

Supplementary Table 1. PCR primers and conditions.

| Vector | Gene (allele) | Primer A sequence | Primer B sequence | Product size (bp) | Annealing Temp (°C) | Extension Time |
|----------------------------|--------------------------------|----------------------------|-----------------------------|--------------------------|----------------------------|-----------------------|
| AAV-B2M-HyTK | <i>B2M</i> (-) | AGATCTCTGCCCCTCCCCATC | ACCGTCTATATAAACCCGCAGT | 2,657 | 58 | 2:45 |
| AAV-B2M-TKN | <i>B2M</i> (-) | AGATCTCTGCCCCTCCCCATC | ACCGTCTATATAAACCCGCAGT | 1,577 | 58 | 1:35 |
| AAV-B2M-Edimer | <i>B2M</i> (Edimer, [pre-Cre]) | CCTTCTATCGCCTTCTTGACGAGTTC | GTAGCTGCAGACAGTTCTCCAAACCC | 1,291 | 55 | 1:30 |
| AAV-B2M-Edimer | <i>B2M</i> (Edimer) | CAGGGGTCTGAGTCTCACAGCTTGT | ACCACCTGCCTTTATCCTGCAATACC | 379 | 56 | 2:00 |
| AAV-B2M-Etrimer | <i>B2M</i> (Etrimer) | CGATTGCGAGCGCATCGCCTTCTATC | GAGAGGCAGAAGATAACCATAGTAGTT | 1,280 | 55 | 1:30 |
| DNA quality control | <i>GAPDH</i> | GAAATCCCATCACCATCTTCCAG | ATGAGTCCTTCCACGATACCAAAG | 624 | 59 | 0:30 |

Supplementary Table 2. HLA types of ESCs, NK cells, and CD8+ T cells.

| | HLA-A | HLA-B | HLA-C | HLA-E |
|-------------------------------------|--------------|--------------|--------------|---------------|
| Elf-1 ESCs | *11/*24 | *35/*55 | *03/*04 | *01:01/*01:01 |
| NK cell donor 1 | *01/*02 | *08/*35 | *04/*07 | *01:01/*01:01 |
| NK cell donor 2 | *02/*03 | *07/*40 | *07/*15 | *01:03/*01:03 |
| CD8 ⁺ T cell donor | *24/*30 | *13/*35 | *04/*06 | *01:01/*01:03 |