Vascular Biology 24:1015-1022. TF is broadly expressed across multiple solid tumor indications.

[0006] Accordingly, there is a need for improved methods of modulating the activity of TF and the downstream signaling coagulation processes activated by TF. Moreover, given the implication of TF in thrombosis, there is a need for improved therapeutics that specifically target cells and tissues that express TF. Antibody conjugates to TF could be used to deliver therapeutic or diagnostic payload moieties to target cells expressing TF for the treatment or diagnosis of such diseases.

SUMMARY

[0007] Provided herein are antibodies that selectively bind tissue factor (TF). In some examples, the antibodies bind human TF. In some examples, the antibodies also bind homologs of human TF. In some examples, the homologs include a cynomolgus monkey homolog.

[0007a] In an aspect, provided herein is an antibody conjugate comprising an antibody that specifically binds to tissue factor (TF) linked site-specifically to at least one payload moiety, wherein the antibody comprises one or more non-natural amino acids.

[0008] Also provided herein are antibody conjugates that selectively bind TF. The antibody conjugates comprise an antibody that binds TF linked to one or more payload moieties. The antibody can be linked to the payload directly by a covalent bond or indirectly by way of a linker. TF antibodies are described in detail herein, as are useful payload moieties, and useful linkers.

[0009] In some examples, the antibodies or antibody conjugates comprise an illustrative CDR, V_H, V_L, HC, or LC sequence provided in this disclosure, or a variant thereof. In some examples, the variant is a variant with one or more conservative amino acid substitutions. In some examples, the variant has sequence identity to the illustrative sequence or sequences.

[0009a] In another aspect, provided herein is an isolated antibody that specifically binds to tissue factor (TF), wherein the antibody comprises three heavy chain CDRs from a V_H sequence selected from SEQ ID NOs:2727, 2736, 2739, 2751-2838, 2840, 2846, 2851, 2857, and 2859-2860, or variants thereof, and three light chain CDRs from a V_L sequence selected from SEQ ID NOs:2951, 2957, 2962, 2968, 2970, 2971, and 3061, or variants thereof.

[0009b] In another aspect, provided herein is an isolated antibody that specifically binds to tissue factor (TF), wherein the antibody comprises:

(1) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 105 and 430; a CDR-H2 comprising one or more of SEQ ID NOs: 755 and 1080; and a CDR-H3 comprising one or more of SEQ ID NOs: 1405 and 1730;

(2) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 114 and 439; a CDR-H2 comprising one or more of SEQ ID NOs: 764 and 1089; and a CDR-H3 comprising one or more of SEQ ID NOs: 1414 and 1739;

(3) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 117 and 442; a CDR-H2 comprising one or more of SEQ ID NOs: 767 and 1092; and a CDR-H3 comprising one or more of SEQ ID NOs: 1417 and 1742;

(4) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 129 and 454; a CDR-H2 comprising one or more of SEQ ID NOs: 779 and 1104; and a CDR-H3 comprising one or more of SEQ ID NOs: 1429 and 1754;

(5) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 130 and 455; a CDR-H2 comprising one or more of SEQ ID NOs: 780 and 1105; and a CDR-H3 comprising one or more of SEQ ID NOs: 1430 and 1755;

(6) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 131 and 456; a CDR-H2 comprising one or more of SEQ ID NOs: 781 and 1106; and a CDR-H3 comprising one or more of SEQ ID NOs: 1431 and 1756;

(7) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 132 and 457; a CDR-H2 comprising one or more of SEQ ID NOs: 782 and 1107; and a CDR-H3 comprising one or more of SEQ ID NOs: 1432 and 1757;

(8) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 133 and 458; a CDR-H2 comprising one or more of SEQ ID NOs: 783 and 1108; and a CDR-H3 comprising one or more of SEQ ID NOs: 1433 and 1758;

(9) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 134 and 459; a CDR-H2 comprising one or more of SEQ ID NOs: 784 and 1109; and a CDR-H3 comprising one or more of SEQ ID NOs: 1434 and 1759;

(10) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 135 and 460; a CDR-H2 comprising one or more of SEQ ID NOs: 785 and 1110; and a CDR-H3 comprising one or more of SEQ ID NOs: 1435 and 1760;

(11) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 136 and 461; a CDR-H2 comprising one or more of SEQ ID NOs: 786 and 1111; and a CDR-H3 comprising one or more of SEQ ID NOs: 1436 and 1761;

(12) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 137 and 462; a CDR-H2 comprising one or more of SEQ ID NOs: 787 and 1112; and a CDR-H3 comprising one or more of SEQ ID NOs: 1437 and 1762;

(13) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 138 and 463; a CDR-H2 comprising one or more of SEQ ID NOs: 788 and 1113; and a CDR-H3 comprising one or more of SEQ ID NOs: 1438 and 1763;

(14) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 139 and 464; a CDR-H2 comprising one or more of SEQ ID NOs: 789 and 1114; and a CDR-H3 comprising one or more of SEQ ID NOs: 1439 and 1764;

(15) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 140 and 465; a CDR-H2 comprising one or more of SEQ ID NOs: 790 and 1115; and a CDR-H3 comprising one or more of SEQ ID NOs: 1440 and 1765;

(16) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 141 and 466; a CDR-H2 comprising one or more of SEQ ID NOs: 791 and 1116; and a CDR-H3 comprising one or more of SEQ ID NOs: 1441 and 1766;

(17) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 142 and 467; a CDR-H2 comprising one or more of SEQ ID NOs: 792 and 1117; and a CDR-H3 comprising one or more of SEQ ID NOs: 1442 and 1767;

(18) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 143 and 468; a CDR-H2 comprising one or more of SEQ ID NOs: 793 and 1118; and a CDR-H3 comprising one or more of SEQ ID NOs: 1443 and 1768;

(19) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 144 and 469; a CDR-H2 comprising one or more of SEQ ID NOs: 794 and 1119; and a CDR-H3 comprising one or more of SEQ ID NOs: 1444 and 1769;

(20) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 145 and 470; a CDR-H2 comprising one or more of SEQ ID NOs: 795 and 1120; and a CDR-H3 comprising one or more of SEQ ID NOs: 1445 and 1770;

(21) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 146 and 471; a CDR-H2 comprising one or more of SEQ ID NOs: 796 and 1121; and a CDR-H3 comprising one or more of SEQ ID NOs: 1446 and 1771;

(22) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 147 and 472; a CDR-H2 comprising one or more of SEQ ID NOs: 797 and 1122; and a CDR-H3 comprising one or more of SEQ ID NOs: 1447 and 1772;

(23) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 148 and 473; a CDR-H2 comprising one or more of SEQ ID NOs: 798 and 1123; and a CDR-H3 comprising one or more of SEQ ID NOs: 1448 and 1773;

(24) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 149 and 474; a CDR-H2 comprising one or more of SEQ ID NOs: 799 and 1124; and a CDR-H3 comprising one or more of SEQ ID NOs: 1449 and 1774;

(25) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 150 and 475; a CDR-H2 comprising one or more of SEQ ID NOs: 800 and 1125; and a CDR-H3 comprising one or more of SEQ ID NOs: 1450 and 1775;

(26) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 151 and 476; a CDR-H2 comprising one or more of SEQ ID NOs: 801 and 1126; and a CDR-H3 comprising one or more of SEQ ID NOs: 1451 and 1776;

(27) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 152 and 477; a CDR-H2 comprising one or more of SEQ ID NOs: 802 and 1127; and a CDR-H3 comprising one or more of SEQ ID NOs: 1452 and 1777;

(28) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 153 and 478; a CDR-H2 comprising one or more of SEQ ID NOs: 803 and 1128; and a CDR-H3 comprising one or more of SEQ ID NOs: 1453 and 1778;

(29) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 154 and 479; a CDR-H2 comprising one or more of SEQ ID NOs: 804 and 1129; and a CDR-H3 comprising one or more of SEQ ID NOs: 1454 and 1779;

(30) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 155 and 480; a CDR-H2 comprising one or more of SEQ ID NOs: 805 and 1130; and a CDR-H3 comprising one or more of SEQ ID NOs: 1455 and 1780;

(31) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 156 and 481; a CDR-H2 comprising one or more of SEQ ID NOs: 806 and 1131; and a CDR-H3 comprising one or more of SEQ ID NOs: 1456 and 1781;

(32) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 157 and 482; a CDR-H2 comprising one or more of SEQ ID NOs: 807 and 1132; and a CDR-H3 comprising one or more of SEQ ID NOs: 1457 and 1782;

(33) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 158 and 483; a CDR-H2 comprising one or more of SEQ ID NOs: 808 and 1133; and a CDR-H3 comprising one or more of SEQ ID NOs: 1458 and 1783;

(34) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 159 and 484; a CDR-H2 comprising one or more of SEQ ID NOs: 809 and 1134; and a CDR-H3 comprising one or more of SEQ ID NOs: 1459 and 1784;

(35) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 160 and 485; a CDR-H2 comprising one or more of SEQ ID NOs: 810 and 1135; and a CDR-H3 comprising one or more of SEQ ID NOs: 1460 and 1785;

(36) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 161 and 486; a CDR-H2 comprising one or more of SEQ ID NOs: 811 and 1136; and a CDR-H3 comprising one or more of SEQ ID NOs: 1461 and 1786;

(37) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 162 and 487; a CDR-H2 comprising one or more of SEQ ID NOs: 812 and 1137; and a CDR-H3 comprising one or more of SEQ ID NOs: 1462 and 1787;

(38) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 163 and 488; a CDR-H2 comprising one or more of SEQ ID NOs: 813 and 1138; and a CDR-H3 comprising one or more of SEQ ID NOs: 1463 and 1788;

(39) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 164 and 489; a CDR-H2 comprising one or more of SEQ ID NOs: 814 and 1139; and a CDR-H3 comprising one or more of SEQ ID NOs: 1464 and 1789;

(40) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 165 and 490; a CDR-H2 comprising one or more of SEQ ID NOs: 815 and 1140; and a CDR-H3 comprising one or more of SEQ ID NOs: 1465 and 1790;

(41) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 166 and 491; a CDR-H2 comprising one or more of SEQ ID NOs: 816 and 1141; and a CDR-H3 comprising one or more of SEQ ID NOs: 1466 and 1791;

(42) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 167 and 492; a CDR-H2 comprising one or more of SEQ ID NOs: 817 and 1142; and a CDR-H3 comprising one or more of SEQ ID NOs: 1467 and 1792;

(43) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 168 and 493; a CDR-H2 comprising one or more of SEQ ID NOs: 818 and 1143; and a CDR-H3 comprising one or more of SEQ ID NOs: 1468 and 1793;

(44) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 169 and 494; a CDR-H2 comprising one or more of SEQ ID NOs: 819 and 1144; and a CDR-H3 comprising one or more of SEQ ID NOs: 1469 and 1794;

(45) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 170 and 495; a CDR-H2 comprising one or more of SEQ ID NOs: 820 and 1145; and a CDR-H3 comprising one or more of SEQ ID NOs: 1470 and 1795;

(46) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 171 and 496; a CDR-H2 comprising one or more of SEQ ID NOs: 821 and 1146; and a CDR-H3 comprising one or more of SEQ ID NOs: 1471 and 1796;

(47) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 172 and 497; a CDR-H2 comprising one or more of SEQ ID NOs: 822 and 1147; and a CDR-H3 comprising one or more of SEQ ID NOs: 1472 and 1797;

(48) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 173 and 498; a CDR-H2 comprising one or more of SEQ ID NOs: 823 and 1148; and a CDR-H3 comprising one or more of SEQ ID NOs: 1473 and 1798;

(49) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 174 and 499; a CDR-H2 comprising one or more of SEQ ID NOs: 824 and 1149; and a CDR-H3 comprising one or more of SEQ ID NOs: 1474 and 1799;

(50) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 175 and 500; a CDR-H2 comprising one or more of SEQ ID NOs: 825 and 1150; and a CDR-H3 comprising one or more of SEQ ID NOs: 1475 and 1800;

(51) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 176 and 501; a CDR-H2 comprising one or more of SEQ ID NOs: 826 and 1151; and a CDR-H3 comprising one or more of SEQ ID NOs: 1476 and 1801;

(52) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 177 and 502; a CDR-H2 comprising one or more of SEQ ID NOs: 827 and 1152; and a CDR-H3 comprising one or more of SEQ ID NOs: 1477 and 1802;

(53) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 178 and 503; a CDR-H2 comprising one or more of SEQ ID NOs: 828 and 1153; and a CDR-H3 comprising one or more of SEQ ID NOs: 1478 and 1803;

(54) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 179 and 504; a CDR-H2 comprising one or more of SEQ ID NOs: 829 and 1154; and a CDR-H3 comprising one or more of SEQ ID NOs: 1479 and 1804;

(55) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 180 and 505; a CDR-H2 comprising one or more of SEQ ID NOs: 830 and 1155; and a CDR-H3 comprising one or more of SEQ ID NOs: 1480 and 1805;

(56) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 181 and 506; a CDR-H2 comprising one or more of SEQ ID NOs: 831 and 1156; and a CDR-H3 comprising one or more of SEQ ID NOs: 1481 and 1806;

(57) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 182 and 507; a CDR-H2 comprising one or more of SEQ ID NOs: 832 and 1157; and a CDR-H3 comprising one or more of SEQ ID NOs: 1482 and 1807;

(58) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 183 and 508; a CDR-H2 comprising one or more of SEQ ID NOs: 833 and 1158; and a CDR-H3 comprising one or more of SEQ ID NOs: 1483 and 1808;

(59) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 184 and 509; a CDR-H2 comprising one or more of SEQ ID NOs: 834 and 1159; and a CDR-H3 comprising one or more of SEQ ID NOs: 1484 and 1809;

(60) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 185 and 510; a CDR-H2 comprising one or more of SEQ ID NOs: 835 and 1160; and a CDR-H3 comprising one or more of SEQ ID NOs: 1485 and 1810;

(61) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 186 and 511; a CDR-H2 comprising one or more of SEQ ID NOs: 836 and 1161; and a CDR-H3 comprising one or more of SEQ ID NOs: 1486 and 1811;

(62) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 187 and 512; a CDR-H2 comprising one or more of SEQ ID NOs: 837 and 1162; and a CDR-H3 comprising one or more of SEQ ID NOs: 1487 and 1812;

(63) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 188 and 513; a CDR-H2 comprising one or more of SEQ ID NOs: 838 and 1163; and a CDR-H3 comprising one or more of SEQ ID NOs: 1488 and 1813;

(64) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 189 and 514; a CDR-H2 comprising one or more of SEQ ID NOs: 839 and 1164; and a CDR-H3 comprising one or more of SEQ ID NOs: 1489 and 1814;

(65) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 190 and 515; a CDR-H2 comprising one or more of SEQ ID NOs: 840 and 1165; and a CDR-H3 comprising one or more of SEQ ID NOs: 1490 and 1815;

(66) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 191 and 516; a CDR-H2 comprising one or more of SEQ ID NOs: 841 and 1166; and a CDR-H3 comprising one or more of SEQ ID NOs: 1491 and 1816;

(67) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 192 and 517; a CDR-H2 comprising one or more of SEQ ID NOs: 842 and 1167; and a CDR-H3 comprising one or more of SEQ ID NOs: 1492 and 1817;

(68) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 193 and 518; a CDR-H2 comprising one or more of SEQ ID NOs: 843 and 1168; and a CDR-H3 comprising one or more of SEQ ID NOs: 1493 and 1818;

(69) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 194 and 519; a CDR-H2 comprising one or more of SEQ ID NOs: 844 and 1169; and a CDR-H3 comprising one or more of SEQ ID NOs: 1494 and 1819;

(70) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 195 and 520; a CDR-H2 comprising one or more of SEQ ID NOs: 845 and 1170; and a CDR-H3 comprising one or more of SEQ ID NOs: 1495 and 1820;

(71) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 196 and 521; a CDR-H2 comprising one or more of SEQ ID NOs: 846 and 1171; and a CDR-H3 comprising one or more of SEQ ID NOs: 1496 and 1821;

(72) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 197 and 522; a CDR-H2 comprising one or more of SEQ ID NOs: 847 and 1172; and a CDR-H3 comprising one or more of SEQ ID NOs: 1497 and 1822;

(73) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 198 and 523; a CDR-H2 comprising one or more of SEQ ID NOs: 848 and 1173; and a CDR-H3 comprising one or more of SEQ ID NOs: 1498 and 1823;

(74) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 199 and 524; a CDR-H2 comprising one or more of SEQ ID NOs: 849 and 1174; and a CDR-H3 comprising one or more of SEQ ID NOs: 1499 and 1824;

(75) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 200 and 525; a CDR-H2 comprising one or more of SEQ ID NOs: 850 and 1175; and a CDR-H3 comprising one or more of SEQ ID NOs: 1500 and 1825;

(76) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 201 and 526; a CDR-H2 comprising one or more of SEQ ID NOs: 851 and 1176; and a CDR-H3 comprising one or more of SEQ ID NOs: 1501 and 1826;

(77) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 202 and 527; a CDR-H2 comprising one or more of SEQ ID NOs: 852 and 1177; and a CDR-H3 comprising one or more of SEQ ID NOs: 1502 and 1827;

(78) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 203 and 528; a CDR-H2 comprising one or more of SEQ ID NOs: 853 and 1178; and a CDR-H3 comprising one or more of SEQ ID NOs: 1503 and 1828;

(79) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 204 and 529; a CDR-H2 comprising one or more of SEQ ID NOs: 854 and 1179; and a CDR-H3 comprising one or more of SEQ ID NOs: 1504 and 1829;

(80) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 205 and 530; a CDR-H2 comprising one or more of SEQ ID NOs: 855 and 1180; and a CDR-H3 comprising one or more of SEQ ID NOs: 1505 and 1830;

(81) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 206 and 531; a CDR-H2 comprising one or more of SEQ ID NOs: 856 and 1181; and a CDR-H3 comprising one or more of SEQ ID NOs: 1506 and 1831;

(82) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 207 and 532; a CDR-H2 comprising one or more of SEQ ID NOs: 857 and 1182; and a CDR-H3 comprising one or more of SEQ ID NOs: 1507 and 1832;

(83) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 208 and 533; a CDR-H2 comprising one or more of SEQ ID NOs: 858 and 1183; and a CDR-H3 comprising one or more of SEQ ID NOs: 1508 and 1833;

(84) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 209 and 534; a CDR-H2 comprising one or more of SEQ ID NOs: 859 and 1184; and a CDR-H3 comprising one or more of SEQ ID NOs: 1509 and 1834;

(85) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 210 and 535; a CDR-H2 comprising one or more of SEQ ID NOs: 860 and 1185; and a CDR-H3 comprising one or more of SEQ ID NOs: 1510 and 1835;

(86) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 211 and 536; a CDR-H2 comprising one or more of SEQ ID NOs: 861 and 1186; and a CDR-H3 comprising one or more of SEQ ID NOs: 1511 and 1836;

(87) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 212 and 537; a CDR-H2 comprising one or more of SEQ ID NOs: 862 and 1187; and a CDR-H3 comprising one or more of SEQ ID NOs: 1512 and 1837;

(88) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 213 and 538; a CDR-H2 comprising one or more of SEQ ID NOs: 863 and 1188; and a CDR-H3 comprising one or more of SEQ ID NOs: 1513 and 1838;

(89) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 214 and 539; a CDR-H2 comprising one or more of SEQ ID NOs: 864 and 1189; and a CDR-H3 comprising one or more of SEQ ID NOs: 1514 and 1839;

(90) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 215 and 540; a CDR-H2 comprising one or more of SEQ ID NOs: 865 and 1190; and a CDR-H3 comprising one or more of SEQ ID NOs: 1515 and 1840;

(91) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 216 and 541; a CDR-H2 comprising one or more of SEQ ID NOs: 866 and 1191; and a CDR-H3 comprising one or more of SEQ ID NOs: 1516 and 1841;

(92) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 218 and 543; a CDR-H2 comprising one or more of SEQ ID NOs: 868 and 1193; and a CDR-H3 comprising one or more of SEQ ID NOs: 1518 and 1843;

(93) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 224 and 549; a CDR-H2 comprising one or more of SEQ ID NOs: 874 and 1199; and a CDR-H3 comprising one or more of SEQ ID NOs: 1524 and 1849;

(94) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 229 and 554; a CDR-H2 comprising one or more of SEQ ID NOs: 879 and 1204; and a CDR-H3 comprising one or more of SEQ ID NOs: 1529 and 1854;

(95) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 235 and 560; a CDR-H2 comprising one or more of SEQ ID NOs: 885 and 1210; and a CDR-H3 comprising one or more of SEQ ID NOs: 1535 and 1860;

(96) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 237 and 562; a CDR-H2 comprising one or more of SEQ ID NOs: 887 and 1212; and a CDR-H3 comprising one or more of SEQ ID NOs: 1537 and 1862; or

(97) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 238 and 563; a CDR-H2 comprising one or more of SEQ ID NOs: 888 and 1213; and a CDR-H3 comprising one or more of SEQ ID NOs: 1538 and 1863.

[0009c] In another aspect, provided herein is an isolated antibody that specifically binds to tissue factor (TF), wherein the antibody comprises:

(1) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 105 and 430; a CDR-H2 comprising one or more of SEQ ID NOs: 755 and 1080; and a CDR-H3 comprising one or more of SEQ ID NOs: 1405 and 1730;

(2) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 114 and 439; a CDR-H2 comprising one or more of SEQ ID NOs: 764 and 1089; and a CDR-H3 comprising one or more of SEQ ID NOs: 1414 and 1739;

(3) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 117 and 442; a CDR-H2 comprising one or more of SEQ ID NOs: 767 and 1092; and a CDR-H3 comprising one or more of SEQ ID NOs: 1417 and 1742;

(4) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 130 and 455; a CDR-H2 comprising one or more of SEQ ID NOs: 780 and 1105; and a CDR-H3 comprising one or more of SEQ ID NOs: 1430 and 1755;

(5) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 161 and 486; a CDR-H2 comprising one or more of SEQ ID NOs: 811 and 1136; and a CDR-H3 comprising one or more of SEQ ID NOs: 1461 and 1786;

(6) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 189 and 514; a CDR-H2 comprising one or more of SEQ ID NOs: 839 and 1164; and a CDR-H3 comprising one or more of SEQ ID NOs: 1489 and 1814;

(7) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 192 and 517; a CDR-H2 comprising one or more of SEQ ID NOs: 842 and 1167; and a CDR-H3 comprising one or more of SEQ ID NOs: 1492 and 1817;

(8) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 211 and 536; a CDR-H2 comprising one or more of SEQ ID NOs: 861 and 1186; and a CDR-H3 comprising one or more of SEQ ID NOs: 1511 and 1836;

(9) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 214 and 539; a CDR-H2 comprising one or more of SEQ ID NOs: 864 and 1189; and a CDR-H3 comprising one or more of SEQ ID NOs: 1514 and 1839; or

(10) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 218 and 543; a CDR-H2 comprising one or more of SEQ ID NOs: 868 and 1193; and a CDR-H3 comprising one or more of SEQ ID NOs: 1518 and 1843.

[0009d] In another aspect, provided herein is an isolated antibody that specifically binds to tissue factor, wherein the antibody binds to the same epitope as a second antibody comprising a V_H/V_L pair, or a variant thereof, selected from the group consisting of SEQ ID NOs: 2727/3061, 2736/3061, 2739/3061, 2751/3061, 2752/3061, 2753/3061, 2754/3061, 2755/3061, 2756/3061, 2757/3061, 2758/3061, 2759/3061, 2760/3061, 2761/3061, 2762/3061, 2763/3061, 2764/3061, 2765/3061, 2766/3061, 2767/3061, 2768/3061, 2769/3061, 2770/3061, 2771/3061, 2772/3061, 2773/3061, 2774/3061, 2775/3061, 2776/3061, 2777/3061, 2778/3061, 2779/3061, 2780/3061, 2781/3061, 2782/3061, 2783/3061, 2784/3061, 2785/3061, 2786/3061, 2787/3061, 2788/3061, 2789/3061, 2790/3061, 2791/3061, 2792/3061, 2793/3061, 2794/3061, 2795/3061, 2796/3061, 2797/3061, 2798/3061, 2799/3061, 2800/3061, 2801/3061, 2802/3061, 2803/3061, 2804/3061, 2805/3061, 2806/3061, 2807/3061, 2808/3061, 2809/3061, 2810/3061, 2811/3061, 2812/3061, 2813/3061, 2814/3061, 2815/3061, 2816/3061, 2817/3061, 2818/3061, 2819/3061, 2820/3061, 2821/3061, 2822/3061, 2823/3061, 2824/3061, 2825/3061, 2826/3061, 2827/3061, 2828/3061, 2829/3061, 2830/3061, 2831/3061, 2832/3061, 2833/3061, 2834/3061, 2835/3061, 2836/3061, 2837/3061, 2838/3061, 2840/2951, 2846/2957, 2851/2962, 2857/2968, 2859/2970, and 2860/2971.

[0010] In another example, provided are compositions comprising the antibodies or antibody conjugates. In some examples, the compositions are pharmaceutical compositions. In some examples, the pharmaceutical composition is for parenteral administration. Any suitable pharmaceutical composition may be used. In some examples, the pharmaceutical composition is a composition for parenteral administration. In a further example, provided herein are kits comprising the antibodies or antibody conjugates or pharmaceutical compositions.

[0010a] In another aspect, provided herein is a kit comprising an antibody as disclosed herein, the antibody conjugate as disclosed herein or the pharmaceutical composition as disclosed herein, and instructions for use of the antibody, antibody conjugate or the pharmaceutical composition.

[0010b] In another aspect, provided herein is a polynucleotide encoding an antibody as disclosed herein.

[0010c] In another aspect, provided herein is a vector comprising the polynucleotide as disclosed herein.

[0010d] In another aspect, provided herein is a recombinant host cell comprising the vector as disclosed herein.

[0010e] In another aspect, provided herein is a cell-free expression reaction comprising the vector as disclosed herein.

[0010f] In another aspect, provided herein is a pharmaceutical composition comprising the isolated antibody as disclosed herein or the antibody conjugate as disclosed herein and a pharmaceutically acceptable carrier.

[0011] This disclosure also provides methods of using the anti-TF antibodies or antibody conjugates provided herein. In some examples, the methods are methods of delivering one or more payload moieties to a target cell or tissue expressing TF. In some examples, the method is a method of treatment. In some examples, the method is a diagnostic method. In some examples, the method is an analytical method. In some examples, the method is a method of purifying and/or quantifying TF.

[0012] In some examples, the antibodies, antibody conjugates, or pharmaceutical compositions thereof are used to treat a disease or condition. In some examples, the disease or condition is a TF-expressing malignancy. In some examples, the disease or condition is selected from a cancer, autoimmune disease, and infection.

[0012a] In another aspect, provided herein is an isolated antibody as disclosed herein, an antibody conjugate as disclosed herein, or a pharmaceutical composition as disclosed herein for use in reducing cell proliferation.

[0012b] In another aspect, provided herein is use of an isolated antibody as disclosed herein, an antibody conjugate as disclosed herein, or a pharmaceutical composition as disclosed herein, in the manufacture of a medicament for treating or preventing a disease or condition in a subject in need thereof.

[0012c] In another aspect, provided herein is a method of diagnosing a disease or condition in a subject in need thereof, comprising administering to the subject an effective amount of an isolated antibody as disclosed herein, an antibody conjugate as disclosed herein, or a pharmaceutical composition as disclosed herein.

[0012d] In another aspect, provided herein is use of a pharmaceutical composition as disclosed herein in the manufacture of a medicament for treating cancer in a subject in need thereof, wherein the subject is diagnosed with cancer by detection of expression of TF in a cell or tissue of the subject.

[0012e] In another aspect, provided herein is an isolated antibody as disclosed herein, an antibody conjugate as disclosed herein, or a pharmaceutical composition as disclosed herein, for use in therapy.

[0013] In some examples, the antibodies or antibody conjugates bind human TF. In some examples, the antibodies or antibody conjugates also bind homologs of human TF. In some examples, the antibodies or antibody conjugates also bind homologs of cynomolgus monkey and/or mouse TF.

[0014] These and other embodiments of the invention along with many of its features are described in more detail in conjunction with the text below and attached figures.

BRIEF DESCRIPTION OF THE FIGURES

[0015] **FIG. 1A** provides a comparison of the Kabat and Chothia numbering systems for CDR-H1. *Adapted from* Martin A.C.R. (2010). Protein Sequence and Structure Analysis of Antibody Variable Domains. In R. Kontermann & S. Dübel (Eds.), *Antibody Engineering* vol. 2 (pp. 33-51). Springer-Verlag, Berlin Heidelberg.

[0016] **FIG. 1B** provides a general schematic design for a representative antibody conjugate of the present disclosure where 1 is TF, 2 is a non-natural amino acid (pAMF), 3 is a β-glucuronidase linker and 4 is an exatecan payload.

[0017] **FIG. 2** provides thrombin production data for Conjugate **1** and Conjugate **26**.

[0018] **FIG. 3A** provides HPLC-SEC results for formulation buffer comparison for Conjugate **7** at 4ºC, 25ºC and 37ºC conditions.

[0019] **FIG. 3B** provides HPLC-SEC results for Conjugate **2** at 4ºC, 25ºC and 37ºC conditions.

[0020] **FIG. 4** provides HPLC-SEC results over 5x freeze/thaw cycles for Conjugate **2** in one formulation buffer and for Conjugate **7** in three different formulation buffers.

[0021] **FIG. 5** provides the viability of CD66b+ cells as a percentage relative to PBS control for Neutrophil precursor cells treated with Conjugates **2**, **3** and **6**.

[0022] **FIG. 6A** provides measured DAR of Conjugates **2**, **6** and **7** over 21 days.

[0023] **FIG. 6B** provides deconvoluted mass spectra of anti-TF ADC samples from in vivo linker payload stability study for Conjugates **2**, **6** and **7**.

WHAT IS CLAIMED IS:

1. An antibody conjugate comprising an antibody that specifically binds to tissue factor (TF) linked site-specifically to at least one payload moiety, wherein the antibody comprises one or more non-natural amino acids.

2. The antibody conjugate of claim 1, wherein the one or more non-natural amino acids is at an antibody amino acid site other than the amino terminus of the antibody.

3. The antibody conjugate of claim 1, wherein the one or more non-natural amino acids is at an antibody amin acid site other than the carboxy terminus of the antibody.

4. The antibody conjugate of any one of the previous claims, wherein the antibody comprises one or more non-natural amino acids selected from the group consisting of: HC-F404, HC-K121, HC-Y180, HC-F241, HC-221, HC-Y391, LC-T22, LC-S7, LC-N152, LC-K42, LC-E161, LC-D170, HC-S136, HC-S25, HC-A40, HC-S119, HC-S190, HC-K222, HC-R19, HC-Y52, and HC-S70, according to the Kabat, Chothia, or EU numbering scheme.

5. The antibody conjugate of claim 4, wherein the antibody comprises one or more non-natural amino acids selected from the group consisting of: HC-F404, HC-Y180, HC-F241, HC-Y391, LC-K42, and LC-E161, according to the Kabat, Chothia, or EU numbering scheme.

6. The antibody conjugate of claim 4, wherein the antibody comprises one or more non-natural amino acids at sites selected from the group consisting of: HC-F404, HC-Y180, HC-Y391, LC-K42, and LC-E161, according to the Kabat or EU numbering scheme of Kabat.

7. The antibody conjugate of claim 4, wherein the antibody comprises one or more non-natural amino acids at sites selected from the group consisting of: HC-F404, HC-Y180, HC-Y391, HC-F241, and LC-K42, according to the Kabat or EU numbering scheme of Kabat.

8. The antibody conjugate of claim 4, wherein the antibody comprises one or more non-natural amino acids at sites HC-Y180 and HC-F404.

9. The antibody conjugate of claim 4, wherein the antibody comprises one or more non-natural amino acids at sites HC-F241 and HC-F404.

10. The antibody conjugate of claim 4, wherein the antibody comprises one or more non-natural amino acids at sites HC-Y180, HC-F404, and LC-K42.

11. The antibody conjugate of claim 4, wherein the antibody comprises one or more non-natural amino acids at sites HC-Y180, HC-F241 and HC-F404.

12. The antibody conjugate of claim 4, wherein the antibody comprises one or more non-natural amino acids at sites HC-Y180, HC-F404, LC-K42, and LC-E161.

13. The antibody conjugate of claim 4, wherein the antibody comprises one or more non-natural amino acids at sites HC-Y180, HC-F241, HC-F404, and LC-K42.

14. The antibody conjugate of claim 4, wherein the antibody comprises one or more non-natural amino acids at sites HC-Y180, HC-F241, HC-F404, and HC-Y391.

15. The antibody conjugate of any one of the preceding claims, wherein a residue of the one or more non-natural amino acids is linked to the payload moiety via a linker that is hydrolytically stable.

16. The antibody conjugate of any one of the preceding claims, wherein a residue of the one or more non-natural amino acids is linked to the payload moiety via a linker that is cleavable.

17. The antibody conjugate of any one of the preceding claims, wherein the one or more non-natural amino acids is selected from the group consisting of *p*-acetyl-L-phenylalanine, O-methyl-L-tyrosine, an -3-(2-naphthyl)alanine, 3-methyl-phenylalanine, O-4-allyl-L-tyrosine, 4-propyl-L-tyrosine, a tri-O-acetyl-GlcNAcβ-serine, L-Dopa, fluorinated phenylalanine, isopropyl-L-phenylalanine, p-azido-L-phenylalanine, *p*-azido-methyl-L-phenylalanine, compound 56, p-acyl-L-phenylalanine, p-benzoyl-L-phenylalanine, L-phosphoserine, phosphonoserine, phosphonotyrosine, *p*-iodo-phenylalanine, *p*-bromophenylalanine, *p*-amino-L-phenylalanine, isopropyl-L-phenylalanine, and *p*-propargyloxy-phenylalanine.

18. The antibody conjugate of any one of the preceding claims, wherein the residue of the one or more non-natural amino acids is a residue of compound (30) or compound (56).

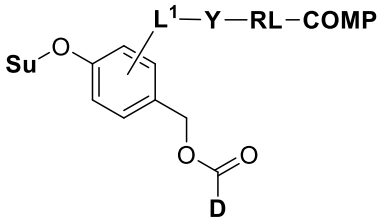
19. The antibody conjugate of any one of the preceding claims, wherein the one or more non-natural amino acids is *p*-azidomethylphenylalanine.

20. The antibody conjugate of any one of the preceding claims, wherein the one or more non-natural amino acids is *p*-azido-methyl-L-phenylalanine.

21. The antibody conjugate of any one of the preceding claims, wherein the payload moiety is selected from the group consisting of maytansines, hemiasterlins, amanitins, camptothecins, exatecans, anthracyclines, pyrrolobenzodiazepines, and auristatins.

22. The antibody conjugate of any one of the preceding claims wherein the payload moiety is selected from the group consisting of DM1, hemiasterlin, amanitin, camptothecin, exatecan, deruxtecan (DXd), SN-38, PNU-159862, PNU-EDA, pyrrolobenzodiazepine, MMAF, and MMAE.

23. The antibody conjugate of any one of the preceding claims, according to the structure of Formula I:



(I)

or a pharmaceutically acceptable salt thereof, wherein

COMP is a residue of the anti-TF antibody;

$\mathbf{L^1}$ is -$C_{1\text{-}6}$ alkylene-;

Y is –$\mathbf{X^1}$-$C_{1\text{-}6}$ alkylene-[$\mathbf{X^1}$-$C_{1\text{-}6}$ alkylene]$_n$-[$\mathbf{X^1}$]$_p$–, –$\mathbf{X^1}$-$C_{2\text{-}6}$ alkenylene-[$\mathbf{X^1}$-$C_{2\text{-}6}$ alkenylene]$_n$-[$\mathbf{X^1}$]$_p$–, –$\mathbf{X^1}$-$C_{2\text{-}6}$ alkynylene-[$\mathbf{X^1}$-$C_{2\text{-}6}$ alkynylene]$_n$-[$\mathbf{X^1}$]$_p$–, wherein at least one alkylene, alkenylene or alkynylene in **Y** is substituted with one or more substituents selected from $\mathbf{R^{50}}$; and

wherein the alkylene, alkenylene, or alkynylene in **Y** is optionally substituted with one or more substituents selected from $\mathbf{R^{51}}$;

$\mathbf{R^{50}}$ is –$C_{1\text{-}6}$ alkylene-$\mathbf{X^2}$-[$C_{1\text{-}6}$ alkylene]$_m$-**POLY**, –$C_{2\text{-}6}$ alkenylene-$\mathbf{X^2}$-[$C_{2\text{-}6}$ alkenylene]$_m$-**POLY**, or –$C_{2\text{-}6}$ alkynylene-$\mathbf{X^2}$-[$C_{2\text{-}6}$ alkynylene]$_m$-**POLY**, wherein each alkylene, alkenylene or alkynylene of $\mathbf{R^{50}}$ is optionally substituted with one or more substituents selected from halogen, -CN, -NO_2, -OH, -N($\mathbf{R^{10}}$)$_2$, -C(O)N($\mathbf{R^{10}}$)$_2$,

-C(O)-, -C(S)-, -C(O)$OCH_2C_6H_5$, -NHC(O)$OCH_2C_6H_5$, C_{1-10} alkyl, C_{2-10} alkenyl, C_{2-10} alkynyl, C_{3-12} carbocycle, 3- to 12-membered heterocycle, and C_{1-10} haloalkyl;

$\mathbf{R^{51}}$ is independently selected from halogen, -CN, -NO_2, -OH, -N($\mathbf{R^{10}}$)$_2$, -C(O)N($\mathbf{R^{10}}$)$_2$, -C(O)-, -C(S)-, -C(O)$OCH_2C_6H_5$,
-NHC(O)$OCH_2C_6H_5$, C_{1-10} alkyl, C_{2-10} alkenyl, C_{2-10} alkynyl, C_{3-12} carbocycle, 3- to 12-membered heterocycle, and C_{1-10} haloalkyl;

$\mathbf{X^1}$ and $\mathbf{X^2}$ are independently selected from –C(O)– and –N($\mathbf{R^{10}}$)C(O)–;

$\mathbf{R^{10}}$ is independently selected at each occurrence from hydrogen, C_{1-10} alkyl, C_{2-10} alkenyl, C_{2-10} alkynyl, C_{3-12} carbocycle, 3- to 12-membered heterocycle, and C_{1-10} haloalkyl;

POLY is a water-soluble polymer;

n is an integer selected from zero, one, two, and three;

m is an integer selected from zero and one;

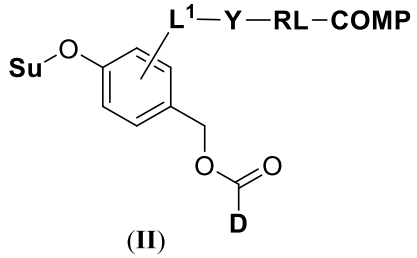
p is an integer selected from zero and one;

Su is a hexose form of a monosaccharide;

D is a drug moiety; and

RL is a reactive group residue.

24. The antibody conjugate of any one of the preceding claims, according to the structure of Formula II:



(**II**)

or a pharmaceutically acceptable salt thereof, wherein

COMP is a residue of the TF antibody;

$\mathbf{L^1}$ is -C_{1-6} alkylene-;

Y is –$\mathbf{X^1}$-C_{1-6} alkylene-[$\mathbf{X^1}$-C_{1-6} alkylene]$_n$-$\mathbf{X^1}$–, –$\mathbf{X^1}$-C_{2-6} alkenylene-[$\mathbf{X^1}$-C_{2-6} alkenylene]$_n$-$\mathbf{X^1}$–, –$\mathbf{X^1}$-C_{2-6} alkynylene-[$\mathbf{X^1}$-C_{2-6} alkynylene]$_n$-$\mathbf{X^1}$–, wherein at least one alkylene, alkenylene or alkynylene in **Y** is substituted with one or more substituents selected from $\mathbf{R^{50}}$;

$\mathbf{R^{50}}$ is –C_{1-6} alkylene-$\mathbf{X^2}$-[C_{1-6} alkylene]$_m$-**POLY**, –C_{2-6} alkenylene-$\mathbf{X^2}$-[C_{2-6} alkenylene]$_m$-**POLY**, or –C_{2-6} alkynylene-$\mathbf{X^2}$-[C_{2-6} alkynylene]$_m$-**POLY**, wherein each alkylene, alkenylene or alkynylene of $\mathbf{R^{50}}$ is optionally substituted with one or more substituents selected from halogen, -CN, -NO_2, -OH, -N($\mathbf{R^{10}}$)$_2$, -C(O)N($\mathbf{R^{10}}$)$_2$, -C(O)-, -C(S)-, -

$C(O)OCH_2C_6H_5$, -$NHC(O)OCH_2C_6H_5$, C_{1-10} alkyl, C_{2-10} alkenyl, C_{2-10} alkynyl, C_{3-12} carbocycle, 3- to 12-membered heterocycle, and C_{1-10} haloalkyl;

$\mathbf{X^1}$ and $\mathbf{X^2}$ are independently selected from –C(O)– and –N($\mathbf{R^{10}}$)C(O)–;

$\mathbf{R^{10}}$ is independently selected at each occurrence from hydrogen, C_{1-10} alkyl, C_{2-10} alkenyl, C_{2-10} alkynyl, C_{3-12} carbocycle, 3- to 12-membered heterocycle, and C_{1-10} haloalkyl;

POLY is a water-soluble polymer;

n is an integer selected from zero, one, two, and three;

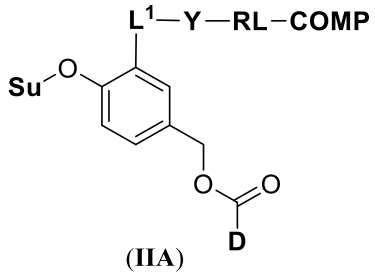
m is an integer selected from zero and one;

Su is a hexose form of a monosaccharide;

D is a drug moiety; and

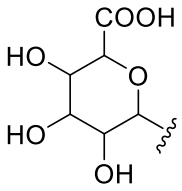
RL is a reactive group residue.

25. The antibody conjugate of claim 24, wherein the compound of Formula (II) is according to Formula (IIA)



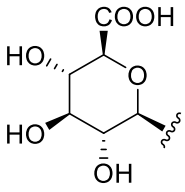
(**IIA**) .

26. The antibody conjugate of any one of claims 22 to 24, wherein **Su** is



, wherein ~ represents attachment to the remainder of the compound.

27. The antibody conjugate of any one of claims 23 to 26, wherein **Su** is



, wherein ~ represents attachment to the remainder of the compound.

28. The antibody conjugate of any one of claims 23 to 27, wherein **D** is a cytotoxic payload.

29. The antibody conjugate of claim 28, wherein the cytotoxic payload is a tubulin inhibitor, a DNA topoisomerase I inhibitor, or a DNA topoisomerase II inhibitor.

30. The antibody conjugate of any one of claims 23 to 29, wherein **D** is selected from the group consisting of hemiasterlins, camptothecins, anthracyclines, PNU-159682, and EDA PNU-159682 derivatives.

31. The antibody conjugate of any one of claims 23 to 29, wherein **D** is a hemiasterlin, exatecan, PNU-159682, or EDA PNU-159682 derivatives.

32. The antibody conjugate of any one of claims 23 to 31, wherein $\mathbf{L^1}$ is -C_{1-3} alkylene-.

33. The antibody conjugate of any one of claims 23 to 32, wherein **Y** is –$\mathbf{X^1}$-C_{1-6} alkylene-[$\mathbf{X^1}$-C_{1-6} alkylene]$_\mathbf{n}$-$\mathbf{X^1}$–, wherein at least one alkylene in **Y** is substituted with one or more substituents selected from $\mathbf{R^{50}}$.

34. The antibody conjugate of any one of claims 23 to 33, wherein **Y** is –$\mathbf{X^1}$-C_{1-4} alkylene-$\mathbf{X^1}$-C_{1-4} alkylene-$\mathbf{X^1}$-C_{1-4} alkylene-$\mathbf{X^1}$–, wherein at least one alkylene in **Y** is substituted with one or more substituents selected from $\mathbf{R^{50}}$.

35. The antibody conjugate of any one of claims 23 to 33, wherein **Y** is –$\mathbf{X^1}$-C_{1-4} alkylene-$\mathbf{X^1}$-C_{1-4} alkylene-$\mathbf{X^1}$–, wherein at least one alkylene in **Y** is substituted with one or more substituents selected from $\mathbf{R^{50}}$.

36. The antibody conjugate of any one of claims 23 to 35, wherein $\mathbf{R^{50}}$ is –C_{1-6} alkylene-$\mathbf{X^2}$-[C_{1-6} alkylene]$_\mathbf{m}$-**POLY**, wherein each alkylene of $\mathbf{R^{50}}$ is optionally substituted with one or more substituents selected from halogen, -CN, -NO_2, -OH, -N($\mathbf{R^{10}}$)$_2$, -C(O)N($\mathbf{R^{10}}$)$_2$, -C(O)-, -C(S)-, -C(O)O$CH_2C_6H_5$, -NHC(O)O$CH_2C_6H_5$, C_{1-10} alkyl, C_{2-10} alkenyl, C_{2-10} alkynyl, C_{3-12} carbocycle, 3- to 12-membered heterocycle, and C_{1-10} haloalkyl.

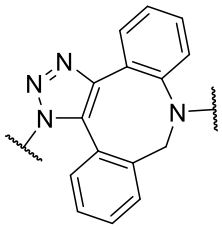
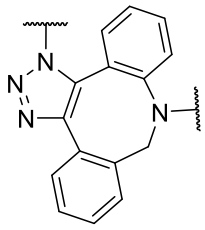
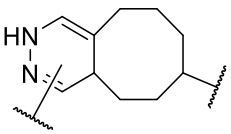
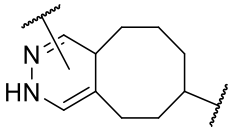
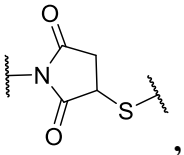
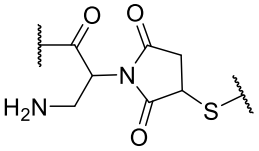
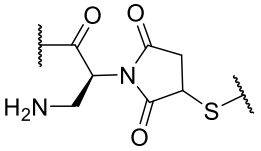
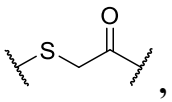
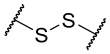
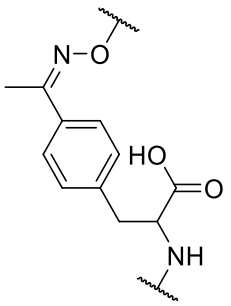
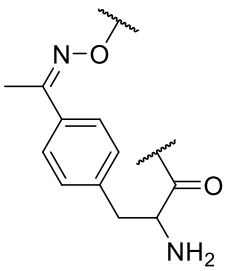
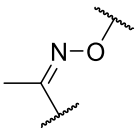
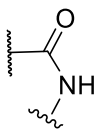
37. The antibody conjugate of any one of claims 23 to 36, wherein **m** is one.

38. The antibody conjugate of any one of claims 23 to 37, wherein **POLY** is polyethylene glycol (PEG), methoxypolyethylene glycol (mPEG), poly(propylene glycol)

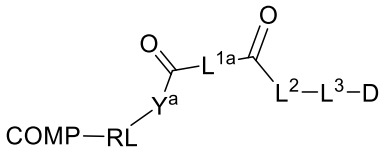
(PPG), copolymers of ethylene glycol and propylene glycol, poly(oxyethylated polyol), poly(olefinic alcohol), poly(vinylpyrrolidone), poly(hydroxyalkylmethacrylamide), poly(hydroxyalkylmethacrylate), poly(saccharides), poly(α-hydroxy acid), poly(vinyl alcohol), polyphosphazene, polyoxazolines (POZ), poly(*N*-acryloylmorpholine), polysarcosine, or a combination thereof.

39. The antibody conjugate of any one of claims 23 to 38, wherein **POLY** comprises a polyethylene glycol (PEG) or methoxypolyethylene glycol (mPEG).

40. The antibody conjugate of any one of claims 23 to 39, wherein **RL** comprises an alkyne, cyclooctyne, a strained alkene, a tetrazine, a thiol, a *para*-acetyl-phenylalanine residue, an oxyamine, amine, a maleimide, or an azide.

41. The antibody conjugate of any one of claims 23 to 40, wherein **RL** is selected from the group consisting of , , , , , , , , , , , , and .

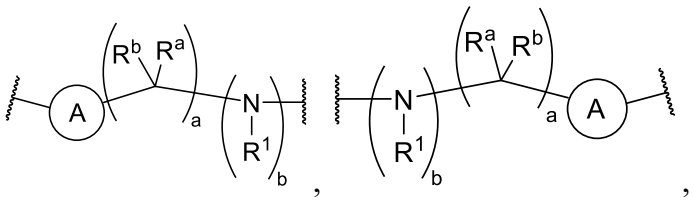
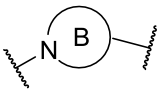
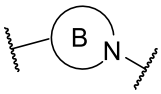
42. The antibody conjugate of any one of claims 1-22, according to the structure of Formula III:



(III)

or a pharmaceutically acceptable salt thereof;

wherein

L^{1a} is selected from , , , and ;

Ring A is an optionally substituted bridged, fused, or spirocyclic bicyclic carbocycle, or an optionally substituted bridged, fused, or spirocyclic bicyclic heterocycle, wherein the carbocycle or the heterocycle of Ring A are optionally substituted with one or more substituents selected from alkyl, alkenyl, alkynyl, cycloalkyl, halogen, alkoxy, -CN, $-NO_2$, -OH, $-N(R^2R^3)_2$, -C(O)-, $-C(O)N(R^2R^3)_2$, $-C(O)OR^2$, aminoalkyl, hydroxyalkyl, haloalkyl, aryl, arylalkyl, heteroaryl, and heteroarylalkyl;

Ring B is an optionally substituted N-linked bridged, fused, or spirocyclic bicyclic heterocycle, wherein Ring B is optionally substituted with one or more substituents selected from alkyl, alkenyl, alkynyl, cycloalkyl, halogen, alkoxy, -CN, $-NO_2$, -OH, $-N(R^2R^3)_2$, -C(O)-, $-C(O)N(R^2R^3)_2$, $-C(O)OR^2$, aminoalkyl, hydroxyalkyl, haloalkyl, aryl, arylalkyl, heteroaryl, and heteroarylalkyl;

R^a and R^b are independently selected from hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, halogen, alkoxy, -CN, $-NO_2$, -OH, $-N(R^2R^3)_2$, $-C(O)N(R^2R^3)_2$, $-C(O)OR^2$, aminoalkyl, hydroxyalkyl, haloalkyl, aryl, arylalkyl, heteroaryl, and heteroarylalkyl;

a is an integer independently selected from 0, 1, 2, 3, 4, 5, and 6;

b is an integer selected from 0 or 1;

R^1 is hydrogen or alkyl optionally substituted with one or more substituents selected from cycloalkyl, halogen, alkoxy, -CN, $-NO_2$, -OH, $-N(R^2R^3)_2$, $-C(O)N(R^2R^3)_2$, $-C(O)OR^2$, aryl, and heteroaryl;

R^2 and R^3 are independently selected from hydrogen, alkyl, cycloalkyl, aryl, arylalkyl, heteroaryl, and heteroarylalkyl;

Y^a is *-C(O)-$(CR^aR^b)_c$-NH- or *-C(O)-$(CR^aR^b)_c$-, wherein * represents where Y^a is bound to RL;

c is an integer selected from 1, 2, 3, 4, 5, or 6;

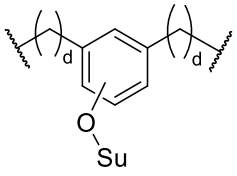
RL is a reactive group residue;

L^2 is absent or a linker comprising a hydrophilic polymer residue;

L^3 is absent, -C(O)-AA-, -C(O)-AA-Z-$(CR^aR^b)_a$-Z-$(CR^aR^b)_a$-C(O)-, -C(O)-Z-$(CR^aR^b)_a$-C(O)-Z-L^4-OC(O)-, -Z-AA-, -AA-, -C(O)-, -C(O)-AA-Z-$(CR^aR^b)_a$-, -AA-C(O)-, -C(O)-$(CR_aR_b)_a$-Z-(CR_aR_b)-Z-AA-C(O)-, -C(O)O-L^4-Z-C(O)-$(CR_aR_b)_a$-Z-C(O)-, -AA-Z-; and –$(CR^aR^b)_a$-Z-AA-C(O)-;

Z is selected from -NR^2- and -O-;

AA is an amino acid residue or a peptide residue;

L^4 is 

wherein Su is a hexose form of a monosaccharide;

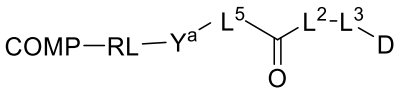
d is an integer independently selected from 1, 2, and 3;

D is a drug moiety;

COMP is a residue of the TF antibody; and

~~~ represents attachment to the remainder of the compound.

43. The antibody conjugate of any one of claims 1-22, according to the structure of Formula (V):



(V)

or a pharmaceutically acceptable salt and/or regioisomer thereof;

wherein

L^5 is a linker comprising an unnatural amino acid;

Y^a is *-C(O)-$(CR^aR^b)_c$-NH- or *-C(O)-$(CR^aR^b)_c$-, wherein * represents where Y^a is bound to RL;

c is an integer selected from 1, 2, 3, 4, 5, or 6;

RL is a reactive group residue;

L^2 is absent or a linker comprising a hydrophilic polymer residue;

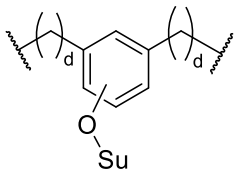
L^3 is absent, -C(O)-AA-, -C(O)-AA-Z-$(CR^aR^b)_a$-Z-$(CR^aR^b)_a$-C(O)-, -C(O)-Z-$(CR^aR^b)_a$-C(O)-Z-L^4-OC(O)-, -Z-AA-, -AA-, -C(O)-, -C(O)-AA-Z-$(CR^aR^b)_a$-, -AA-C(O)-, -C(O)-$(CR_aR_b)_a$-Z-(CR_aR_b)-Z-AA-C(O)-, -C(O)O-L^4-Z-C(O)-$(CR_aR_b)_a$-Z-C(O)-, -AA-Z-; and –$(CR^aR^b)_a$-Z-AA-C(O)-;
~~~

R^a and R^b are independently selected from hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, halogen, alkoxy, -CN, -NO_2, -OH, -$N(R^2R^3)_2$, -$C(O)N(R^2R^3)_2$, -$C(O)OR^2$, aminoalkyl, hydroxyalkyl, haloalkyl, aryl, arylalkyl, heteroaryl, and heteroarylalkyl;

a is an integer independently selected from 0, 1, 2, 3, 4, 5, and 6;

Z is selected from -NR^2- and -O-;

AA is an amino acid residue or a peptide residue;

L^4 is  wherein Su is a hexose form of a monosaccharide;

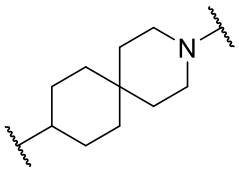
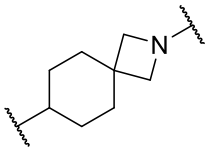
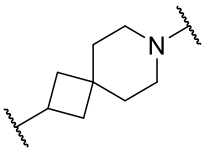
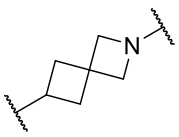
d is an integer independently selected from 1, 2, and 3;

D is a drug moiety;

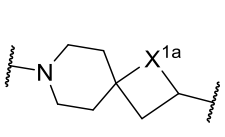
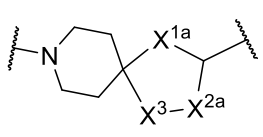
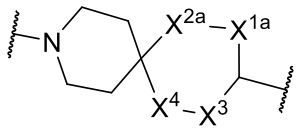
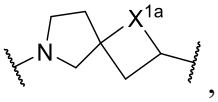
COMP is a residue of the TF antibody; and

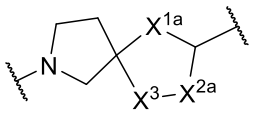
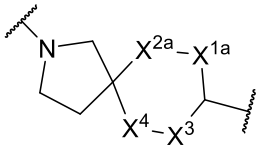
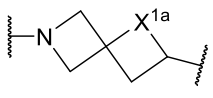
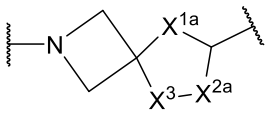
~ represents attachment to the remainder of the compound.

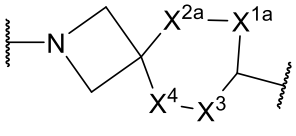
44. The antibody conjugate of claim 42, wherein Ring B is selected from

, , , and .

45. The antibody conjugate of claim 42, where Ring B is selected from

, , , ,

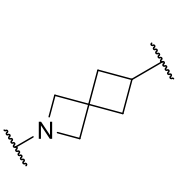
, , , , and

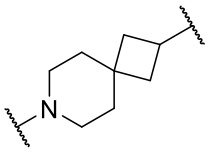
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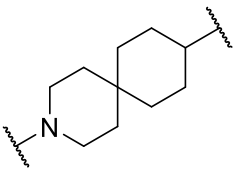
wherein X^{1a}, X^{2a}, X^3, and X^4 are independently selected from -$C(R^4)_2$-, -NH-, -O-, and -S- wherein when X^{1a}, X^{2a}, and X^3 are present, at least one of X^{1a}-X^3 is -$C(R^4)_2$- and when X^{1a}, X^{2a}, X^3, and X^4 are present, at least two of X^{1a}-X^4 are -$C(R^4)_2$; and

R^4 is independently selected from hydrogen, C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{3-12} cycloalkyl, halogen, alkoxy, -CN, -NO_2, -OH, -$N(R^2R^3)_2$, -$C(O)N(R^2R^3)_2$, -$C(O)OR^2$, aminoalkyl, hydroxyalkyl, haloalkyl, aryl, arylalkyl, heteroaryl, and heteroarylalkyl; or two R^4 groups on the same carbon are taken together to form an oxo group.

46. The antibody conjugate of claim 42, wherein Ring B is selected from

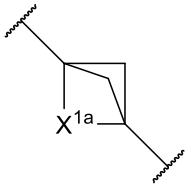


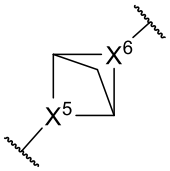
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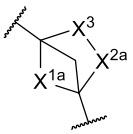
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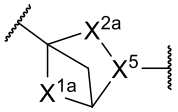
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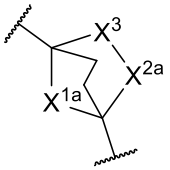
47. The antibody conjugate of claim 42, wherein Ring A is selected from



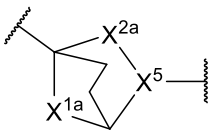
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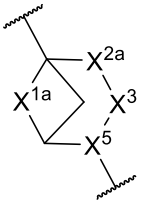
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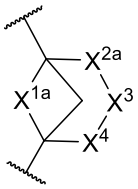
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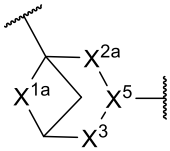
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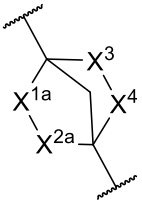
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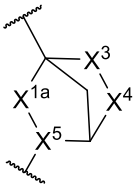


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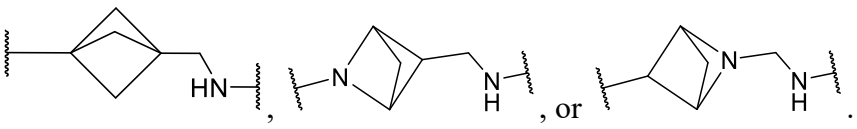
;

wherein X^{1a}, X^{2a}, X^3, and X^4 are independently selected from -$C(R^4)_2$-, -NH-, -O-, and -S- wherein when X^{1a}, X^{2a}, and X^3 are present, at least one of X^{1a}-X^3 is -$C(R^4)_2$- and when X^{1a}, X^{2a}, X^3, and X^4 are present, at least two of X^{1a}-X^4 are -$C(R^4)_2$;

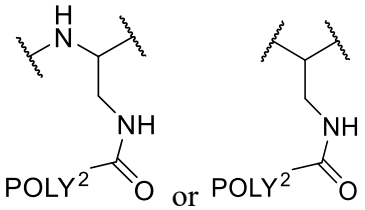
X^5 is N or CR^4; and

R^4 is independently selected from hydrogen, C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{3-12} cycloalkyl, halogen, alkoxy, -CN, -NO_2, -OH, -$N(R^2R^3)_2$, -$C(O)N(R^2R^3)_2$, -$C(O)OR^2$, aminoalkyl, hydroxyalkyl, haloalkyl, aryl, arylalkyl, heteroaryl, and heteroarylalkyl; or two R^4 groups on the same carbon are taken together to form an oxo group.

48. The antibody conjugate any one of claims 42 and 44-47, wherein L^{1a} is

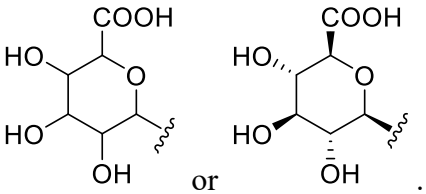


49. The antibody conjugate of any one of claims 42-48, wherein L^2 is -$(CR^aR^b)_a$-$POLY^1$-.

 ; wherein $POLY^1$- is a divalent residue of polyethylene glycol (PEG), poly(propylene glycol) (PPG), or a copolymer of ethylene glycol and propylene glycol; wherein ~ represents attachment to the remainder of the compound.

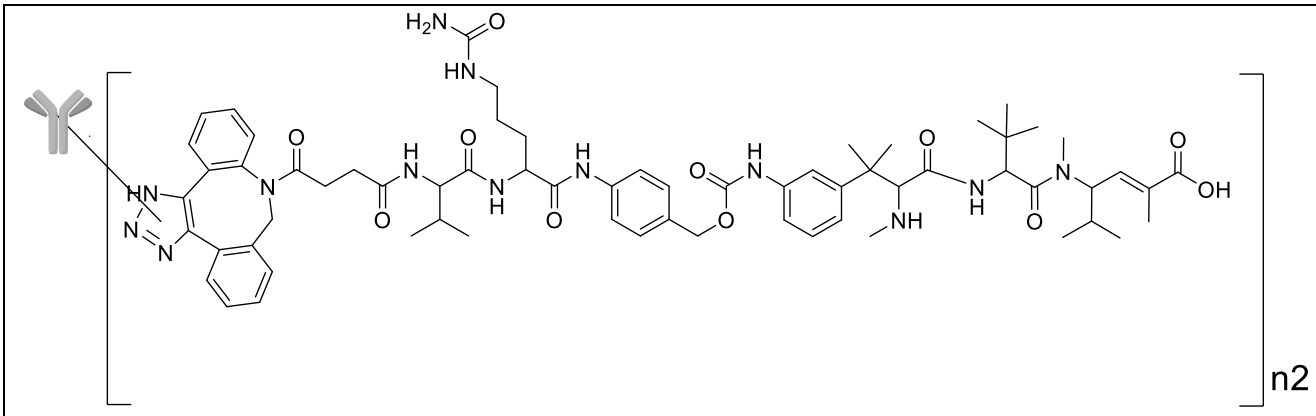
50. The antibody conjugate of any one of claims 42-49, wherein L^3 is -C(O)-AA-, -C(O)-AA-Z-$(CR^aR^b)_a$-Z-$(CR^aR^b)_a$-C(O)-, -Z-AA-, or -AA-.

51. The antibody conjugate of any one of claims 42-50, wherein Su is

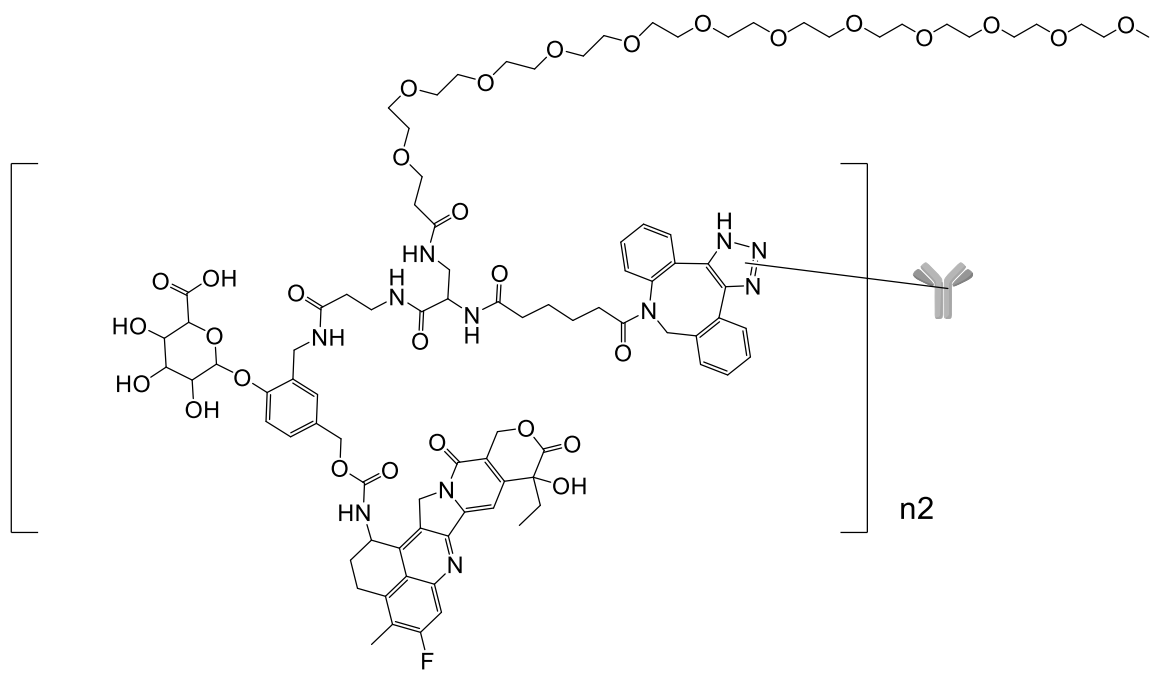
 .

52. The antibody conjugate of any one of claims 42-51, wherein the D is a drug moiety selected from a tubulin inhibitor, DNA damaging agents, a DNA topoisomerase I inhibitor, a DNA topoisomerase II inhibitor, RNA polymerase II inhibitor, a hemiasterlin residue, a camptothecin residue, camptothexin derivatives, an anthracycline residue, PNU-159682 and PNU-159682 derivative, PBDs, and duocarmycins.

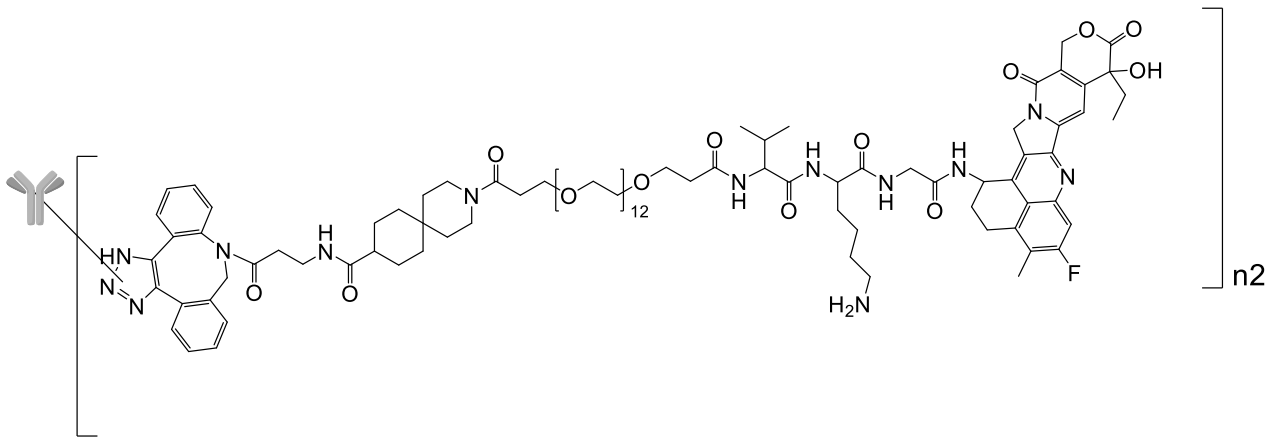
53. The antibody conjugate of any one of the previous claims, wherein the antibody conjugate has a structure selected from the group consisting of:



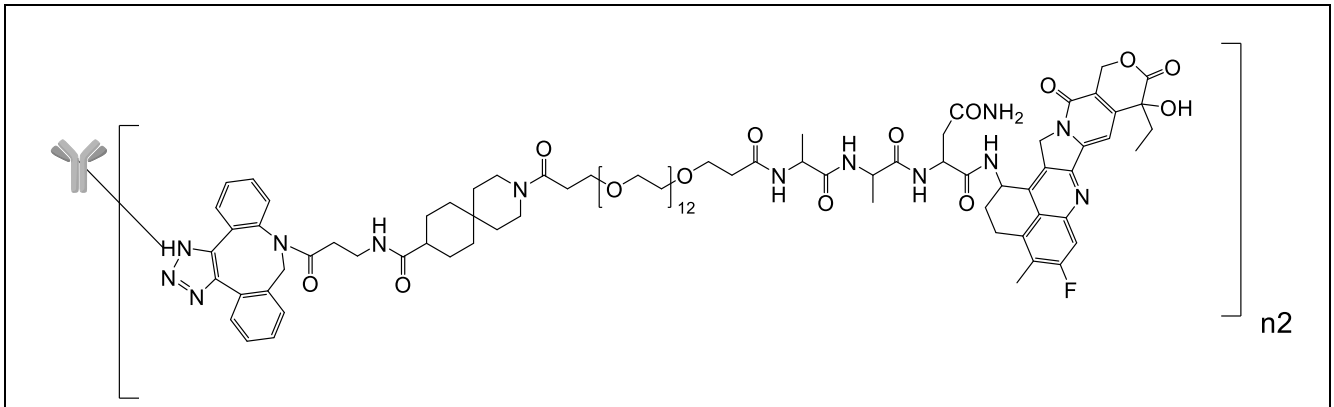
A1;



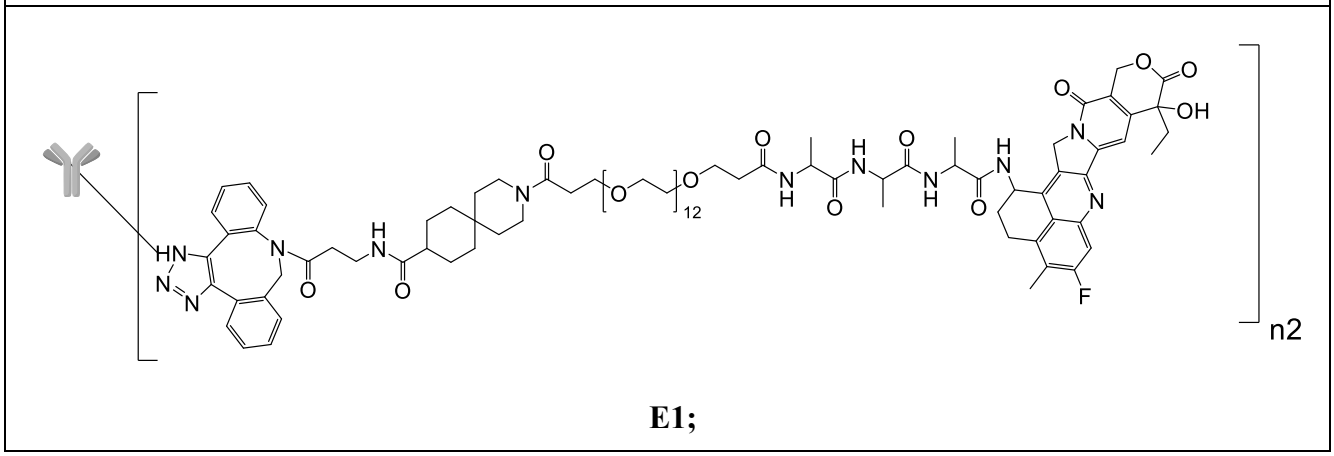
B1;



C1;



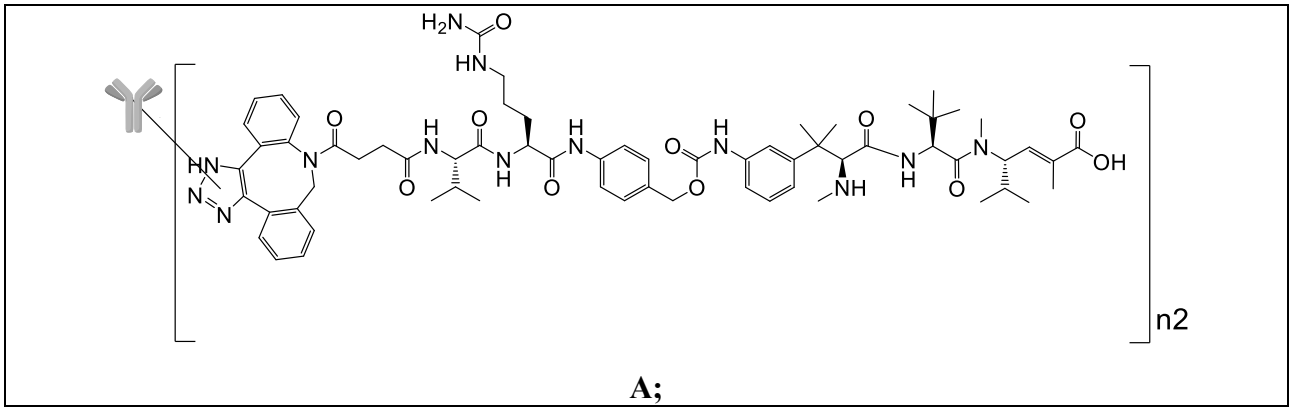
D1;



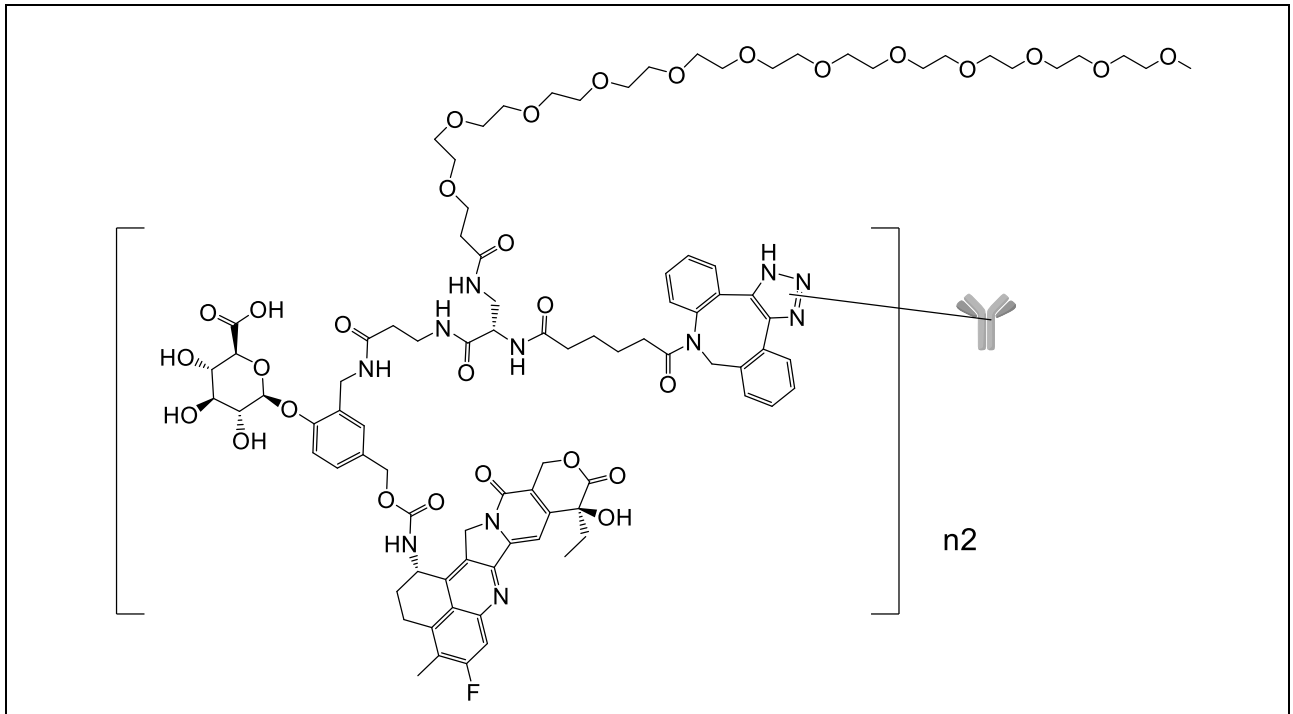
E1;

wherein **n2** is an integer from 1 to 10.

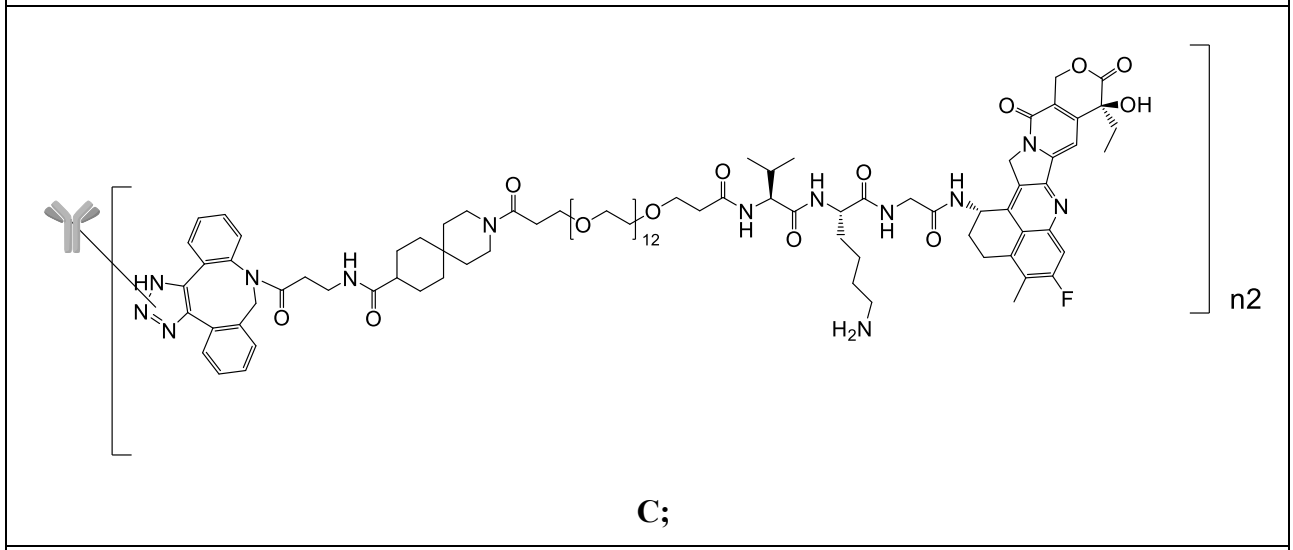
54. The antibody conjugate of claim 53, wherein the antibody conjugate has a structure selected from the group consisting of:



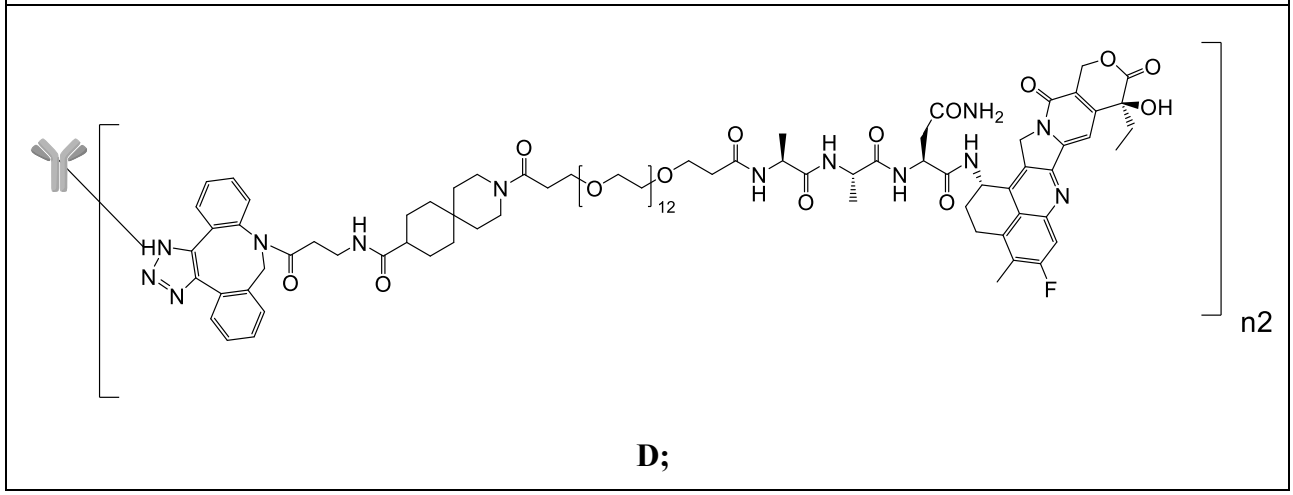
A;



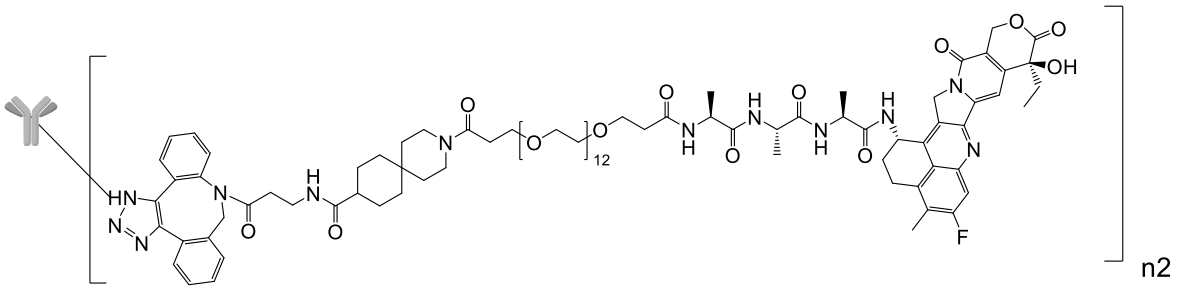
B;



C;



D;



E;

wherein **n2** is an integer from 1 to 10.

55. The antibody conjugate of claim 53 or 54, wherein **n2** is an integer from 2 to 8, 2 to 6, 2 to 4, or 6 to 10.

56. The antibody conjugate of claim 53 or 54, wherein **n2** is 2, 4, 6, 8, or 10.

57. The antibody conjugate of any one of the preceding claims, wherein the antibody comprises three heavy chain CDRs from a V_H sequence selected from SEQ ID NOs: 2727, 2736, 2739, 2751-2838, 2840, 2846, 2851, 2857, 2859, and 2860, or variants thereof, and three light chain CDRs from a V_L sequence selected from SEQ ID NOs: 2951, 2957, 2962, 2968, 2970, 2971, and 3061, or variants thereof.

58. The antibody conjugate of any one of the preceding claims, wherein the antibody comprises three heavy chain CDRs, or variants thereof, and three light chain CDRs, or variants thereof, from a V_H/V_L pair selected from the group consisting of SEQ ID NOs: 2727/3061, 2736/3061, 2739/3061, 2751/3061, 2752/3061, 2753/3061, 2754/3061, 2755/3061, 2756/3061, 2757/3061, 2758/3061, 2759/3061, 2760/3061, 2761/3061, 2762/3061, 2763/3061, 2764/3061, 2765/3061, 2766/3061, 2767/3061, 2768/3061, 2769/3061, 2770/3061, 2771/3061, 2772/3061, 2773/3061, 2774/3061, 2775/3061, 2776/3061, 2777/3061, 2778/3061, 2779/3061, 2780/3061, 2781/3061, 2782/3061, 2783/3061, 2784/3061, 2785/3061, 2786/3061, 2787/3061, 2788/3061, 2789/3061, 2790/3061, 2791/3061, 2792/3061, 2793/3061, 2794/3061, 2795/3061, 2796/3061, 2797/3061, 2798/3061, 2799/3061, 2800/3061, 2801/3061, 2802/3061, 2803/3061, 2804/3061, 2805/3061, 2806/3061, 2807/3061, 2808/3061, 2809/3061, 2810/3061, 2811/3061, 2812/3061, 2813/3061, 2814/3061, 2815/3061, 2816/3061, 2817/3061, 2818/3061, 2819/3061, 2820/3061, 2821/3061, 2822/3061, 2823/3061, 2824/3061, 2825/3061, 2826/3061, 2827/3061, 2828/3061, 2829/3061, 2830/3061, 2831/3061, 2832/3061, 2833/3061, 2834/3061, 2835/3061,

2836/3061, 2837/3061, 2838/3061, 2840/2951, 2846/2957, 2851/2962, 2857/2968, 2859/2970, and 2860/2971.

59. The antibody conjugate of any one of the preceding claims, wherein the antibody comprises a V_H selected from SEQ ID NOs: 2727, 2736, 2739, 2751-2838, 2840, 2846, 2851, 2857, 2859, and 2860.

60. The antibody conjugate of any one of the preceding claims, wherein the antibody comprises a V_L selected from SEQ ID NOs: 2951, 2957, 2962, 2968, 2970, 2971, and 3061.

61. The antibody conjugate of any one of the preceding claims, wherein the antibody comprises a V_H/V_L pair, or a variant thereof, selected from the group consisting of SEQ ID NOs: 2727/3061, 2736/3061, 2739/3061, 2751/3061, 2752/3061, 2753/3061, 2754/3061, 2755/3061, 2756/3061, 2757/3061, 2758/3061, 2759/3061, 2760/3061, 2761/3061, 2762/3061, 2763/3061, 2764/3061, 2765/3061, 2766/3061, 2767/3061, 2768/3061, 2769/3061, 2770/3061, 2771/3061, 2772/3061, 2773/3061, 2774/3061, 2775/3061, 2776/3061, 2777/3061, 2778/3061, 2779/3061, 2780/3061, 2781/3061, 2782/3061, 2783/3061, 2784/3061, 2785/3061, 2786/3061, 2787/3061, 2788/3061, 2789/3061, 2790/3061, 2791/3061, 2792/3061, 2793/3061, 2794/3061, 2795/3061, 2796/3061, 2797/3061, 2798/3061, 2799/3061, 2800/3061, 2801/3061, 2802/3061, 2803/3061, 2804/3061, 2805/3061, 2806/3061, 2807/3061, 2808/3061, 2809/3061, 2810/3061, 2811/3061, 2812/3061, 2813/3061, 2814/3061, 2815/3061, 2816/3061, 2817/3061, 2818/3061, 2819/3061, 2820/3061, 2821/3061, 2822/3061, 2823/3061, 2824/3061, 2825/3061, 2826/3061, 2827/3061, 2828/3061, 2829/3061, 2830/3061, 2831/3061, 2832/3061, 2833/3061, 2834/3061, 2835/3061, 2836/3061, 2837/3061, 2838/3061, 2840/2951, 2846/2957, 2851/2962, 2857/2968, 2859/2970, and 2860/2971.

62. The antibody conjugate of any one of the preceding claims, wherein the antibody comprises:

(1) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 105 and 430; a CDR-H2 comprising one or more of SEQ ID NOs: 755 and 1080; and a CDR-H3 comprising one or more of SEQ ID NOs: 1405 and 1730;

(2) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 114 and 439; a CDR-H2 comprising one or more of SEQ ID NOs: 764 and 1089; and a CDR-H3 comprising one or more of SEQ ID NOs: 1414 and 1739;

(3) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 117 and 442; a CDR-H2 comprising one or more of SEQ ID NOs: 767 and 1092; and a CDR-H3 comprising one or more of SEQ ID NOs: 1417 and 1742;

(4) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 129 and 454; a CDR-H2 comprising one or more of SEQ ID NOs: 779 and 1104; and a CDR-H3 comprising one or more of SEQ ID NOs: 1429 and 1754;

(5) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 130 and 455; a CDR-H2 comprising one or more of SEQ ID NOs: 780 and 1105; and a CDR-H3 comprising one or more of SEQ ID NOs: 1430 and 1755;

(6) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 131 and 456; a CDR-H2 comprising one or more of SEQ ID NOs: 781 and 1106; and a CDR-H3 comprising one or more of SEQ ID NOs: 1431 and 1756;

(7) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 132 and 457; a CDR-H2 comprising one or more of SEQ ID NOs: 782 and 1107; and a CDR-H3 comprising one or more of SEQ ID NOs: 1432 and 1757;

(8) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 133 and 458; a CDR-H2 comprising one or more of SEQ ID NOs: 783 and 1108; and a CDR-H3 comprising one or more of SEQ ID NOs: 1433 and 1758;

(9) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 134 and 459; a CDR-H2 comprising one or more of SEQ ID NOs: 784 and 1109; and a CDR-H3 comprising one or more of SEQ ID NOs: 1434 and 1759;

(10) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 135 and 460; a CDR-H2 comprising one or more of SEQ ID NOs: 785 and 1110; and a CDR-H3 comprising one or more of SEQ ID NOs: 1435 and 1760;

(11) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 136 and 461; a CDR-H2 comprising one or more of SEQ ID NOs: 786 and 1111; and a CDR-H3 comprising one or more of SEQ ID NOs: 1436 and 1761;

(12) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 137 and 462; a CDR-H2 comprising one or more of SEQ ID NOs: 787 and 1112; and a CDR-H3 comprising one or more of SEQ ID NOs: 1437 and 1762;

(13) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 138 and 463; a CDR-H2 comprising one or more of SEQ ID NOs: 788 and 1113; and a CDR-H3 comprising one or more of SEQ ID NOs: 1438 and 1763;

(14) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 139 and 464; a CDR-H2 comprising one or more of SEQ ID NOs: 789 and 1114; and a CDR-H3 comprising one or more of SEQ ID NOs: 1439 and 1764;

(15) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 140 and 465; a CDR-H2 comprising one or more of SEQ ID NOs: 790 and 1115; and a CDR-H3 comprising one or more of SEQ ID NOs: 1440 and 1765;

(16) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 141 and 466; a CDR-H2 comprising one or more of SEQ ID NOs: 791 and 1116; and a CDR-H3 comprising one or more of SEQ ID NOs: 1441 and 1766;

(17) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 142 and 467; a CDR-H2 comprising one or more of SEQ ID NOs: 792 and 1117; and a CDR-H3 comprising one or more of SEQ ID NOs: 1442 and 1767;

(18) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 143 and 468; a CDR-H2 comprising one or more of SEQ ID NOs: 793 and 1118; and a CDR-H3 comprising one or more of SEQ ID NOs: 1443 and 1768;

(19) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 144 and 469; a CDR-H2 comprising one or more of SEQ ID NOs: 794 and 1119; and a CDR-H3 comprising one or more of SEQ ID NOs: 1444 and 1769;

(20) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 145 and 470; a CDR-H2 comprising one or more of SEQ ID NOs: 795 and 1120; and a CDR-H3 comprising one or more of SEQ ID NOs: 1445 and 1770;

(21) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 146 and 471; a CDR-H2 comprising one or more of SEQ ID NOs: 796 and 1121; and a CDR-H3 comprising one or more of SEQ ID NOs: 1446 and 1771;

(22) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 147 and 472; a CDR-H2 comprising one or more of SEQ ID NOs: 797 and 1122; and a CDR-H3 comprising one or more of SEQ ID NOs: 1447 and 1772;

(23) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 148 and 473; a CDR-H2 comprising one or more of SEQ ID NOs: 798 and 1123; and a CDR-H3 comprising one or more of SEQ ID NOs: 1448 and 1773;

(24) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 149 and 474; a CDR-H2 comprising one or more of SEQ ID NOs: 799 and 1124; and a CDR-H3 comprising one or more of SEQ ID NOs: 1449 and 1774;

(25) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 150 and 475; a CDR-H2 comprising one or more of SEQ ID NOs: 800 and 1125; and a CDR-H3 comprising one or more of SEQ ID NOs: 1450 and 1775;

(26) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 151 and 476; a CDR-H2 comprising one or more of SEQ ID NOs: 801 and 1126; and a CDR-H3 comprising one or more of SEQ ID NOs: 1451 and 1776;

(27) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 152 and 477; a CDR-H2 comprising one or more of SEQ ID NOs: 802 and 1127; and a CDR-H3 comprising one or more of SEQ ID NOs: 1452 and 1777;

(28) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 153 and 478; a CDR-H2 comprising one or more of SEQ ID NOs: 803 and 1128; and a CDR-H3 comprising one or more of SEQ ID NOs: 1453 and 1778;

(29) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 154 and 479; a CDR-H2 comprising one or more of SEQ ID NOs: 804 and 1129; and a CDR-H3 comprising one or more of SEQ ID NOs: 1454 and 1779;

(30) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 155 and 480; a CDR-H2 comprising one or more of SEQ ID NOs: 805 and 1130; and a CDR-H3 comprising one or more of SEQ ID NOs: 1455 and 1780;

(31) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 156 and 481; a CDR-H2 comprising one or more of SEQ ID NOs: 806 and 1131; and a CDR-H3 comprising one or more of SEQ ID NOs: 1456 and 1781;

(32) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 157 and 482; a CDR-H2 comprising one or more of SEQ ID NOs: 807 and 1132; and a CDR-H3 comprising one or more of SEQ ID NOs: 1457 and 1782;

(33) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 158 and 483; a CDR-H2 comprising one or more of SEQ ID NOs: 808 and 1133; and a CDR-H3 comprising one or more of SEQ ID NOs: 1458 and 1783;

(34) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 159 and 484; a CDR-H2 comprising one or more of SEQ ID NOs: 809 and 1134; and a CDR-H3 comprising one or more of SEQ ID NOs: 1459 and 1784;

(35) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 160 and 485; a CDR-H2 comprising one or more of SEQ ID NOs: 810 and 1135; and a CDR-H3 comprising one or more of SEQ ID NOs: 1460 and 1785;

(36) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 161 and 486; a CDR-H2 comprising one or more of SEQ ID NOs: 811 and 1136; and a CDR-H3 comprising one or more of SEQ ID NOs: 1461 and 1786;

(37) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 162 and 487; a CDR-H2 comprising one or more of SEQ ID NOs: 812 and 1137; and a CDR-H3 comprising one or more of SEQ ID NOs: 1462 and 1787;

(38) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 163 and 488; a CDR-H2 comprising one or more of SEQ ID NOs: 813 and 1138; and a CDR-H3 comprising one or more of SEQ ID NOs: 1463 and 1788;

(39) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 164 and 489; a CDR-H2 comprising one or more of SEQ ID NOs: 814 and 1139; and a CDR-H3 comprising one or more of SEQ ID NOs: 1464 and 1789;

(40) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 165 and 490; a CDR-H2 comprising one or more of SEQ ID NOs: 815 and 1140; and a CDR-H3 comprising one or more of SEQ ID NOs: 1465 and 1790;

(41) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 166 and 491; a CDR-H2 comprising one or more of SEQ ID NOs: 816 and 1141; and a CDR-H3 comprising one or more of SEQ ID NOs: 1466 and 1791;

(42) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 167 and 492; a CDR-H2 comprising one or more of SEQ ID NOs: 817 and 1142; and a CDR-H3 comprising one or more of SEQ ID NOs: 1467 and 1792;

(43) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 168 and 493; a CDR-H2 comprising one or more of SEQ ID NOs: 818 and 1143; and a CDR-H3 comprising one or more of SEQ ID NOs: 1468 and 1793;

(44) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 169 and 494; a CDR-H2 comprising one or more of SEQ ID NOs: 819 and 1144; and a CDR-H3 comprising one or more of SEQ ID NOs: 1469 and 1794;

(45) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 170 and 495; a CDR-H2 comprising one or more of SEQ ID NOs: 820 and 1145; and a CDR-H3 comprising one or more of SEQ ID NOs: 1470 and 1795;

(46) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 171 and 496; a CDR-H2 comprising one or more of SEQ ID NOs: 821 and 1146; and a CDR-H3 comprising one or more of SEQ ID NOs: 1471 and 1796;

(47) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 172 and 497; a CDR-H2 comprising one or more of SEQ ID NOs: 822 and 1147; and a CDR-H3 comprising one or more of SEQ ID NOs: 1472 and 1797;

(48) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 173 and 498; a CDR-H2 comprising one or more of SEQ ID NOs: 823 and 1148; and a CDR-H3 comprising one or more of SEQ ID NOs: 1473 and 1798;

(49) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 174 and 499; a CDR-H2 comprising one or more of SEQ ID NOs: 824 and 1149; and a CDR-H3 comprising one or more of SEQ ID NOs: 1474 and 1799;

(50) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 175 and 500; a CDR-H2 comprising one or more of SEQ ID NOs: 825 and 1150; and a CDR-H3 comprising one or more of SEQ ID NOs: 1475 and 1800;

(51) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 176 and 501; a CDR-H2 comprising one or more of SEQ ID NOs: 826 and 1151; and a CDR-H3 comprising one or more of SEQ ID NOs: 1476 and 1801;

(52) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 177 and 502; a CDR-H2 comprising one or more of SEQ ID NOs: 827 and 1152; and a CDR-H3 comprising one or more of SEQ ID NOs: 1477 and 1802;

(53) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 178 and 503; a CDR-H2 comprising one or more of SEQ ID NOs: 828 and 1153; and a CDR-H3 comprising one or more of SEQ ID NOs: 1478 and 1803;

(54) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 179 and 504; a CDR-H2 comprising one or more of SEQ ID NOs: 829 and 1154; and a CDR-H3 comprising one or more of SEQ ID NOs: 1479 and 1804;

(55) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 180 and 505; a CDR-H2 comprising one or more of SEQ ID NOs: 830 and 1155; and a CDR-H3 comprising one or more of SEQ ID NOs: 1480 and 1805;

(56) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 181 and 506; a CDR-H2 comprising one or more of SEQ ID NOs: 831 and 1156; and a CDR-H3 comprising one or more of SEQ ID NOs: 1481 and 1806;

(57) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 182 and 507; a CDR-H2 comprising one or more of SEQ ID NOs: 832 and 1157; and a CDR-H3 comprising one or more of SEQ ID NOs: 1482 and 1807;

(58) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 183 and 508; a CDR-H2 comprising one or more of SEQ ID NOs: 833 and 1158; and a CDR-H3 comprising one or more of SEQ ID NOs: 1483 and 1808;

(59) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 184 and 509; a CDR-H2 comprising one or more of SEQ ID NOs: 834 and 1159; and a CDR-H3 comprising one or more of SEQ ID NOs: 1484 and 1809;

(60) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 185 and 510; a CDR-H2 comprising one or more of SEQ ID NOs: 835 and 1160; and a CDR-H3 comprising one or more of SEQ ID NOs: 1485 and 1810;

(61) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 186 and 511; a CDR-H2 comprising one or more of SEQ ID NOs: 836 and 1161; and a CDR-H3 comprising one or more of SEQ ID NOs: 1486 and 1811;

(62) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 187 and 512; a CDR-H2 comprising one or more of SEQ ID NOs: 837 and 1162; and a CDR-H3 comprising one or more of SEQ ID NOs: 1487 and 1812;

(63) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 188 and 513; a CDR-H2 comprising one or more of SEQ ID NOs: 838 and 1163; and a CDR-H3 comprising one or more of SEQ ID NOs: 1488 and 1813;

(64) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 189 and 514; a CDR-H2 comprising one or more of SEQ ID NOs: 839 and 1164; and a CDR-H3 comprising one or more of SEQ ID NOs: 1489 and 1814;

(65) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 190 and 515; a CDR-H2 comprising one or more of SEQ ID NOs: 840 and 1165; and a CDR-H3 comprising one or more of SEQ ID NOs: 1490 and 1815;

(66) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 191 and 516; a CDR-H2 comprising one or more of SEQ ID NOs: 841 and 1166; and a CDR-H3 comprising one or more of SEQ ID NOs: 1491 and 1816;

(67) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 192 and 517; a CDR-H2 comprising one or more of SEQ ID NOs: 842 and 1167; and a CDR-H3 comprising one or more of SEQ ID NOs: 1492 and 1817;

(68) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 193 and 518; a CDR-H2 comprising one or more of SEQ ID NOs: 843 and 1168; and a CDR-H3 comprising one or more of SEQ ID NOs: 1493 and 1818;

(69) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 194 and 519; a CDR-H2 comprising one or more of SEQ ID NOs: 844 and 1169; and a CDR-H3 comprising one or more of SEQ ID NOs: 1494 and 1819;

(70) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 195 and 520; a CDR-H2 comprising one or more of SEQ ID NOs: 845 and 1170; and a CDR-H3 comprising one or more of SEQ ID NOs: 1495 and 1820;

(71) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 196 and 521; a CDR-H2 comprising one or more of SEQ ID NOs: 846 and 1171; and a CDR-H3 comprising one or more of SEQ ID NOs: 1496 and 1821;

(72) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 197 and 522; a CDR-H2 comprising one or more of SEQ ID NOs: 847 and 1172; and a CDR-H3 comprising one or more of SEQ ID NOs: 1497 and 1822;

(73) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 198 and 523; a CDR-H2 comprising one or more of SEQ ID NOs: 848 and 1173; and a CDR-H3 comprising one or more of SEQ ID NOs: 1498 and 1823;

(74) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 199 and 524; a CDR-H2 comprising one or more of SEQ ID NOs: 849 and 1174; and a CDR-H3 comprising one or more of SEQ ID NOs: 1499 and 1824;

(75) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 200 and 525; a CDR-H2 comprising one or more of SEQ ID NOs: 850 and 1175; and a CDR-H3 comprising one or more of SEQ ID NOs: 1500 and 1825;

(76) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 201 and 526; a CDR-H2 comprising one or more of SEQ ID NOs: 851 and 1176; and a CDR-H3 comprising one or more of SEQ ID NOs: 1501 and 1826;

(77) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 202 and 527; a CDR-H2 comprising one or more of SEQ ID NOs: 852 and 1177; and a CDR-H3 comprising one or more of SEQ ID NOs: 1502 and 1827;

(78) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 203 and 528; a CDR-H2 comprising one or more of SEQ ID NOs: 853 and 1178; and a CDR-H3 comprising one or more of SEQ ID NOs: 1503 and 1828;

(79) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 204 and 529; a CDR-H2 comprising one or more of SEQ ID NOs: 854 and 1179; and a CDR-H3 comprising one or more of SEQ ID NOs: 1504 and 1829;

(80) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 205 and 530; a CDR-H2 comprising one or more of SEQ ID NOs: 855 and 1180; and a CDR-H3 comprising one or more of SEQ ID NOs: 1505 and 1830;

(81) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 206 and 531; a CDR-H2 comprising one or more of SEQ ID NOs: 856 and 1181; and a CDR-H3 comprising one or more of SEQ ID NOs: 1506 and 1831;

(82) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 207 and 532; a CDR-H2 comprising one or more of SEQ ID NOs: 857 and 1182; and a CDR-H3 comprising one or more of SEQ ID NOs: 1507 and 1832;

(83) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 208 and 533; a CDR-H2 comprising one or more of SEQ ID NOs: 858 and 1183; and a CDR-H3 comprising one or more of SEQ ID NOs: 1508 and 1833;

(84) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 209 and 534; a CDR-H2 comprising one or more of SEQ ID NOs: 859 and 1184; and a CDR-H3 comprising one or more of SEQ ID NOs: 1509 and 1834;

(85) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 210 and 535; a CDR-H2 comprising one or more of SEQ ID NOs: 860 and 1185; and a CDR-H3 comprising one or more of SEQ ID NOs: 1510 and 1835;

(86) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 211 and 536; a CDR-H2 comprising one or more of SEQ ID NOs: 861 and 1186; and a CDR-H3 comprising one or more of SEQ ID NOs: 1511 and 1836;

(87) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 212 and 537; a CDR-H2 comprising one or more of SEQ ID NOs: 862 and 1187; and a CDR-H3 comprising one or more of SEQ ID NOs: 1512 and 1837;

(88) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 213 and 538; a CDR-H2 comprising one or more of SEQ ID NOs: 863 and 1188; and a CDR-H3 comprising one or more of SEQ ID NOs: 1513 and 1838;

(89) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 214 and 539; a CDR-H2 comprising one or more of SEQ ID NOs: 864 and 1189; and a CDR-H3 comprising one or more of SEQ ID NOs: 1514 and 1839;

(90) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 215 and 540; a CDR-H2 comprising one or more of SEQ ID NOs: 865 and 1190; and a CDR-H3 comprising one or more of SEQ ID NOs: 1515 and 1840;

(91) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 216 and 541; a CDR-H2 comprising one or more of SEQ ID NOs: 866 and 1191; and a CDR-H3 comprising one or more of SEQ ID NOs: 1516 and 1841;

(92) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 218 and 543; a CDR-H2 comprising one or more of SEQ ID NOs: 868 and 1193; and a CDR-H3 comprising one or more of SEQ ID NOs: 1518 and 1843;

(93) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 224 and 549; a CDR-H2 comprising one or more of SEQ ID NOs: 874 and 1199; and a CDR-H3 comprising one or more of SEQ ID NOs: 1524 and 1849;

(94) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 229 and 554; a CDR-H2 comprising one or more of SEQ ID NOs: 879 and 1204; and a CDR-H3 comprising one or more of SEQ ID NOs: 1529 and 1854;

(95) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 235 and 560; a CDR-H2 comprising one or more of SEQ ID NOs: 885 and 1210; and a CDR-H3 comprising one or more of SEQ ID NOs: 1535 and 1860;

(96) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 237 and 562; a CDR-H2 comprising one or more of SEQ ID NOs: 887 and 1212; and a CDR-H3 comprising one or more of SEQ ID NOs: 1537 and 1862; or

(97) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 238 and 563; a CDR-H2 comprising one or more of SEQ ID NOs: 888 and 1213; and a CDR-H3 comprising one or more of SEQ ID NOs: 1538 and 1863.

63. The antibody conjugate of claim 60, wherein the antibody comprises:

(1) a V_L comprising: a CDR-L1 comprising one or more of SEQ ID NOs: 1954 and 2066; a CDR-L2 comprising one or more of SEQ ID NOs: 2178 and 2290; and a CDR-L3 comprising one or more of SEQ ID NOs: 2402 and 2514;

(2) a V_L comprising: a CDR-L1 comprising one or more of SEQ ID NOs: 1960 and 2072; a CDR-L2 comprising one or more of SEQ ID NOs: 2184 and 2296; and a CDR-L3 comprising one or more of SEQ ID NOs: 2408 and 2520;

(3) a V_L comprising: a CDR-L1 comprising one or more of SEQ ID NOs: 1965 and 2077; a CDR-L2 comprising one or more of SEQ ID NOs: 2189 and 2301; and a CDR-L3 comprising one or more of SEQ ID NOs: 2413 and 2525;

(4) a V_L comprising: a CDR-L1 comprising one or more of SEQ ID NOs: 1971 and 2083; a CDR-L2 comprising one or more of SEQ ID NOs: 2195 and 2307; and a CDR-L3 comprising one or more of SEQ ID NOs: 2419 and 2531;

(5) a V_L comprising: a CDR-L1 comprising one or more of SEQ ID NOs: 1973 and 2085; a CDR-L2 comprising one or more of SEQ ID NOs: 2197 and 2309; and a CDR-L3 comprising one or more of SEQ ID NOs: 2421 and 2533;

(6) a V_L comprising: a CDR-L1 comprising one or more of SEQ ID NOs: 1974 and 2086; a CDR-L2 comprising one or more of SEQ ID NOs: 2198 and 2310; and a CDR-L3 comprising one or more of SEQ ID NOs: 2422 and 2534; or

(7) a V_L comprising: a CDR-L1 comprising one or more of SEQ ID NOs: 2064 and 2176; a CDR-L2 comprising one or more of SEQ ID NOs: 2288 and 2400; and a CDR-L3 comprising one or more of SEQ ID NOs: 2512 and 2624.

64. The antibody conjugate of any of claims 57-63, wherein the variant thereof has 20, 15, 10, 9, 8, 7, 6, 5, 4, 3, 2, or 1 amino acid substitutions.

65. The antibody conjugate of claim 64, wherein the amino acid substitutions are conservative amino acid substitutions.

66. The antibody conjugate of any of claims 57-65, wherein the variant thereof has 90%, 95%, 96%, 97%, 98%, or 99% sequence identity.

67. The antibody conjugate of any one of the preceding claims, wherein the antibody conjugate comprises:

(a) an antibody comprising:

(i) a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 130 and 455; a CDR-H2 comprising at least one of SEQ ID NOs: 780 and 1105; and a CDR-H3 comprising at least one of SEQ ID NOs: 1430 and 1755; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO; 2512;

(ii) a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 161 and 486; a CDR-H2 comprising at least one of SEQ ID NOs: 811 and 1136; and a CDR-H3 comprising at least one of SEQ ID NOs: 1461 and 1786; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO; 2512;

(iii) a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 189 and 514; a CDR-H2 comprising at least one of SEQ ID NOs: 839 and 1164; and a CDR-H3 comprising at least one of SEQ ID NOs: 1489 and 1814; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO; 2512;

(iv) a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 192 and 517; a CDR-H2 comprising at least one of SEQ ID NOs: 842 and 1167; and a CDR-H3 comprising at least one of SEQ ID NOs: 1492 and 1817; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO; 2512;

(v) a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 211 and 536; a CDR-H2 comprising at least one of SEQ ID NOs: 861 and 1186; and a CDR-H3 comprising at least one of SEQ ID NOs: 1511 and 1836; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO; 2512;

(vi) a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 214 and 539; a CDR-H2 comprising at least one of SEQ ID NOs: 864 and 1189; and a CDR-H3 comprising at least one of SEQ ID NOs: 1514 and 1839; and a V_L comprising: a

CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO; 2512;

(vii) a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 218 and 543; a CDR-H2 comprising at least one of SEQ ID NOs: 868 and 1210; and a CDR-H3 comprising at least one of SEQ ID NOs: 1518 and 1843; and a V_L comprising: a CDR-L1 comprising at least one of SEQ ID NOs: 1974 and 2086; a CDR-L2 comprising at least one of SEQ ID NOs: 2198 and 2310; and a CDR-L3 comprising at least one of SEQ ID NOs: 2422 and 2534;

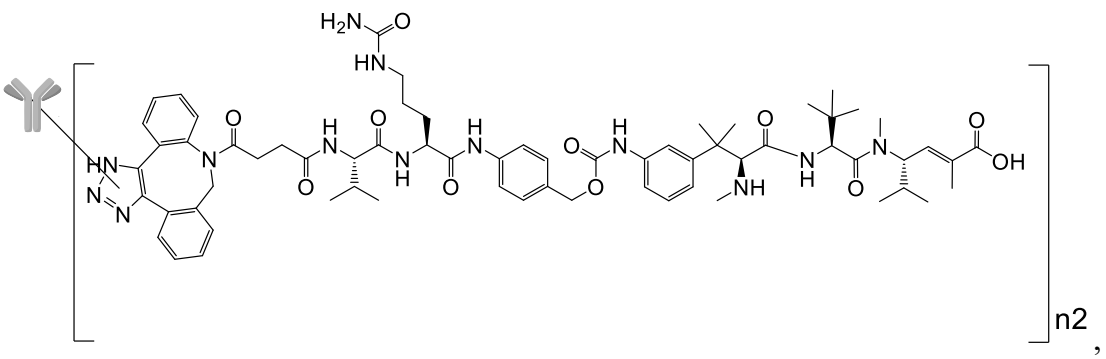
(viii) a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 105 and 430; a CDR-H2 comprising at least one of SEQ ID NOs: 755 and 1080; and a CDR-H3 comprising at least one of SEQ ID NOs: 1405 and 1730; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO; 2512;

(ix) a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 114 and 439; a CDR-H2 comprising at least one of SEQ ID NOs: 764 and 1089; and a CDR-H3 comprising at least one of SEQ ID NOs: 1414 and 1739; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO; 2512;

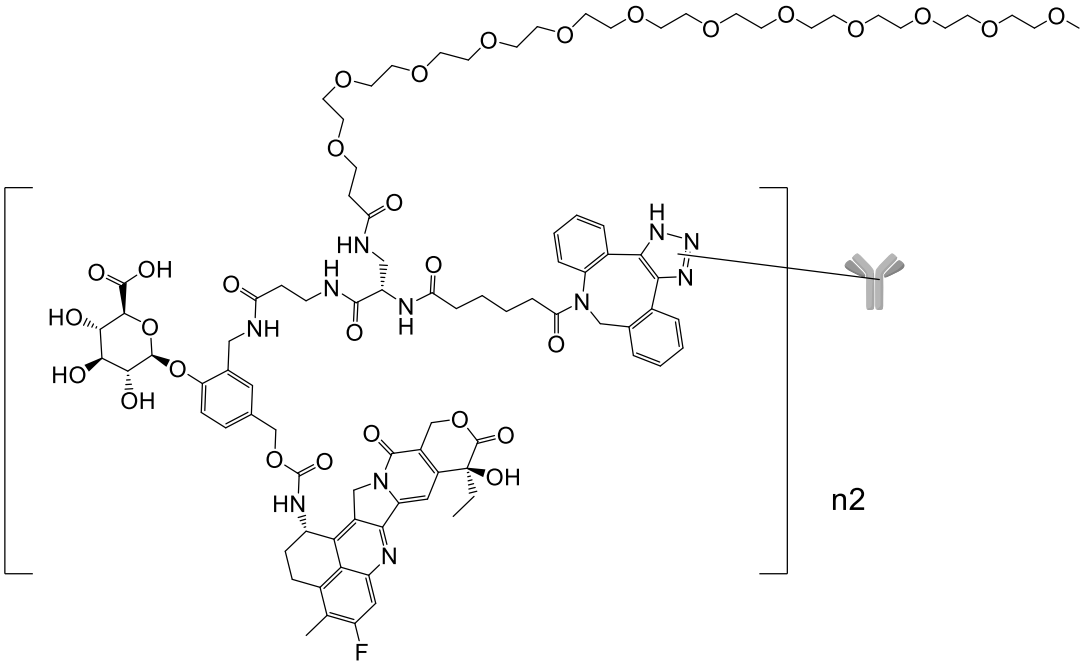
(x) a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 117 and 442; a CDR-H2 comprising at least one of SEQ ID NOs: 767 and 1092; and a CDR-H3 comprising at least one of SEQ ID NOs: 1417 and 1742; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO; 2512;

(b) para-azidomethylphenylalanine residues at antibody sites selected from the group consisting of HC180, HC241, HC404, HC391, LC42, LC161 and combinations thereof; and

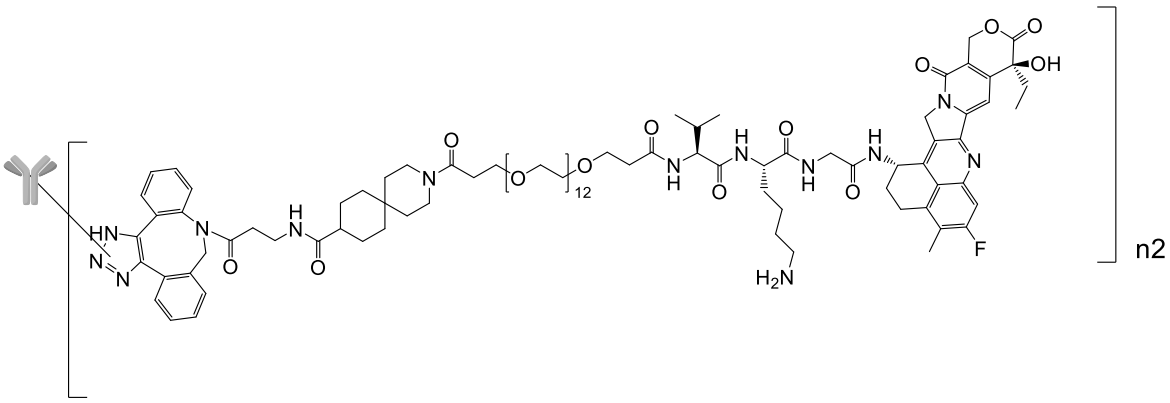
(c) a linker-payload selected from the group consisting of:



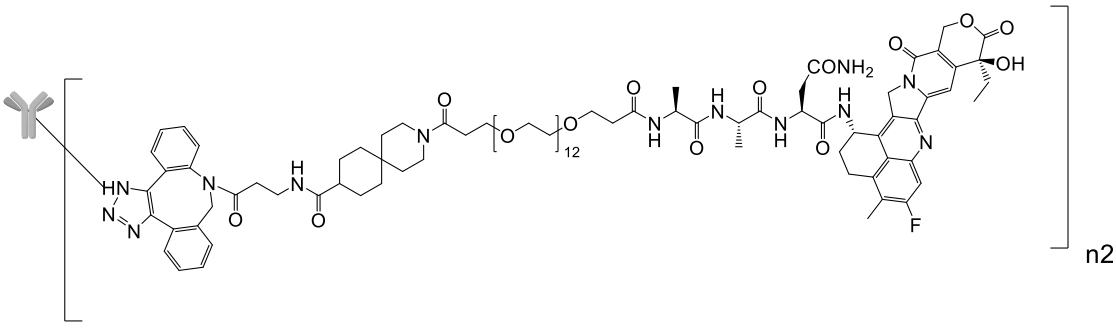
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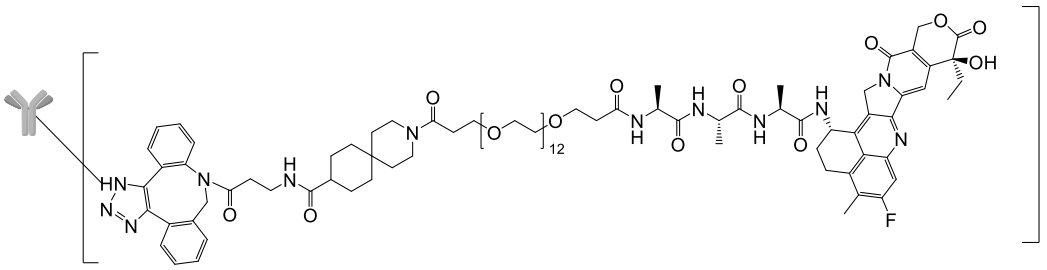
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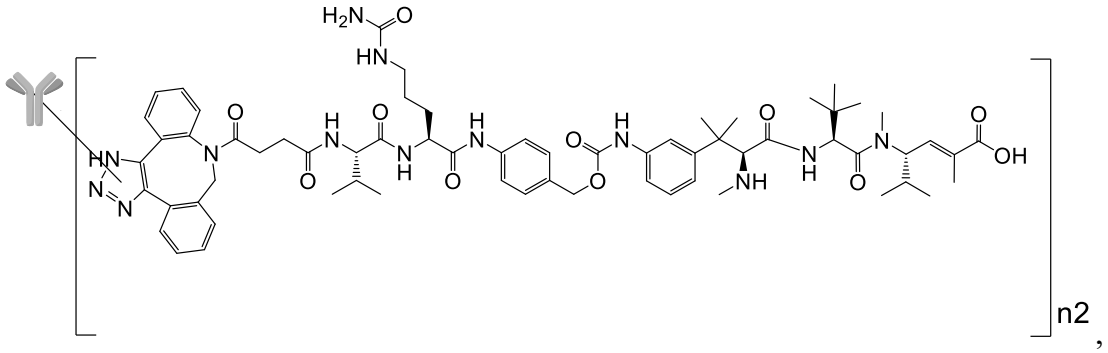
n2 ,wherein **n2** is 2, 4, 6, 8 or 10 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains.

68. The antibody conjugate of any one of the preceding claims, wherein the antibody conjugate comprises:

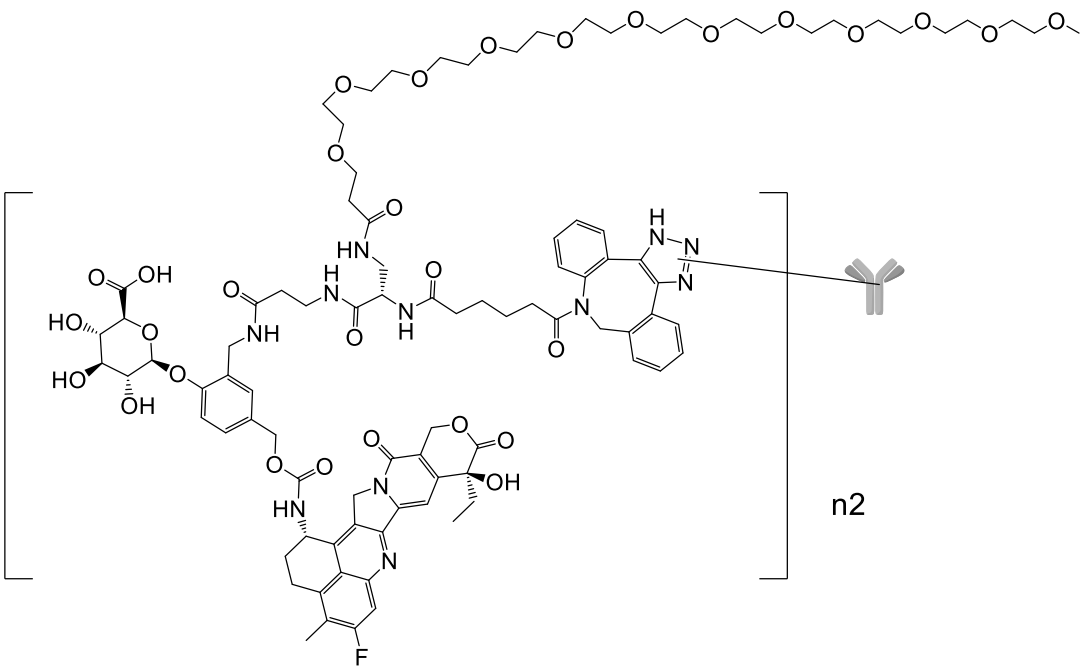
(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 130 and 455; a CDR-H2 comprising at least one of SEQ ID NOs: 780 and 1105; and a CDR-H3 comprising at least one of SEQ ID NOs: 1430 and 1755; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites selected from the group consisting of HC180, HC241, HC404, HC391, LC42, LC161 and combinations thereof; and

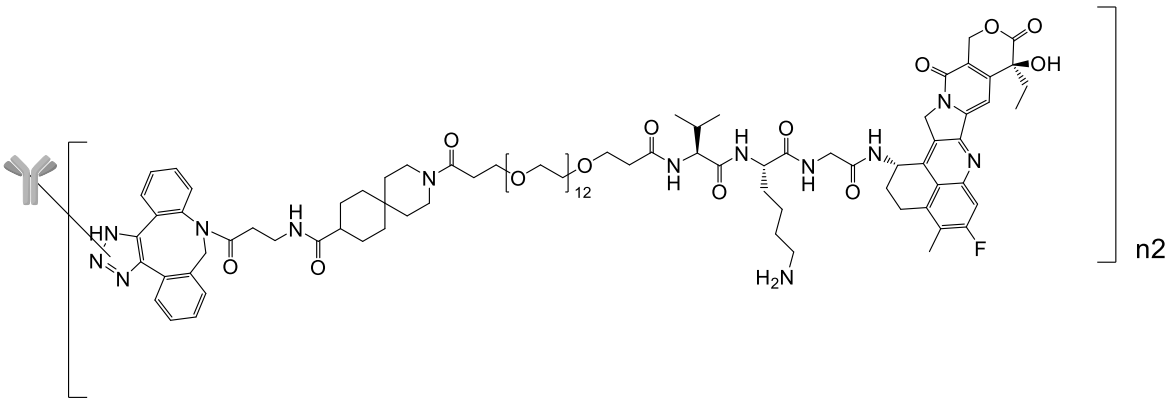
(c) a linker-payload selected from the group consisting of:



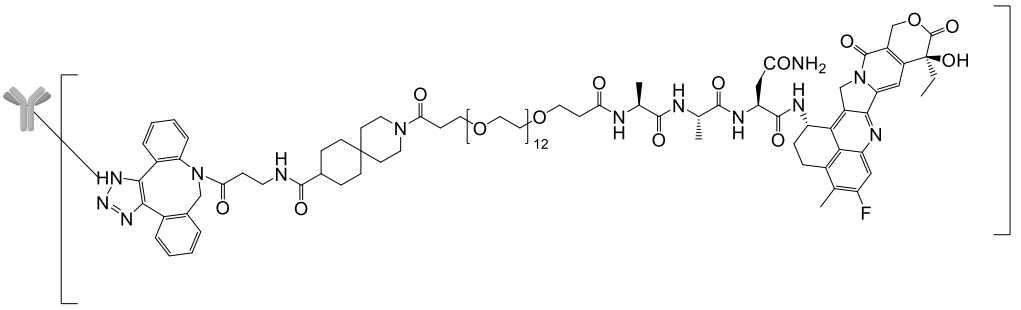
n2 ,



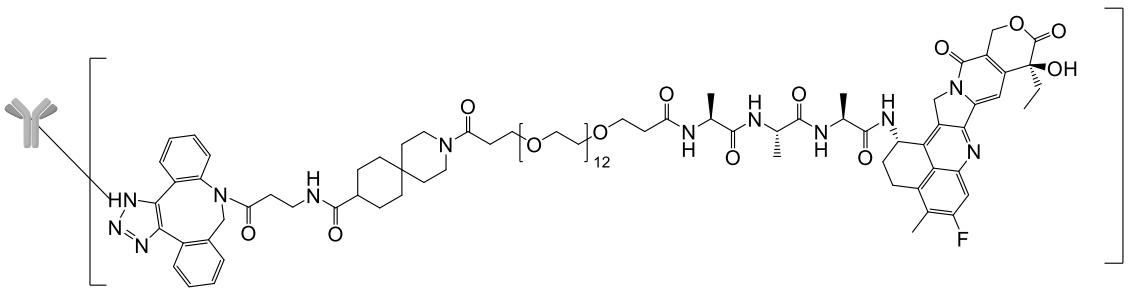
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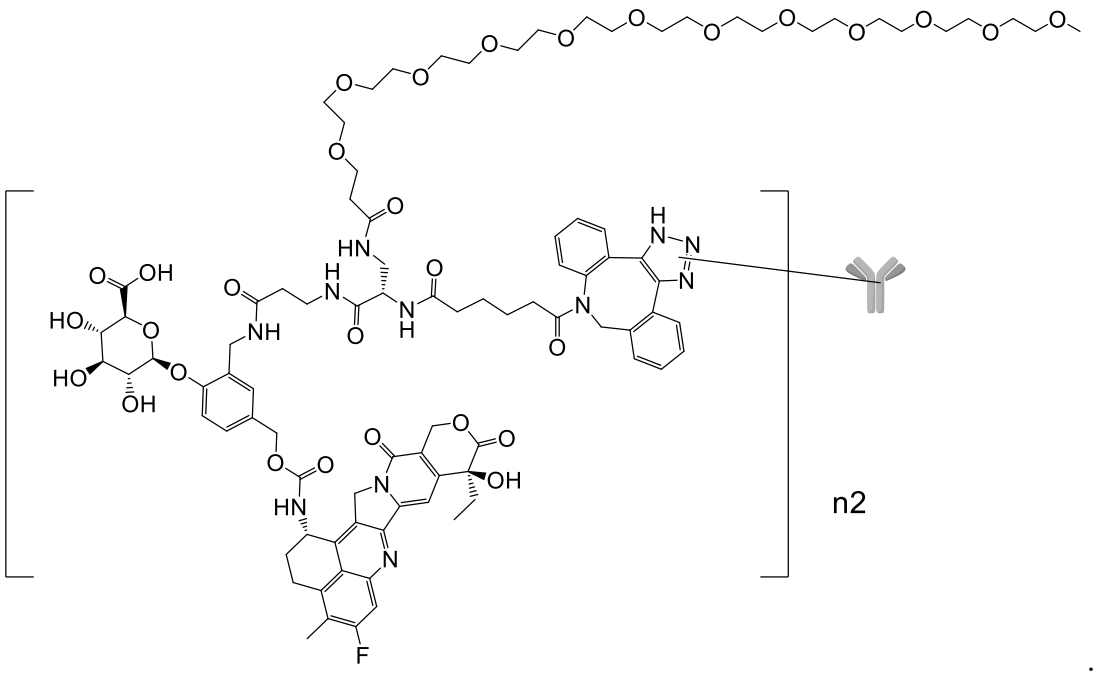
wherein **n2** is 2, 4, 6, 8 or 10 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains.

69. The antibody conjugate of any one of claims 1-67, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 130 and 455; a CDR-H2 comprising at least one of SEQ ID NOs: 780 and 1105; and a CDR-H3 comprising at least one of SEQ ID NOs: 1430 and 1755; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC241 and HC404;

(c) the following linker-payload, wherein **n2** is 4 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:



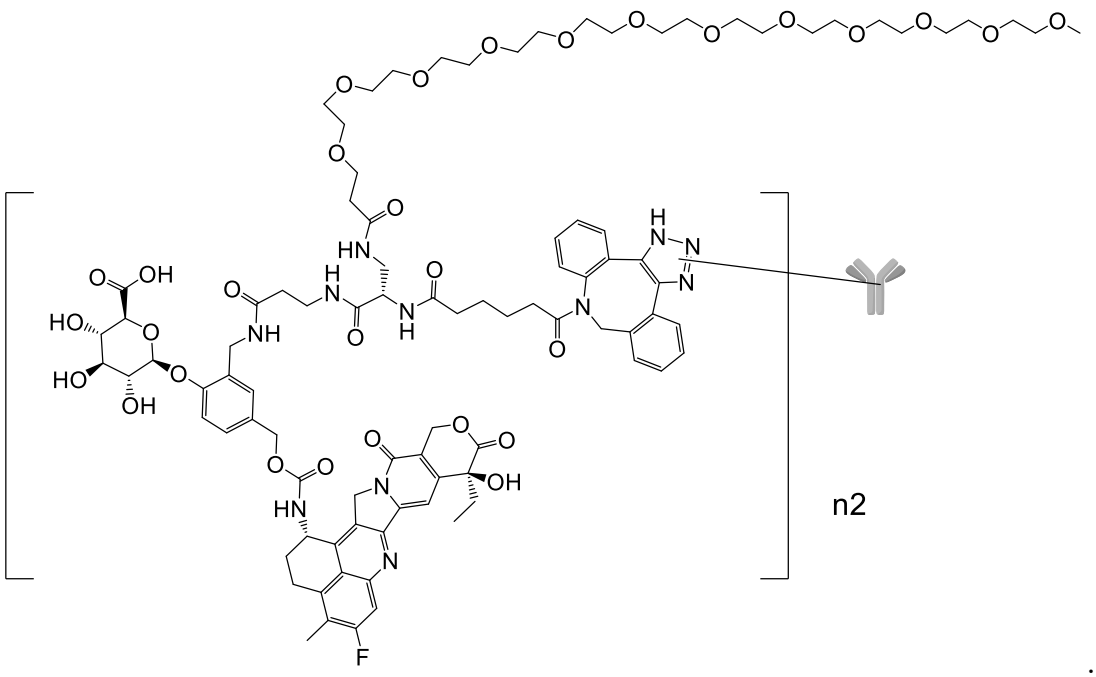
.

70. The antibody conjugate of any one of claims 1-67, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 130 and 455; a CDR-H2 comprising at least one of SEQ ID NOs: 780 and 1105; and a CDR-H3 comprising at least one of SEQ ID NOs: 1430 and 1755; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC241, HC404, HC180, and HC391;

(c) the following linker-payload, wherein **n2** is 8 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:

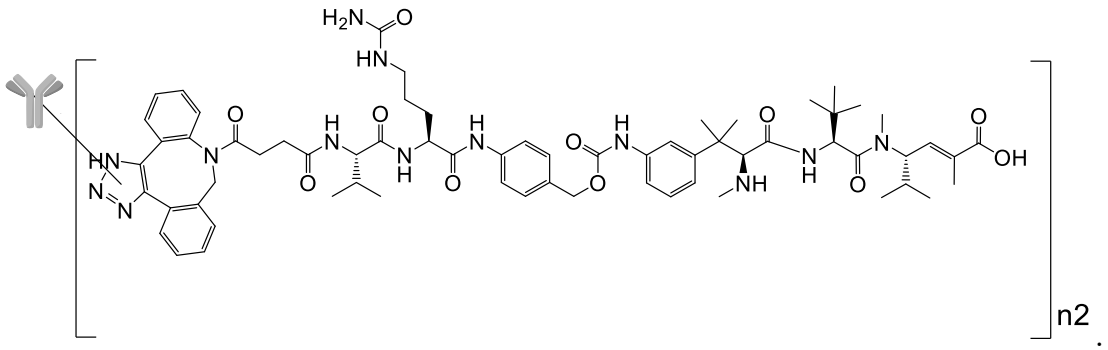


71. The antibody conjugate of any one of claims 1-67, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 130 and 455; a CDR-H2 comprising at least one of SEQ ID NOs: 780 and 1105; and a CDR-H3 comprising at least one of SEQ ID NOs: 1430 and 1755; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC180 and HC404;

(c) the following linker-payload, wherein **n2** is 4 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:

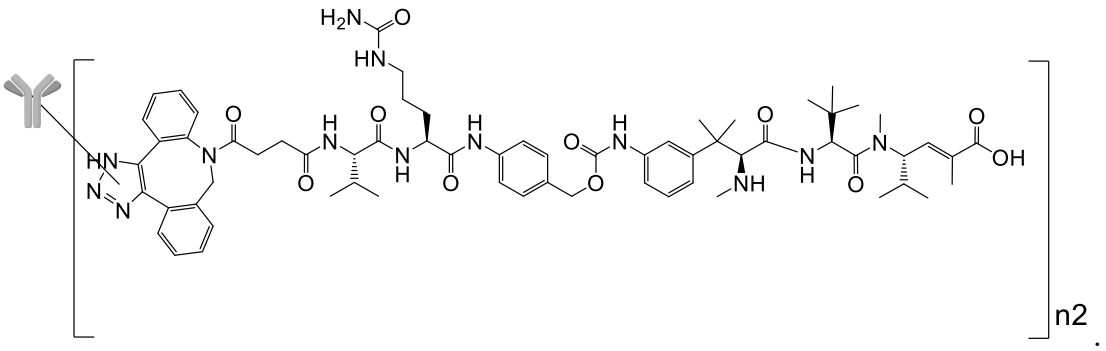


72. The antibody conjugate of any one of claims 1-68, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 130 and 455; a CDR-H2 comprising at least one of SEQ ID NOs: 780 and 1105; and a CDR-H3 comprising at least one of SEQ ID NOs: 1430 and 1755; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC241 and HC404;

(c) the following linker-payload, wherein **n2** is 4 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:

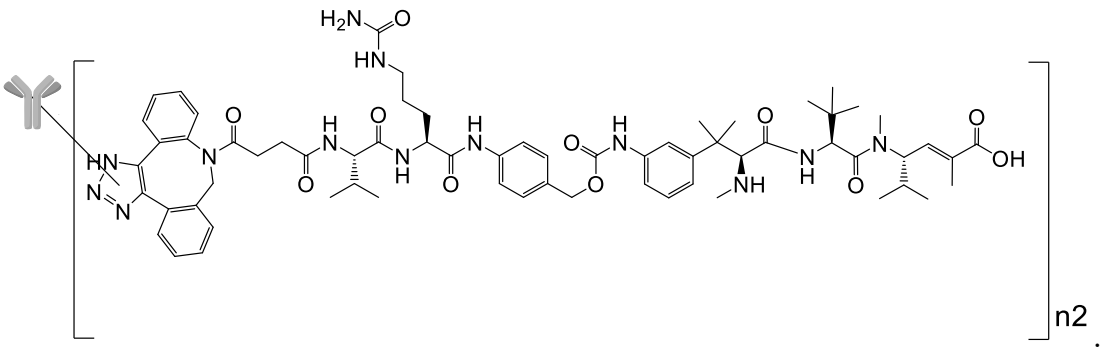


73. The antibody conjugate of any one of claims 1-67, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 130 and 455; a CDR-H2 comprising at least one of SEQ ID NOs: 780 and 1105; and a CDR-H3 comprising at least one of SEQ ID NOs: 1430 and 1755; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC180, HC404 and LC42;

(c) the following linker-payload, wherein **n2** is 6 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:

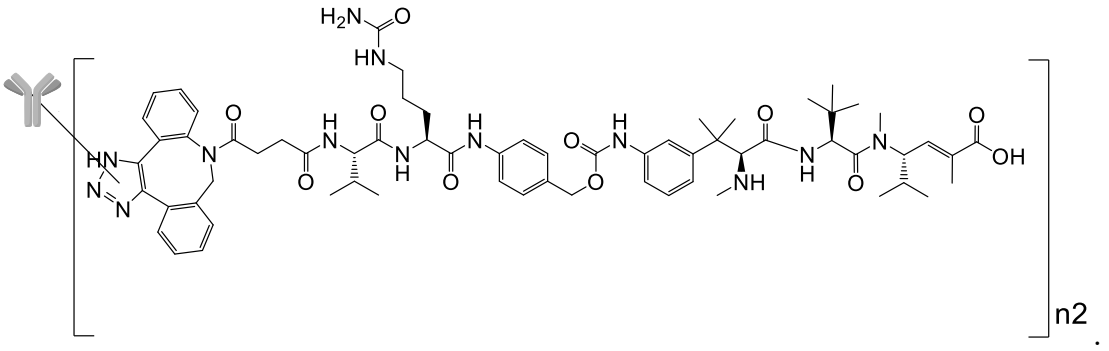


74. The antibody conjugate of any one of claims 1-68, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 130 and 455; a CDR-H2 comprising at least one of SEQ ID NOs: 780 and 1105; and a CDR-H3 comprising at least one of SEQ ID NOs: 1430 and 1755; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC180, HC241 and HC404;

(c) the following linker-payload, wherein **n2** is 6 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:

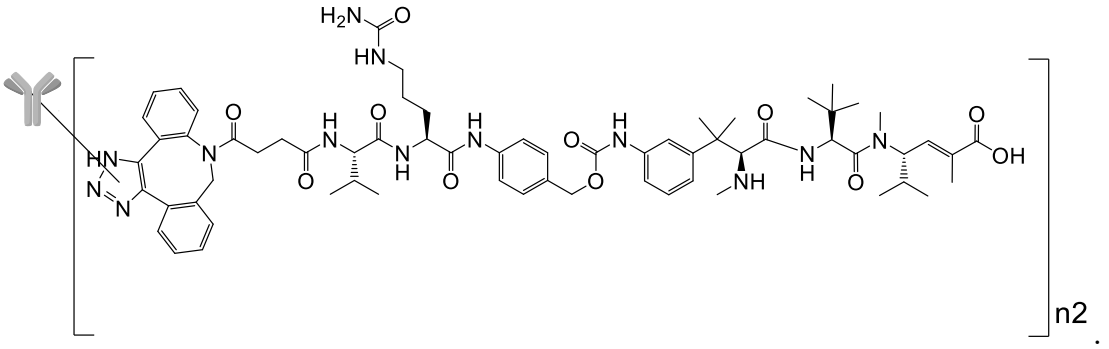


75. The antibody conjugate of any one of claims 1-67, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 130 and 455; a CDR-H2 comprising at least one of SEQ ID NOs: 780 and 1105; and a CDR-H3 comprising at least one of SEQ ID NOs: 1430 and 1755; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC180, HC404, LC42 and LC161;

(c) the following linker-payload, wherein **n2** is 8 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:

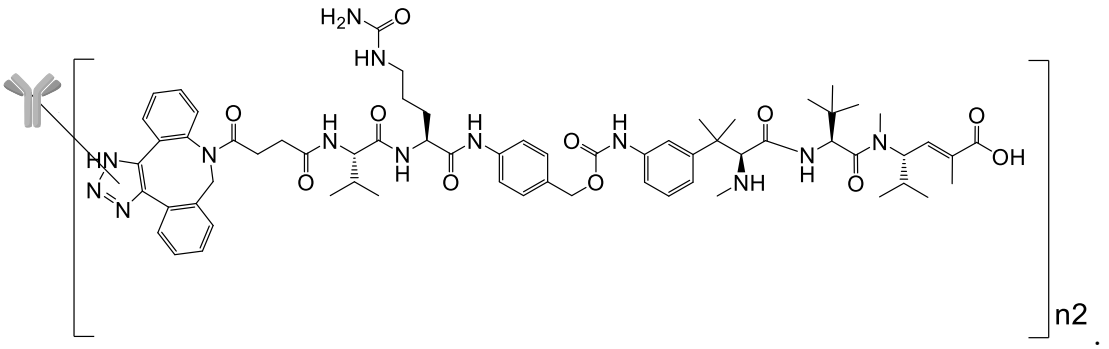


76. The antibody conjugate of any one of claims 1-67, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 130 and 455; a CDR-H2 comprising at least one of SEQ ID NOs: 780 and 1105; and a CDR-H3 comprising at least one of SEQ ID NOs: 1430 and 1755; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC180, HC241, HC404 and LC42;

(c) the following linker-payload, wherein **n2** is 8 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:

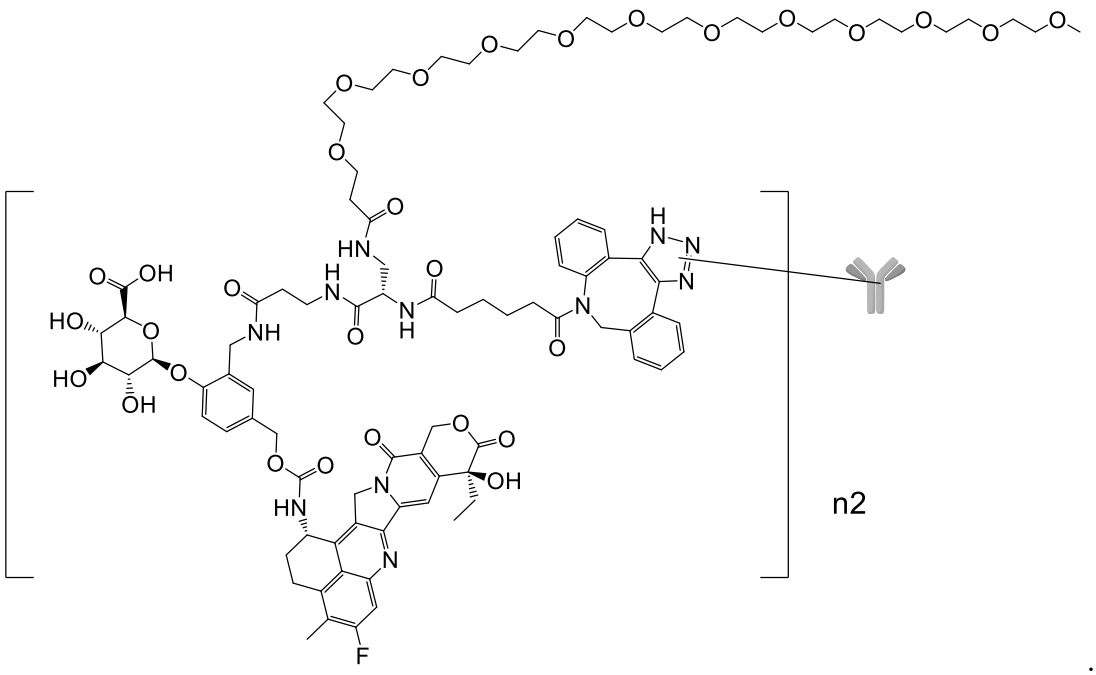


77. The antibody conjugate of any one of claims 1-67, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 130 and 455; a CDR-H2 comprising at least one of SEQ ID NOs: 780 and 1105; and a CDR-H3 comprising at least one of SEQ ID NOs: 1430 and 1755; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC180, HC241, HC404 and LC42;

(c) the following linker-payload, wherein **n2** is 8 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:

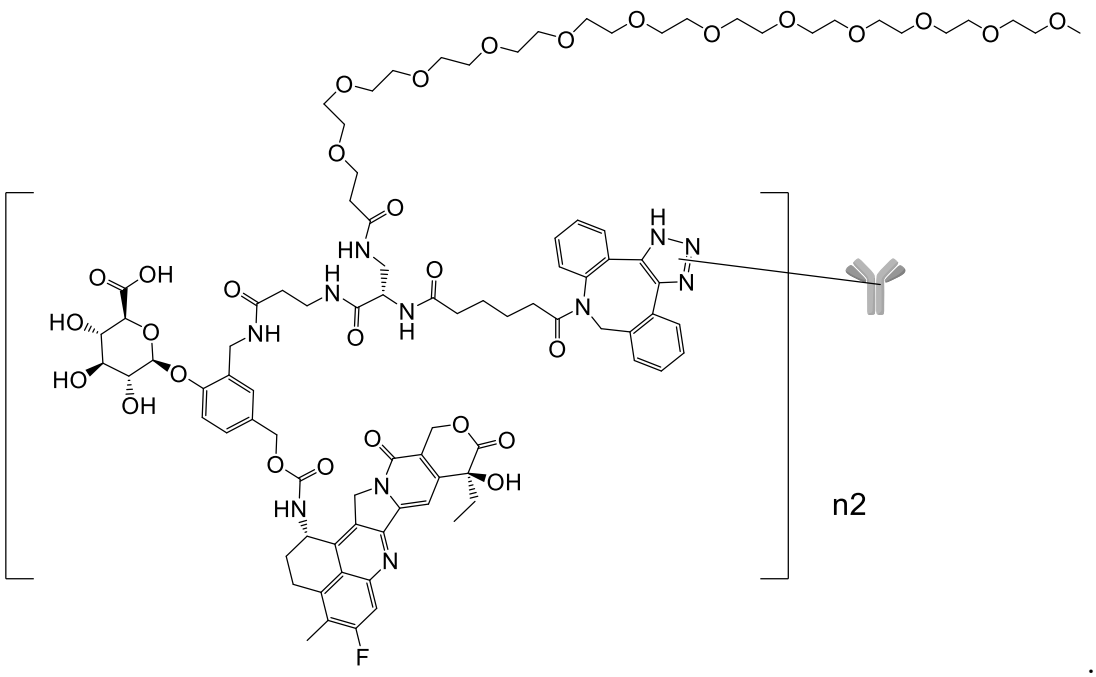


78. The antibody conjugate of any one of claims 1-67, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 130 and 455; a CDR-H2 comprising at least one of SEQ ID NOs: 780 and 1105; and a CDR-H3 comprising at least one of SEQ ID NOs: 1430 and 1755; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC180 and HC404;

(c) the following linker-payload, wherein **n2** is 4 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:

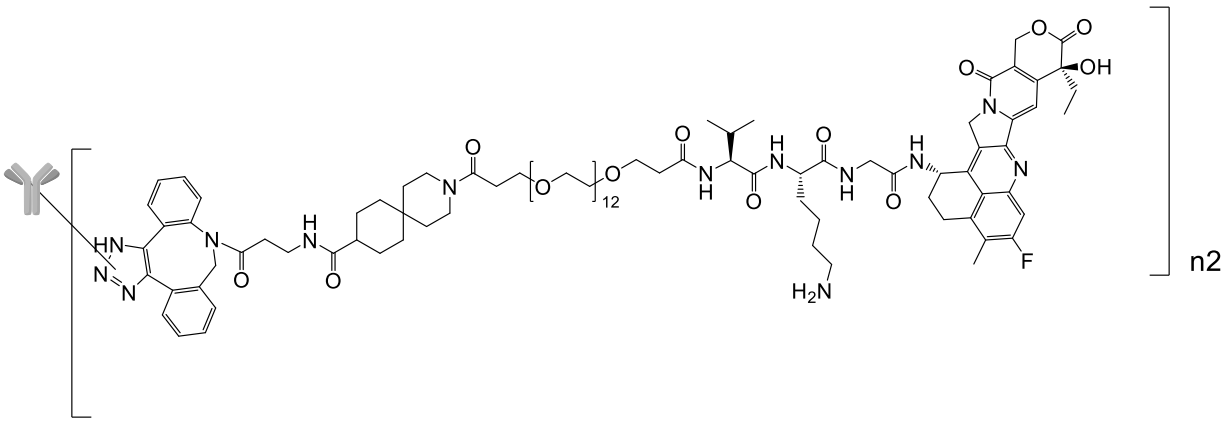


79. The antibody conjugate of any one of claims 1-67, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 130 and 455; a CDR-H2 comprising at least one of SEQ ID NOs: 780 and 1105; and a CDR-H3 comprising at least one of SEQ ID NOs: 1430 and 1755; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC180 and HC404;

(c) the following linker-payload, wherein **n2** is 4 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:



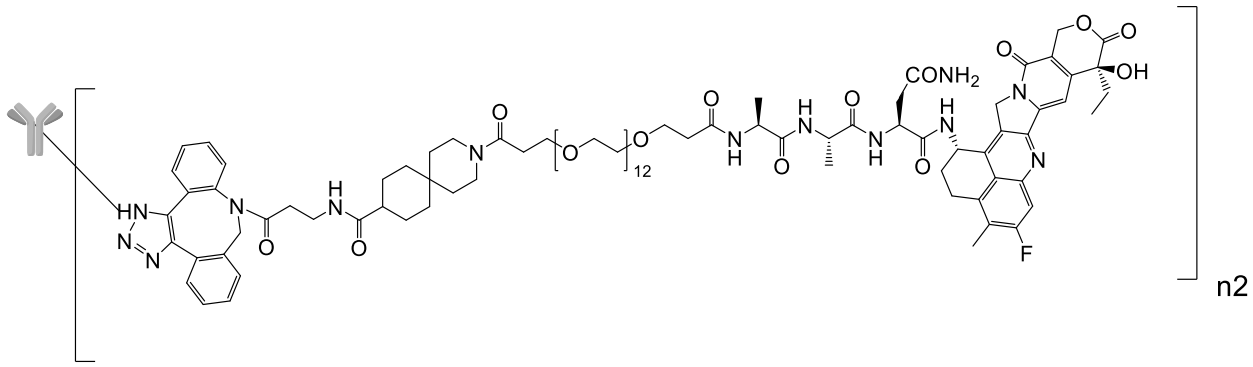
.

80. The antibody conjugate of any one of claims 1-67, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 130 and 455; a CDR-H2 comprising at least one of SEQ ID NOs: 780 and 1105; and a CDR-H3 comprising at least one of SEQ ID NOs: 1430 and 1755; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC180 and HC404;

(c) the following linker-payload, wherein **n2** is 4 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:



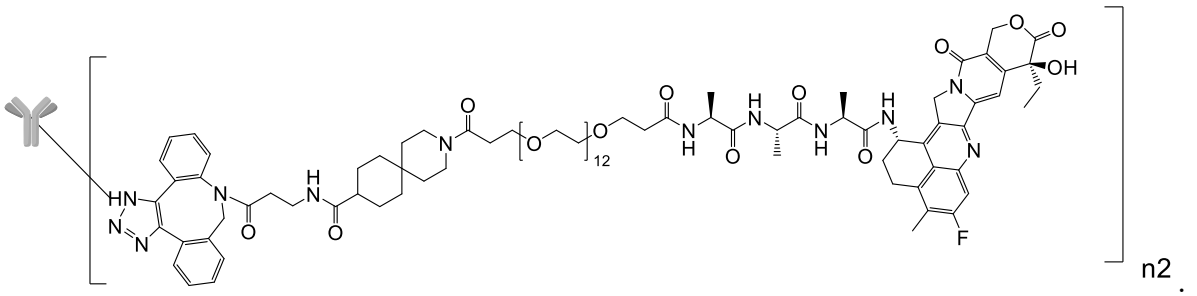
.

81. The antibody conjugate of any one of claims 1-67, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 130 and 455; a CDR-H2 comprising at least one of SEQ ID NOs: 780 and 1105; and a CDR-H3 comprising at least one of SEQ ID NOs: 1430 and 1755; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC180 and HC404;

(c) the following linker-payload structure, wherein **n2** is 4 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:



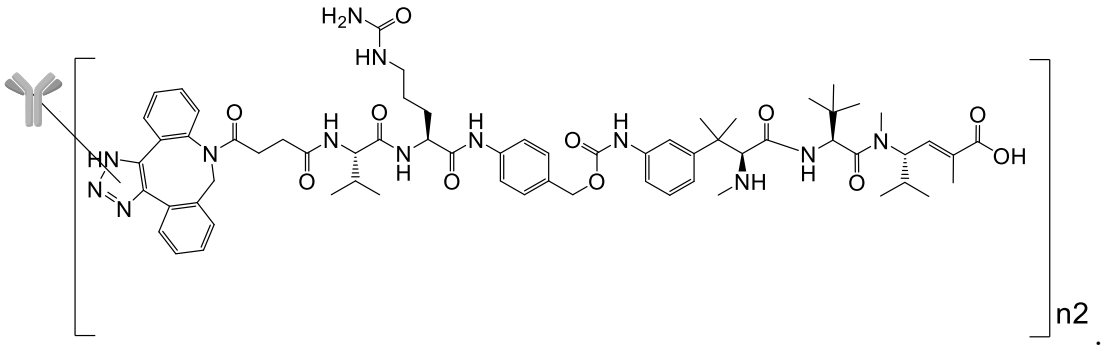
82. The antibody drug conjugate of any of the preceding claims, wherein the antibody comprises the V_H/V_L pair SEQ ID NOs: 2752/3061.

83. The antibody drug conjugate of any one of claims 1-67, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 161 and 486; a CDR-H2 comprising at least one of SEQ ID NOs: 811 and 1136; and a CDR-H3 comprising at least one of SEQ ID NOs: 1461 and 1786; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC180 and HC404;

(c) the following linker-payload, wherein **n2** is 4 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:



84. The antibody drug conjugate of claim 83, wherein the antibody comprises the V_H/V_L pair SEQ ID NOs: 2783/3061.

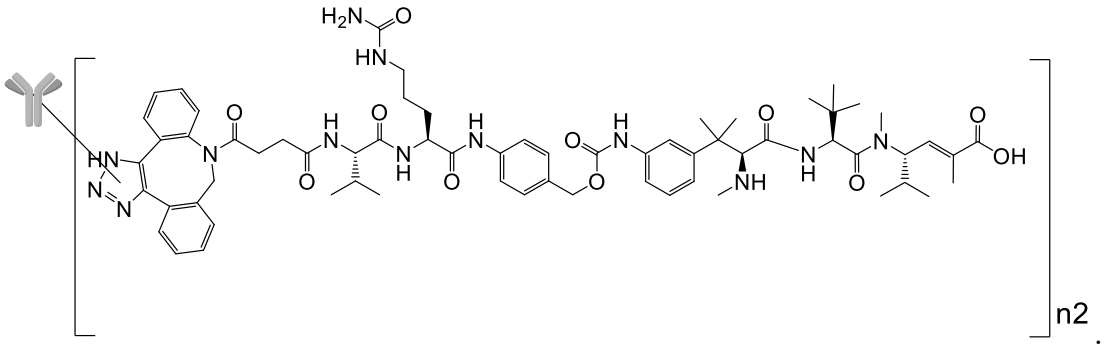
85. The antibody drug conjugate of any one of claims 1-67, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 189 and 514; a CDR-H2 comprising at least one of SEQ ID NOs: 839 and

1164; and a CDR-H3 comprising at least one of SEQ ID NOs: 1489 and 1814; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC180 and HC404;

(c) the following linker-payload, wherein **n2** is 4 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:



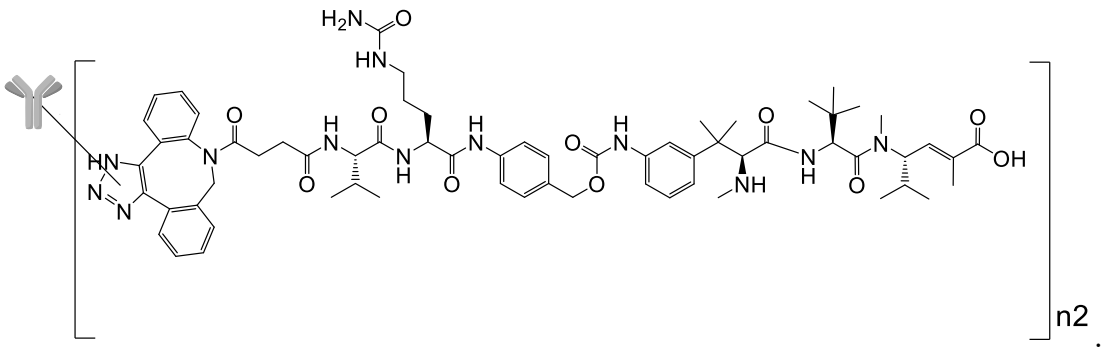
86. The antibody drug conjugate of claim 85, wherein the antibody comprises the V_H/V_L pair SEQ ID NOs: 2811/3061.

87. The antibody drug conjugate of any one of claims 1-67, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 192 and 517; a CDR-H2 comprising at least one of SEQ ID NOs: 842 and 1167; and a CDR-H3 comprising at least one of SEQ ID NOs: 1492 and 1817; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC180 and HC404;

(c) the following linker-payload, wherein **n2** is 4 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:



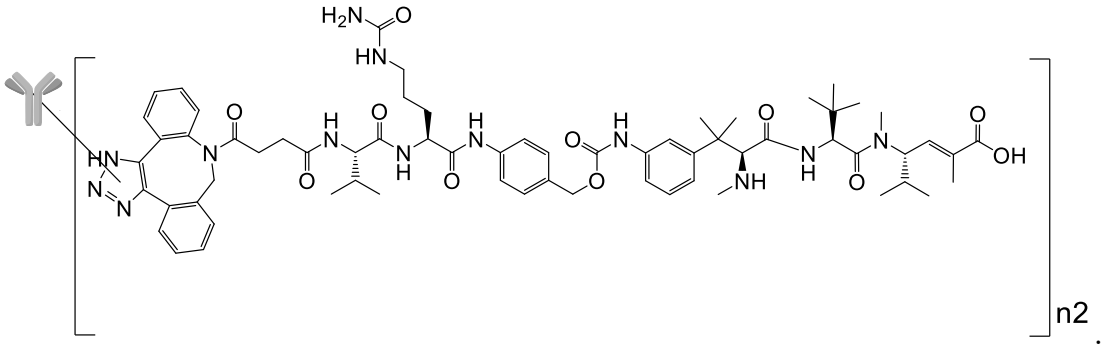
88. The antibody drug conjugate of claim 87, wherein the antibody comprises the V_H/V_L pair SEQ ID NOs: 2814/3061.

89. The antibody drug conjugate of any one of claims 1-67, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 211 and 536; a CDR-H2 comprising at least one of SEQ ID NOs: 861 and 1186; and a CDR-H3 comprising at least one of SEQ ID NOs: 1511 and 1836; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC180 and HC404;

(c) the following linker-payload, wherein **n2** is 4 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:



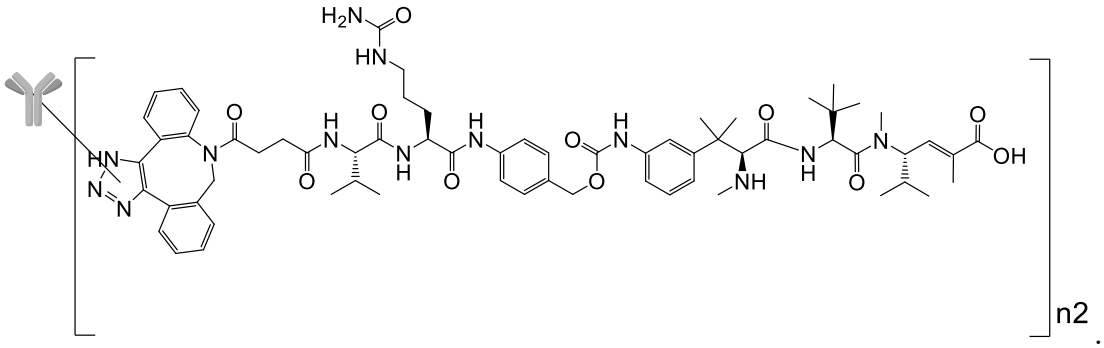
90. The antibody drug conjugate of claim 89, wherein the antibody comprises the V_H/V_L pair SEQ ID NOs: 2833/3061.

91. The antibody drug conjugate of any one of claims 1-67, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 214 and 539; a CDR-H2 comprising at least one of SEQ ID NOs: 864 and 1189; and a CDR-H3 comprising at least one of SEQ ID NOs: 1514 and 1839; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC180 and HC404;

(c) the following linker-payload, wherein **n2** is 4 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:



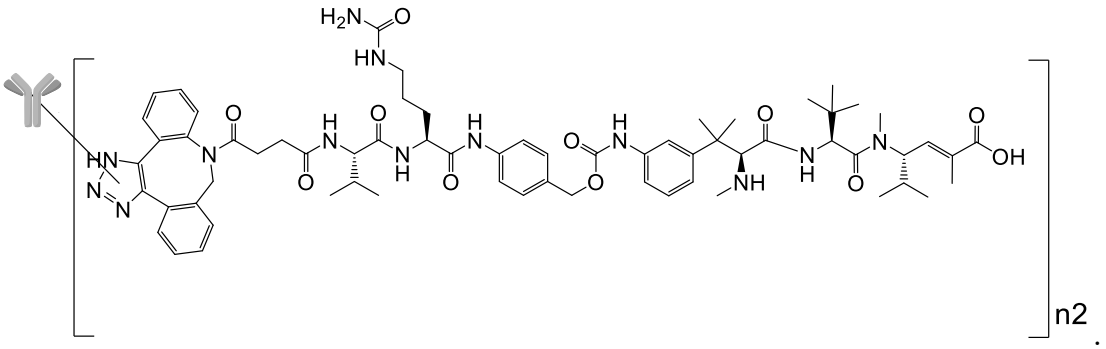
92. The antibody drug conjugate of claim 91, wherein the antibody comprises the V_H/V_L pair SEQ ID NOs: 2836/3061.

93. The antibody drug conjugate of any one of claims 1-67, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 218 and 543; a CDR-H2 comprising at least one of SEQ ID NOs: 868 and 1210; and a CDR-H3 comprising at least one of SEQ ID NOs: 1518 and 1843; and a V_L comprising: a CDR-L1 comprising at least one of SEQ ID NOs: 1974 and 2086; a CDR-L2 comprising at least one of SEQ ID NOs:2198 and 2310; and a CDR-L3 comprising at least one of SEQ ID NOs: 2422 and 2534;

(b) para-azidomethylphenylalanine residues at antibody sites HC180 and HC404;

(c) the following linker-payload, wherein **n2** is 4 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:



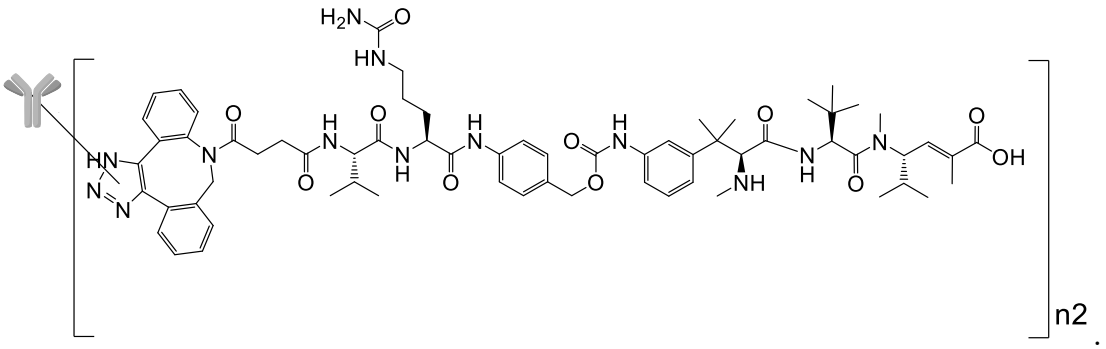
94. The antibody drug conjugate of claim 93, wherein the antibody comprises the V_H/V_L pair SEQ ID NOs: 2855/2971.

95. The antibody drug conjugate of any one of claims 1-67, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 105 and 430; a CDR-H2 comprising at least one of SEQ ID NOs: 755 and 1080; and a CDR-H3 comprising at least one of SEQ ID NOs: 1405 and 1730; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC180 and HC404;

(c) the following linker-payload, wherein **n2** is 4 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:



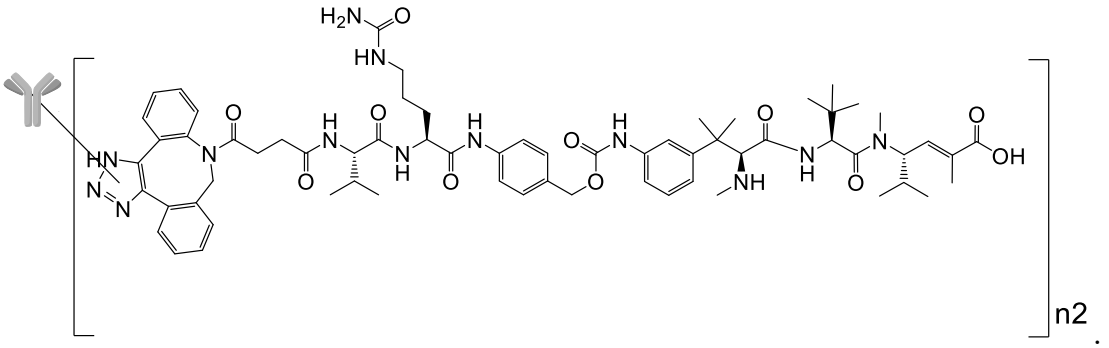
96. The antibody drug conjugate of claim 95, wherein the antibody comprises the V_H/V_L pair SEQ ID NOs: 2727/2961.

97. The antibody drug conjugate of any one of claims 1-67, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 114 and 439; a CDR-H2 comprising at least one of SEQ ID NOs: 764 and 1089; and a CDR-H3 comprising at least one of SEQ ID NOs: 1414 and 1739; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC180 and HC404;

(c) the following linker-payload, wherein **n2** is 4 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:



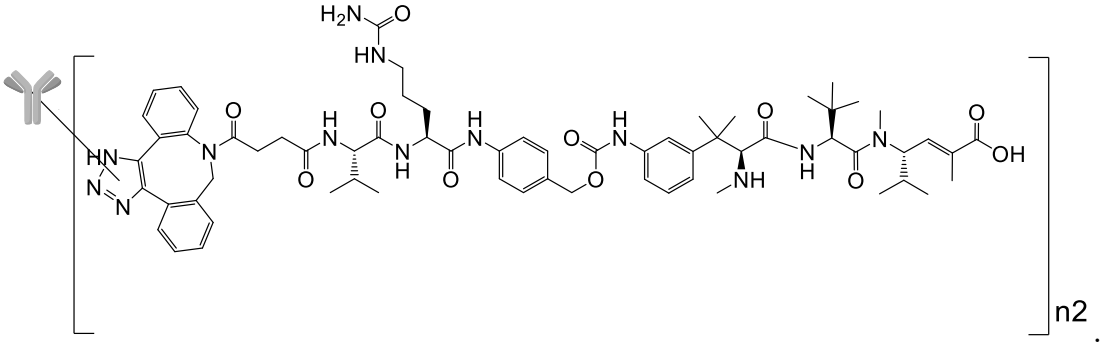
98. The antibody drug conjugate of claim 97, wherein the antibody comprises the V_H/V_L pair SEQ ID NOs: 2736/2961.

99. The antibody drug conjugate of any one of claims 1-67, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 117 and 442; a CDR-H2 comprising at least one of SEQ ID NOs: 767 and 1092; and a CDR-H3 comprising at least one of SEQ ID NOs: 1417 and 1742; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC180 and HC404;

(c) the following linker-payload, wherein **n2** is 4 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:



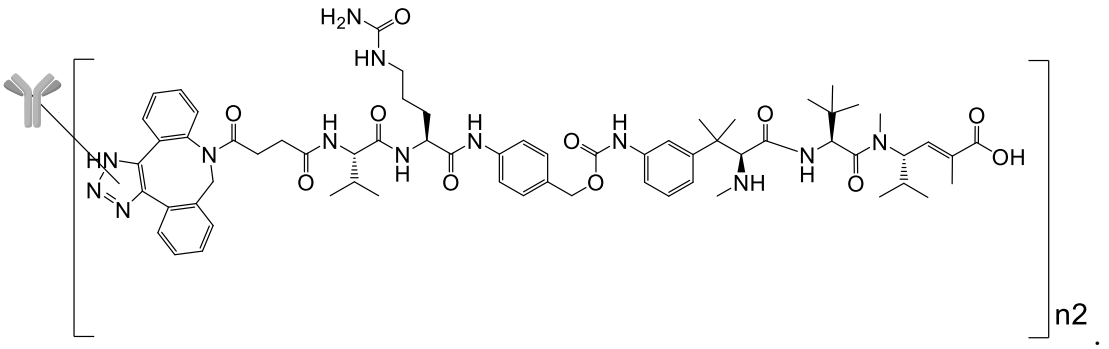
100. The antibody drug conjugate of claim 99, wherein the antibody comprises the V_H/V_L pair SEQ ID NOs: 2739/2961.

101. The antibody drug conjugate of any one of claims 1-67, wherein the antibody conjugate comprises:

(a) an antibody comprising a V_H comprising: a CDR-H1 comprising at least one of SEQ ID NOs: 128 and 453; a CDR-H2 comprising at least one of SEQ ID NOs: 778 and 1103; and a CDR-H3 comprising at least one of SEQ ID NOs: 1428 and 1753; and a V_L comprising: a CDR-L1 comprising SEQ ID NO: 2064; a CDR-L2 comprising SEQ ID NO: 2288; and a CDR-L3 comprising SEQ ID NO: 2512;

(b) para-azidomethylphenylalanine residues at antibody sites HC180 and HC404;

(c) the following linker-payload, wherein **n2** is 4 and each linker-payload is bonded to one of the para-azidomethylphenylalanine residue side chains:



102. The antibody drug conjugate of claim 101, wherein the antibody comprises the V_H/V_L pair SEQ ID NOs: 2750/2961.

103. The antibody conjugate of any of the preceding claims, wherein the antibody binds to the same epitope as a second antibody comprising a V_H/V_L pair, or a variant thereof, selected from the group consisting of SEQ ID NOs: 2727/3061, 2736/3061, 2739/3061, 2751/3061, 2752/3061, 2753/3061, 2754/3061, 2755/3061, 2756/3061, 2757/3061, 2758/3061, 2759/3061, 2760/3061, 2761/3061, 2762/3061, 2763/3061, 2764/3061, 2765/3061, 2766/3061, 2767/3061, 2768/3061, 2769/3061, 2770/3061, 2771/3061, 2772/3061, 2773/3061, 2774/3061, 2775/3061, 2776/3061, 2777/3061, 2778/3061, 2779/3061, 2780/3061, 2781/3061, 2782/3061, 2783/3061, 2784/3061, 2785/3061, 2786/3061, 2787/3061, 2788/3061, 2789/3061, 2790/3061, 2791/3061, 2792/3061, 2793/3061, 2794/3061, 2795/3061, 2796/3061, 2797/3061, 2798/3061, 2799/3061, 2800/3061, 2801/3061, 2802/3061, 2803/3061, 2804/3061, 2805/3061, 2806/3061, 2807/3061, 2808/3061, 2809/3061, 2810/3061, 2811/3061, 2812/3061, 2813/3061, 2814/3061, 2815/3061, 2816/3061, 2817/3061, 2818/3061, 2819/3061, 2820/3061, 2821/3061, 2822/3061, 2823/3061, 2824/3061, 2825/3061, 2826/3061, 2827/3061, 2828/3061, 2829/3061, 2830/3061,

2831/3061, 2832/3061, 2833/3061, 2834/3061, 2835/3061, 2836/3061, 2837/3061, 2838/3061, 2840/2951, 2846/2957, 2851/2962, 2857/2968, 2859/2970, and 2860/2971.

104. The antibody conjugate of claim 103, wherein the antibody inhibits binding of the second antibody to TF by at least 50%, or wherein the second antibody inhibits binding of the isolated antibody to TF by at least 50%.

105. The antibody conjugate of any one of the preceding claims, wherein the antibody has a k_a of about $5.4x10^4$ $M^{-1}\times sec^{-1}$ to about 5.47×10^5 $M^{-1}\times sec^{-1}$ when associating with human TF at a temperature of 25°C.

106. The antibody conjugate of any one of the preceding claims, wherein the antibody has a k_d of about 4.18×10^{-4} sec^{-1} to about 5.94×10^{-3} $sec^{-1}$when dissociating from human TF at a temperature of 25°C.

107. The antibody conjugate of any one of the preceding claims, wherein the antibody has a K_D of about $3.59x10^{-9}$ M to about $1.91x10^{-8}$ M when bound to human TF at a temperature of 25°C.

108. The antibody conjugate of any one of the preceding claims, wherein the antibody comprises at least one constant region domain.

109. The antibody conjugate of claim 108, wherein the constant region comprises a sequence selected from SEQ ID NOs: 3062, 3063, 3064, 3065, and 3068.

110. The antibody conjugate of any of the preceding claims, wherein the antibody is a monoclonal antibody.

111. The antibody conjugate of any of the preceding claims, wherein the antibody is an IgA, an IgD, an IgE, an IgG, or an IgM.

112. The antibody conjugate of any of the preceding claims, wherein the antibody is humanized or human.

113. The antibody conjugate of any of the preceding claims, wherein the antibody is glycosylated.

114. The antibody conjugate of any of the preceding claims, wherein the antibody is an antibody fragment.

115. The antibody conjugate of claim 114, wherein the antibody fragment is selected from an Fv fragment, a Fab fragment, a $F(ab')_2$ fragment, a Fab' fragment, an scFv (sFv) fragment, and an scFv-Fc fragment.

116. The antibody conjugate of claim 115, wherein the antibody is an scFv fragment.

117. An isolated antibody that specifically binds to tissue factor (TF), wherein the antibody comprises three heavy chain CDRs from a V_H sequence selected from SEQ ID NOs:2727, 2736, 2739, 2751-2838, 2840, 2846, 2851, 2857, and 2859-2860, or variants thereof, and three light chain CDRs from a V_L sequence selected from SEQ ID NOs:2951, 2957, 2962, 2968, 2970, 2971, and 3061, or variants thereof.

118. The isolated antibody of claim 117, wherein the antibody comprises three heavy chain CDRs, or variants thereof, and three light chain CDRs, or variants thereof, from a V_H/V_L pair selected from the group consisting of SEQ ID NOs: 2727/3061, 2736/30612739/3061, 2751/3061, 2752/3061, 2753/3061, 2754/3061, 2755/3061, 2756/3061, 2757/3061, 2758/3061, 2759/3061, 2760/3061, 2761/3061, 2762/3061, 2763/3061, 2764/3061, 2765/3061, 2766/3061, 2767/3061, 2768/3061, 2769/3061, 2770/3061, 2771/3061, 2772/3061, 2773/3061, 2774/3061, 2775/3061, 2776/3061, 2777/3061, 2778/3061, 2779/3061, 2780/3061, 2781/3061, 2782/3061, 2783/3061, 2784/3061, 2785/3061, 2786/3061, 2787/3061, 2788/3061, 2789/3061, 2790/3061, 2791/3061, 2792/3061, 2793/3061, 2794/3061, 2795/3061, 2796/3061, 2797/3061, 2798/3061, 2799/3061, 2800/3061, 2801/3061, 2802/3061, 2803/3061, 2804/3061, 2805/3061, 2806/3061, 2807/3061, 2808/3061, 2809/3061, 2810/3061, 2811/3061, 2812/3061, 2813/3061, 2814/3061, 2815/3061, 2816/3061, 2817/3061, 2818/3061, 2819/3061, 2820/3061, 2821/3061, 2822/3061, 2823/3061, 2824/3061, 2825/3061, 2826/3061, 2827/3061, 2828/3061, 2829/3061, 2830/3061, 2831/3061, 2832/3061, 2833/3061, 2834/3061, 2835/3061, 2836/3061, 2837/3061, 2838/3061, 2840/2951, 2846/2957, 2851/2962, 2857/2968, 2859/2970, and 2860/2971.

119. The isolated antibody of claim 117, wherein the antibody comprises three heavy chain CDRs, or variants thereof, and three light chain CDRs, or variants thereof, from a V_H/V_L pair selected from the group consisting of SEQ ID NOs: 2727/3061, 2736/3061, 2736/3061, 2752/3061, 2783/3061, 2811/3061, 2814/3061, 2833/3061, 2836/3061, and 2857/2968.

120. The isolated antibody of any of claims 117-119, wherein the antibody comprises a V_H selected from SEQ ID NOs: 2727, 2736, 2739, 2751-2838, 2840, 2846, 2851, 2857, and 2859-2860.

121. The antibody of claim 120, wherein the antibody comprises a V_L selected from SEQ ID NOs: 2951, 2957, 2962, 2968, 2970, 2971, and 3061.

122. The antibody of any one of claims 117-121, wherein the antibody comprises a V_H/V_L pair, or a variant thereof, selected from the group consisting of SEQ ID NOs: 2727/3061, 2736/3061, 2739/3061, 2751/3061, 2752/3061, 2753/3061, 2754/3061, 2755/3061, 2756/3061, 2757/3061, 2758/3061, 2759/3061, 2760/3061, 2761/3061, 2762/3061, 2763/3061, 2764/3061, 2765/3061, 2766/3061, 2767/3061, 2768/3061, 2769/3061, 2770/3061, 2771/3061, 2772/3061, 2773/3061, 2774/3061, 2775/3061, 2776/3061, 2777/3061, 2778/3061, 2779/3061, 2780/3061, 2781/3061, 2782/3061, 2783/3061, 2784/3061, 2785/3061, 2786/3061, 2787/3061, 2788/3061, 2789/3061, 2790/3061, 2791/3061, 2792/3061, 2793/3061, 2794/3061, 2795/3061, 2796/3061, 2797/3061, 2798/3061, 2799/3061, 2800/3061, 2801/3061, 2802/3061, 2803/3061, 2804/3061, 2805/3061, 2806/3061, 2807/3061, 2808/3061, 2809/3061, 2810/3061, 2811/3061, 2812/3061, 2813/3061, 2814/3061, 2815/3061, 2816/3061, 2817/3061, 2818/3061, 2819/3061, 2820/3061, 2821/3061, 2822/3061, 2823/3061, 2824/3061, 2825/3061, 2826/3061, 2827/3061, 2828/3061, 2829/3061, 2830/3061, 2831/3061, 2832/3061, 2833/3061, 2834/3061, 2835/3061, 2836/3061, 2837/3061, 2838/3061, 2840/2951, 2846/2957, 2851/2962, 2857/2968, 2859/2970, and 2860/2971.

123. The antibody of any one of claims 117-121, wherein the antibody comprises a V_H/V_L pair, or a variant thereof, selected from the group consisting of SEQ ID NOs: 2727/3061, 2736/3061, 2736/3061, 2752/3061, 2783/3061, 2811/3061, 2814/3061, 2833/3061, 2836/3061, and 2857/2968.

124. An isolated antibody that specifically binds to tissue factor (TF), wherein the antibody comprises:

(1) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 105 and 430; a CDR-H2 comprising one or more of SEQ ID NOs: 755 and 1080; and a CDR-H3 comprising one or more of SEQ ID NOs: 1405 and 1730;

(2) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 114 and 439; a CDR-H2 comprising one or more of SEQ ID NOs: 764 and 1089; and a CDR-H3 comprising one or more of SEQ ID NOs: 1414 and 1739;

(3) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 117 and 442; a CDR-H2 comprising one or more of SEQ ID NOs: 767 and 1092; and a CDR-H3 comprising one or more of SEQ ID NOs: 1417 and 1742;

(4) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 129 and 454; a CDR-H2 comprising one or more of SEQ ID NOs: 779 and 1104; and a CDR-H3 comprising one or more of SEQ ID NOs: 1429 and 1754;

(5) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 130 and 455; a CDR-H2 comprising one or more of SEQ ID NOs: 780 and 1105; and a CDR-H3 comprising one or more of SEQ ID NOs: 1430 and 1755;

(6) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 131 and 456; a CDR-H2 comprising one or more of SEQ ID NOs: 781 and 1106; and a CDR-H3 comprising one or more of SEQ ID NOs: 1431 and 1756;

(7) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 132 and 457; a CDR-H2 comprising one or more of SEQ ID NOs: 782 and 1107; and a CDR-H3 comprising one or more of SEQ ID NOs: 1432 and 1757;

(8) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 133 and 458; a CDR-H2 comprising one or more of SEQ ID NOs: 783 and 1108; and a CDR-H3 comprising one or more of SEQ ID NOs: 1433 and 1758;

(9) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 134 and 459; a CDR-H2 comprising one or more of SEQ ID NOs: 784 and 1109; and a CDR-H3 comprising one or more of SEQ ID NOs: 1434 and 1759;

(10) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 135 and 460; a CDR-H2 comprising one or more of SEQ ID NOs: 785 and 1110; and a CDR-H3 comprising one or more of SEQ ID NOs: 1435 and 1760;

(11) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 136 and 461; a CDR-H2 comprising one or more of SEQ ID NOs: 786 and 1111; and a CDR-H3 comprising one or more of SEQ ID NOs: 1436 and 1761;

(12) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 137 and 462; a CDR-H2 comprising one or more of SEQ ID NOs: 787 and 1112; and a CDR-H3 comprising one or more of SEQ ID NOs: 1437 and 1762;

(13) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 138 and 463; a CDR-H2 comprising one or more of SEQ ID NOs: 788 and 1113; and a CDR-H3 comprising one or more of SEQ ID NOs: 1438 and 1763;

(14) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 139 and 464; a CDR-H2 comprising one or more of SEQ ID NOs: 789 and 1114; and a CDR-H3 comprising one or more of SEQ ID NOs: 1439 and 1764;

(15) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 140 and 465; a CDR-H2 comprising one or more of SEQ ID NOs: 790 and 1115; and a CDR-H3 comprising one or more of SEQ ID NOs: 1440 and 1765;

(16) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 141 and 466; a CDR-H2 comprising one or more of SEQ ID NOs: 791 and 1116; and a CDR-H3 comprising one or more of SEQ ID NOs: 1441 and 1766;

(17) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 142 and 467; a CDR-H2 comprising one or more of SEQ ID NOs: 792 and 1117; and a CDR-H3 comprising one or more of SEQ ID NOs: 1442 and 1767;

(18) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 143 and 468; a CDR-H2 comprising one or more of SEQ ID NOs: 793 and 1118; and a CDR-H3 comprising one or more of SEQ ID NOs: 1443 and 1768;

(19) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 144 and 469; a CDR-H2 comprising one or more of SEQ ID NOs: 794 and 1119; and a CDR-H3 comprising one or more of SEQ ID NOs: 1444 and 1769;

(20) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 145 and 470; a CDR-H2 comprising one or more of SEQ ID NOs: 795 and 1120; and a CDR-H3 comprising one or more of SEQ ID NOs: 1445 and 1770;

(21) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 146 and 471; a CDR-H2 comprising one or more of SEQ ID NOs: 796 and 1121; and a CDR-H3 comprising one or more of SEQ ID NOs: 1446 and 1771;

(22) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 147 and 472; a CDR-H2 comprising one or more of SEQ ID NOs: 797 and 1122; and a CDR-H3 comprising one or more of SEQ ID NOs: 1447 and 1772;

(23) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 148 and 473; a CDR-H2 comprising one or more of SEQ ID NOs: 798 and 1123; and a CDR-H3 comprising one or more of SEQ ID NOs: 1448 and 1773;

(24) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 149 and 474; a CDR-H2 comprising one or more of SEQ ID NOs: 799 and 1124; and a CDR-H3 comprising one or more of SEQ ID NOs: 1449 and 1774;

(25) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 150 and 475; a CDR-H2 comprising one or more of SEQ ID NOs: 800 and 1125; and a CDR-H3 comprising one or more of SEQ ID NOs: 1450 and 1775;

(26) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 151 and 476; a CDR-H2 comprising one or more of SEQ ID NOs: 801 and 1126; and a CDR-H3 comprising one or more of SEQ ID NOs: 1451 and 1776;

(27) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 152 and 477; a CDR-H2 comprising one or more of SEQ ID NOs: 802 and 1127; and a CDR-H3 comprising one or more of SEQ ID NOs: 1452 and 1777;

(28) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 153 and 478; a CDR-H2 comprising one or more of SEQ ID NOs: 803 and 1128; and a CDR-H3 comprising one or more of SEQ ID NOs: 1453 and 1778;

(29) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 154 and 479; a CDR-H2 comprising one or more of SEQ ID NOs: 804 and 1129; and a CDR-H3 comprising one or more of SEQ ID NOs: 1454 and 1779;

(30) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 155 and 480; a CDR-H2 comprising one or more of SEQ ID NOs: 805 and 1130; and a CDR-H3 comprising one or more of SEQ ID NOs: 1455 and 1780;

(31) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 156 and 481; a CDR-H2 comprising one or more of SEQ ID NOs: 806 and 1131; and a CDR-H3 comprising one or more of SEQ ID NOs: 1456 and 1781;

(32) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 157 and 482; a CDR-H2 comprising one or more of SEQ ID NOs: 807 and 1132; and a CDR-H3 comprising one or more of SEQ ID NOs: 1457 and 1782;

(33) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 158 and 483; a CDR-H2 comprising one or more of SEQ ID NOs: 808 and 1133; and a CDR-H3 comprising one or more of SEQ ID NOs: 1458 and 1783;

(34) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 159 and 484; a CDR-H2 comprising one or more of SEQ ID NOs: 809 and 1134; and a CDR-H3 comprising one or more of SEQ ID NOs: 1459 and 1784;

(35) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 160 and 485; a CDR-H2 comprising one or more of SEQ ID NOs: 810 and 1135; and a CDR-H3 comprising one or more of SEQ ID NOs: 1460 and 1785;

(36) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 161 and 486; a CDR-H2 comprising one or more of SEQ ID NOs: 811 and 1136; and a CDR-H3 comprising one or more of SEQ ID NOs: 1461 and 1786;

(37) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 162 and 487; a CDR-H2 comprising one or more of SEQ ID NOs: 812 and 1137; and a CDR-H3 comprising one or more of SEQ ID NOs: 1462 and 1787;

(38) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 163 and 488; a CDR-H2 comprising one or more of SEQ ID NOs: 813 and 1138; and a CDR-H3 comprising one or more of SEQ ID NOs: 1463 and 1788;

(39) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 164 and 489; a CDR-H2 comprising one or more of SEQ ID NOs: 814 and 1139; and a CDR-H3 comprising one or more of SEQ ID NOs: 1464 and 1789;

(40) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 165 and 490; a CDR-H2 comprising one or more of SEQ ID NOs: 815 and 1140; and a CDR-H3 comprising one or more of SEQ ID NOs: 1465 and 1790;

(41) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 166 and 491; a CDR-H2 comprising one or more of SEQ ID NOs: 816 and 1141; and a CDR-H3 comprising one or more of SEQ ID NOs: 1466 and 1791;

(42) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 167 and 492; a CDR-H2 comprising one or more of SEQ ID NOs: 817 and 1142; and a CDR-H3 comprising one or more of SEQ ID NOs: 1467 and 1792;

(43) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 168 and 493; a CDR-H2 comprising one or more of SEQ ID NOs: 818 and 1143; and a CDR-H3 comprising one or more of SEQ ID NOs: 1468 and 1793;

(44) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 169 and 494; a CDR-H2 comprising one or more of SEQ ID NOs: 819 and 1144; and a CDR-H3 comprising one or more of SEQ ID NOs: 1469 and 1794;

(45) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 170 and 495; a CDR-H2 comprising one or more of SEQ ID NOs: 820 and 1145; and a CDR-H3 comprising one or more of SEQ ID NOs: 1470 and 1795;

(46) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 171 and 496; a CDR-H2 comprising one or more of SEQ ID NOs: 821 and 1146; and a CDR-H3 comprising one or more of SEQ ID NOs: 1471 and 1796;

(47) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 172 and 497; a CDR-H2 comprising one or more of SEQ ID NOs: 822 and 1147; and a CDR-H3 comprising one or more of SEQ ID NOs: 1472 and 1797;

(48) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 173 and 498; a CDR-H2 comprising one or more of SEQ ID NOs: 823 and 1148; and a CDR-H3 comprising one or more of SEQ ID NOs: 1473 and 1798;

(49) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 174 and 499; a CDR-H2 comprising one or more of SEQ ID NOs: 824 and 1149; and a CDR-H3 comprising one or more of SEQ ID NOs: 1474 and 1799;

(50) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 175 and 500; a CDR-H2 comprising one or more of SEQ ID NOs: 825 and 1150; and a CDR-H3 comprising one or more of SEQ ID NOs: 1475 and 1800;

(51) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 176 and 501; a CDR-H2 comprising one or more of SEQ ID NOs: 826 and 1151; and a CDR-H3 comprising one or more of SEQ ID NOs: 1476 and 1801;

(52) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 177 and 502; a CDR-H2 comprising one or more of SEQ ID NOs: 827 and 1152; and a CDR-H3 comprising one or more of SEQ ID NOs: 1477 and 1802;

(53) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 178 and 503; a CDR-H2 comprising one or more of SEQ ID NOs: 828 and 1153; and a CDR-H3 comprising one or more of SEQ ID NOs: 1478 and 1803;

(54) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 179 and 504; a CDR-H2 comprising one or more of SEQ ID NOs: 829 and 1154; and a CDR-H3 comprising one or more of SEQ ID NOs: 1479 and 1804;

(55) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 180 and 505; a CDR-H2 comprising one or more of SEQ ID NOs: 830 and 1155; and a CDR-H3 comprising one or more of SEQ ID NOs: 1480 and 1805;

(56) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 181 and 506; a CDR-H2 comprising one or more of SEQ ID NOs: 831 and 1156; and a CDR-H3 comprising one or more of SEQ ID NOs: 1481 and 1806;

(57) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 182 and 507; a CDR-H2 comprising one or more of SEQ ID NOs: 832 and 1157; and a CDR-H3 comprising one or more of SEQ ID NOs: 1482 and 1807;

(58) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 183 and 508; a CDR-H2 comprising one or more of SEQ ID NOs: 833 and 1158; and a CDR-H3 comprising one or more of SEQ ID NOs: 1483 and 1808;

(59) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 184 and 509; a CDR-H2 comprising one or more of SEQ ID NOs: 834 and 1159; and a CDR-H3 comprising one or more of SEQ ID NOs: 1484 and 1809;

(60) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 185 and 510; a CDR-H2 comprising one or more of SEQ ID NOs: 835 and 1160; and a CDR-H3 comprising one or more of SEQ ID NOs: 1485 and 1810;

(61) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 186 and 511; a CDR-H2 comprising one or more of SEQ ID NOs: 836 and 1161; and a CDR-H3 comprising one or more of SEQ ID NOs: 1486 and 1811;

(62) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 187 and 512; a CDR-H2 comprising one or more of SEQ ID NOs: 837 and 1162; and a CDR-H3 comprising one or more of SEQ ID NOs: 1487 and 1812;

(63) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 188 and 513; a CDR-H2 comprising one or more of SEQ ID NOs: 838 and 1163; and a CDR-H3 comprising one or more of SEQ ID NOs: 1488 and 1813;

(64) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 189 and 514; a CDR-H2 comprising one or more of SEQ ID NOs: 839 and 1164; and a CDR-H3 comprising one or more of SEQ ID NOs: 1489 and 1814;

(65) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 190 and 515; a CDR-H2 comprising one or more of SEQ ID NOs: 840 and 1165; and a CDR-H3 comprising one or more of SEQ ID NOs: 1490 and 1815;

(66) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 191 and 516; a CDR-H2 comprising one or more of SEQ ID NOs: 841 and 1166; and a CDR-H3 comprising one or more of SEQ ID NOs: 1491 and 1816;

(67) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 192 and 517; a CDR-H2 comprising one or more of SEQ ID NOs: 842 and 1167; and a CDR-H3 comprising one or more of SEQ ID NOs: 1492 and 1817;

(68) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 193 and 518; a CDR-H2 comprising one or more of SEQ ID NOs: 843 and 1168; and a CDR-H3 comprising one or more of SEQ ID NOs: 1493 and 1818;

(69) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 194 and 519; a CDR-H2 comprising one or more of SEQ ID NOs: 844 and 1169; and a CDR-H3 comprising one or more of SEQ ID NOs: 1494 and 1819;

(70) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 195 and 520; a CDR-H2 comprising one or more of SEQ ID NOs: 845 and 1170; and a CDR-H3 comprising one or more of SEQ ID NOs: 1495 and 1820;

(71) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 196 and 521; a CDR-H2 comprising one or more of SEQ ID NOs: 846 and 1171; and a CDR-H3 comprising one or more of SEQ ID NOs: 1496 and 1821;

(72) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 197 and 522; a CDR-H2 comprising one or more of SEQ ID NOs: 847 and 1172; and a CDR-H3 comprising one or more of SEQ ID NOs: 1497 and 1822;

(73) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 198 and 523; a CDR-H2 comprising one or more of SEQ ID NOs: 848 and 1173; and a CDR-H3 comprising one or more of SEQ ID NOs: 1498 and 1823;

(74) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 199 and 524; a CDR-H2 comprising one or more of SEQ ID NOs: 849 and 1174; and a CDR-H3 comprising one or more of SEQ ID NOs: 1499 and 1824;

(75) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 200 and 525; a CDR-H2 comprising one or more of SEQ ID NOs: 850 and 1175; and a CDR-H3 comprising one or more of SEQ ID NOs: 1500 and 1825;

(76) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 201 and 526; a CDR-H2 comprising one or more of SEQ ID NOs: 851 and 1176; and a CDR-H3 comprising one or more of SEQ ID NOs: 1501 and 1826;

(77) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 202 and 527; a CDR-H2 comprising one or more of SEQ ID NOs: 852 and 1177; and a CDR-H3 comprising one or more of SEQ ID NOs: 1502 and 1827;

(78) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 203 and 528; a CDR-H2 comprising one or more of SEQ ID NOs: 853 and 1178; and a CDR-H3 comprising one or more of SEQ ID NOs: 1503 and 1828;

(79) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 204 and 529; a CDR-H2 comprising one or more of SEQ ID NOs: 854 and 1179; and a CDR-H3 comprising one or more of SEQ ID NOs: 1504 and 1829;

(80) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 205 and 530; a CDR-H2 comprising one or more of SEQ ID NOs: 855 and 1180; and a CDR-H3 comprising one or more of SEQ ID NOs: 1505 and 1830;

(81) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 206 and 531; a CDR-H2 comprising one or more of SEQ ID NOs: 856 and 1181; and a CDR-H3 comprising one or more of SEQ ID NOs: 1506 and 1831;

(82) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 207 and 532; a CDR-H2 comprising one or more of SEQ ID NOs: 857 and 1182; and a CDR-H3 comprising one or more of SEQ ID NOs: 1507 and 1832;

(83) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 208 and 533; a CDR-H2 comprising one or more of SEQ ID NOs: 858 and 1183; and a CDR-H3 comprising one or more of SEQ ID NOs: 1508 and 1833;

(84) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 209 and 534; a CDR-H2 comprising one or more of SEQ ID NOs: 859 and 1184; and a CDR-H3 comprising one or more of SEQ ID NOs: 1509 and 1834;

(85) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 210 and 535; a CDR-H2 comprising one or more of SEQ ID NOs: 860 and 1185; and a CDR-H3 comprising one or more of SEQ ID NOs: 1510 and 1835;

(86) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 211 and 536; a CDR-H2 comprising one or more of SEQ ID NOs: 861 and 1186; and a CDR-H3 comprising one or more of SEQ ID NOs: 1511 and 1836;

(87) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 212 and 537; a CDR-H2 comprising one or more of SEQ ID NOs: 862 and 1187; and a CDR-H3 comprising one or more of SEQ ID NOs: 1512 and 1837;

(88) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 213 and 538; a CDR-H2 comprising one or more of SEQ ID NOs: 863 and 1188; and a CDR-H3 comprising one or more of SEQ ID NOs: 1513 and 1838;

(89) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 214 and 539; a CDR-H2 comprising one or more of SEQ ID NOs: 864 and 1189; and a CDR-H3 comprising one or more of SEQ ID NOs: 1514 and 1839;

(90) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 215 and 540; a CDR-H2 comprising one or more of SEQ ID NOs: 865 and 1190; and a CDR-H3 comprising one or more of SEQ ID NOs: 1515 and 1840;

(91) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 216 and 541; a CDR-H2 comprising one or more of SEQ ID NOs: 866 and 1191; and a CDR-H3 comprising one or more of SEQ ID NOs: 1516 and 1841;

(92) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 218 and 543; a CDR-H2 comprising one or more of SEQ ID NOs: 868 and 1193; and a CDR-H3 comprising one or more of SEQ ID NOs: 1518 and 1843;

(93) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 224 and 549; a CDR-H2 comprising one or more of SEQ ID NOs: 874 and 1199; and a CDR-H3 comprising one or more of SEQ ID NOs: 1524 and 1849;

(94) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 229 and 554; a CDR-H2 comprising one or more of SEQ ID NOs: 879 and 1204; and a CDR-H3 comprising one or more of SEQ ID NOs: 1529 and 1854;

(95) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 235 and 560; a CDR-H2 comprising one or more of SEQ ID NOs: 885 and 1210; and a CDR-H3 comprising one or more of SEQ ID NOs: 1535 and 1860;

(96) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 237 and 562; a CDR-H2 comprising one or more of SEQ ID NOs: 887 and 1212; and a CDR-H3 comprising one or more of SEQ ID NOs: 1537 and 1862; or

(97) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 238 and 563; a CDR-H2 comprising one or more of SEQ ID NOs: 888 and 1213; and a CDR-H3 comprising one or more of SEQ ID NOs: 1538 and 1863.

125. The isolated antibody of claim 124, wherein the antibody comprises:

(1) a V_L comprising: a CDR-L1 comprising one or more of SEQ ID NOs: 1954 and 2066; a CDR-L2 comprising one or more of SEQ ID NOs: 2178 and 2290; and a CDR-L3 comprising one or more of SEQ ID NOs: 2402 and 2514;

(2) a V_L comprising: a CDR-L1 comprising one or more of SEQ ID NOs: 1960 and 2072; a CDR-L2 comprising one or more of SEQ ID NOs: 2184 and 2296; and a CDR-L3 comprising one or more of SEQ ID NOs: 2408 and 2520;

(3) a V_L comprising: a CDR-L1 comprising one or more of SEQ ID NOs: 1965 and 2077; a CDR-L2 comprising one or more of SEQ ID NOs: 2189 and 2301; and a CDR-L3 comprising one or more of SEQ ID NOs: 2413 and 2525;

(4) a V_L comprising: a CDR-L1 comprising one or more of SEQ ID NOs: 1971 and 2083; a CDR-L2 comprising one or more of SEQ ID NOs: 2195 and 2307; and a CDR-L3 comprising one or more of SEQ ID NOs: 2419 and 2531;

(5) a V_L comprising: a CDR-L1 comprising one or more of SEQ ID NOs: 1973 and 2085; a CDR-L2 comprising one or more of SEQ ID NOs: 2197 and 2309; and a CDR-L3 comprising one or more of SEQ ID NOs: 2421 and 2533;

(6) a V_L comprising: a CDR-L1 comprising one or more of SEQ ID NOs: 1974 and 2086; a CDR-L2 comprising one or more of SEQ ID NOs: 2198 and 2310; and a CDR-L3 comprising one or more of SEQ ID NOs: 2422 and 2534; or

(7) a V_L comprising: a CDR-L1 comprising one or more of SEQ ID NOs: 2064 and 2176; a CDR-L2 comprising one or more of SEQ ID NOs: 2288 and 2400; and a CDR-L3 comprising one or more of SEQ ID NOs: 2512 and 2624.

126. An isolated antibody that specifically binds to tissue factor (TF), wherein the antibody comprises:

(1) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 105 and 430; a CDR-H2 comprising one or more of SEQ ID NOs: 755 and 1080; and a CDR-H3 comprising one or more of SEQ ID NOs: 1405 and 1730;

(2) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 114 and 439; a CDR-H2 comprising one or more of SEQ ID NOs: 764 and 1089; and a CDR-H3 comprising one or more of SEQ ID NOs: 1414 and 1739;

(3) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 117 and 442; a CDR-H2 comprising one or more of SEQ ID NOs: 767 and 1092; and a CDR-H3 comprising one or more of SEQ ID NOs: 1417 and 1742;

(4) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 130 and 455; a CDR-H2 comprising one or more of SEQ ID NOs: 780 and 1105; and a CDR-H3 comprising one or more of SEQ ID NOs: 1430 and 1755;

(5) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 161 and 486; a CDR-H2 comprising one or more of SEQ ID NOs: 811 and 1136; and a CDR-H3 comprising one or more of SEQ ID NOs: 1461 and 1786;

(6) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 189 and 514; a CDR-H2 comprising one or more of SEQ ID NOs: 839 and 1164; and a CDR-H3 comprising one or more of SEQ ID NOs: 1489 and 1814;

(7) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 192 and 517; a CDR-H2 comprising one or more of SEQ ID NOs: 842 and 1167; and a CDR-H3 comprising one or more of SEQ ID NOs: 1492 and 1817;

(8) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 211 and 536; a CDR-H2 comprising one or more of SEQ ID NOs: 861 and 1186; and a CDR-H3 comprising one or more of SEQ ID NOs: 1511 and 1836;

(9) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 214 and 539; a CDR-H2 comprising one or more of SEQ ID NOs: 864 and 1189; and a CDR-H3 comprising one or more of SEQ ID NOs: 1514 and 1839; or

(10) a V_H comprising: a CDR-H1 comprising one or more of SEQ ID NOs: 218 and 543; a CDR-H2 comprising one or more of SEQ ID NOs: 868 and 1193; and a CDR-H3 comprising one or more of SEQ ID NOs: 1518 and 1843.

127. The isolated antibody of claim 126, wherein the antibody comprises:

(1) a V_L comprising: a CDR-L1 comprising one or more of SEQ ID NOs: 1974 and 2086; a CDR-L2 comprising one or more of SEQ ID NOs: 2198 and 2310; and a CDR-L3 comprising one or more of SEQ ID NOs: 2422 and 2534; or

(2) a V_L comprising: a CDR-L1 comprising one or more of SEQ ID NOs: 2064 and 2176; a CDR-L2 comprising one or more of SEQ ID NOs: 2288 and 2400; and a CDR-L3 comprising one or more of SEQ ID NOs: 2512 and 2624.

128. An isolated antibody that specifically binds to tissue factor, wherein the antibody binds to the same epitope as a second antibody comprising a V_H/V_L pair, or a variant thereof, selected from the group consisting of SEQ ID NOs: 2727/3061, 2736/3061, 2739/3061, 2751/3061, 2752/3061, 2753/3061, 2754/3061, 2755/3061, 2756/3061, 2757/3061, 2758/3061, 2759/3061, 2760/3061, 2761/3061, 2762/3061, 2763/3061, 2764/3061, 2765/3061, 2766/3061, 2767/3061, 2768/3061, 2769/3061, 2770/3061, 2771/3061, 2772/3061, 2773/3061, 2774/3061, 2775/3061, 2776/3061, 2777/3061, 2778/3061, 2779/3061, 2780/3061, 2781/3061, 2782/3061, 2783/3061, 2784/3061, 2785/3061, 2786/3061, 2787/3061, 2788/3061, 2789/3061,

2790/3061, 2791/3061, 2792/3061, 2793/3061, 2794/3061, 2795/3061, 2796/3061, 2797/3061, 2798/3061, 2799/3061, 2800/3061, 2801/3061, 2802/3061, 2803/3061, 2804/3061, 2805/3061, 2806/3061, 2807/3061, 2808/3061, 2809/3061, 2810/3061, 2811/3061, 2812/3061, 2813/3061, 2814/3061, 2815/3061, 2816/3061, 2817/3061, 2818/3061, 2819/3061, 2820/3061, 2821/3061, 2822/3061, 2823/3061, 2824/3061, 2825/3061, 2826/3061, 2827/3061, 2828/3061, 2829/3061, 2830/3061, 2831/3061, 2832/3061, 2833/3061, 2834/3061, 2835/3061, 2836/3061, 2837/3061, 2838/3061, 2840/2951, 2846/2957, 2851/2962, 2857/2968, 2859/2970, and 2860/2971.

129. The antibody of claim 128, wherein the isolated antibody inhibits binding of the second antibody to the tissue factor by at least 50%, or wherein the second antibody inhibits binding of the isolated antibody to the tissue factor by at least 50%.

130. The antibody of any one of claims 117-129, wherein the antibody has a k_a of about 5.4×10^4 $M^{-1}\times sec^{-1}$ to about 5.47×10^5 $M^{-1}\times sec^{-1}$ when associating with human tissue factor at a temperature of 25°C.

131. The antibody of any one of claims 117-130, wherein the antibody has a k_d of about 2.75×10^{-4} sec^{-1} to about 2.01×10^{-2} sec^{-1} when dissociating from human tissue factor at a temperature of 25°C.

132. The antibody of any one of claims 117-130, wherein the antibody has a K_D of about 3.59×10^{-9} M to about 1.91×10^{-8} M when bound to human tissue factor at a temperature of 25°C.

133. The antibody of any one of claims 117-130, wherein the antibody has a k_a of about 7.24×10^4 $M^{-1}\times sec^{-1}$ to about 1.21×10^6 $M^{-1}\times sec^{-1}$ when associating with cynomolgus tissue factor at a temperature of 25°C.

134. The antibody of any one of claims 117-130, wherein the antibody has a k_d of about 3.09×10^{-4} sec^{-1} to about 3.93×10^2 sec^{-1} when dissociating from cynomolgus tissue factor at a temperature of 25°C.

135. The antibody of any one of claims 117-130, wherein the antibody has a K_D of about 2.55×10^{-10} M to about 6.07×10^{-8} M when bound to cynomolgus tissue factor at a temperature of 25°C.

136. The antibody of any one of claims 117-133, wherein the antibody comprises at least one constant region domain.

137. The antibody of claim 136, wherein the constant region comprises a sequence selected from SEQ ID NOs: 3062, 3063, 3064, 3065, and 3068.

138. The antibody of any one of claims 117-137, wherein the antibody is a monoclonal antibody.

139. The antibody of any one of claims 117-138, wherein the antibody is an IgA, an IgD, an IgE, an IgG, or an IgM.

140. The antibody of any one of claims 117-139, wherein the antibody is humanized or human.

141. The antibody of any one of claims 117-140, wherein the antibody is glycosylated.

142. The antibody of any one of claims 117-140, wherein the antibody is aglycosylated.

143. The antibody of any one of claims 117-142, wherein the antibody is an antibody fragment.

144. The antibody of claim 143, wherein the antibody fragment is selected from an Fv fragment, a Fab fragment, a $F(ab')_2$ fragment, a Fab' fragment, an scFv (sFv) fragment, and an scFv-Fc fragment.

145. The antibody of claim 144, wherein the antibody is an scFv fragment.

146. The antibody of claim 145, wherein the scFv fragment comprises an scFv sequence selected from SEQ ID NOs: 3073 and 3079, with or without the N-terminal M residue.

147. The antibody of claim 144, wherein the antibody is an scFv-Fc fragment.

148. The antibody of claim 147, wherein the scFv-Fc fragment comprises a sequence selected from SEQ ID NOs: 3072-3159, with or without the N-terminal M residue.

149. The antibody of any one of claims 117-148, wherein the antibody specifically binds cynomolgus tissue factor.

150. A kit comprising an antibody of any one of claims 117-149, the antibody conjugate of any one of claims 1-116 or the pharmaceutical composition of any one of claims 159-169, and instructions for use of the antibody, antibody conjugate or the pharmaceutical composition.

151. The kit of claim 150, wherein the antibody, antibody conjugate or pharmaceutical composition is lyophilized.

152. The kit of claim 151, further comprising a fluid for reconstitution of the lyophilized antibody, antibody conjugate or pharmaceutical composition.

153. A polynucleotide encoding an antibody of any of claims 117-149.

154. A vector comprising the polynucleotide of claim 153.

155. A recombinant host cell comprising the vector of claim 154.

156. The host cell of claim 155, wherein the host cell is selected from the group consisting of a bacterial cell, a fungal cell, and a mammalian cell.

157. The host cell of claim 155, wherein the host cell is selected from the group consisting of an *E. coli* cell, a *Saccharomyces cerevisiae* cell, and a CHO cell.

158. A cell-free expression reaction comprising the vector of claim 154.

159. A pharmaceutical composition comprising the isolated antibody of any of claims 117-149 or the antibody conjugate of any one of claims 1-116 and a pharmaceutically acceptable carrier.

160. A pharmaceutical composition comprising (a) the isolated antibody of any one of claims 117-149 or the antibody conjugate of any one of claims 1-116, (b) one or more additional active agents; and (c) a pharmaceutically acceptable carrier.

161. The pharmaceutical composition of claim 159 or 160, wherein the one or more additional active agents is one or more checkpoint inhibitors.

162. The pharmaceutical composition of claim 161, wherein the one or more checkpoint inhibitors are a PD-1 inhibitor, PD-L1 inhibitor, PD-L2 inhibitor, CTLA-4 inhibitor, LAG-3 inhibitor, or TIM-3 inhibitor.

163. The pharmaceutical composition of claim 162, wherein the one or more checkpoint inhibitors are a PD-1 inhibitor or PD-L1 inhibitor.

164. The pharmaceutical composition of claim 163, wherein the one or more PD-1 or PD-L1 inhibitors are a small molecule blocker of the PD-1 or PD-L1 pathway.

165. The pharmaceutical composition of claim 163, wherein the one or more PD-1 or PD-L1 inhibitors are an antibody that inhibits PD-1 or PD-L1 activity.

166. The pharmaceutical composition of any one of claims 162-165, wherein the one or more PD-1 or PD L1 inhibitors are selected from the group consisting of CA-170, BMS 8, BMS-202, BMS-936558, CK-301, AUNP12, avelumab, nivolumab, pembrolizumab, atezolizumab, durvalumab, AMP 224, MEDI0680/AMP-514, PDR001, cemiplimab, TSR-042, Tizlelizumab/BGB-A317, CK 301, BMS-936559, camrelizumab, sintilimab, toripalimab, genolimzumab, A167, MGA012, PF-06801591, LY3300054, FAZ053, PD-11, CX-072, BGB-A333, BI 754091, JNJ 63723283, AGEN2034, CA-327, CX-188, STI –A1110, JTX-4014, (LLY) AM0001, CBT-502, FS118, XmAb20717, XmAb23104, AB122, KY1003, RXI-762, PRS-33, ALPN-202, TSR-075, MCLA 145, MGD013, and MGD019.

167. The pharmaceutical composition of claim 160, wherein the one or more additional active agents is one or more PARP inhibitors.

168. The pharmaceutical composition of claim 167, wherein the one or more PARP inhibitors are selected from olaparib, rucaparib, niraparib, and talazoparib.

169. The pharmaceutical composition of claim 167, wherein the one or more PARP inhibitors is olaparib.

170. An isolated antibody of any one of claims 117-149, an antibody conjugate of any one of claims 1-116, or a pharmaceutical composition of any one of claims 159-169 for use in reducing cell proliferation.

171. Use of an isolated antibody of any one of claims 117-149, an antibody conjugate of any one of claims 1-116, or a pharmaceutical composition of any one of claims 159-169, in the manufacture of a medicament for treating or preventing a disease or condition in a subject in need thereof.

172. A method of diagnosing a disease or condition in a subject in need thereof, comprising administering to the subject an effective amount of an isolated antibody of any one of claims 117-149, an antibody conjugate of any one of claims 1-116, or a pharmaceutical composition of anyone of claims 159-169.

173. The use of any one of claims 170-172, wherein one or more additional active agents is to be further administered to the subject.

174. The use of claim 173, wherein the one or more additional active agents is a checkpoint inhibitor.

175. The use of claim 174, wherein the checkpoint inhibitor is a PD-1 inhibitor, PD-L1 inhibitor, PD-L2 inhibitor, CTLA-4 inhibitor, LAG-3 inhibitor, or TIM-3 inhibitor.

176. The use of claim 175, wherein the checkpoint inhibitor is a PD-1 inhibitor or PD-L1 inhibitor.

177. The use of claim 176, wherein the PD-1 inhibitor or PD-L1 inhibitor is a small molecule blocker of the PD-1 or PD-L1 pathway.

178. The use of claim 176, wherein the PD-1 inhibitor or PD-L1 inhibitor is an antibody that inhibits PD-1 or PD-L1 activity.

179. The use of any one of claims 170-178, wherein the PD-1 inhibitor or PD L1 inhibitor is selected from the group consisting of CA-170, BMS 8, BMS-202, BMS-936558, CK-301, AUNP12, avelumab, nivolumab, pembrolizumab, atezolizumab, durvalumab, AMP 224, MEDI0680/AMP-514, PDR001, cemiplimab, TSR-042, Tizlelizumab/BGB-A317, CK 301, BMS-936559, camrelizumab, sintilimab, toripalimab, genolimzumab, A167, MGA012, PF-06801591, LY3300054, FAZ053, PD-11, CX-072, BGB-A333, BI 754091, JNJ 63723283, AGEN2034, CA-327, CX-188, STI –A1110, JTX-4014, (LLY) AM0001, CBT-502, FS118, XmAb20717, XmAb23104, AB122, KY1003, RXI-762, PRS-33, ALPN-202, TSR-075, MCLA 145, MGD013, and MGD019.

180. The use of claim 173, wherein the one or more additional active agents is a PARP inhibitor.

181. The use of claim 180, wherein the PARP inhibitor is selected from olaparib, rucaparib, niraparib, and talazoparib.

182. The use of claim 181, wherein the PARP inhibitor is olaparib.

183. The use of any one of claims 173-182, wherein the isolated antibody, the antibody conjugate or the pharmaceutical composition, and the one or more additional agents are to be administered sequentially.

184. The use of any one of claims 173-182, wherein the isolated antibody, the antibody conjugate or the pharmaceutical composition, and the one or more additional agents are to be administered concurrently.

185. The use of any of claims 171-184, wherein the disease or condition is a cancer.

186. The use of any one of claims 171-184, wherein the disease or condition is a TF-expressing cancer.

187. The use of any one of claims 171-184, wherein the disease or condition is a solid tumor cancer.

188. The use of any one of claims 171-184, wherein the disease or condition is selected from the group consisting of cervical cancer, head and neck squamous cell carcinoma, endometrial cancer, esophageal cancer, non-small cell lung cancer, and prostate cancer.

189. The use of any of claims 171-184, wherein the disease or condition is colorectal cancer.

190. Use of a pharmaceutical composition of any one of claims 159-169 in the manufacture of a medicament for treating cancer in a subject in need thereof, wherein the subject is diagnosed with cancer by detection of expression of TF in a cell or tissue of the subject.

191. An isolated antibody of any one of claims 117-149, an antibody conjugate of any one of claims 1-116, or a pharmaceutical composition of any one of claims 159-169, for use in therapy.