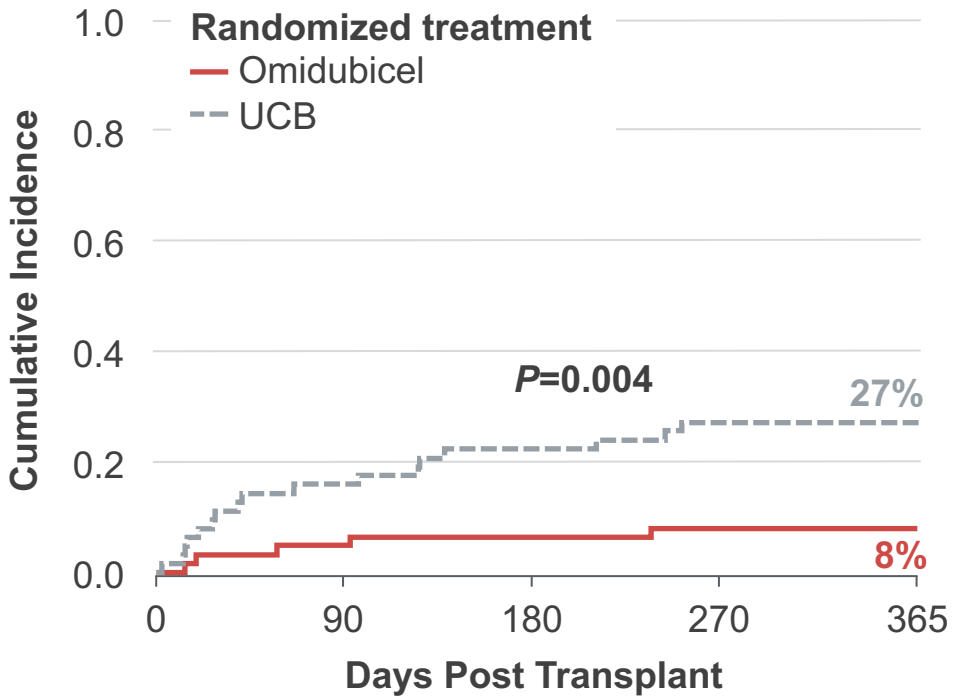
*NRM, OS, and DFS analyses were performed at 15 months following randomization.
DFS, disease-free survival; GvHD, graft versus host disease; ITT, intent-to-treat; mo, months; NRM, non-relapse mortality; OS, overall survival; UCB, umbilical cord blood.

INFECTIOUS COMPLICATIONS AT 1 YEAR POST TRANSPLANT*

First Grades 2-3 Bacterial or Invasive Fungal Infection



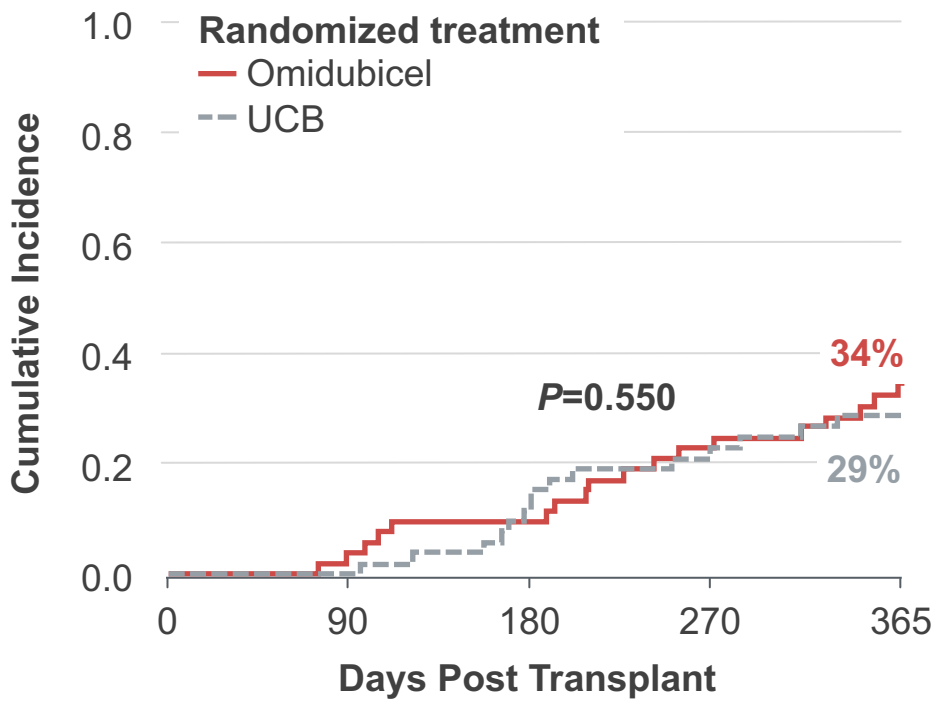
First Grade 3 Viral Infection



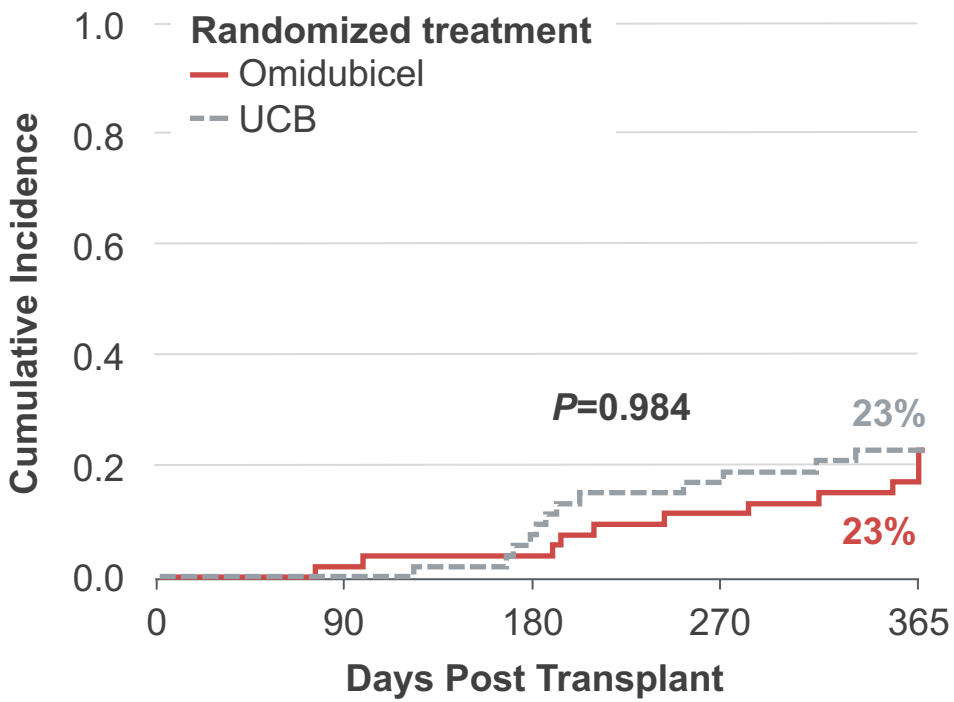
*Intent-to-treat population (N=125).
UCB, umbilical cord blood.

CHRONIC GVHD*

Chronic GvHD (All Grades)

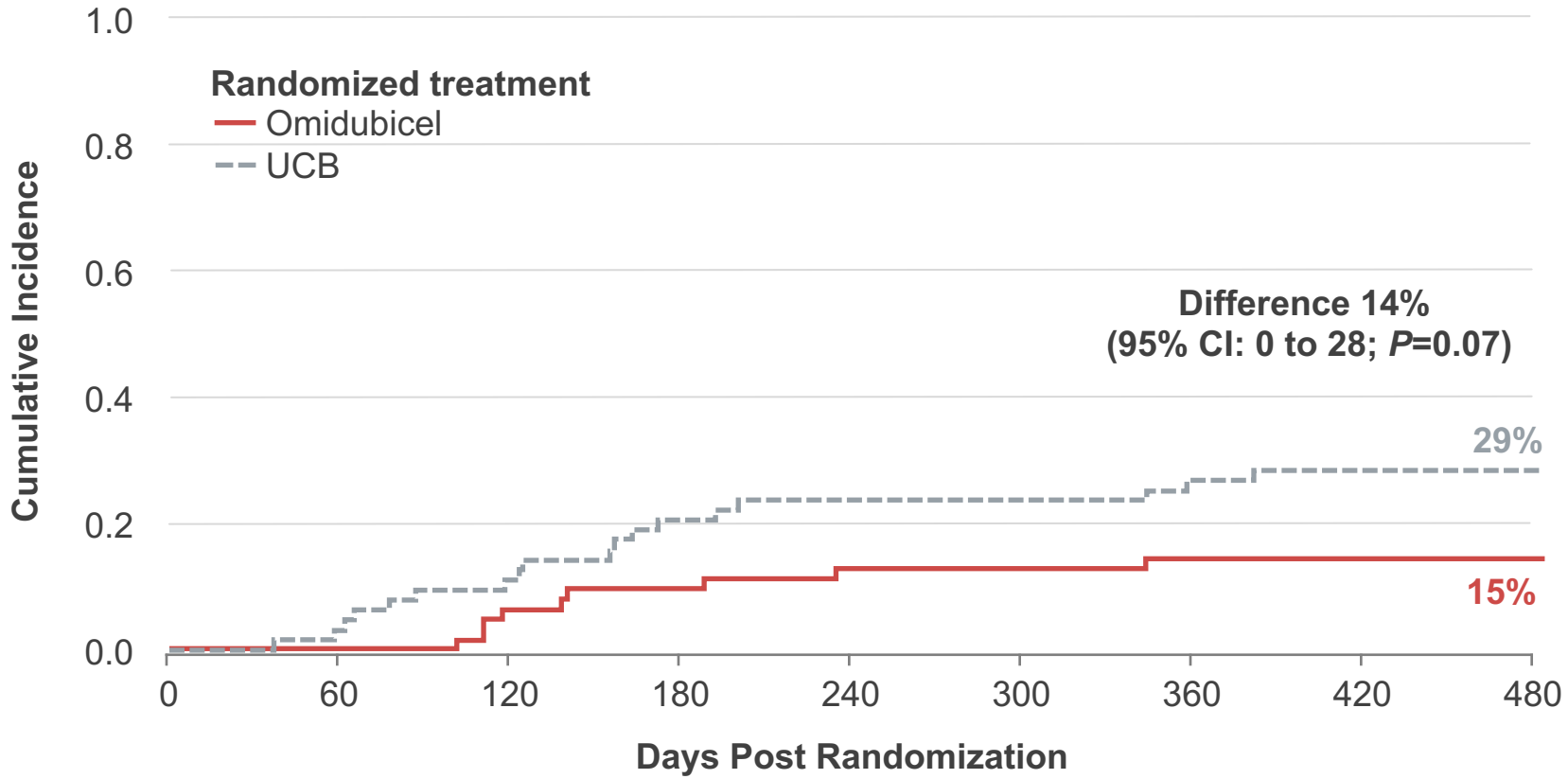


Moderate/Severe Chronic GvHD



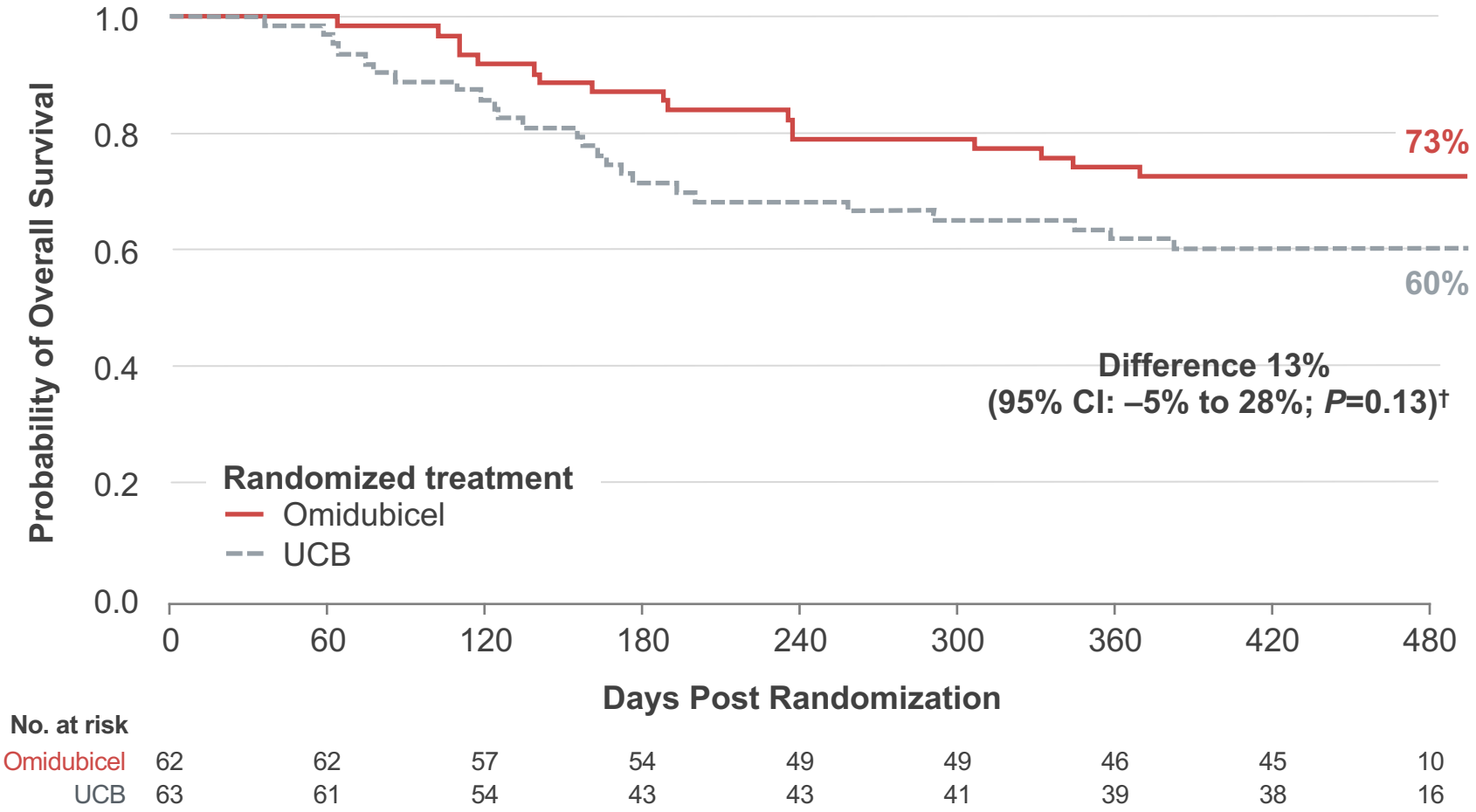
*Transplanted population 1 year following transplantation (N=117).
GvHD, graft versus host disease; UCB, umbilical cord blood.

NON-RELAPSE MORTALITY*



*Intent-to-treat population 1 year following transplantation (N=125).
CI, confidence interval; UCB, umbilical cord blood.

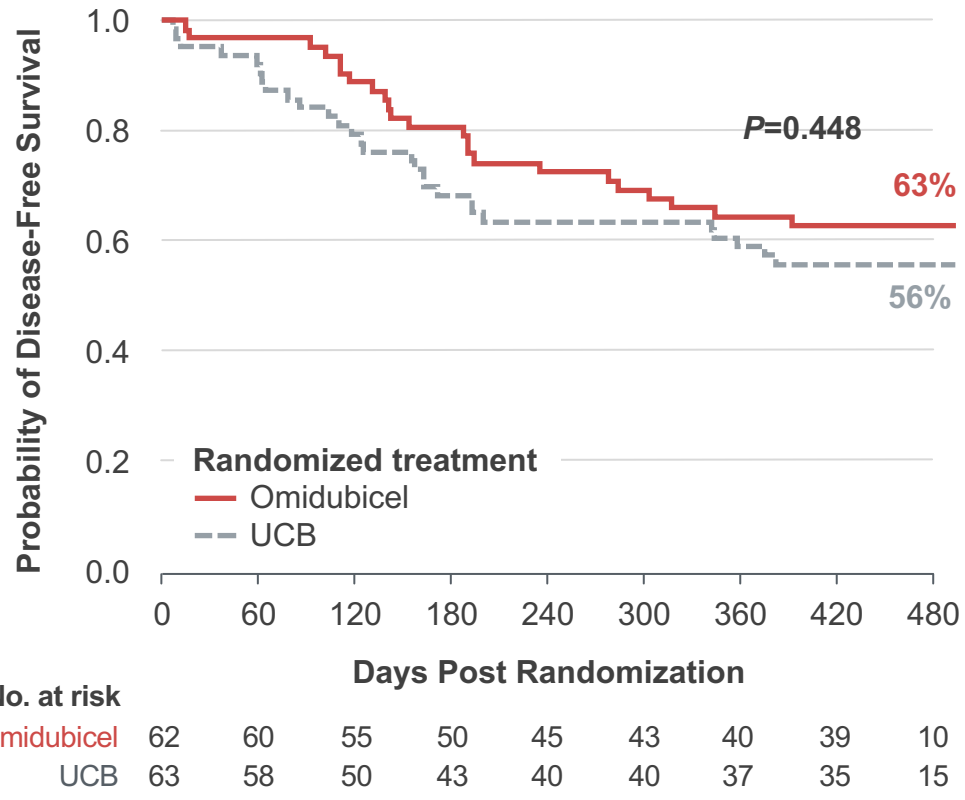
OVERALL SURVIVAL*



*Intent-to-treat population 1 year following transplantation (N=125).
†Overall survival at 1 year for omidubicel versus UCB in the as-treated population was 77% vs 64%; *P*-value=0.145.
CI, confidence interval; UCB, umbilical cord blood.

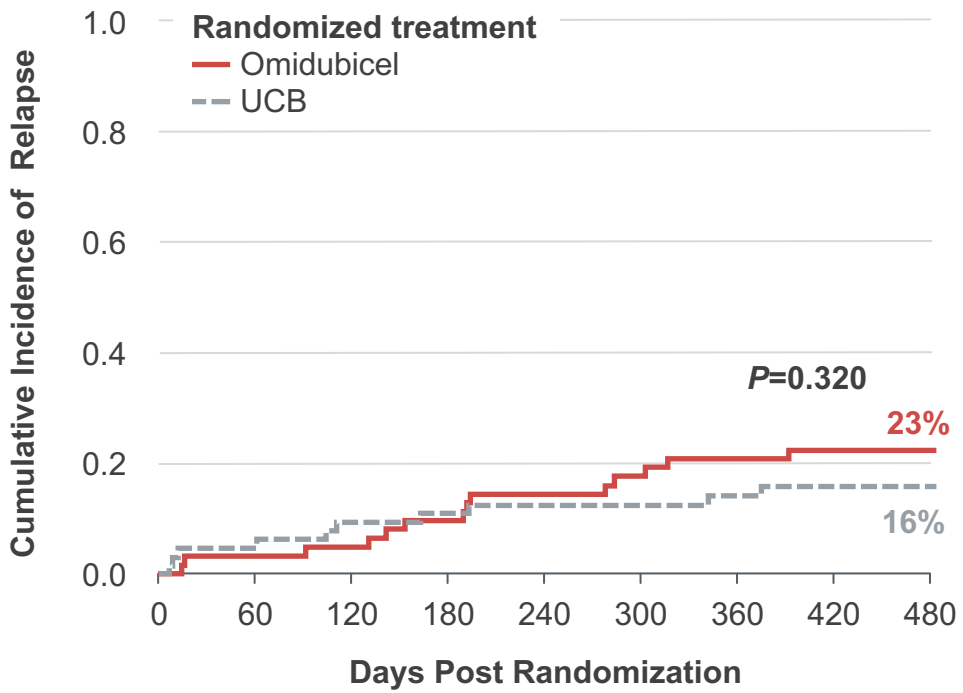
DISEASE-FREE SURVIVAL AND RELAPSE*

Disease-Free Survival



No. at risk									
Omidubicel	62	60	55	50	45	43	40	39	10
UCB	63	58	50	43	40	40	37	35	15

Relapse†



*Intent-to-treat population 1 year following transplantation (N=125).
†Defined as relapse or death.
UCB, umbilical cord blood.

ADVERSE EVENTS

For this 1-year update:

- No unexpected severe adverse events
- Low secondary graft failure
  - Stable hematopoiesis has been observed (Lin C, et al. Poster #322)
  - One patient in omidubicel arm at ~6 months following transplantation, concurrent with a diagnosis of ALL relapse
  - No cases in the UCB (control) arm
- New malignancies of donor origin
  - No cases of new malignancies were reported during the 1-year follow-up
  - From on-going long-term follow-up sub study:
    - PTLD occurred in two patients in the omidubicel arm:
      - Patient with T cell lymphoblastic leukemia, relapsed and treated with chemotherapy ~8 months after transplantation, developed PTLD (+EBV) ~17 months following transplantation
      - Patient with early T cell precursor ALL, grade 3 aGvHD with subsequent EBV viremia, developed PTLD ~20 months following transplantation
    - One patient in the UCB arm was diagnosed with a new leukemia of donor origin ~35 months following transplantation

aGvHD, acute graft versus host disease; ALL, acute lymphoblastic leukemia; EBV, Epstein-Barr virus; PTLD, post transplant lymphoproliferative disorder; UCB, umbilical cord blood.

CONCLUSIONS

HCT with omidubicel is associated with rapid hematopoietic recovery, reduced rates of infections, and no increase in acute or chronic GvHD rates compared with standard UCB

No unexpected adverse events attributable *to ex vivo* expansion were observed

Infectious complications remain significantly lower in omidubicel arm in the first year post transplant

Reduction in NRM by almost 50% in the omidubicel arm as compared to standard UCB (*P*=0.07)

GvHD, graft versus host disease; HCT, hematopoietic stem cell transplantation; NRM, non-relapse mortality; UCB, umbilical cord blood.