CLAIMS

1. A universal donor cell comprising a nucleotide sequence encoding HLA class I histocompatibility antigen, alpha chain E (HLA-E) inserted within a gene encoding thioredoxin interacting protein (TXNIP), wherein the universal donor cell expresses HLA-E and has disrupted expression of TXNIP, and the universal donor cell has increased immune evasion and/or cell survival compared to a wild type cell or a cell that does not comprise the inserted nucleotide sequence.

2. The universal donor cell of claim 1, wherein the universal donor cell has increased immune evasion and/or cell survival compared to a wild type cell.

3. The universal donor cell of claims 1 or 2, wherein the disrupted expression of TXNIP comprises reduced or eliminated expression of TXNIP.

4. The universal donor cell of any one of claims 1 to 3, wherein the nucleotide sequence encoding HLA-E comprises sequence encoding a HLA-E trimer comprising a B2M signal peptide fused to an HLA-G presentation peptide fused to a B2M membrane protein fused to HLA-E without its signal peptide.

5. The universal donor cell of claim 4, wherein the sequence encoding the HLA-E trimer consists essentially of SEQ ID NO: 55.

6. The universal donor cell of any one of claims 1 to 5, wherein the nucleotide sequence encoding HLA-E is operably linked to an exogenous promoter.

7. The universal donor cell of claim 6, wherein the exogenous promoter is a CMV, EF1α, PGK, CAG, or UBC promoter.

8. The universal donor cell of any one of claims 1 to 7, further comprising a nucleotide sequence encoding programmed death ligand 1 (PD-L1) inserted within or near a gene encoding

beta-2 microglobulin (B2M), wherein the universal donor cell expresses PD-L1 and has disrupted expression of B2M.

9. The universal donor cell of claim 8, wherein the disrupted expression of B2M comprises reduced or eliminated expression.

10. The universal donor cell of claim 8 or 9, wherein the nucleotide sequence encoding PD-L1 consists essentially of SEQ ID NO: 11.

11. The universal donor cell of any one of claims 8 to 10, wherein the nucleotide sequence encoding PD-L1 is operably linked to an exogenous promoter.

12. The universal donor cell of claim 11, wherein the exogenous promoter is a CMV, EF1α, PGK, CAG, or UBC promoter.

13. The universal donor cell of any one of claims 1 to 12, wherein the cell is a stem cell, optionally, wherein the stem cell is an embryonic stem cell, an adult stem cell, an induced pluripotent stem cell, or a hematopoietic stem cell.

14. The universal donor cell of any one of claims 1 to 13, wherein the cell is a differentiated cell or a somatic cell and/or the cell is capable of being differentiated into lineage-restricted progenitor cells or fully differentiated somatic cells.

15. The universal donor cell of claim 14, wherein the lineage-restricted progenitor cells are pancreatic endoderm progenitors, pancreatic endocrine progenitors, mesenchymal progenitor cells, muscle progenitor cells, blast cells, hematopoietic progenitor cells, or neural progenitor cells and/or the fully differentiated somatic cells are pancreatic beta cells, epithelial cells, endodermal cells, macrophages, hepatocytes, adipocytes, kidney cells, blood cells, cardiomyocytes, or immune system cells.