Supplemental Figure 1. Normality assumption analysis of endothelial cell loss (ECL) and endothelial cell density (ECD). A, Histogram of ECL. B, Normal quantile-quantile (Q-Q) plot of ECL. C, Histogram of ECD. D, Normal QQ plot of ECD.
Supplemental Figure 2. Donor-eye cultured corneal endothelial cells (CECs) with different maturity. A, The morphology of the donor-eye cultured CECs with different maturity. B, Representative results of the expression of CD166, CD24, CD44, and CD105 by fluorescence activated cell sorting (FACS). High maturity group: a >70% content of mature-differentiated human CECs (HCECs), middle maturity group: a 10 to 70% content of mature-differentiated HCECs, and low maturity group: a <10% content of mature-differentiated HCECs.
Supplemental Figure 3. Normality assumption analysis of the proportion of mature-differentiated human corneal endothelial cells (HCECs). A, Histogram of the proportion of mature-differentiated HCECs. B, Normal quantile-quantile (Q-Q) plot of the proportion of mature-differentiated HCECs.
**Supplemental Figure 4.** Kaplan–Meier survival curve graph of the cases in which an endothelial cell density (ECD) of 2,000 and 1,000 cells/mm² was maintained post transplantation of donor corneal grafts consisting of corneal endothelial cells of differing maturity. **A,** Overall, the group includes Descemet’s stripping automated endothelial keratoplasty (DSAEK) and penetrating keratoplasty (PK) patients. The survival rate indicates the cases in which an ECD of more than 2,000 cells/mm² was maintained throughout the postoperative follow-up period. **B,** Kaplan–Meier survival curve graph of the cases in which an ECD of 1,000 cells/mm² was maintained post surgery. The log-rank test was used for statistical analysis.
Supplemental Figure 5. Postoperative endothelial cell density (ECD) and endothelial cell loss (ECL) over time in patients following Descemet’s stripping automated endothelial keratoplasty (DSAEK) and penetrating keratoplasty (PK). A, ECD post DSAEK. B, ECL post DSAEK. C, ECD post PK. D, ECL post PK. Black dots indicate the average ECD/ECL at each time-point. Error bars indicate standard deviation.
Supplemental Figure 6. Postoperative endothelial cell density (ECD) over time in the patients transplanted donor corneal grafts consisting of corneal endothelial cells (CECs) of differing maturity. The postoperative ECD in the Descemet’s stripping automated endothelial keratoplasty patients according to the maturity of the donor-graft CECs. The upper and lower edges of each box represent the interquartile range (25th–75th percentile). The line inside each box is the median. The upper bar indicates the maximum value and the lower bar indicates the minimum value. Dunn’s multiple comparison test was used for statistical analysis. * indicates $P < 0.05$. 

Supplemental Figure 6.
Supplemental Figure 7. Kaplan–Meier survival curve graph of the cases in which an endothelial cell density (ECD) of 2,000 and 1,000 cells/mm² was maintained post transplantation of donor corneal grafts consisting of corneal endothelial cells of differing maturity. **A**, The survival rate indicates the cases in which an ECD of more than 2,000 cells/mm² was maintained throughout the postoperative follow-up period. **B**, Kaplan–Meier survival curve graph of the cases in which an ECD of 1,000 cells/mm² was maintained post surgery. The log-rank test was used for statistical analysis.
Supplemental Figure 8. Correlation between postoperative endothelial cell loss (ECL) and the content of mature corneal endothelial cells (CECs) in donor corneas. A, Overall, the group included Descemet’s stripping automated endothelial keratoplasty (DSEAKe) and penetrating keratoplasty (PK) patients. B, DSEAKe patients only.
Supplemental Figure 9. Histogram of postoperative endothelial cell loss (ECL) in the patients in which donor corneal grafts consisting of corneal endothelial cells of differing maturity were transplanted. A, High maturity group. B, Middle maturity group. C, Low maturity group.