

What is claimed is:

1. A method of making a population of genetically engineered Natural Killer (NK) cells, the method comprising:
 - (a) contacting a population of NK cells with a CD70 inhibitor; and
 - (b) expanding the population of NK cells *in vitro*.
2. The method of claim 1, wherein the population of NK cells is a population of human NK cells.
3. The method of claim 1, wherein the population of NK cells exhibits at least about 25% greater cell expansion compared to a population of NK cells that is not contacted with the CD70 inhibitor.
4. The method of claims 1-3, wherein the method further comprises, prior to step (a), isolating CD56⁺ cells and/or CD3⁻/CD56⁺ cells from a population of peripheral blood mononuclear cells (PBMCs) to obtain the population of NK cells.
5. The method of any one of claims 1-4, wherein the expanding comprises culturing the population of NK cells in the presence of feeder cells.
6. The method of claim 5, wherein the feeder cells are an immortalized cell line.
7. The method of claim 5, wherein the feeder cells are autologous feeder cells.
8. The method of any one of claims 5-7, wherein the feeder cells have been irradiated.
9. The method of any one of claims 1-8, wherein the expanding comprises culturing the population of NK cells in a culture medium comprising one or more of recombinant human IL-12, recombinant human IL-8, and recombinant human IL-21.

10. The method of any one of claims 1-9, wherein the expanding is performed from about 1 day to about 42 days.
11. The method of any one of claims 1-10, wherein the CD70 inhibitor decreases the level of CD70 polypeptide in at least one NK cell of the population of NK cells.
12. The method of any one of claims 1-11, wherein the CD70 inhibitor comprises a small interfering RNA (siRNA) that targets CD70 mRNA, a short hairpin RNA (shRNA) that targets CD70 mRNA, a nucleic acid encoding a siRNA that targets CD70 mRNA, a nucleic acid encoding an shRNA that targets CD70 mRNA, a nucleic acid encoding a tandem shRNA that targets CD70 mRNA, a tandem shRNA that targets CD70 mRNA, a nucleic acid encoding a ribozyme that targets CD70 mRNA a ribozyme that targets CD70 mRNA, or a combination of any of the foregoing.
13. The method of any one of claims 1-11, wherein the CD70 inhibitor comprises an RNA-guided endonuclease and a guide RNA (gRNA) targeting a CD70 gene.
14. The method of any one of claims 1-13, wherein the CD70 inhibitor decreases cell surface level of CD70 polypeptide in at least one NK cell of the population of NK cells.
15. The method of any one of claims 1-10 and 14, wherein the CD70 inhibitor comprises a Protein Expression Blocker (PEBL) or a nucleic acid encoding a PEBL, wherein the PEBL comprises a first antigen recognition domain that specifically binds human CD70 and one or more of a localizing domain, an intracellular retention domain and an endoplasmic reticulum (ER) retention domain.
16. The method of any one of claims 1-10, wherein the CD70 inhibitor comprises an antagonistic anti-CD70 antibody or an antigen-binding fragment thereof.
17. The method of claim 16, wherein the antagonistic anti-CD70 antibody or the antigen-binding fragment thereof inhibits the interaction between CD70 and CD27.

18. The method of claim 16 or claim 17, wherein the antagonistic anti-CD70 antibody or the antigen-binding fragment thereof comprises a VH and a VL wherein

- a) the VH comprises SEQ ID NO: 1162 and the VL comprises SEQ ID NO: 1163;
- b) the VH comprises SEQ ID NO: 51 and the VL comprises SEQ ID NO: 53;
- c) the VH comprises SEQ ID NO: 11 and the VL comprises SEQ ID NO: 13;
- d) the VH comprises SEQ ID NO: 694 and the VL comprises SEQ ID NO: 69;
- e) the VH comprises SEQ ID NO: 1118 and the VL comprises SEQ ID NO: 1119;
- f) the VH comprises SEQ ID NO: 1120 and the VL comprises SEQ ID NO: 1121;
- g) the VH comprises SEQ ID NO: 1116 and the VL comprises SEQ ID NO: 1117;
- h) the VH comprises SEQ ID NO: 1104 and the VL comprises SEQ ID NO: 1105;
- i) the VH comprises SEQ ID NO: 1094 and the VL comprises SEQ ID NO: 1095;
- j) the VH comprises SEQ ID NO: 1084 and the VL comprises SEQ ID NO: 1085;
- k) the VH comprises SEQ ID NO: 1092 and the VL comprises SEQ ID NO: 1093;
- l) the VH comprises SEQ ID NO: 1082 and the VL comprises SEQ ID NO: 1083; or
- m) the VH comprises SEQ ID NO: 1074 and the VL comprises SEQ ID NO: 1075.

19. The method of claim 17, wherein the antagonistic anti-CD70 antibody is cusatuzumab, MDX-1411, 27B3, 57B6, 59D10, 19G10, 9B2, 5B2, 9G2, 5F4, 9D1, and/or SGN70.

20. The method of any one of claims 1-19, further comprising

(c) contacting the population of NK cells with a polynucleotide encoding a chimeric antigen receptor (CAR) under conditions sufficient to transfer the polynucleotide across a cell membrane of at least one NK cell in the population of NK cells, wherein the CAR comprises:

- (i) an extracellular domain comprising a second antigen recognition domain that specifically binds human CD70;
- (ii) a transmembrane domain; and
- (iii) an intracellular domain.

21. The method of claim 20, wherein the method further comprises expanding the population of NK cells *in vitro* after step (c).

22. The method of any one of claims 1-21, wherein step (b) comprises expanding the population of NK cells by at least 1,000-fold in culture.

23. The method of claim 20 or 21, wherein the second antigen recognition domain comprises a scFv comprising a VH and a VL, wherein

(a) the VH comprises a CDRH1 of SEQ ID NO: 86, a CDRH2 of SEQ ID NO: 87, and a CDRH3 of SEQ ID NO: 88, and the VL comprises a CDRL1 of SEQ ID NO: 89, a CDRL2 of SEQ ID NO: 90, and a CDRL3 of SEQ ID NO: 91;

(b) the VH comprises a CDRH1 of SEQ ID NO: 25, a CDRH2 of SEQ ID NO: 26, and a CDRH3 of SEQ ID NO: 27, and the VL comprises a CDRL1 of SEQ ID NO: 28, a CDRL2 of SEQ ID NO: 29, and a CDRL3 of SEQ ID NO: 30;

(c) the VH comprises a CDRH1 of SEQ ID NO: 35, a CDRH2 of SEQ ID NO: 36, and a CDRH3 of SEQ ID NO: 37, and the VL comprises a CDRL1 of SEQ ID NO: 38, a CDRL2 of SEQ ID NO: 39, and a CDRL3 of SEQ ID NO: 40;

(d) the VH comprises a CDRH1 of SEQ ID NO: 45, a CDRH2 of SEQ ID NO: 46, and a CDRH3 of SEQ ID NO: 47, and the VL comprises a CDRL1 of SEQ ID NO: 48, a CDRL2 of SEQ ID NO: 49, and a CDRL3 of SEQ ID NO: 50;

(e) the VH comprises a CDRH1 of SEQ ID NO: 55, a CDRH2 of SEQ ID NO: 56, and a CDRH3 of SEQ ID NO: 57, and the VL comprises a CDRL1 of SEQ ID NO: 58, a CDRL2 of SEQ ID NO: 59, and a CDRL3 of SEQ ID NO: 60;

(f) the VH comprises a CDRH1 of SEQ ID NO: 15, a CDRH2 of SEQ ID NO: 16, and a CDRH3 of SEQ ID NO: 17, and the VL comprises a CDRL1 of SEQ ID NO: 18, a CDRL2 of SEQ ID NO: 19, and a CDRL3 of SEQ ID NO: 20;

(g) the VH comprises a CDRH1 of SEQ ID NO: 96, a CDRH2 of SEQ ID NO: 97, and a CDRH3 of SEQ ID NO: 98, and the VL comprises a CDRL1 of SEQ ID NO: 99, a CDRL2 of SEQ ID NO: 100, and a CDRL3 of SEQ ID NO: 101;

(h) the VH comprises a CDRH1 of SEQ ID NO: 196, a CDRH2 of SEQ ID NO: 197, and a CDRH3 of SEQ ID NO: 198, and the VL comprises a CDRL1 of SEQ ID NO: 478, a CDRL2 of SEQ ID NO: 479, and a CDRL3 of SEQ ID NO: 480;

(i) the VH comprises a CDRH1 of SEQ ID NO: 202, a CDRH2 of SEQ ID NO: 203, and a CDRH3 of SEQ ID NO: 204, and the VL comprises a CDRL1 of SEQ ID NO: 481, a CDRL2 of SEQ ID NO: 482, and a CDRL3 of SEQ ID NO: 483;

(j) the VH comprises a CDRH1 of SEQ ID NO: 1170, a CDRH2 of SEQ ID NO: 1171, and a CDRH3 of SEQ ID NO: 1172, and the VL comprises a CDRL1 of SEQ ID NO: 1857, a CDRL2 of SEQ ID NO: 1858, and a CDRL3 of SEQ ID NO: 1859;

(k) the VH comprises a CDRH1 of SEQ ID NO: 1173, a CDRH2 of SEQ ID NO: 1174, and a CDRH3 of SEQ ID NO: 1175, and the VL comprises a CDRL1 of SEQ ID NO: 1860, a CDRL2 of SEQ ID NO: 1861, and a CDRL3 of SEQ ID NO: 1862;

(l) the VH comprises a CDRH1 of SEQ ID NO: 1176, a CDRH2 of SEQ ID NO: 1177, and a CDRH3 of SEQ ID NO: 1178, and the VL comprises a CDRL1 of SEQ ID NO: 1863, a CDRL2 of SEQ ID NO: 1864, and a CDRL3 of SEQ ID NO: 1865;

(m) the VH comprises a CDRH1 of SEQ ID NO: 1179, a CDRH2 of SEQ ID NO: 1180, and a CDRH3 of SEQ ID NO: 1181, and the VL comprises a CDRL1 of SEQ ID NO: 1866, a CDRL2 of SEQ ID NO: 1867, and a CDRL3 of SEQ ID NO: 1868;

(n) the VH comprises a CDRH1 of SEQ ID NO: 1182, a CDRH2 of SEQ ID NO: 1183, and a CDRH3 of SEQ ID NO: 1184, and the VL comprises a CDRL1 of SEQ ID NO: 1869, a CDRL2 of SEQ ID NO: 1870, and a CDRL3 of SEQ ID NO: 1871;

(o) the VH comprises a CDRH1 of SEQ ID NO: 1185, a CDRH2 of SEQ ID NO: 1186, and a CDRH3 of SEQ ID NO: 1187, and the VL comprises a CDRL1 of SEQ ID NO: 1872, a CDRL2 of SEQ ID NO: 1873, and a CDRL3 of SEQ ID NO: 1874;

(p) the VH comprises a CDRH1 of SEQ ID NO: 1188, a CDRH2 of SEQ ID NO: 1189, and a CDRH3 of SEQ ID NO: 1190, and the VL comprises a CDRL1 of SEQ ID NO: 1875, a CDRL2 of SEQ ID NO: 1876, and a CDRL3 of SEQ ID NO: 1877;

(q) the VH comprises a CDRH1 of SEQ ID NO: 1524, a CDRH2 of SEQ ID NO: 1525, and a CDRH3 of SEQ ID NO: 1526, and the VL comprises a CDRL1 of SEQ ID NO: 2211, a CDRL2 of SEQ ID NO: 2212, and a CDRL3 of SEQ ID NO: 2213;

(r) the VH comprises a CDRH1 of SEQ ID NO: 1527, a CDRH2 of SEQ ID NO: 1528, and a CDRH3 of SEQ ID NO: 1529, and the VL comprises a CDRL1 of SEQ ID NO: 2214, a CDRL2 of SEQ ID NO: 2215, and a CDRL3 of SEQ ID NO: 2216;

(s) the VH comprises a CDRH1 of SEQ ID NO: 1530, a CDRH2 of SEQ ID NO: 1531, and a CDRH3 of SEQ ID NO: 1532, and the VL comprises a CDRL1 of SEQ ID NO: 2217, a CDRL2 of SEQ ID NO: 2218, and a CDRL3 of SEQ ID NO: 2219;

(t) the VH comprises a CDRH1 of SEQ ID NO: 1533, a CDRH2 of SEQ ID NO: 1534, and a CDRH3 of SEQ ID NO: 1535, and the VL comprises a CDRL1 of SEQ ID NO: 2220, a CDRL2 of SEQ ID NO: 2221, and a CDRL3 of SEQ ID NO: 2222;

(u) the VH comprises a CDRH1 of SEQ ID NO: 1539, a CDRH2 of SEQ ID NO: 1540, and a CDRH3 of SEQ ID NO: 1541, and the VL comprises a CDRL1 of SEQ ID NO: 2226, a CDRL2 of SEQ ID NO: 2227, and a CDRL3 of SEQ ID NO: 2228;

(v) the VH comprises a CDRH1 of SEQ ID NO: 1542, a CDRH2 of SEQ ID NO: 1543, and a CDRH3 of SEQ ID NO: 1544, and the VL comprises a CDRL1 of SEQ ID NO: 2229, a CDRL2 of SEQ ID NO: 2230, and a CDRL3 of SEQ ID NO: 2231;

(w) the VH comprises a CDRH1 of SEQ ID NO: 1548, a CDRH2 of SEQ ID NO: 1549, and a CDRH3 of SEQ ID NO: 1550, and the VL comprises a CDRL1 of SEQ ID NO: 2235, a CDRL2 of SEQ ID NO: 2236, and a CDRL3 of SEQ ID NO: 2237;

(x) the VH comprises a CDRH1 of SEQ ID NO: 1551, a CDRH2 of SEQ ID NO: 1552, and a CDRH3 of SEQ ID NO: 1553, and the VL comprises a CDRL1 of SEQ ID NO: 2238, a CDRL2 of SEQ ID NO: 2239, and a CDRL3 of SEQ ID NO: 2240;

(y) the VH comprises a CDRH1 of SEQ ID NO: 1554, a CDRH2 of SEQ ID NO: 1555, and a CDRH3 of SEQ ID NO: 1556, and the VL comprises a CDRL1 of SEQ ID NO: 2241, a CDRL2 of SEQ ID NO: 2242, and a CDRL3 of SEQ ID NO: 2243;

(z) the VH comprises a CDRH1 of SEQ ID NO: 1557, a CDRH2 of SEQ ID NO: 1558, and a CDRH3 of SEQ ID NO: 1559, and the VL comprises a CDRL1 of SEQ ID NO: 2244, a CDRL2 of SEQ ID NO: 2245, and a CDRL3 of SEQ ID NO: 2246;

(aa) the VH comprises a CDRH1 of SEQ ID NO: 1560, a CDRH2 of SEQ ID NO: 1561, and a CDRH3 of SEQ ID NO: 1562, and the VL comprises a CDRL1 of SEQ ID NO: 2247, a CDRL2 of SEQ ID NO: 2248, and a CDRL3 of SEQ ID NO: 2249;

(bb) the VH comprises a CDRH1 of SEQ ID NO: 1563, a CDRH2 of SEQ ID NO: 1564, and a CDRH3 of SEQ ID NO: 1565, and the VL comprises a CDRL1 of SEQ ID NO: 2250, a CDRL2 of SEQ ID NO: 2251, and a CDRL3 of SEQ ID NO: 2252;

(cc) the VH comprises a CDRH1 of SEQ ID NO: 1566, a CDRH2 of SEQ ID NO: 1567, and a CDRH3 of SEQ ID NO: 1568, and the VL comprises a CDRL1 of SEQ ID NO: 2253, a CDRL2 of SEQ ID NO: 2254, and a CDRL3 of SEQ ID NO: 2255;

(dd) the VH comprises a CDRH1 of SEQ ID NO: 1572, a CDRH2 of SEQ ID NO: 1573, and a CDRH3 of SEQ ID NO: 1574, and the VL comprises a CDRL1 of SEQ ID NO: 2259, a CDRL2 of SEQ ID NO: 2260, and a CDRL3 of SEQ ID NO: 2261;

(ee) the VH comprises a CDRH1 of SEQ ID NO: 1575, a CDRH2 of SEQ ID NO: 1576, and a CDRH3 of SEQ ID NO: 1577, and the VL comprises a CDRL1 of SEQ ID NO: 2262, a CDRL2 of SEQ ID NO: 2263, and a CDRL3 of SEQ ID NO: 2264;

(ff) the VH comprises a CDRH1 of SEQ ID NO: 1578, a CDRH2 of SEQ ID NO: 1579, and a CDRH3 of SEQ ID NO: 1580, and the VL comprises a CDRL1 of SEQ ID NO: 2265, a CDRL2 of SEQ ID NO: 2266, and a CDRL3 of SEQ ID NO: 2267;

(gg) the VH comprises a CDRH1 of SEQ ID NO: 1587, a CDRH2 of SEQ ID NO: 1588, and a CDRH3 of SEQ ID NO: 1589, and the VL comprises a CDRL1 of SEQ ID NO: 2274, a CDRL2 of SEQ ID NO: 2275, and a CDRL3 of SEQ ID NO: 2276;

(hh) the VH comprises a CDRH1 of SEQ ID NO: 1590, a CDRH2 of SEQ ID NO: 1591, and a CDRH3 of SEQ ID NO: 1592, and the VL comprises a CDRL1 of SEQ ID NO: 2277, a CDRL2 of SEQ ID NO: 2278, and a CDRL3 of SEQ ID NO: 2279;

(ii) the VH comprises a CDRH1 of SEQ ID NO: 1593, a CDRH2 of SEQ ID NO: 1594, and a CDRH3 of SEQ ID NO: 1595, and the VL comprises a CDRL1 of SEQ ID NO: 2280, a CDRL2 of SEQ ID NO: 2281, and a CDRL3 of SEQ ID NO: 2282;

(jj) the VH comprises a CDRH1 of SEQ ID NO: 1596, a CDRH2 of SEQ ID NO: 1597, and a CDRH3 of SEQ ID NO: 1598, and the VL comprises a CDRL1 of SEQ ID NO: 2283, a CDRL2 of SEQ ID NO: 2284, and a CDRL3 of SEQ ID NO: 2285;

(kk) the VH comprises a CDRH1 of SEQ ID NO: 1599, a CDRH2 of SEQ ID NO: 1560, and a CDRH3 of SEQ ID NO: 1561, and the VL comprises a CDRL1 of SEQ ID NO: 2286, a CDRL2 of SEQ ID NO: 2287, and a CDRL3 of SEQ ID NO: 2288;

(ll) the VH comprises a CDRH1 of SEQ ID NO: 1602, a CDRH2 of SEQ ID NO: 1603, and a CDRH3 of SEQ ID NO: 1604, and the VL comprises a CDRL1 of SEQ ID NO: 2289, a CDRL2 of SEQ ID NO: 2290, and a CDRL3 of SEQ ID NO: 2291;

(mm) the VH comprises a CDRH1 of SEQ ID NO: 1605, a CDRH2 of SEQ ID NO: 1606, and a CDRH3 of SEQ ID NO: 1607, and the VL comprises a CDRL1 of SEQ ID NO: 2292, a CDRL2 of SEQ ID NO: 2293, and a CDRL3 of SEQ ID NO: 2294;

(nn) the VH comprises a CDRH1 of SEQ ID NO: 1608, a CDRH2 of SEQ ID NO: 1609, and a CDRH3 of SEQ ID NO: 1610, and the VL comprises a CDRL1 of SEQ ID NO: 2295, a CDRL2 of SEQ ID NO: 2296, and a CDRL3 of SEQ ID NO: 2297;

(oo) the VH comprises a CDRH1 of SEQ ID NO: 1611, a CDRH2 of SEQ ID NO: 1612, and a CDRH3 of SEQ ID NO: 1613, and the VL comprises a CDRL1 of SEQ ID NO: 2298, a CDRL2 of SEQ ID NO: 2299, and a CDRL3 of SEQ ID NO: 2300;

(pp) the VH comprises a CDRH1 of SEQ ID NO: 1614, a CDRH2 of SEQ ID NO: 1615, and a CDRH3 of SEQ ID NO: 1616, and the VL comprises a CDRL1 of SEQ ID NO: 2301, a CDRL2 of SEQ ID NO: 2302, and a CDRL3 of SEQ ID NO: 2303;

(qq) the VH comprises a CDRH1 of SEQ ID NO: 1617, a CDRH2 of SEQ ID NO: 1618, and a CDRH3 of SEQ ID NO: 1619, and the VL comprises a CDRL1 of SEQ ID NO: 2304, a CDRL2 of SEQ ID NO: 2305, and a CDRL3 of SEQ ID NO: 2306;

(rr) the VH comprises a CDRH1 of SEQ ID NO: 1626, a CDRH2 of SEQ ID NO: 1627, and a CDRH3 of SEQ ID NO: 1628, and the VL comprises a CDRL1 of SEQ ID NO: 2313, a CDRL2 of SEQ ID NO: 2314, and a CDRL3 of SEQ ID NO: 2315;

(ss) the VH comprises a CDRH1 of SEQ ID NO: 1629, a CDRH2 of SEQ ID NO: 1630, and a CDRH3 of SEQ ID NO: 1631, and the VL comprises a CDRL1 of SEQ ID NO: 2316, a CDRL2 of SEQ ID NO: 2317, and a CDRL3 of SEQ ID NO: 2318;

(tt) the VH comprises a CDRH1 of SEQ ID NO: 1632, a CDRH2 of SEQ ID NO: 1633, and a CDRH3 of SEQ ID NO: 1634, and the VL comprises a CDRL1 of SEQ ID NO: 2319, a CDRL2 of SEQ ID NO: 2320, and a CDRL3 of SEQ ID NO: 2321;

(uu) the VH comprises a CDRH1 of SEQ ID NO: 1635, a CDRH2 of SEQ ID NO: 1636, and a CDRH3 of SEQ ID NO: 1637, and the VL comprises a CDRL1 of SEQ ID NO: 2322, a CDRL2 of SEQ ID NO: 2323, and a CDRL3 of SEQ ID NO: 2324;

(vv) the VH comprises a CDRH1 of SEQ ID NO: 1638, a CDRH2 of SEQ ID NO: 1639, and a CDRH3 of SEQ ID NO: 1640, and the VL comprises a CDRL1 of SEQ ID NO: 2325, a CDRL2 of SEQ ID NO: 2326, and a CDRL3 of SEQ ID NO: 2327;

(ww) the VH comprises a CDRH1 of SEQ ID NO: 1641, a CDRH2 of SEQ ID NO: 1642, and a CDRH3 of SEQ ID NO: 1643, and the VL comprises a CDRL1 of SEQ ID NO: 2328, a CDRL2 of SEQ ID NO: 2329, and a CDRL3 of SEQ ID NO: 2330;

(xx) the VH comprises a CDRH1 of SEQ ID NO: 1644, a CDRH2 of SEQ ID NO: 1645, and a CDRH3 of SEQ ID NO: 1646, and the VL comprises a CDRL1 of SEQ ID NO: 2331, a CDRL2 of SEQ ID NO: 2332, and a CDRL3 of SEQ ID NO: 2333;

(yy) the VH comprises a CDRH1 of SEQ ID NO: 1647, a CDRH2 of SEQ ID NO: 1648, and a CDRH3 of SEQ ID NO: 1649, and the VL comprises a CDRL1 of SEQ ID NO: 2334, a CDRL2 of SEQ ID NO: 2335, and a CDRL3 of SEQ ID NO: 2336;

(zz) the VH comprises a CDRH1 of SEQ ID NO: 1650, a CDRH2 of SEQ ID NO: 1651, and a CDRH3 of SEQ ID NO: 1652, and the VL comprises a CDRL1 of SEQ ID NO: 2337, a CDRL2 of SEQ ID NO: 2338, and a CDRL3 of SEQ ID NO: 2339;

(aaa) the VH comprises a CDRH1 of SEQ ID NO: 1653, a CDRH2 of SEQ ID NO: 1654, and a CDRH3 of SEQ ID NO: 1655, and the VL comprises a CDRL1 of SEQ ID NO: 2340, a CDRL2 of SEQ ID NO: 2341, and a CDRL3 of SEQ ID NO: 2342;

(bbb) the VH comprises a CDRH1 of SEQ ID NO: 1656, a CDRH2 of SEQ ID NO: 1657, and a CDRH3 of SEQ ID NO: 1658, and the VL comprises a CDRL1 of SEQ ID NO: 2343, a CDRL2 of SEQ ID NO: 2344, and a CDRL3 of SEQ ID NO: 2345; or

(ccc) the VH comprises a CDRH1 of SEQ ID NO: 1659, a CDRH2 of SEQ ID NO: 1660, and a CDRH3 of SEQ ID NO: 1661, and the VL comprises a CDRL1 of SEQ ID NO: 2346, a CDRL2 of SEQ ID NO: 2347, and a CDRL3 of SEQ ID NO: 2348.

24. The method of any one of claims 20, 21, and 23, wherein the wherein the second antigen recognition domain comprises a scFv comprising a VH and a VL, wherein: (a) the VH comprises SEQ ID NO: 82 and the VL comprises SEQ ID NO: 84; (b) the VH comprises SEQ ID NO: 21 and the VL comprises SEQ ID NO: 23; (c) the VH comprises SEQ ID NO: 31 and the VL comprises SEQ ID NO: 33; (d) the VH comprises SEQ ID NO: 41 and the VL comprises SEQ ID NO: 43; (e) the VH comprises SEQ ID NO: 51 and the VL comprises SEQ ID NO: 53; (f) the VH comprises SEQ ID NO: 61 and the VL comprises SEQ ID NO: 63; (g) the VH comprises SEQ ID NO: 693 and the VL comprises SEQ ID NO: 66; (h) the VH comprises SEQ ID NO: 694 and the VL comprises SEQ ID NO: 69; (i) the VH comprises SEQ ID NO: 695 and the VL

comprises SEQ ID NO: 72; (j) the VH comprises SEQ ID NO: 74 and the VL comprises SEQ ID NO: 76; (k) the VH comprises SEQ ID NO: 78 and the VL comprises SEQ ID NO: 80; (l) the VH comprises SEQ ID NO: 11 and the VL comprises SEQ ID NO: 13; (m) the VH comprises SEQ ID NO: 92 and the VL comprises SEQ ID NO: 94; (n) the VH comprises SEQ ID NO: 102 and the VL comprises SEQ ID NO: 103; (o) the VH comprises SEQ ID NO: 104 and the VL comprises SEQ ID NO: 105; (p) the VH comprises SEQ ID NO: 712 and the VL comprises SEQ ID NO: 713; (q) the VH comprises SEQ ID NO: 714 and the VL comprises SEQ ID NO: 715; (r) the VH comprises SEQ ID NO: 716 and the VL comprises SEQ ID NO: 717; (s) the VH comprises SEQ ID NO: 718 and the VL comprises SEQ ID NO: 719; (t) the VH comprises SEQ ID NO: 720 and the VL comprises SEQ ID NO: 721; (u) the VH comprises SEQ ID NO: 722 and the VL comprises SEQ ID NO: 723; (v) the VH comprises SEQ ID NO: 724 and the VL comprises SEQ ID NO: 725; (w) the VH comprises SEQ ID NO: 948 and the VL comprises SEQ ID NO: 949; (x) the VH comprises SEQ ID NO: 950 and the VL comprises SEQ ID NO: 951; (y) the VH comprises SEQ ID NO: 952 and the VL comprises SEQ ID NO: 953; (z) the VH comprises SEQ ID NO: 954 and the VL comprises SEQ ID NO: 955; (aa) the VH comprises SEQ ID NO: 958 and the VL comprises SEQ ID NO: 959; (bb) the VH comprises SEQ ID NO: 960 and the VL comprises SEQ ID NO: 961; (cc) the VH comprises SEQ ID NO: 964 and the VL comprises SEQ ID NO: 965; (dd) the VH comprises SEQ ID NO: 966 and the VL comprises SEQ ID NO: 967; (ee) the VH comprises SEQ ID NO: 968 and the VL comprises SEQ ID NO: 969; (ff) the VH comprises SEQ ID NO: 970 and the VL comprises SEQ ID NO: 971; (gg) the VH comprises SEQ ID NO: 972 and the VL comprises SEQ ID NO: 973; (hh) the VH comprises SEQ ID NO: 974 and the VL comprises SEQ ID NO: 975; (ii) the VH comprises SEQ ID NO: 976 and the VL comprises SEQ ID NO: 977; (jj) the VH comprises SEQ ID NO: 980 and the VL comprises SEQ ID NO: 981; (kk) the VH comprises SEQ ID NO: 982 and the VL comprises SEQ ID NO: 983; (ll) the VH comprises SEQ ID NO: 984 and the VL comprises SEQ ID NO: 985; (mm) the VH comprises SEQ ID NO: 990 and the VL comprises SEQ ID NO: 991; (nn) the VH comprises SEQ ID NO: 992 and the VL comprises SEQ ID NO: 993; (oo) the VH comprises SEQ ID NO: 994 and the VL comprises SEQ ID NO: 995; (pp) the VH comprises SEQ ID NO: 996 and the VL comprises SEQ ID NO: 997; (qq) the VH comprises SEQ ID NO: 998 and the VL comprises SEQ ID NO: 999; (rr) the VH comprises SEQ ID NO: 1000 and the VL comprises SEQ ID NO: 1001; (ss) the VH comprises SEQ ID NO: 1002 and the VL comprises SEQ ID NO:

1003; (tt) the VH comprises SEQ ID NO: 1004 and the VL comprises SEQ ID NO: 1005; (uu) the VH comprises SEQ ID NO: 1006 and the VL comprises SEQ ID NO: 1007; (vv) the VH comprises SEQ ID NO: 1008 and the VL comprises SEQ ID NO: 1009; (ww) the VH comprises SEQ ID NO: 1010 and the VL comprises SEQ ID NO: 1011; (xx) the VH comprises SEQ ID NO: 1016 and the VL comprises SEQ ID NO: 1017; (yy) the VH comprises SEQ ID NO: 1018 and the VL comprises SEQ ID NO: 1019; (zz) the VH comprises SEQ ID NO: 1020 and the VL comprises SEQ ID NO: 1021; (aaa) the VH comprises SEQ ID NO: 1022 and the VL comprises SEQ ID NO: 1023; (bbb) the VH comprises SEQ ID NO: 1024 and the VL comprises SEQ ID NO: 1025; (ccc) the VH comprises SEQ ID NO: 1026 and the VL comprises SEQ ID NO: 1027; (ddd) the VH comprises SEQ ID NO: 1028 and the VL comprises SEQ ID NO: 1029; (eee) the VH comprises SEQ ID NO: 1030 and the VL comprises SEQ ID NO: 1031; (fff) the VH comprises SEQ ID NO: 1032 and the VL comprises SEQ ID NO: 1033; (ggg) the VH comprises SEQ ID NO: 1034 and the VL comprises SEQ ID NO: 1035; (hhh) the VH comprises SEQ ID NO: 1036 and the VL comprises SEQ ID NO: 1037; or (iii) the VH comprises SEQ ID NO: 1038 and the VL comprises SEQ ID NO: 1039.

25. The method of any one of claims 20, 21, 23, and 24, wherein the second antigen recognition domain comprises a single domain antibody fragment, an adnectin peptide, an affibody, an affilin, an affimer, an affitin, an alphabody, an anticalin, an avimer, a DARPin (Designed Ankyrin Repeat Protein), a Fynomer, a Kunitz domain peptide, a monobody, a centyrin, an aptamer, a T cell receptor (TCR)-like antibody, a single chain TCR (scTCR), or a portion of any of the foregoing.

26. The method of claim 20 or 21, wherein the second antigen recognition domain comprises a human CD27 extracellular domain.

27. The method of any one of claims 20-26, wherein the extracellular domain comprises a hinge.

28. The method of any one of claims 20-27, wherein the transmembrane domain comprises a CD8, CD16, CD27, CD28, 2B4, NKG2D, NKp44, NKp46, NKp30, NKp80, DNAM-1, CD3

zeta, CD3 epsilon, CD3 gamma, CD3 delta, CD45, CD4, CD5, CD9, CD22, CD33, CD37, CD64, CD80, CD86, CD134, CD137, CD154, ICOS/CD278, GITR/CD357, DAP10, DAP12 or erythropoietin receptor transmembrane domain, a portion of any of the foregoing, or a combination of any of the foregoing.

29. The method of any one of claims 20-28, wherein the intracellular domain comprises one or more costimulatory domain(s).

30. The method of claim 29, wherein the one or more costimulatory domain(s) are selected from the group consisting of: a CD28 costimulatory domain, a 4-1BB costimulatory domain, a DAP10 costimulatory domain, a DAP12 costimulatory domain, a 2B4 costimulatory domain, a OX40 costimulatory domain, an OX40L costimulatory domain, a ICOS costimulatory domain, or a CD27 costimulatory domain, or a portion of any of the foregoing.

31. The method of any one of claims 20-30, wherein the intracellular domain comprises an activation domain.

32. The method of claim 31, wherein the activation domain comprises a DAP12, FCER1G, FCGR2A, or CD3zeta activation domain, or a portion of any of the foregoing.

33. The method of any one of claims 1-32, further comprising
(e) contacting the population of NK cells with at least one polynucleotide encoding at least one exogenous polypeptide.

34. The method of claim 33, wherein the at least one exogenous polypeptide comprises a cytokine, a chemokine, a ligand, a receptor, a monoclonal antibody, a bispecific T cell engager, a peptide, or an enzyme, a subunit or a portion of the foregoing, or any combination of the foregoing.

35. The method of claim 34, wherein the at least one exogenous polypeptide comprises a cytokine and wherein the cytokine comprises IL-15, membrane-bound IL-15 (mbIL-15), IL-2,

membrane-bound IL-2, IL-12, membrane-bound IL-12, IL-18, membrane-bound IL-18, IL-21, membrane-bound IL-21, p40, LIGHT, CD40L, FLT3L, 4-1BBL, or FASL.

36. The method of claim 33, wherein the at least one exogenous polypeptide comprises IL-15RA, IL-15, or is a fusion protein comprising IL-15 and IL-15RA.

37. The method of claim 33, wherein the at least one exogenous polypeptide is a tethered IL-21, a tethered IL-12, or a tethered IL-18.

38. The method of claim 33, wherein the at least one exogenous polypeptide comprises a first exogenous polypeptide comprising mbIL-15 and a second exogenous polypeptide comprising IL-15RA.

39. The method of claim 33, wherein the at least one exogenous polypeptide comprises a receptor selected from the group consisting of: CSF-1R, a CXC chemokine receptor, a CC chemokine receptor, a CX3C chemokine receptor, a XC chemokine receptor, or a chemokine-binding fragment thereof.

40. The method of claim 33, wherein the at least one exogenous polypeptide is a protein that overcomes immunosuppression of the tumor microenvironment.

41. The method of claim 40, wherein the protein comprises a TGFbeta signal converter.

42. The method of claim 41, wherein the TGFbeta signal converter comprises a TGFbeta receptor extracellular domain and an NK cell intracellular domain.

43. The method of claim 40, wherein the protein comprises a TGFbeta decoy receptor comprising a TGFbeta receptor extracellular domain and optionally, a transmembrane domain.

44. The method of claim 43, wherein the transmembrane domain is a transmembrane domain from a protein that is not a TGFbeta receptor.

45. The method of claim 43, wherein the transmembrane domain is a transmembrane domain from the TGFbeta receptor.

46. The method of any one of claims 65-67, wherein the at least one exogenous polypeptide comprises a CAR comprising at least one antigen recognition domain that specifically binds an antigen other than human CD70.

47. The method of claim 46, wherein the antigen other than human CD70 is selected from the group consisting of: CAIX, CD19, CD20, CD22, CD33, CD37, CD79a, CD79b, CD96, CD123, CD138, CLL-1, CXCR5, BCMA, FOLR2, FCRL5, FLT3, GPRC5D, HAVCR1, Her2, mesothelin, MUC16, EGFR, EGFRVIII, IL13Ra2, Trop2, GPC3, FOLR1, and GD2.

48. The method of claim 33, wherein the at least one exogenous polypeptide comprises a safety switch protein.

49. The method of any one of claims 1-48, wherein the method further comprises linking at least one exogenous polypeptide to at least one NK cell of the NK cell population by chemical conjugation or using a sortase enzyme.

50. A genetically engineered natural killer (NK) cell modified to have:

- a) a decreased level of total expressed CD70 polypeptide compared to the level of total expressed CD70 polypeptide in a wild-type NK cell, and/or
- b) a decreased level of surface expressed CD70 polypeptide compared to the level of surface expressed CD70 in a wild-type NK cell.

51. The genetically engineered NK cell of claim 50, wherein the genetically engineered NK cell comprises a disrupted CD70 gene.

52. The genetically engineered NK cell of claim 50 or 51, wherein the genetically engineered NK cell comprises a knockout or knockdown of a CD70 gene.

53. The genetically engineered NK cell of any one of claims 50-52, wherein the genetically engineered NK cell comprises at least about 30% less of surface expressed CD70 polypeptide and/or total expressed CD70 polypeptide than the wild-type NK cell.
54. The genetically engineered NK cell of any one of claims 50-53, wherein the level of CD70 mRNA in the genetically engineered NK cell is reduced as compared to the level of CD70 mRNA in a wild-type NK cell.
55. The genetically engineered NK cell of any one of claims 50-54, wherein the genetically engineered NK cell comprises a siRNA that targets CD70 mRNA, a nucleic acid encoding a siRNA that targets CD70 mRNA, a shRNA that targets CD70 mRNA, a nucleic acid encoding a shRNA that targets CD70 mRNA, a nucleic acid encoding a tandem shRNA that targets CD70 mRNA, a tandem shRNA that targets CD70 mRNA, a nucleic acid encoding a ribozyme that targets CD70 mRNA, or a ribozyme that targets CD70 mRNA, or a combination of any of the foregoing.
56. The genetically engineered NK cell of any one of claims 50-55, wherein the genetically engineered NK cell comprises an RNA guided endonuclease and a gRNA targeting a CD70 gene.
57. The genetically engineered NK cell of any one of claims 50-56, wherein the genetically engineered NK cell comprises a PEBL or a nucleic acid encoding a PEBL, wherein the PEBL comprises a first antigen recognition domain that specifically binds human CD70 and one or more of a localizing domain, an intracellular retention domain and an ER retention domain.
58. The genetically engineered NK cell of any one of claims 50-57, wherein the genetically engineered NK cell is derived from umbilical cord blood cells, PBMCs, mobilized unstimulated leukapheresis products (PBSCs), unmobilized PBSCs, human embryonic stem cells (hESCs), induced pluripotent stem cells (iPSCs), mesenchymal stem cells (MSCs), hematopoietic stem cells (HSCs), bone marrow or CD34⁺ cells.

59. The genetically engineered NK cell of any one of claims 50-58, wherein the genetically engineered NK cell is a human NK cell.

60. The genetically engineered NK cell of any one of claims 50-59, wherein the genetically engineered NK cell comprises a CAR and/or a polynucleotide encoding the CAR, wherein the CAR comprises

(a) an extracellular domain comprising a second antigen recognition domain that specifically binds human CD70;

(b) a transmembrane domain; and

(c) an intracellular domain.

61. The genetically engineered NK cell of claim 60, wherein the second antigen recognition domain comprises a scFv comprising a VH and a VL, wherein

(a) the VH comprises a CDRH1 of SEQ ID NO: 86, a CDRH2 of SEQ ID NO: 87, and a CDRH3 of SEQ ID NO: 88, and the VL comprises a CDRL1 of SEQ ID NO: 89, a CDRL2 of SEQ ID NO: 90, and a CDRL3 of SEQ ID NO: 91;

(b) the VH comprises a CDRH1 of SEQ ID NO: 25, a CDRH2 of SEQ ID NO: 26, and a CDRH3 of SEQ ID NO: 27, and the VL comprises a CDRL1 of SEQ ID NO: 28, a CDRL2 of SEQ ID NO: 29, and a CDRL3 of SEQ ID NO: 30;

(c) the VH comprises a CDRH1 of SEQ ID NO: 35, a CDRH2 of SEQ ID NO: 36, and a CDRH3 of SEQ ID NO: 37, and the VL comprises a CDRL1 of SEQ ID NO: 38, a CDRL2 of SEQ ID NO: 39, and a CDRL3 of SEQ ID NO: 40;

(d) the VH comprises a CDRH1 of SEQ ID NO: 45, a CDRH2 of SEQ ID NO: 46, and a CDRH3 of SEQ ID NO: 47, and the VL comprises a CDRL1 of SEQ ID NO: 48, a CDRL2 of SEQ ID NO: 49, and a CDRL3 of SEQ ID NO: 50;

(e) the VH comprises a CDRH1 of SEQ ID NO: 55, a CDRH2 of SEQ ID NO: 56, and a CDRH3 of SEQ ID NO: 57, and the VL comprises a CDRL1 of SEQ ID NO: 58, a CDRL2 of SEQ ID NO: 59, and a CDRL3 of SEQ ID NO: 60;

(f) the VH comprises a CDRH1 of SEQ ID NO: 15, a CDRH2 of SEQ ID NO: 16, and a CDRH3 of SEQ ID NO: 17, and the VL comprises a CDRL1 of SEQ ID NO: 18, a CDRL2 of SEQ ID NO: 19, and a CDRL3 of SEQ ID NO: 20;

(g) the VH comprises a CDRH1 of SEQ ID NO: 96, a CDRH2 of SEQ ID NO: 97, and a CDRH3 of SEQ ID NO: 98, and the VL comprises a CDRL1 of SEQ ID NO: 99, a CDRL2 of SEQ ID NO: 100, and a CDRL3 of SEQ ID NO: 101;

(h) the VH comprises a CDRH1 of SEQ ID NO: 196, a CDRH2 of SEQ ID NO: 197, and a CDRH3 of SEQ ID NO: 198, and the VL comprises a CDRL1 of SEQ ID NO: 478, a CDRL2 of SEQ ID NO: 479, and a CDRL3 of SEQ ID NO: 480;

(i) the VH comprises a CDRH1 of SEQ ID NO: 202, a CDRH2 of SEQ ID NO: 203, and a CDRH3 of SEQ ID NO: 204, and the VL comprises a CDRL1 of SEQ ID NO: 481, a CDRL2 of SEQ ID NO: 482, and a CDRL3 of SEQ ID NO: 483;

(j) the VH comprises a CDRH1 of SEQ ID NO: 1170, a CDRH2 of SEQ ID NO: 1171, and a CDRH3 of SEQ ID NO: 1172, and the VL comprises a CDRL1 of SEQ ID NO: 1857, a CDRL2 of SEQ ID NO: 1858, and a CDRL3 of SEQ ID NO: 1859;

(k) the VH comprises a CDRH1 of SEQ ID NO: 1173, a CDRH2 of SEQ ID NO: 1174, and a CDRH3 of SEQ ID NO: 1175, and the VL comprises a CDRL1 of SEQ ID NO: 1860, a CDRL2 of SEQ ID NO: 1861, and a CDRL3 of SEQ ID NO: 1862;

(l) the VH comprises a CDRH1 of SEQ ID NO: 1176, a CDRH2 of SEQ ID NO: 1177, and a CDRH3 of SEQ ID NO: 1178, and the VL comprises a CDRL1 of SEQ ID NO: 1863, a CDRL2 of SEQ ID NO: 1864, and a CDRL3 of SEQ ID NO: 1865;

(m) the VH comprises a CDRH1 of SEQ ID NO: 1179, a CDRH2 of SEQ ID NO: 1180, and a CDRH3 of SEQ ID NO: 1181, and the VL comprises a CDRL1 of SEQ ID NO: 1866, a CDRL2 of SEQ ID NO: 1867, and a CDRL3 of SEQ ID NO: 1868;

(n) the VH comprises a CDRH1 of SEQ ID NO: 1182, a CDRH2 of SEQ ID NO: 1183, and a CDRH3 of SEQ ID NO: 1184, and the VL comprises a CDRL1 of SEQ ID NO: 1869, a CDRL2 of SEQ ID NO: 1870, and a CDRL3 of SEQ ID NO: 1871;

(o) the VH comprises a CDRH1 of SEQ ID NO: 1185, a CDRH2 of SEQ ID NO: 1186, and a CDRH3 of SEQ ID NO: 1187, and the VL comprises a CDRL1 of SEQ ID NO: 1872, a CDRL2 of SEQ ID NO: 1873, and a CDRL3 of SEQ ID NO: 1874;

(p) the VH comprises a CDRH1 of SEQ ID NO: 1188, a CDRH2 of SEQ ID NO: 1189, and a CDRH3 of SEQ ID NO: 1190, and the VL comprises a CDRL1 of SEQ ID NO: 1875, a CDRL2 of SEQ ID NO: 1876, and a CDRL3 of SEQ ID NO: 1877;

(q) the VH comprises a CDRH1 of SEQ ID NO: 1524, a CDRH2 of SEQ ID NO: 1525, and a CDRH3 of SEQ ID NO: 1526, and the VL comprises a CDRL1 of SEQ ID NO: 2211, a CDRL2 of SEQ ID NO: 2212, and a CDRL3 of SEQ ID NO: 2213;

(r) the VH comprises a CDRH1 of SEQ ID NO: 1527, a CDRH2 of SEQ ID NO: 1528, and a CDRH3 of SEQ ID NO: 1529, and the VL comprises a CDRL1 of SEQ ID NO: 2214, a CDRL2 of SEQ ID NO: 2215, and a CDRL3 of SEQ ID NO: 2216;

(s) the VH comprises a CDRH1 of SEQ ID NO: 1530, a CDRH2 of SEQ ID NO: 1531, and a CDRH3 of SEQ ID NO: 1532, and the VL comprises a CDRL1 of SEQ ID NO: 2217, a CDRL2 of SEQ ID NO: 2218, and a CDRL3 of SEQ ID NO: 2219;

(t) the VH comprises a CDRH1 of SEQ ID NO: 1533, a CDRH2 of SEQ ID NO: 1534, and a CDRH3 of SEQ ID NO: 1535, and the VL comprises a CDRL1 of SEQ ID NO: 2220, a CDRL2 of SEQ ID NO: 2221, and a CDRL3 of SEQ ID NO: 2222;

(u) the VH comprises a CDRH1 of SEQ ID NO: 1539, a CDRH2 of SEQ ID NO: 1540, and a CDRH3 of SEQ ID NO: 1541, and the VL comprises a CDRL1 of SEQ ID NO: 2226, a CDRL2 of SEQ ID NO: 2227, and a CDRL3 of SEQ ID NO: 2228;

(v) the VH comprises a CDRH1 of SEQ ID NO: 1542, a CDRH2 of SEQ ID NO: 1543, and a CDRH3 of SEQ ID NO: 1544, and the VL comprises a CDRL1 of SEQ ID NO: 2229, a CDRL2 of SEQ ID NO: 2230, and a CDRL3 of SEQ ID NO: 2231;

(w) the VH comprises a CDRH1 of SEQ ID NO: 1548, a CDRH2 of SEQ ID NO: 1549, and a CDRH3 of SEQ ID NO: 1550, and the VL comprises a CDRL1 of SEQ ID NO: 2235, a CDRL2 of SEQ ID NO: 2236, and a CDRL3 of SEQ ID NO: 2237;

(x) the VH comprises a CDRH1 of SEQ ID NO: 1551, a CDRH2 of SEQ ID NO: 1552, and a CDRH3 of SEQ ID NO: 1553, and the VL comprises a CDRL1 of SEQ ID NO: 2238, a CDRL2 of SEQ ID NO: 2239, and a CDRL3 of SEQ ID NO: 2240;

(y) the VH comprises a CDRH1 of SEQ ID NO: 1554, a CDRH2 of SEQ ID NO: 1555, and a CDRH3 of SEQ ID NO: 1556, and the VL comprises a CDRL1 of SEQ ID NO: 2241, a CDRL2 of SEQ ID NO: 2242, and a CDRL3 of SEQ ID NO: 2243;

(z) the VH comprises a CDRH1 of SEQ ID NO: 1557, a CDRH2 of SEQ ID NO: 1558, and a CDRH3 of SEQ ID NO: 1559, and the VL comprises a CDRL1 of SEQ ID NO: 2244, a CDRL2 of SEQ ID NO: 2245, and a CDRL3 of SEQ ID NO: 2246;

(aa) the VH comprises a CDRH1 of SEQ ID NO: 1560, a CDRH2 of SEQ ID NO: 1561, and a CDRH3 of SEQ ID NO: 1562, and the VL comprises a CDRL1 of SEQ ID NO: 2247, a CDRL2 of SEQ ID NO: 2248, and a CDRL3 of SEQ ID NO: 2249;

(bb) the VH comprises a CDRH1 of SEQ ID NO: 1563, a CDRH2 of SEQ ID NO: 1564, and a CDRH3 of SEQ ID NO: 1565, and the VL comprises a CDRL1 of SEQ ID NO: 2250, a CDRL2 of SEQ ID NO: 2251, and a CDRL3 of SEQ ID NO: 2252;

(cc) the VH comprises a CDRH1 of SEQ ID NO: 1566, a CDRH2 of SEQ ID NO: 1567, and a CDRH3 of SEQ ID NO: 1568, and the VL comprises a CDRL1 of SEQ ID NO: 2253, a CDRL2 of SEQ ID NO: 2254, and a CDRL3 of SEQ ID NO: 2255;

(dd) the VH comprises a CDRH1 of SEQ ID NO: 1572, a CDRH2 of SEQ ID NO: 1573, and a CDRH3 of SEQ ID NO: 1574, and the VL comprises a CDRL1 of SEQ ID NO: 2259, a CDRL2 of SEQ ID NO: 2260, and a CDRL3 of SEQ ID NO: 2261;

(ee) the VH comprises a CDRH1 of SEQ ID NO: 1575, a CDRH2 of SEQ ID NO: 1576, and a CDRH3 of SEQ ID NO: 1577, and the VL comprises a CDRL1 of SEQ ID NO: 2262, a CDRL2 of SEQ ID NO: 2263, and a CDRL3 of SEQ ID NO: 2264;

(ff) the VH comprises a CDRH1 of SEQ ID NO: 1578, a CDRH2 of SEQ ID NO: 1579, and a CDRH3 of SEQ ID NO: 1580, and the VL comprises a CDRL1 of SEQ ID NO: 2265, a CDRL2 of SEQ ID NO: 2266, and a CDRL3 of SEQ ID NO: 2267;

(gg) the VH comprises a CDRH1 of SEQ ID NO: 1587, a CDRH2 of SEQ ID NO: 1588, and a CDRH3 of SEQ ID NO: 1589, and the VL comprises a CDRL1 of SEQ ID NO: 2274, a CDRL2 of SEQ ID NO: 2275, and a CDRL3 of SEQ ID NO: 2276;

(hh) the VH comprises a CDRH1 of SEQ ID NO: 1590, a CDRH2 of SEQ ID NO: 1591, and a CDRH3 of SEQ ID NO: 1592, and the VL comprises a CDRL1 of SEQ ID NO: 2277, a CDRL2 of SEQ ID NO: 2278, and a CDRL3 of SEQ ID NO: 2279;

(ii) the VH comprises a CDRH1 of SEQ ID NO: 1593, a CDRH2 of SEQ ID NO: 1594, and a CDRH3 of SEQ ID NO: 1595, and the VL comprises a CDRL1 of SEQ ID NO: 2280, a CDRL2 of SEQ ID NO: 2281, and a CDRL3 of SEQ ID NO: 2282;

(jj) the VH comprises a CDRH1 of SEQ ID NO: 1596, a CDRH2 of SEQ ID NO: 1597, and a CDRH3 of SEQ ID NO: 1598, and the VL comprises a CDRL1 of SEQ ID NO: 2283, a CDRL2 of SEQ ID NO: 2284, and a CDRL3 of SEQ ID NO: 2285;

(kk) the VH comprises a CDRH1 of SEQ ID NO: 1599, a CDRH2 of SEQ ID NO: 1560, and a CDRH3 of SEQ ID NO: 1561, and the VL comprises a CDRL1 of SEQ ID NO: 2286, a CDRL2 of SEQ ID NO: 2287, and a CDRL3 of SEQ ID NO: 2288;

(ll) the VH comprises a CDRH1 of SEQ ID NO: 1602, a CDRH2 of SEQ ID NO: 1603, and a CDRH3 of SEQ ID NO: 1604, and the VL comprises a CDRL1 of SEQ ID NO: 2289, a CDRL2 of SEQ ID NO: 2290, and a CDRL3 of SEQ ID NO: 2291;

(mm) the VH comprises a CDRH1 of SEQ ID NO: 1605, a CDRH2 of SEQ ID NO: 1606, and a CDRH3 of SEQ ID NO: 1607, and the VL comprises a CDRL1 of SEQ ID NO: 2292, a CDRL2 of SEQ ID NO: 2293, and a CDRL3 of SEQ ID NO: 2294;

(nn) the VH comprises a CDRH1 of SEQ ID NO: 1608, a CDRH2 of SEQ ID NO: 1609, and a CDRH3 of SEQ ID NO: 1610, and the VL comprises a CDRL1 of SEQ ID NO: 2295, a CDRL2 of SEQ ID NO: 2296, and a CDRL3 of SEQ ID NO: 2297;

(oo) the VH comprises a CDRH1 of SEQ ID NO: 1611, a CDRH2 of SEQ ID NO: 1612, and a CDRH3 of SEQ ID NO: 1613, and the VL comprises a CDRL1 of SEQ ID NO: 2298, a CDRL2 of SEQ ID NO: 2299, and a CDRL3 of SEQ ID NO: 2300;

(pp) the VH comprises a CDRH1 of SEQ ID NO: 1614, a CDRH2 of SEQ ID NO: 1615, and a CDRH3 of SEQ ID NO: 1616, and the VL comprises a CDRL1 of SEQ ID NO: 2301, a CDRL2 of SEQ ID NO: 2302, and a CDRL3 of SEQ ID NO: 2303;

(qq) the VH comprises a CDRH1 of SEQ ID NO: 1617, a CDRH2 of SEQ ID NO: 1618, and a CDRH3 of SEQ ID NO: 1619, and the VL comprises a CDRL1 of SEQ ID NO: 2304, a CDRL2 of SEQ ID NO: 2305, and a CDRL3 of SEQ ID NO: 2306;

(rr) the VH comprises a CDRH1 of SEQ ID NO: 1626, a CDRH2 of SEQ ID NO: 1627, and a CDRH3 of SEQ ID NO: 1628, and the VL comprises a CDRL1 of SEQ ID NO: 2313, a CDRL2 of SEQ ID NO: 2314, and a CDRL3 of SEQ ID NO: 2315;

(ss) the VH comprises a CDRH1 of SEQ ID NO: 1629, a CDRH2 of SEQ ID NO: 1630, and a CDRH3 of SEQ ID NO: 1631, and the VL comprises a CDRL1 of SEQ ID NO: 2316, a CDRL2 of SEQ ID NO: 2317, and a CDRL3 of SEQ ID NO: 2318;

(tt) the VH comprises a CDRH1 of SEQ ID NO: 1632, a CDRH2 of SEQ ID NO: 1633, and a CDRH3 of SEQ ID NO: 1634, and the VL comprises a CDRL1 of SEQ ID NO: 2319, a CDRL2 of SEQ ID NO: 2320, and a CDRL3 of SEQ ID NO: 2321;

(uu) the VH comprises a CDRH1 of SEQ ID NO: 1635, a CDRH2 of SEQ ID NO: 1636, and a CDRH3 of SEQ ID NO: 1637, and the VL comprises a CDRL1 of SEQ ID NO: 2322, a CDRL2 of SEQ ID NO: 2323, and a CDRL3 of SEQ ID NO: 2324;

(vv) the VH comprises a CDRH1 of SEQ ID NO: 1638, a CDRH2 of SEQ ID NO: 1639, and a CDRH3 of SEQ ID NO: 1640, and the VL comprises a CDRL1 of SEQ ID NO: 2325, a CDRL2 of SEQ ID NO: 2326, and a CDRL3 of SEQ ID NO: 2327;

(ww) the VH comprises a CDRH1 of SEQ ID NO: 1641, a CDRH2 of SEQ ID NO: 1642, and a CDRH3 of SEQ ID NO: 1643, and the VL comprises a CDRL1 of SEQ ID NO: 2328, a CDRL2 of SEQ ID NO: 2329, and a CDRL3 of SEQ ID NO: 2330;

(xx) the VH comprises a CDRH1 of SEQ ID NO: 1644, a CDRH2 of SEQ ID NO: 1645, and a CDRH3 of SEQ ID NO: 1646, and the VL comprises a CDRL1 of SEQ ID NO: 2331, a CDRL2 of SEQ ID NO: 2332, and a CDRL3 of SEQ ID NO: 2333;

(yy) the VH comprises a CDRH1 of SEQ ID NO: 1647, a CDRH2 of SEQ ID NO: 1648, and a CDRH3 of SEQ ID NO: 1649, and the VL comprises a CDRL1 of SEQ ID NO: 2334, a CDRL2 of SEQ ID NO: 2335, and a CDRL3 of SEQ ID NO: 2336;

(zz) the VH comprises a CDRH1 of SEQ ID NO: 1650, a CDRH2 of SEQ ID NO: 1651, and a CDRH3 of SEQ ID NO: 1652, and the VL comprises a CDRL1 of SEQ ID NO: 2337, a CDRL2 of SEQ ID NO: 2338, and a CDRL3 of SEQ ID NO: 2339;

(aaa) the VH comprises a CDRH1 of SEQ ID NO: 1653, a CDRH2 of SEQ ID NO: 1654, and a CDRH3 of SEQ ID NO: 1655, and the VL comprises a CDRL1 of SEQ ID NO: 2340, a CDRL2 of SEQ ID NO: 2341, and a CDRL3 of SEQ ID NO: 2342;

(bbb) the VH comprises a CDRH1 of SEQ ID NO: 1656, a CDRH2 of SEQ ID NO: 1657, and a CDRH3 of SEQ ID NO: 1658, and the VL comprises a CDRL1 of SEQ ID NO: 2343, a CDRL2 of SEQ ID NO: 2344, and a CDRL3 of SEQ ID NO: 2345; or

(ccc) the VH comprises a CDRH1 of SEQ ID NO: 1659, a CDRH2 of SEQ ID NO: 1660, and a CDRH3 of SEQ ID NO: 1661, and the VL comprises a CDRL1 of SEQ ID NO: 2346, a CDRL2 of SEQ ID NO: 2347, and a CDRL3 of SEQ ID NO: 2348.

62. The genetically engineered NK cell of any one of claims 60 or 61, wherein the second antigen recognition domain comprises a scFv comprising a VH and a VL, wherein:

(a) the VH comprises SEQ ID NO: 82 and the VL comprises SEQ ID NO: 84; (b) the VH comprises SEQ ID NO: 21 and the VL comprises SEQ ID NO: 23; (c) the VH comprises SEQ ID NO: 31 and the VL comprises SEQ ID NO: 33; (d) the VH comprises SEQ ID NO: 41 and the VL comprises SEQ ID NO: 43; (e) the VH comprises SEQ ID NO: 51 and the VL comprises SEQ ID NO: 53; (f) the VH comprises SEQ ID NO: 61 and the VL comprises SEQ ID NO: 63; (g) the VH comprises SEQ ID NO: 693 and the VL comprises SEQ ID NO: 66; (h) the VH comprises SEQ ID NO: 694 and the VL comprises SEQ ID NO: 69; (i) the VH comprises SEQ ID NO: 695 and the VL comprises SEQ ID NO: 72; (j) the VH comprises SEQ ID NO: 74 and the VL comprises SEQ ID NO: 76; (k) the VH comprises SEQ ID NO: 78 and the VL comprises SEQ ID NO: 80; (l) the VH comprises SEQ ID NO: 11 and the VL comprises SEQ ID NO: 13; (m) the VH comprises SEQ ID NO: 92 and the VL comprises SEQ ID NO: 94; (n) the VH comprises SEQ ID NO: 102 and the VL comprises SEQ ID NO: 103; (o) the VH comprises SEQ ID NO: 104 and the VL comprises SEQ ID NO: 105; (p) the VH comprises SEQ ID NO: 712 and the VL comprises SEQ ID NO: 713; (q) the VH comprises SEQ ID NO: 714 and the VL comprises SEQ ID NO: 715; (r) the VH comprises SEQ ID NO: 716 and the VL comprises SEQ ID NO: 717; (s) the VH comprises SEQ ID NO: 718 and the VL comprises SEQ ID NO: 719; (t) the VH comprises SEQ ID NO: 720 and the VL comprises SEQ ID NO: 721; (u) the VH comprises SEQ ID NO: 722 and the VL comprises SEQ ID NO: 723; (v) the VH comprises SEQ ID NO: 724 and the VL comprises SEQ ID NO: 725; (w) the VH comprises SEQ ID NO: 948 and the VL comprises SEQ ID NO: 949; (x) the VH comprises SEQ ID NO: 950 and the VL comprises SEQ ID NO: 951; (y) the VH comprises SEQ ID NO: 952 and the VL comprises SEQ ID NO: 953; (z) the VH comprises SEQ ID NO: 954 and the VL comprises SEQ ID NO: 955; (aa) the VH comprises SEQ ID NO: 958 and the VL comprises SEQ ID NO: 959; (bb) the VH comprises SEQ ID NO: 960 and the VL comprises SEQ ID NO: 961; (cc) the VH comprises SEQ ID NO: 964 and the VL comprises SEQ ID NO: 965; (dd) the VH comprises SEQ ID NO: 966 and the VL comprises SEQ ID NO: 967; (ee) the VH comprises SEQ ID NO: 968 and the VL comprises SEQ ID NO: 969; (ff) the VH comprises SEQ ID NO: 970 and the VL comprises SEQ ID NO: 971; (gg) the VH comprises SEQ ID NO: 972 and the VL comprises SEQ ID NO: 973; (hh) the VH comprises SEQ ID NO: 974 and the VL comprises SEQ ID NO: 975; (ii) the

VH comprises SEQ ID NO: 976 and the VL comprises SEQ ID NO: 977; (jj) the VH comprises SEQ ID NO: 980 and the VL comprises SEQ ID NO: 981; (kk) the VH comprises SEQ ID NO: 982 and the VL comprises SEQ ID NO: 983; (ll) the VH comprises SEQ ID NO: 984 and the VL comprises SEQ ID NO: 985; (mm) the VH comprises SEQ ID NO: 990 and the VL comprises SEQ ID NO: 991; (nn) the VH comprises SEQ ID NO: 992 and the VL comprises SEQ ID NO: 993; (oo) the VH comprises SEQ ID NO: 994 and the VL comprises SEQ ID NO: 995; (pp) the VH comprises SEQ ID NO: 996 and the VL comprises SEQ ID NO: 997; (qq) the VH comprises SEQ ID NO: 998 and the VL comprises SEQ ID NO: 999; (rr) the VH comprises SEQ ID NO: 1000 and the VL comprises SEQ ID NO: 1001; (ss) the VH comprises SEQ ID NO: 1002 and the VL comprises SEQ ID NO: 1003; (tt) the VH comprises SEQ ID NO: 1004 and the VL comprises SEQ ID NO: 1005; (uu) the VH comprises SEQ ID NO: 1006 and the VL comprises SEQ ID NO: 1007; (vv) the VH comprises SEQ ID NO: 1008 and the VL comprises SEQ ID NO: 1009; (ww) the VH comprises SEQ ID NO: 1010 and the VL comprises SEQ ID NO: 1011; (xx) the VH comprises SEQ ID NO: 1016 and the VL comprises SEQ ID NO: 1017; (yy) the VH comprises SEQ ID NO: 1018 and the VL comprises SEQ ID NO: 1019; (zz) the VH comprises SEQ ID NO: 1020 and the VL comprises SEQ ID NO: 1021; (aaa) the VH comprises SEQ ID NO: 1022 and the VL comprises SEQ ID NO: 1023; (bbb) the VH comprises SEQ ID NO: 1024 and the VL comprises SEQ ID NO: 1025; (ccc) the VH comprises SEQ ID NO: 1026 and the VL comprises SEQ ID NO: 1027; (ddd) the VH comprises SEQ ID NO: 1028 and the VL comprises SEQ ID NO: 1029; (eee) the VH comprises SEQ ID NO: 1030 and the VL comprises SEQ ID NO: 1031; (fff) the VH comprises SEQ ID NO: 1032 and the VL comprises SEQ ID NO: 1033; (ggg) the VH comprises SEQ ID NO: 1034 and the VL comprises SEQ ID NO: 1035; (hhh) the VH comprises SEQ ID NO: 1036 and the VL comprises SEQ ID NO: 1037; or (iii) the VH comprises SEQ ID NO: 1038 and the VL comprises SEQ ID NO: 1039.

63. The genetically engineered NK cell of claim 60, wherein the second antigen recognition domain comprises a single domain antibody fragment, an adnectin peptide, an affibody, an affililn, an affimer, an affitin, an alphabody, an anticalin, an avimer, a DARPin (Designed Ankyrin Repeat Protein), a Fynomer, a Kunitz domain peptide, a monobody, a centyrin, an aptamer, a T cell receptor (TCR)-like antibody, a single chain TCR (scTCR), or a portion of any of the foregoing.

64. The genetically engineered NK cell of claim 60, wherein the second antigen recognition domain comprises a human CD27 extracellular domain.

65. The genetically engineered NK cell of any one of claims 60-64, wherein the extracellular domain comprises a hinge.

66. The genetically engineered NK cell of any one of claims 60-65, wherein the transmembrane domain comprises a CD8, CD16, CD27, CD28, NKG2D, NKp44, NKp46, NKp30, NKp80, DNAM-1, CD3 zeta, CD3 epsilon, CD3 gamma, CD3 delta, CD45, CD4, CD5, CD9, CD22, CD33, CD37, CD64, CD80, CD86, CD134, CD137, CD154, ICOS/CD278, GITR/CD357, DAP10, DAP12 or erythropoietin receptor transmembrane domain, a portion of any of the foregoing, or a combination of any of the foregoing.

67. The genetically engineered NK cell of any one of claims 60-66, wherein the intracellular domain comprises one or more costimulatory domain(s).

68. The genetically engineered NK cell of claim 67, wherein the one or more costimulatory domain(s) are selected from the group consisting of: a CD28 costimulatory domain, a 4-1BB costimulatory domain, a DAP10 costimulatory domain, a DAP12 costimulatory domain, a 2B4 costimulatory domain, a OX40 costimulatory domain, an OX40L costimulatory domain, a ICOS costimulatory domain, or a CD27 costimulatory domain, or a portion of any of the foregoing.

69. The genetically engineered NK cell of any one of claims 60-68, wherein the intracellular domain comprises an activation domain.

70. The genetically engineered NK cell of claim 69, wherein the activation domain comprises a DAP12, FCER1G, FCGR2A, or CD3zeta intracellular signaling domain, or a portion of any of the foregoing.

71. The genetically engineered NK cell of any one of claims 50-70 further comprising at least one exogenous polypeptide.
72. The genetically engineered NK cell of claim 71, wherein the at least one exogenous polypeptide comprises a cytokine, chemokine, ligand, receptor, monoclonal antibody, bispecific T cell engager, peptide or enzyme, a subunit or a portion of the foregoing, or any combination of the foregoing.
73. The genetically engineered NK cell of claim 72, wherein the at least one exogenous polypeptide comprises a cytokine and wherein the cytokine comprises IL-15, membrane-bound IL-15 (mbIL-15), IL-2, membrane-bound IL-2, IL-12, membrane-bound IL-12, IL-18, membrane-bound IL-18, IL-21, membrane-bound IL-21, p40, LIGHT, CD40L, FLT3L, 4-1BBL, or FASL.
74. The genetically engineered NK cell of claim 71, wherein the at least one exogenous polypeptide comprises IL-15RA, IL-15, or is a fusion protein comprising IL-15 and IL-15RA.
75. The genetically engineered NK cell of claim 71, wherein the at least one exogenous polypeptide is a tethered IL-21, a tethered IL-12, or a tethered IL-18.
76. The genetically engineered NK cell of claim 71, further comprising a first exogenous polypeptide comprising mbIL-15 and a second exogenous polypeptide comprising IL-15RA.
77. The genetically engineered NK cell of claim 71, wherein the at least one exogenous polypeptide comprises a receptor selected from the group consisting of: CSF-1R, a CXC chemokine receptor, a CC chemokine receptor, a CX3C chemokine receptor, a XC chemokine receptor, or a chemokine-binding fragment thereof.
78. The genetically engineered NK cell of claim 33, wherein the at least one exogenous polypeptide is a protein that overcomes immunosuppression of the tumor microenvironment.

79. The genetically engineered NK cell of claim 78, wherein the protein comprises a TGFbeta signal converter.
80. The genetically engineered NK cell of claim 79, wherein the TGFbeta signal converter comprises a TGFbeta receptor extracellular domain and an NK cell intracellular domain.
81. The genetically engineered NK cell of claim 78, wherein the protein comprises a TGFbeta decoy receptor comprising a TGFbeta receptor extracellular domain and optionally, a transmembrane domain.
82. The method of claim 81, wherein the transmembrane domain is a transmembrane domain from a protein that is not a TGFbeta receptor.
83. The method of claim 81, wherein the transmembrane domain is a transmembrane domain from the TGFbeta receptor.
84. The genetically engineered NK cell of claim 71, wherein the at least one exogenous polypeptide comprises a CAR comprising at least one antigen recognition domain that specifically binds an antigen other than human CD70.
85. The genetically engineered NK cell of claim 84, wherein the antigen other than human CD70 is selected from the group consisting of: CAIX, CD19, CD20, CD22, CD33, CD37, CD79a, CD79b, CD96, CD123, CD138, CLL-1, CXCR5, BCMA, FOLR2, FCRL5, FLT3, GPRC5D, HAVCR1, Her2, mesothelin, MUC16, EGFR, EGFRVIII, IL13Ra2, Trop2, GPC3, FOLR1, or GD2.
86. The genetically engineered NK cell of claim 71, wherein the at least one exogenous polypeptide comprises a safety switch protein.

87. The genetically engineered NK cell of claim 71, wherein the genetically engineered NK cell comprises at least one exogenous polypeptide linked to the genetically engineered NK cell by chemical conjugation or by a sortase-mediated transpeptidation reaction.

88. The genetically engineered NK cell of any one of claims 50-87, wherein the genetically engineered NK has a reduced likelihood of fratricide by a NK cell expressing an anti-CD70 CAR compared to the likelihood of fratricide of a wild-type NK cell.

89. The genetically engineered NK cell of any one of claims 50-88, wherein the genetically engineered NK cell exhibits greater fold cell expansion than a wildtype NK cell.

90. A population of cells, wherein at least about 30% of cells in the population are the genetically engineered NK cell of any one of claims 50-89.

91. A pharmaceutical composition comprising the genetically engineered NK cell of any one of claims 50-89 or the population of claim 90, and a pharmaceutically acceptable carrier, diluent, or excipient.

92. ~~A method for treating a cancer in a subject, the method comprising administering to the subject an effective amount~~Use of the population of claim 90 or the pharmaceutical composition of claim 91 in the manufacture of a medicament for treating a cancer in a subject.

93. The usemethod of claim 92, wherein the cancer is a CD70-positive cancer.

94. The usemethod of claim 92 or 93, wherein the cancer is a solid tumor.

95. The usemethod of claim 92 or 93, wherein the cancer is selected from the group consisting of: renal cancer, lung cancer, colorectal cancer, ovarian cancer, breast cancer, head and neck cancer, pancreatic cancer, gastric cancer, cervical cancer, esophageal cancer, lung cancer, and glioblastoma.

96. The usemethod of claim 92 or 93, wherein the cancer is a hematologic malignancy.

97. The usemethod of claim 96, wherein the hematologic malignancy is acute myeloid leukemia (AML), non-Hodgkin's lymphoma (*e.g.*, diffuse large B cell lymphoma (DLBCL), mantle cell lymphoma (MCL)), acute lymphoblastic leukemia, peripheral T-cell lymphoma (PTCL), anaplastic large cell lymphoma (ALCL), myelodysplastic syndrome (MDS), multiple myeloma, Waldenstrom's macroglobulinemia, or chronic lymphocytic leukemia (CLL).

98. The usemethod of any one of claims 92-97, wherein ~~the method further comprises administering~~ an additional therapeutic agent is to be further administered.