CD24 ANTIBODIES

CROSS REFERENCE TO RELATED APPLCATIONS

[0001] This application claims priority to U.S. Provisional Patent Application No. 63/597,266, filed on November 8, 2023, to U.S. Provisional Patent Application No. 63/597,267, filed on November 8, 2023, to U.S. Provisional Patent Application No. 63/597,629, filed on November 9, 2023, and to U.S. Provisional Patent Application No. 63/645,680, filed on May 10, 2024, the content of which are incorporated by reference herein in their entirety.

REFERENCE TO AN ELECTRONIC SEQUENCE LISTING

[0002] The contents of the electronic sequence listing (PHST_002_04WO_SeqList_ST26.xml; Size: 213,097 bytes; and Date of Creation: November 6, 2024) are herein incorporated by reference in its entirety.

BACKGROUND

[0003] CD24 is a heavily glycosylated protein with a small protein core that is linked to the plasma membrane via a glycosyl-phosphatidylinositol anchor. Although CD24 is found in many normal tissues and cell types, CD24 is highly expressed or overexpressed in a number of human cancers, including in at least breast, ovarian, cholangiocarcinoma, renal cell, lung, and colorectal solid cancers, as well as in lymphomas. In cancer, CD24 is thought to be a regulator of cell migration, invasion and proliferation, and its expression is associated with cancer stemness and poor prognosis. More recently CD24 has been identified on tumor cells as a phagocytic inhibitor that provides a “do not eat me” signal by binding Siglec-10 on macrophages. It is thought that this mechanism underlies CD24’s role in tumor immunity. By protecting tumor cells from phagocytosis, CD24 helps the cancer escape immune surveillance by direct macrophage attack and suppresses downstream activation through cross-presentation of cancer-specific antigens to the adaptive immune system.

[0004] The role of the CD24-Siglec-10 binding axis at the interface between tumor cells and the immune system, offers a unique target. Owing to the complex and differentially regulated patterns of CD24 glycosylation, many previously described anti-CD24 reagents bind only a subset of glycoforms, bind with low affinity or variable affinity, or do not possess the necessary characteristics to be manufactured and developed as drugs for administration to human patients.

Accordingly, tools to address these shortcomings are needed for achieving CD24-based immunotherapy and are provided herein.

SUMMARY

[0005] In one aspect, provided herein are antibodies specific for CD24. In some embodiments, the CD24 antibodies of the disclosure bind to human CD24. In some embodiments, the CD24 antibodies of the disclosure bind to cynomolgus monkey CD24. Exemplary antibody amino acid sequences are provided in Tables 1, 2, and 3.

[0006] In some embodiments, the CD24 antibodies of the disclosure are humanized. In some embodiments, the CD24 antibodies of the disclosure are full length antibodies. In some embodiments, the CD24 antibodies of the disclosure are antigen-binding antibody fragments.

[0007] In some embodiments, the CD24 antibodies of the disclosure comprise an Fc domain. In some embodiments, the Fc domain is human IgG1. In some embodiments, the Fc domain is human IgG2. In some embodiments, the Fc domain is human IgG3. In some embodiments, the Fc domain is human IgG4.

[0008] In some embodiments, the CD24 antibodies of the disclosure do not disrupt the interaction between CD24 and Siglec-10. In some embodiments, CD24 antibodies of the disclosure disrupt the interaction between CD24 and Siglec-10.

[0009] Also provided herein are pharmaceutical compositions comprising any of the CD24 antibodies of the disclosure, and optionally a pharmaceutically acceptable carrier.

[0010] In another aspect, provided herein are methods of treatment using the CD24 antibodies of the disclosure. In some embodiments, the CD24 antibodies of the disclosure are used in a method of treatment of treating a disease or condition in a subject in need thereof, comprising administering to the subject a therapeutically effective amount of any CD24 antibody of the disclosure. In some embodiments, the disease or condition is cancer. The cancer or other abnormal proliferative disease may be (but is not limited to) one or more of the following: carcinoma, including that of the bladder, breast, colon, kidney, liver, lung, ovary, pancreas, stomach, cervix, thyroid and skin; including squamous cell carcinoma; hematopoietic tumors of lymphoid lineage, including leukemia, acute lymphocytic leukemia, acute lymphoblastic leukemia, B-cell lymphoma, T-cell lymphoma, Burkett's lymphoma; hematopoietic tumors of myeloid lineage, including acute and chronic myelogenous leukemias and promyelocytic leukemia; tumors of mesenchymal origin, including fibrosarcoma and rhabdomyosarcoma; other

tumors, including melanoma, neuroblastoma and glioma; and tumors of the central and peripheral nervous system.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] FIG. 1 depicts yeast display affinity maturation of PHRHL-03. Data are presented as a contour plot with CD24-MBP antigen binding on the Y axis and surface display (anti-myc) on the X axis.

[0012] FIG. 2 depicts dose-response curves for PHRHL-03 antibody variants discovered by yeast display. Surface display-normalized fluorescence intensity was plotted against antigen concentration.

[0013] FIG. 3 depicts yeast display affinity maturation of PHRHL-113, presented as a histogram depicting the relative number of events (Y axis) against CD24 staining intensity (X axis).

[0014] FIG. 4 depicts dose-response curves for antibody variants discovered by yeast display. Yeast expressing PHRHL-113 variants containing the indicated mutations (IMGT numbering) were stained with a range of CD24-MBP concentrations. Surface display-normalized fluorescence intensity was plotted against antigen concentration.

[0015] FIG. 5A-5D depicts analytical SEC profiles of antibody variants. The indicated antibodies were expressed by transient transfection in Expi293 cells, purified by Protein A affinity chromatography and analyzed by size exclusion chromatography.

[0016] FIG. 6A-6B depicts phagocytosis of HEC-1a endometrial adenocarcinoma cells in the presence of CD24 antibodies of the disclosure.

[0017] FIG. 7A-7B depicts phagocytosis of OVCAR-3 ovarian adenocarcinoma cells in the presence of CD24 antibodies of the disclosure.

[0018] FIG. 8 depicts phagocytosis of OVCAR-8 ovarian adenocarcinoma cells in the presence of CD24 antibodies of the disclosure.

[0019] FIG. 9A-9B depicts phagocytosis of BxPC-3 pancreatic adenocarcinoma cells in the presence of CD24 antibodies of the disclosure.

[0020] FIG. 10 depicts phagocytosis of BT474 ductal adenocarcinoma cells in the presence of CD24 antibodies of the disclosure.

[0021] FIG. 11 depicts phagocytosis of HAP1 chronic myelogenous leukemia cells in the presence of CD24 antibodies of the disclosure.

[0022] FIG. 12 shows the ability of PHRHL-104 to block binding between CD24 and Siglec-10, measured in a competitive ELISA experiment. The IC50 was calculated as the concentration of PHRHL-104 which reduced the Siglec-10-CD24 binding response by half.

[0023] FIG. 13 shows the results of PHRHL-104 treatment in a mouse in vivo cancer model. Panel A shows a representative bioluminescence image of tumor burden in NSG mice engrafted with MFM223 tumor cells and treated with 20mpk of PHRHL-104 or 20mpk of isotype control. Images were taken at 2 DPE, 22DPE, 44DPE and 71DPE. Panel B shows the burden of MFM223 tumors as measured by bioluminescence imaging at 71 DPE (non-parametric unpaired t test, ***P = 0.0003). Mice were treated with isotype control or PHRHL-104 (20mpk) (isotype control n = 10, PHRHL-104 n = 9). Panel C shows the total tumor flux of mice treated with PHRHL-104 or isotype control over time. The gray rectangle depicts the period when mice were subjected to treatment (3 times per week for a total of 18 doses). The dotted line depicts the limit of bioluminescence detection, as established with naïve non-tumor bearing mice. Panel D shows Kaplan-Meier survival curves of mice treated with PHRHL-104 or isotype control. DPE: days post engraftment.

DETAILED DESCRIPTION

I. Definitions

[0024] Unless defined otherwise, all terms of art, notations, and other technical and scientific terms or terminology used herein are intended to have the same meaning as is commonly understood by one of ordinary skill in the art to which the claimed subject matter pertains. In some cases, terms with commonly understood meanings are defined herein for clarity and/or for ready reference, and the inclusion of such definitions herein should not necessarily be construed to represent a substantial difference over what is generally understood in the art.

[0025] As used herein, the articles “a” and “an” refer to one or to more than one (i.e. to at least one) of the grammatical object of the article. By way of example, “an antibody” means one antibody or more than one antibody.

[0026] As used herein, the term “about” will be understood by persons of ordinary skill in the art and will vary to some extent on the context in which it is used. In some embodiments, the term “about” when referring to a measurable value such as an amount, a temporal duration, and the like, is meant to encompass art-accepted variations based on standard errors in making such

measurements. In some embodiments, the term "about" when referring to such values, is meant to encompass variations of ±10% from the specified value.

[0027] As used herein, "affinity" refers to the strength of the sum total of noncovalent interactions between a single binding site of a molecule (e.g., an antibody) and its binding partner (e.g., an antigen). The affinity of a molecule for its partner can generally be represented by the equilibrium dissociation constant (KD) (or its inverse equilibrium association constant, KA). Affinity can be measured by common methods known in the art.

[0028] As used herein, "antibody" is meant in a broad sense and includes immunoglobulin molecules including monoclonal antibodies including murine, human, humanized and chimeric antibodies, antibody fragments, bispecific or multispecific antibodies formed from at least two intact antibodies or antibody fragments, dimeric, tetrameric or multimeric antibodies, single chain antibodies, and any other modified configuration of the immunoglobulin molecule that comprises an antigen recognition site of the required specificity.

[0029] Immunoglobulins can be assigned to five major classes, namely IgA, IgD, IgE, IgG, and IgM, depending on the heavy chain constant domain amino acid sequence. IgG antibodies further sub-classified to IgG1, IgG2, IgG3, and IgG4. Antibody light chains of any vertebrate species can be kappa (κ) or lambda (A), based on the amino acid sequences of their constant domains.

[0030] As used herein, "constant domain" refers to a portion of an immunoglobulin molecule that formed by the Fc domain of the heavy chain (CH1, CH2, and CH3). In some instances, the term "constant domain" is meant to additionally include the CL region of the light chain.

[0031] As used herein, "antigen binding fragment" or "antibody fragment" refers to a portion of an immunoglobulin molecule that retains the heavy chain and the light chain antigen binding sites, such as a heavy chain complementarity determining regions (CDRH) 1 (CDRH1), 2 (CDRH2), and 3 (CDRH3), and the light chain complementarity determining regions (CDRL) 1 (CDRL1), 2 (CDRL2), and 3 (CDRL3). Antibody fragments include, but are not limited to, a single-chain Fv (scFv) comprising VH and VL domains of an antibody wherein these domains are present in a single polypeptide chain, a Fab fragment (a monovalent fragment comprising a VL and a VH) and a F(ab) 2 fragment (a bivalent fragment comprising two Fab fragments linked by a disulfide bridge at the hinge region). VH and VL domains can be engineered and linked together via a synthetic linker to form various types of single chain antibody designs. Antibody

fragments are obtained using well known techniques and the fragments are characterized in the same manner as are intact antibodies.

[0032] An antibody variable region comprises a framework region interrupted by the CDR antigen binding sites. The term "framework," or "FR" or "framework sequence" refers to the remaining sequences of a variable region other than those sequences defined to be antigen binding sites. Because the antigen binding site can be defined by various terms as described above, the exact amino acid sequence of a framework depends on how the antigen-binding site is defined. FRs are located between CDRs, for example, with FR-H1 located before CDRH1, FR-H2 located between CDRH1 and CDRH2, FR-H3 located between CDRH2 and CDRH3 and so forth.

[0033] The term "CDR" denotes a complementarity determining region as defined by at least one manner of identification to one of skill in the art. The precise amino acid sequence boundaries of a given CDR or FR can be readily determined using any of a number of well-known schemes, including those described by Kabat et al. (1991), "Sequences of Proteins of Immunological Interest," 5th Ed. Public Health Service, National Institutes of Health, Bethesda, Md. ("Kabat" numbering scheme); Al-Lazikani et al., (1997) JMB 273, 927-948 ("Chothia" numbering scheme); MacCallum et al., J. Mol. Biol. 262:732-745 (1996), "Antibody-antigen interactions: Contact analysis and binding site topography," J. Mol. Biol. 262, 732-745." ("Contact" numbering scheme); Lefranc M P et al., "IMGT unique numbering for immunoglobulin and T cell receptor variable domains and Ig superfamily V-like domains," Dev Comp Immunol, 2003 January; 27(1):55-77 ("IMGT" numbering scheme); Honegger A and Pluckthun A, "Yet another numbering scheme for immunoglobulin variable domains: an automatic modeling and analysis tool," J Mol Biol, 2001 Jun. 8; 309(3):657-70, ("Aho" numbering scheme); and Martin et al., "Modeling antibody hypervariable loops: a combined algorithm," PNAS, 1989, 86(23):9268-9272, ("AbM" numbering scheme).

[0034] The boundaries of a given CDR or FR may vary depending on the scheme used for identification. For example, the Kabat scheme is based on structural alignments, while the Chothia scheme is based on structural information.

[0035] In some embodiments, CDRs can be defined in accordance with any of the Chothia numbering schemes, the Kabat numbering scheme, the IMGT numbering scheme, a combination of Kabat, IMGT, and Chothia, the AbM definition, and/or the contact definition.

[0036] As used herein, the term "specifically binds" to a target molecule, such as an antigen, means that a binding molecule, such as a single domain antibody, reacts or associates more frequently, more rapidly, with greater duration, and/or with greater affinity with a particular target molecule than it does with alternative molecules. As such, "specific binding" does not necessarily require (although it can include) exclusive binding.

[0037] As used herein, percent (%)identity as it relates to amino acid sequences are defined as the percentage of amino acid residues in a candidate sequence that are identical with the amino acid residues in another peptide or polypeptide sequence, after aligning the sequences and introducing gaps, if necessary, to achieve the maximum percent sequence identity. Alignment for purposes of determining percent amino acid sequence identity can be achieved in various ways that are within the skill in the art, for instance, using publicly available computer software such as BLAST, BLAST-2, ALIGN, or MEGALIGN (DNASTAR) software. Those skilled in the art can determine appropriate parameters for measuring alignment, including any algorithms needed to achieve maximal alignment over the full length of the sequences being compared.

[0038] The term "isolated" as used herein refers to a molecule that has been separated from at least some of the components with which it is typically found in nature or produced. For example, a polypeptide is referred to as "isolated" when it is separated from at least some of the components of the cell in which it was produced. When a polypeptide is secreted by a cell after expression, physically separating the supernatant containing the polypeptide from the cell that produced it is considered to be "isolating" the polypeptide. Similarly, a polynucleotide is referred to as "isolated" when it is not part of the larger polynucleotide (such as, for example, genomic DNA or mitochondrial DNA, in the case of a DNA polynucleotide) in which it is typically found in nature, or is separated from at least some of the components of the cell in which it was produced. Thus, a DNA polynucleotide that is contained in a vector inside a host cell may be referred to as "isolated."

[0039] The term "effective amount" as used herein means an amount of a pharmaceutical composition which is sufficient to significantly and positively modify the symptoms and/or conditions to be treated (e.g., provide a positive clinical response).

[0040] As used herein, a composition refers to any mixture of two or more products, substances, or compounds. It may be a solution, a suspension, liquid, powder, a paste, aqueous, non-aqueous, or any combination thereof.

[0041] As used herein, the term "pharmaceutically acceptable" refers to a material, such as a carrier or diluent, which does not abrogate the biological activity or properties of a therapeutic compound, and is relatively nontoxic, i.e., the material may be administered to an individual without causing undesirable biological effects or interacting in a deleterious manner with any of the components of the composition in which it is contained.

[0042] As used herein, the term "pharmaceutical composition" refers to a mixture of at least one targeted antibody of the disclosure with other chemical components, such as carriers, stabilizers, diluents, dispersing agents, suspending agents, thickening agents, and/or excipients. Multiple techniques of administering the antibodies and pharmaceutical compositions of the disclosure exist in the art including, but not limited to, intravenous, oral, aerosol, parenteral, ophthalmic, pulmonary, and topical administration.

[0043] As used herein, the terms "treat," "treating," or "treatment" refer to ameliorating a disease or disorder, e.g., slowing or arresting or reducing the development of the disease or disorder or reducing at least one of the clinical symptoms thereof. For purposes of this disclosure, ameliorating a disease or disorder can include obtaining a beneficial or desired clinical result that includes, but is not limited to, any one or more of: alleviation of one or more symptoms, diminishment of extent of disease, preventing or delaying spread (for example, metastasis, for example metastasis to the lung or to the lymph node) of disease, preventing or delaying recurrence of disease, delay or slowing of disease progression, amelioration of the disease state, inhibiting the disease or progression of the disease, inhibiting or slowing the disease or its progression, arresting its development, and remission (whether partial or total).

[0044] The terms "individual" and "subject" are used interchangeably herein to refer to an animal; for example a mammal. The terms include human and veterinary animals. In some embodiments, methods of treating animals, including, but not limited to, humans, rodents, simians, felines, canines, equines, bovines, porcines, ovines, caprines, mammalian laboratory animals, mammalian farm animals, mammalian sport animals, and mammalian pets, are provided. The animal can be male or female and can be any suitable age, including infant, juvenile, adolescent, adult, and geriatric. In some examples, an "individual" or "subject" refers to an animal in need of treatment for a disease or disorder. In some embodiments, the animal to receive the treatment can be a "patient," designating the fact that the animal has been identified as having a disorder of relevance to the treatment, or being at adequate risk of contracting the disorder. In particular embodiments, the animal is a human, such as a human patient.

[0045] All publications, patents, and patent applications mentioned in this specification are herein incorporated by reference to the same extent as if each individual publication, patent, or patent application was specifically and individually indicated to be incorporated by reference.

II. CD24-Specific Antibodies

[0046] Described herein are novel antibodies that specifically bind CD24. There are several single nucleotide polymorphisms and allelic variations in CD24 that give rise to CD24 variants, and that are associated with immune outcomes. The antibodies provided herein may bind one or more of these variants. The term "CD24" as used herein is inclusive of all variants and isoforms of CD24, regardless of species.

[0047] The human CD24 protein has been characterized to have at least two isoforms. The amino acid sequence of the mature form of one of the isoforms of human CD24 is: SETTTGTSSNSSQSTSNSGLAPNPTNATTKAA (SEQ ID NO: 195; this sequence does not include a signal peptide or C-terminus displaced by GPI anchor).

[0048] In some embodiments, the antibodies of the disclosure bind particular epitopes of CD24, e.g. to SEQ ID NO: 195..

[0049] In some embodiments, the antibodies of the disclosure binds to non-glycosylated CD24. In other embodiments, the antibodies of the disclosure bind to glycosylated CD24 either in recombinant form or on the surface of the cell. In some embodiments, the antibodies of the disclosure bind to all CD24 glycoforms. In other embodiments, the antibodies of the disclosure are capable of binding to different CD24 glycoforms with varying affinities. In other embodiments, the antibodies of the disclosure are non-binders of certain CD24 glycoforms.

[0050] In some embodiments, the binding of the antibodies of the disclosure to CD24 induces or enhances phagocytosis in a glycosylation dependent manner. In other embodiments, the binding of the antibodies of the disclosure to CD24 induces or enhances phagocytosis in a glycosylation independent manner.

[0051] In some embodiments, the binding of the antibodies of the disclosure to CD24 induces or enhances phagocytosis in a sialylation dependent manner. In other embodiments, the binding of the antibodies of the disclosure to CD24 induces or enhances phagocytosis in a sialylation independent manner.

[0052] In some embodiments, the antibodies of the disclosure disrupt the binding of CD24 to Siglec-10, for example on macrophages. That is, in some embodiments, the CD24 antibodies

provided herein compete with Siglec-10 for binding to CD24. In other embodiments, the antibodies provided herein do not disrupt the binding of CD24 to Siglec-10, that is they do not compete with Siglec-10 for binding to CD24. In other embodiments, the antibodies provided herein compete with a molecule other than Siglec-10 for the binding of CD24.

[0053] In some embodiments, the antibodies of the disclosure bind human CD24. In some embodiments, the antibodies of the disclosure may cross-react with a cynomolgus (or "cyno") CD24, or other non-human primate CD24. In other embodiments, the antibodies of the disclosure do not cross-react, or minimally cross with a cyno CD24, or other non-human primate CD24.

[0054] In some embodiments, the CD24 antibodies provided herein are full-length antibodies (comprising an intact tetrameric antibody containing two light chains and two heavy chains, each with a variable region, and a constant region). In some embodiments, the constant region of the full-length CD24 antibodies comprises a human Fc domain, selected from human IgG1, human IgG2, human IgG3, and human IgG4 Fc domains. In some embodiments, the constant region of the full-length CD24 antibodies comprises a mouse Fc domain, selected from mouse IgG1 and mouse IgG2a Fc domains. In some embodiments, the constant region of the full-length CD24 antibodies comprises a rat Fc domain, selected from rat IgG1 and rat IgG2b Fc domains. In embodiments, the Fc domain of a full-length CD24 antibody is that of a non-human primate, e.g. a cynomolgus monkey Fc domain. In exemplary embodiments, full length CD24 antibody comprises a human IgG1 or comprises a human IgG4.

[0055] In further embodiments, the Fc domain could be further modified to exhibit lower or attenuated effector function (e.g. Fc-dead human IgG1). In some embodiments, the Fc region of the CD24 antibodies may incorporate one or more mutations that attenuate Fc activity, including but not limited to the following mutations and combinations thereof: L234A, L235A, G237A, and N297A.

[0056] In further embodiments, the Fc domain could be further modified to enhance effector function. Such enhancement may be achieved through post-translational modifications, such as afucosylation, or through other techniques and modifications aimed at increased binding to Fc receptors or enhancing antibody-mediated cellular cytotoxicity (ADCC), antibody-mediated cellular phagocytosis (ADCP), and/or complement-dependent cytotoxicity (CDC).

[0057] In other embodiments, a CD24 antibody of the disclosure comprises a Fc domain, but the antibody is not a full length antibody, e.g. the Fc useful to improve half-life and other

pharmacokinetics. For example, an antibody fragment of the disclosure (e.g. a scFv) could be further fused to a Fc domain. In such instances, it is contemplated that the Fc domain could be obtained from human IgG1, human IgG2, human IgG3, human IgG4, mouse IgG1, mouse IgG2a, rat IgG1 or rat IgG2b. In exemplary embodiments, the Fc domain is obtained from a human IgG1 or human IgG4. In further embodiments, the Fc domain could be further modified to have lower effector function (e.g. Fc-dead human IgG1).

[0058] In some embodiments, provided herein are antibodies comprising a K_D to CD24 of at least about 0.1 nM, at least about 0.5 nM, at least about 1 nM, at least about 5 nM, at least about 10 nM, at least about 50 nM, at least about 100 nM, at least about 500 nM, at least about 1 μM, at least about 1.5 μM, or at least about 2 μM.

[0059] Sequences for exemplary CD24 antibodies of the disclosure are shown in Tables 1-3 below.

[0060] Table 1 provides exemplary heavy chain (HC) and light chain (LC) amino acid sequences of the CD24 antibodies of the disclosure. Exemplary complementarity determining regions (CDRs) (e.g. as determined by Kabat) are indicated in bold.

Table 1: Exemplary Heavy Chain and Light Chain Amino Acid Sequences of CD24 Antibodies

Antibody ID	**Heavy chain sequence (HC)**	**Light chain sequence (LC)**
PHRHL-01	QVQLKESGPGLVAPSQSLSITCTVSGFSLT **SYGVH**WVRQPPGKGLEWIG**VIWAGGST NYNSALMS**RLSISKDNSKSQVFLKMNSL QTDDTAMYYCAV**YYGYLFFAY**WGQGT LVTVSAAKTTPPSVYPLAPGSAAQTNSMV TLGCLVKGYFPEPVTVTWNSGSLSSGVHT FPAVLQSDLYTLSSSVTVPSSTWPSETVTC NVAHPASSTKVDKKIVPRDCGCKPCICTV PEVSSVFIFPPKPKDVLTITLTPKVTCVVV DISKDDPEVQFSWFVDDVEVHTAQTQPR EEQFNSTFRSVSELPIMHQDWLNGKEFKC RVNSAAFPAPIEKTISKTKGRPKAPQVYTI PPPKEQMAKDKVSLTCMITNFFPEDITVE WQWNGQPAENYKNTQPIMDTDGSYFVY SKLNVQKSNWEAGNTFTCSVLHEGLHNH HTEKSLSHSPGK (SEQ ID NO: 1)	ENVLTQSPAIMSASPGEKVTMTC**SASSSV SYMH**WYQQKSTTSPKLWIY**DTSKLAS**G VPGRFSGSGSGNSYSLTISSMEAEDVATY YC**FQGSGYPLT**FGGGTKLEIKRADAAPT VSIFPPSSEQLTSGGASVVCFLNNFYPKDI NVKWKIDGSERQNGVLNSWTDQDSKDST YSMSSTLTLTKDEYERHNSYTCEATHKTS TSPIVKSFNRNEC (SEQ ID NO: 2)

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
PHRHL-02	QVQLKESGPGLVAPSQSLSITCTVSGFSLT**SYGVH**WVRQPPGKGLEWIG**VIWAGGST NYNSALMS**RLSISKDNSKSQVFLKMNSL QTDDTAMYYCAV**YYGYLFFAY**WGQGT LVTVSAGGGSGSLVPRGSGSGSGSKTHTC PPCPAPELLGGPSVFLFPPKPKDTLMISRTP EVTCVVVDVSHEDPEVKFNWYVDGVEV HNAKTKPREEQYNSTYRVVSVLTVLHQD WLNGKEYKCKVSNKALPAPIEKTISKAKG QPREPQVYTLPPSREEMTKNQVSLTCLVK GFYPSDIAVEWESNGQPENNYKTTPPVLD SDGSFFLYSKLTVDKSRWQEGNVFSCSV MHEALHNHYTQKSLSLSPGK (SEQ ID NO: 3)	ENVLTQSPAIMSASPGEKVTMTC**SASSSV SYMH**WYQQKSTTSPKLWIY**DTSKLAS**G VPGRFSGSGSGNSYSLTISSMEAEDVATY YC**FQGSGYPLT**FGGGTKLEIKRASSRSGG GSGGGGSSGGGGS (SEQ ID NO: 31)
PHRHL-03	QVQLVESGGGLVQPGQSLRLSCAVSGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWAGG STNYNDSLKG**RLTISKDNSKNTVYLQMN SLRAEDTAVYYCAV**YYGYLFFAY**WGQG TLVTVSSASTKGPSVFPLAPCSRSTSESTA ALGCLVKDYFPEPVTVSWNSGALTSGVH TFPAVLQSSGLYSLSSVVTVPSSSLGTKTY TCNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLS (SEQ ID NO: 4)	EIVLTQSPATLSASPGEKVTITC**SASSSVSY LH**WYQQKPGTSPKLLIY**DTSKRPS**GVPD RFSGSGSGNSYSLTISSMEAEDVATYYC**F QGSGYPLT**FGGGTKLEIKRTVAAPSVFIF PPSDEQLKSGTASVVCLLNNFYPREAKVQ WKVDNALQSGNSQESVTEQDSKDSTYSL SSTLTLSKADYEKHKVYACEVTHQGLSSP VTKSFNRGEC (SEQ ID NO: 5)
PHRHL-04	QVQLVESGGGLVQPGQSLRLSCAVSGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWAGG STNYNDSLKG**RLTISKDNSKNTVYLQMN SLRAEDTAVYYCAV**YYGYLFFAY**WGQG TLVTVSSASTKGPSVFPLAPCSRSTSESTA ALGCLVKDYFPEPVTVSWNSGALTSGVH	ENVLTQSPATLSASPGEKVTITC**SASSSVS YMH**WYQQKPGTSPKLLIY**DTSKLAS**GVP DRFSGSGSGNSYSLTISSLEAEDVATYYC**F QGSGYPLT**FGGGTKLEIKRTVAAPSVFIF PPSDEQLKSGTASVVCLLNNFYPREAKVQ WKVDNALQSGNSQESVTEQDSKDSTYSL

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	TFPAVLQSSGLYSLSSVVTVPSSSLGTKTY TCNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLS (SEQ ID NO: 4)	SSTLTLSKADYEKHKVYACEVTHQGLSSP VTKSFNRGEC (SEQ ID NO: 6)
PHRHL-05	QVQLVESGGGLVQPGQSLRLSCAVSGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWAGG STNYNDSLKG**RLTISKDNSKNTVYLQMN SLRAEDTAVYYCAV**YYGYLFFAY**WGQG TLVTVSSASTKGPSVFPLAPCSRSTSESTA ALGCLVKDYFPEPVTVSWNSGALTSGVH TFPAVLQSSGLYSLSSVVTVPSSSLGTKTY TCNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLS (SEQ ID NO: 4)	ENVLTQSPATLSASPGEKVTITC**SASSSVS YMH**WYQQKPGQSPKLWIY**DTSKLAS**GV PGRFSGSGSGTDYTLTISGLQAEDEADYY C**FQGSGYPLT**FGGGTKLEIKRTVAAPSVF IFPPSDEQLKSGTASVVCLLNNFYPREAK VQWKVDNALQSGNSQESVTEQDSKDSTY SLSSTLTLSKADYEKHKVYACEVTHQGLS SPVTKSFNRGEC (SEQ ID NO: 7)
PHRHL-06	QVQLVESGGGLVQPGQSLRLSCAVSGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWAGG STNYNSALMS**RLTISKDNSKNTVYLQMN SLRAEDTAVYYCAV**YYGYLFFAY**WGQG TLVTVSSASTKGPSVFPLAPCSRSTSESTA ALGCLVKDYFPEPVTVSWNSGALTSGVH TFPAVLQSSGLYSLSSVVTVPSSSLGTKTY TCNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA	ENVLTQSPATLSASPGEKVTITC**SASSSVS YMH**WYQQKPGTSPKLLIY**DTSKLAS**GVP DRFSGSGSGNSYSLTISSLEAEDVATYYC**F QGSGYPLT**FGGGTKLEIKRTVAAPSVFIF PPSDEQLKSGTASVVCLLNNFYPREAKVQ WKVDNALQSGNSQESVTEQDSKDSTYSL SSTLTLSKADYEKHKVYACEVTHQGLSSP VTKSFNRGEC (SEQ ID NO: 6)

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLS (SEQ ID NO: 8)	
PHRHL-07	QVQLVESGGGLVQPGQSLRLSCAVSGFSL T**SYGVH**WVRQAPGKGLEWVG**VIWAGG STNYNDSLKG**RFTISKDNSKNTVYLQMN SLRAEDTAVYYCAV**YYGYLFFAY**WGQG TLVTVSSASTKGPSVFPLAPCSRSTSESTA ALGCLVKDYFPEPVTVSWNSGALTSGVH TFPAVLQSSGLYSLSSVVTVPSSSLGTKTY TCNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLS (SEQ ID NO: 9)	ENVLTQSPATLSASPGEKVTITC**SASSSVS YMH**WYQQKPGQSPKLWIY**DTSKLAS**GV PGRFSGSGSGTDYTLTISGLQAEDEADYY C**FQGSGYPLT**FGGGTKLEIKRTVAAPSVF IFPPSDEQLKSGTASVVCLLNNFYPREAK VQWKVDNALQSGNSQESVTEQDSKDSTY SLSSTLTLSKADYEKHKVYACEVTHQGLS SPVTKSFNRGEC (SEQ ID NO: 7)
PHRHL-08	QVQLVESGGGLVQPGQSLRLSCAVSGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWAGG STNYNSALMS**RLTISKDNSKNTVYLQMN SLRAEDTAVYYCAV**YYGYLFFAY**WGQG TLVTVSSASTKGPSVFPLAPCSRSTSESTA ALGCLVKDYFPEPVTVSWNSGALTSGVH TFPAVLQSSGLYSLSSVVTVPSSSLGTKTY TCNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG	ENVLTQSPATLSASPGEKVTITC**SASSSVS YMH**WYQQKPGQSPKLWIY**DTSKLAS**GV PGRFSGSGSGTDYTLTISGLQAEDEADYY C**FQGSGYPLT**FGGGTKLEIKRTVAAPSVF IFPPSDEQLKSGTASVVCLLNNFYPREAK VQWKVDNALQSGNSQESVTEQDSKDSTY SLSSTLTLSKADYEKHKVYACEVTHQGLS SPVTKSFNRGEC (SEQ ID NO: 7)

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLS (SEQ ID NO: 8)	
PHRHL-09	QVQLVESGGGLVQPGQSLRLSCAVSGFSL T**SYGVH**WVRQAPGKGLEWVG**VIWAGG STNYNDSLKG**RFTISKDNSKNTVYLQMN SLRAEDTAVYYCAV**YYGYLFFAY**WGQG TLVTVSSASTKGPSVFPLAPCSRSTSESTA ALGCLVKDYFPEPVTVSWNSGALTSGVH TFPAVLQSSGLYSLSSVVTVPSSSLGTKTY TCNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLS (SEQ ID NO: 9)	ENVLTQSPATLSASPGEKVTITC**SASSSVS YMH**WYQQKPGTSPKLLIY**DTSKLAS**GVP DRFSGSGSGNSYSLTISSLEAEDVATYYC**F QGSGYPLT**FGGGTKLEIKRTVAAPSVFIF PPSDEQLKSGTASVVCLLNNFYPREAKVQ WKVDNALQSGNSQESVTEQDSKDSTYSL SSTLTLSKADYEKHKVYACEVTHQGLSSP VTKSFNRGEC (SEQ ID NO: 6)
PHRHL-10	QVQLVESGGGLVQPGQSLRLSCAVSGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWAGG STNYNSALM**SRLTISKDNSKNTVYLQMN SLRAEDTAVYYCAV**YYGYLFFAY**WGQG TLVTVSSASTKGPSVFPLAPCSRSTSESTA ALGCLVKDYFPEPVTVSWNSGALTSGVH TFPAVLQSSGLYSLSSVVTVPSSSLGTKTY TCNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLS (SEQ ID NO: 8)	EIVLTQSPATLSASPGEKVTITC**SASSSVSY LH**WYQQKPGTSPKLLIY**DTSKRPS**GVPD RFSGSGSGNSYSLTISSMEAEDVATYYC**F QGSGYPLT**FGGGTKLEIKRTVAAPSVFIF PPSDEQLKSGTASVVCLLNNFYPREAKVQ WKVDNALQSGNSQESVTEQDSKDSTYSL SSTLTLSKADYEKHKVYACEVTHQGLSSP VTKSFNRGEC (SEQ ID NO: 5)
PHRHL-11	QVQLVESGGGLVQPGQSLRLSCAVSGFSL T**SYGVH**WVRQAPGKGLEWVG**VIWAGG**	EIVLTQSPATLSASPGEKVTITC**SASSSVSY LH**WYQQKPGTSPKLLIY**DTSKRPS**GVPD

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	STNYNDSLKGRFTISKDNSKNTVYLQMN SLRAEDTAVYYCAV**YYGYLFFAY**WGQG TLVTVSSASTKGPSVFPLAPCSRSTSESTA ALGCLVKDYFPEPVTVSWNSGALTSGVH TFPAVLQSSGLYSLSSVVTVPSSSLGTKTY TCNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLS (SEQ ID NO: 9)	RFSGSGSGNSYSLTISSMEAEDVATYYC**F QGSGYPLT**FGGGTKLEIKRTVAAPSVFIF PPSDEQLKSGTASVVCLLNNFYPREAKVQ WKVDNALQSGNSQESVTEQDSKDSTYSL SSTLTLSKADYEKHKVYACEVTHQGLSSP VTKSFNRGEC (SEQ ID NO: 5)
PHRHL-12	QVQLVESGGGVVQPGGSLRLSCAASGFSL T**SYGVH**WVRQAPGKGLEWIG**VIWAGGS TNYNSALMS**RLTISKDNSKNTVYLQMNS LRAEDTAVYYCAV**YYGYLFFAY**WGQGT LVTVSSASTKGPSVFPLAPCSRSTSESTAA LGCLVKDYFPEPVTVSWNSGALTSGVHT FPAVLQSSGLYSLSSVVTVPSSSLGTKTYT CNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLSLG (SEQ ID NO: 10)	ENVLTQSPDFQSVTPKEKVTITC**SASSSVS YMH**WYQQKPGKAPKLWIY**DTSKLAS**GV PSRFSGSGSGNDYTLTISSLQPEDFATYYC **FQGSGYPLT**FGGGTKVEIKRTVAAPSVFI FPPSDEQLKSGTASVVCLLNNFYPREAKV QWKVDNALQSGNSQESVTEQDSKDSTYS LSSTLTLSKADYEKHKVYACEVTHQGLSS PVTKSFNRGEC (SEQ ID NO: 11)
PHRHL-13	QVQLQESGPGLVKPSQTLSLTCTVSGGSL T**SYGVH**WVRQPPGKGLEWIG**VIWAGGS TNYNSALMS**RLSISVDTSKSQFSLKLNSV TAADTAMYYCAR**YYGYLFFAY**WGQGTL VTVSSASTKGPSVFPLAPCSRSTSESTAAL GCLVKDYFPEPVTVSWNSGALTSGVHTFP	EIVLTQSPATLSLSPGERATLSC**SASSSVSY MH**WYQQKPGKAPKLLIY**DTSKLAS**GVPS RFSGSGSGTDFTLTISSLQAEDFATYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	AVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAP EFLGGPSVFLFPPKPKDTLMISRTPEVTCV VVDVSQEDPEVQFNWYVDGVEVHNAKT KPREEQFNSTYRVVSVLTVLHQDWLNGK EYKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 12)	TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 13)
PHRHL-14	QVQLQESGPGLVKPSETLSLTCTVSGFSLT **SYGVH**WIRQPPGKGLEWIG**VIWAGGSTN YNSALMS**RLTISKDNSKNQVSLKLSSVTA ADTAVYYCAV**YYGYLFFAY**WGQGTLVT VSSASTKGPSVFPLAPCSRSTSESTAALGC LVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 14)	ENVLTQSPDFQSVTPKEKVTITC**SASSSVS YMH**WYQQKPGKAPKLWIY**DTSKLAS**GV PSRFSGSGSGNDYTLTISSLQPEDFATYYC **FQGSGYPLT**FGGGTKVEIKRTVAAPSVFI FPPSDEQLKSGTASVVCLLNNFYPREAKV QWKVDNALQSGNSQESVTEQDSKDSTYS LSSTLTLSKADYEKHKVYACEVTHQGLSS PVTKSFNRGEC (SEQ ID NO: 11)
PHRHL-15	QVQLVESGGGLVQPGQSLRLSCAVSGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWAGG STNYNDSLKG**RLTISKDNSKNTVYLQMN SLRAEDTAVYYCAV**YYGYLFFAY**WGQG TLVTVSSASTKGPSVFPLAPCSRSTSESTA ALGCLVKDYFPEPVTVSWNSGALTSGVH TFPAVLQSSGLYSLSSVVTVPSSSLGTKTY TCNVDHKPSNTKVDKRVESKYGPPCPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA	EIVLTQSPATLSASPGEKVTITC**SASSSVSY LH**WYQQKPGTSPKLLIY**DTSKRPS**GVPD RFSGSGSGNSYSLTISSLEAEDVATYYC**FQ GSGYPLT**FGGGTKLEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 15)

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLS (SEQ ID NO: 4)	
PHRHL-16	QVQLVESGGGLVQPGQSLRLSCAVSGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS TNYNDSLKG**RLTISKDNSKNTVYLQMNS LRAEDTAVYYCAV**YYGYLFFAY**WGQGT LVTVSSASTKGPSVFPLAPCSRSTSESTAA LGCLVKDYFPEPVTVSWNSGALTSGVHT FPAVLQSSGLYSLSSVVTVPSSSLGTKTYT CNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLS (SEQ ID NO: 16)	EIVLTQSPATLSASPGEKVTITC**SASSSVSY LH**WYQQKPGTSPKLLIY**DTSKRPS**GVPD RFSGSGSGNSYSLTISSLEAEDVATYYC**FQ GSGYPLT**FGGGTKLEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 15)
PHRHL-17	QVQLVESGGGLVQPGQSLRLSCAVSGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS TNYNDSLKG**RLTISKDNSKNTVYLQMNS LRAEDTAVYYCAV**YYGYLFFAY**WGQGT LVTVSSASTKGPSVFPLAPCSRSTSESTAA LGCLVKDYFPEPVTVSWNSGALTSGVHT FPAVLQSSGLYSLSSVVTVPSSSLGTKTYT CNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG	EIVLTQSPATLSASPGEKVTITC**SASSSVSY LH**WYQQKPGTSPKLLIY**DTSKRPS**GVPD RFSGSGSGNSYSLTISSMEAEDVATYYC**F QGSGYPLT**FGGGTKLEIKRTVAAPSVFIF PPSDEQLKSGTASVVCLLNNFYPREAKVQ WKVDNALQSGNSQESVTEQDSKDSTYSL SSTLTLSKADYEKHKVYACEVTHQGLSSP VTKSFNRGEC (SEQ ID NO: 5)

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLS (SEQ ID NO: 16)	
PHRHL-18	QVQLVESGGGLVQPGQSLRLSCAVSGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWAGG STNYNDSLKG**RLTISKDNSKNTVYLQMN SLRAEDTAVYYCAV**YYGYQFFAY**WGQG TLVTVSSASTKGPSVFPLAPCSRSTSESTA ALGCLVKDYFPEPVTVSWNSGALTSGVH TFPAVLQSSGLYSLSSVVTVPSSSLGTKTY TCNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLS (SEQ ID NO: 17)	EIVLTQSPATLSASPGEKVTITC**SASSSVSY LH**WYQQKPGTSPKLLIY**DTSKRPS**GVPD RFSGSGSGNSYSLTISSMEAEDVATYYC**F QGSGYPLT**FGGGTKLEIKRTVAAPSVFIF PPSDEQLKSGTASVVCLLNNFYPREAKVQ WKVDNALQSGNSQESVTEQDSKDSTYSL SSTLTLSKADYEKHKVYACEVTHQGLSSP VTKSFNRGEC (SEQ ID NO: 5)
PHRHL-19	QVQLVESGGGLVQPGQSLRLSCAVSGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS TNYNDSLKG**RLTISKDNSKNTVYLQMNS LRAEDTAVYYCAV**YYGYQFFAY**WGQGT LVTVSSASTKGPSVFPLAPCSRSTSESTAA LGCLVKDYFPEPVTVSWNSGALTSGVHT FPAVLQSSGLYSLSSVVTVPSSSLGTKTYT CNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLS (SEQ ID NO: 18)	EIVLTQSPATLSASPGEKVTITC**SASSSVSY LH**WYQQKPGTSPKLLIY**DTSKRPS**GVPD RFSGSGSGNSYSLTISSMEAEDVATYYC**F QGSGYPLT**FGGGTKLEIKRTVAAPSVFIF PPSDEQLKSGTASVVCLLNNFYPREAKVQ WKVDNALQSGNSQESVTEQDSKDSTYSL SSTLTLSKADYEKHKVYACEVTHQGLSSP VTKSFNRGEC (SEQ ID NO: 5)
PHRHL-20	QVQLVESGGGLVQPGQSLRLSCAVSGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS**	EIVLTQSPATLSASPGEKVTITC**SASSSVSY LH**WYQQKPGTSPKLLIY**DTSKRPS**GVPD

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	TNYNDSLKGRLTISKDNSKNTVYLQMNS LRAEDTAVYYCAV**YYGYQFFAY**WGQGT LVTVSSASTKGPSVFPLAPCSRSTSESTAA LGCLVKDYFPEPVTVSWNSGALTSGVHT FPAVLQSSGLYSLSSVVTVPSSSLGTKTYT CNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLS (SEQ ID NO: 18)	RFSGSGSGNSYSLTISSLEAEDVATYYC**FQ GSGYPLT**FGGGTKLEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 15)
PHRHL-21	QVQLVESGGGVVQPGGSLRLSCAASGFTF S**SYGVH**WVRQAPGKGLEWVS**VIWARGS TNYADSLKG**RFTISRDNSKNTLYLQMNS LRAEDTAVYYCAK**YYGYQFFAY**WGQGT LVTVSSASTKGPSVFPLAPCSRSTSESTAA LGCLVKDYFPEPVTVSWNSGALTSGVHT FPAVLQSSGLYSLSSVVTVPSSSLGTKTYT CNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLS (SEQ ID NO: 19)	EIVLTQSPATLSLSPGERATLSC**RASSSVS YLA**WYQQKPGQAPRLLIY**DTSNRAT**GIP ARFSGSGSGTDFTLTISSLEPEDFAVYYC**F QGSGYPLT**FGGGTKVEIKRTVAAPSVFIF PPSDEQLKSGTASVVCLLNNFYPREAKVQ WKVDNALQSGNSQESVTEQDSKDSTYSL SSTLTLSKADYEKHKVYACEVTHQGLSSP VTKSFNRGEC (SEQ ID NO: 20)
PHRHL-22	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGMH**WVRQAPGKGLEWVS**VIWAR GSTYYADSVKG**RFTISRDNSKNTLYLQM NSLRAEDTAVYYCAV**YYGYQFFAY**WGQ GTLVTVSSASTKGPSVFPLAPCSRSTSEST AALGCLVKDYFPEPVTVSWNSGALTSGV	EIVLTQSPATLSLSPGERATLSC**RASSSVS YLA**WYQQKPGQAPRLLIY**DTSNRAT**GIP ARFSGSGSGTDFTLTISSLEPEDFAVYYC**F QGSGYPLT**FGGGTKVEIKRTVAAPSVFIF PPSDEQLKSGTASVVCLLNNFYPREAKVQ WKVDNALQSGNSQESVTEQDSKDSTYSL

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	HTFPAVLQSSGLYSLSSVVTVPSSSLGTKT YTCNVDHKPSNTKVDKRVESKYGPPCPP CPAPEFLGGPSVFLFPPKPKDTLMISRTPE VTCVVVDVSQEDPEVQFNWYVDGVEVH NAKTKPREEQFNSTYRVVSVLTVLHQDW LNGKEYKCKVSNKGLPSSIEKTISKAKGQ PREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVM HEALHNHYTQKSLSLS (SEQ ID NO: 21)	SSTLTLSKADYEKHKVYACEVTHQGLSSP VTKSFNRGEC (SEQ ID NO: 20)
PHRHL-23	QVQLVESGGGLVQPGQSLRLSCAVSGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWAGG STNYNDSLKG**RLTISKDNSKNTVYLQMN SLRAEDTAVYYCAV**YYGYQFFAY**WGQG TLVTVSSASTKGPSVFPLAPCSRSTSESTA ALGCLVKDYFPEPVTVSWNSGALTSGVH TFPAVLQSSGLYSLSSVVTVPSSSLGTKTY TCNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLS (SEQ ID NO: 17)	EIVLTQSPATLSASPGEKVTITC**SASSSVSY LH**WYQQKPGTSPKLLIY**DTSKRPS**GVPD RFSGSGSGNSYSLTISSLEAEDVATYYC**FQ GSGYPLT**FGGGTKLEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 15)
PHRHL-26	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIWAR GSTNYNDSLKG**RLTISKDNSKNTVYLQM NSLRAEDTAVYYCAV**YYGYQFFAY**WGQ GTLVTVSSASTKGPSVFPLAPCSRSTSEST AALGCLVKDYFPEPVTVSWNSGALTSGV HTFPAVLQSSGLYSLSSVVTVPSSSLGTKT YTCNVDHKPSNTKVDKRVESKYGPPCPP CPAPEFLGGPSVFLFPPKPKDTLMISRTPE VTCVVVDVSQEDPEVQFNWYVDGVEVH	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPAR FSGSGSGNDYTLTISSLEPEDFAVYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 26)

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	NAKTKPREEQFNSTYRVVSVLTVLHQDW LNGKEYKCKVSNKGLPSSIEKTISKAKGQ PREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVM HEALHNHYTQKSLSLS (SEQ ID NO: 25)	
PHRHL-27	EVQLVESGGGLVQPGGSLRLSCAASGFTF S**SYGVH**WVRQAPGKGLEWVS**VIWARGS TNYNDSLKG**RFTISRDNSKNTLYLQMNS LRAEDTAVYYCAR**YYGYQFFAY**WGQGT LVTVSSASTKGPSVFPLAPCSRSTSESTAA LGCLVKDYFPEPVTVSWNSGALTSGVHT FPAVLQSSGLYSLSSVVTVPSSSLGTKTYT CNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLS (SEQ ID NO: 27)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPD RFSGSGSGTDFTLTISSLEAEDFATYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 28)
PHRHL-28	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIWAR GSTNYNDSLKG**RLTISKDNSKNTVYLQM NSLRAEDTAVYYCAV**YYGYQFFAY**WGQ GTLVTVSSASTKGPSVFPLAPCSRSTSEST AALGCLVKDYFPEPVTVSWNSGALTSGV HTFPAVLQSSGLYSLSSVVTVPSSSLGTKT YTCNVDHKPSNTKVDKRVESKYGPPCPP CPAPEFLGGPSVFLFPPKPKDTLMISRTPE VTCVVVDVSQEDPEVQFNWYVDGVEVH NAKTKPREEQFNSTYRVVSVLTVLHQDW LNGKEYKCKVSNKGLPSSIEKTISKAKGQ PREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDS	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPD RFSGSGSGTDFTLTISSLEAEDFATYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 28)

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	DGSFFLYSRLTVDKSRWQEGNVFSCSVM HEALHNHYTQKSLSLS (SEQ ID NO: 25)	
PHRHL-29	EVQLVESGGGLVQPGGSLRLSCAASGFTF S**SYGVH**WVRQAPGKGLEWVS**VIWARGS TNYNDSLKG**RFTISRDNSKNTLYLQMNS LRAEDTAVYYCAR**YYGYQFFAY**WGQGT LVTVSSASTKGPSVFPLAPCSRSTSESTAA LGCLVKDYFPEPVTVSWNSGALTSGVHT FPAVLQSSGLYSLSSVVTVPSSSLGTKTYT CNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLS (SEQ ID NO: 27)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPAR FSGSGSGNDYTLTISSLEPEDFAVYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 26)
PHRHL-30	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIFARG STNYQDSLKG**RLTISKDNSKNTVYLQMN SLRAEDTAVYYCAV**YYGYQFFAY**WGQG TLVTVSSASTKGPSVFPLAPCSRSTSESTA ALGCLVKDYFPEPVTVSWNSGALTSGVH TFPAVLQSSGLYSLSSVVTVPSSSLGTKTY TCNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLSLG (SEQ ID NO: 29)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**ETSKRPS**GVPD RFSGSGSGTDFTLTISSLEAEDFATYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 30)
PHRHL-31	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIFARG**	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPD

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	STNYQDSLKGRLTISKDNSKNTVYLQMN SLRAEDTAVYYCAV**YYGYQFFAY**WGQG TLVTVSSASTKGPSVFPLAPCSRSTSESTA ALGCLVKDYFPEPVTVSWNSGALTSGVH TFPAVLQSSGLYSLSSVVTVPSSSLGTKTY TCNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLSLG (SEQ ID NO: 29)	RFSGSGSGTDFTLTISSLEAEDFATYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 28)
PHRHL-32	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIWAR GSTNYNDSLKG**RLTISKDNSKNTVYLQM NSLRAEDTAVYYCAV**YYGYQFFAY**WGQ GTLVTVSSASTKGPSVFPLAPCSRSTSEST AALGCLVKDYFPEPVTVSWNSGALTSGV HTFPAVLQSSGLYSLSSVVTVPSSSLGTKT YTCNVDHKPSNTKVDKRVESKYGPPCPP CPAPEFLGGPSVFLFPPKPKDTLMISRTPE VTCVVVDVSQEDPEVQFNWYVDGVEVH NAKTKPREEQFNSTYRVVSVLTVLHQDW LNGKEYKCKVSNKGLPSSIEKTISKAKGQ PREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVM HEALHNHYTQKSLSLS (SEQ ID NO: 25)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**ETSKRPS**GVPD RFSGSGSGTDFTLTISSLEAEDFATYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 30)
PHRHL-33	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIWAR GS**TNYADSLKGRLTISKDNSKNTVYLQM NSLRAEDTAVYYCAV**YYGYQFFAY**WGQ GTLVTVSSASTKGPSVFPLAPCSRSTSEST AALGCLVKDYFPEPVTVSWNSGALTSGV	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPAR FSGSGSGNDYTLTISSLEPEDFAVYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	HTFPAVLQSSGLYSLSSVVTVPSSSLGTKT YTCNVDHKPSNTKVDKRVESKYGPPCPP CPAPEFLGGPSVFLFPPKPKDTLMISRTPE VTCVVVDVSQEDPEVQFNWYVDGVEVH NAKTKPREEQFNSTYRVVSVLTVLHQDW LNGKEYKCKVSNKGLPSSIEKTISKAKGQ PREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVM HEALHNHYTQKSLSLSLG (SEQ ID NO: 32)	TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 26)
PHRHL-34	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIWAR GS**TNYKDSLKGRLTISKDNSKNTVYLQM NSLRAEDTAVYYCAV**YYGYQFFAY**WGQ GTLVTVSSASTKGPSVFPLAPCSRSTSEST AALGCLVKDYFPEPVTVSWNSGALTSGV HTFPAVLQSSGLYSLSSVVTVPSSSLGTKT YTCNVDHKPSNTKVDKRVESKYGPPCPP CPAPEFLGGPSVFLFPPKPKDTLMISRTPE VTCVVVDVSQEDPEVQFNWYVDGVEVH NAKTKPREEQFNSTYRVVSVLTVLHQDW LNGKEYKCKVSNKGLPSSIEKTISKAKGQ PREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVM HEALHNHYTQKSLSLSLG (SEQ ID NO: 33)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPAR FSGSGSGNDYTLTISSLEPEDFAVYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 26)
PHRHL-35	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIWAR GS**TNYQDSLKGRLTISKDNSKNTVYLQM NSLRAEDTAVYYCAV**YYGYQFFAY**WGQ GTLVTVSSASTKGPSVFPLAPCSRSTSEST AALGCLVKDYFPEPVTVSWNSGALTSGV HTFPAVLQSSGLYSLSSVVTVPSSSLGTKT YTCNVDHKPSNTKVDKRVESKYGPPCPP	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPAR FSGSGSGNDYTLTISSLEPEDFAVYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 26)

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	CPAPEFLGGPSVFLFPPKPKDTLMISRTPE VTCVVVDVSQEDPEVQFNWYVDGVEVH NAKTKPREEQFNSTYRVVSVLTVLHQDW LNGKEYKCKVSNKGLPSSIEKTISKAKGQ PREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVM HEALHNHYTQKSLSLSLG (SEQ ID NO: 34)	
PHRHL-36	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIWAR GS**TNYRDSLKGRLTISKDNSKNTVYLQM NSLRAEDTAVYYCAV**YYGYQFFAY**WGQ GTLVTVSSASTKGPSVFPLAPCSRSTSEST AALGCLVKDYFPEPVTVSWNSGALTSGV HTFPAVLQSSGLYSLSSVVTVPSSSLGTKT YTCNVDHKPSNTKVDKRVESKYGPPCPP CPAPEFLGGPSVFLFPPKPKDTLMISRTPE VTCVVVDVSQEDPEVQFNWYVDGVEVH NAKTKPREEQFNSTYRVVSVLTVLHQDW LNGKEYKCKVSNKGLPSSIEKTISKAKGQ PREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVM HEALHNHYTQKSLSLSLG (SEQ ID NO: 35)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPAR FSGSGSGNDYTLTISSLEPEDFAVYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 26)
PHRHL-37	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIWAR GS**TNYTDSLKGRLTISKDNSKNTVYLQM NSLRAEDTAVYYCAV**YYGYQFFAY**WGQ GTLVTVSSASTKGPSVFPLAPCSRSTSEST AALGCLVKDYFPEPVTVSWNSGALTSGV HTFPAVLQSSGLYSLSSVVTVPSSSLGTKT YTCNVDHKPSNTKVDKRVESKYGPPCPP CPAPEFLGGPSVFLFPPKPKDTLMISRTPE VTCVVVDVSQEDPEVQFNWYVDGVEVH	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPAR FSGSGSGNDYTLTISSLEPEDFAVYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 26)

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	NAKTKPREEQFNSTYRVVSVLTVLHQDW LNGKEYKCKVSNKGLPSSIEKTISKAKGQ PREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVM HEALHNHYTQKSLSLSLG (SEQ ID NO: 36)	
PHRHL-38	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIWAR GS**TNYNPSLKGRLTISKDNSKNTVYLQM NSLRAEDTAVYYCAV**YYGYQFFAY**WGQ GTLVTVSSASTKGPSVFPLAPCSRSTSEST AALGCLVKDYFPEPVTVSWNSGALTSGV HTFPAVLQSSGLYSLSSVVTVPSSSLGTKT YTCNVDHKPSNTKVDKRVESKYGPPCPP CPAPEFLGGPSVFLFPPKPKDTLMISRTPE VTCVVVDVSQEDPEVQFNWYVDGVEVH NAKTKPREEQFNSTYRVVSVLTVLHQDW LNGKEYKCKVSNKGLPSSIEKTISKAKGQ PREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVM HEALHNHYTQKSLSLSLG (SEQ ID NO: 37)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPAR FSGSGSGNDYTLTISSLEPEDFAVYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 26)
PHRHL-39	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIWAR GS**TNYNDALKGRLTISKDNSKNTVYLQM NSLRAEDTAVYYCAV**YYGYQFFAY**WGQ GTLVTVSSASTKGPSVFPLAPCSRSTSEST AALGCLVKDYFPEPVTVSWNSGALTSGV HTFPAVLQSSGLYSLSSVVTVPSSSLGTKT YTCNVDHKPSNTKVDKRVESKYGPPCPP CPAPEFLGGPSVFLFPPKPKDTLMISRTPE VTCVVVDVSQEDPEVQFNWYVDGVEVH NAKTKPREEQFNSTYRVVSVLTVLHQDW LNGKEYKCKVSNKGLPSSIEKTISKAKGQ	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPAR FSGSGSGNDYTLTISSLEPEDFAVYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 26)

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	PREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVM HEALHNHYTQKSLSLSLG (SEQ ID NO: 38)	
PHRHL-40	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIFARG S**TNYNDSLKGRLTISKDNSKNTVYLQMN SLRAEDTAVYYCAV**YYGYQFFAY**WGQG TLVTVSSASTKGPSVFPLAPCSRSTSESTA ALGCLVKDYFPEPVTVSWNSGALTSGVH TFPAVLQSSGLYSLSSVVTVPSSSLGTKTY TCNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLSLG (SEQ ID NO: 39)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPAR FSGSGSGNDYTLTISSLEPEDFAVYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 26)
PHRHL-41	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIYARG S**TNYNDSLKGRLTISKDNSKNTVYLQMN SLRAEDTAVYYCAV**YYGYQFFAY**WGQG TLVTVSSASTKGPSVFPLAPCSRSTSESTA ALGCLVKDYFPEPVTVSWNSGALTSGVH TFPAVLQSSGLYSLSSVVTVPSSSLGTKTY TCNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPAR FSGSGSGNDYTLTISSLEPEDFAVYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 26)

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLSLG (SEQ ID NO: 40)	
PHRHL-42	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIWAR GS**TNYADSLKGRLTISKDNSKNTVYLQM NSLRAEDTAVYYCAV**YYGYQFFAY**WGQ GTLVTVSSASTKGPSVFPLAPCSRSTSEST AALGCLVKDYFPEPVTVSWNSGALTSGV HTFPAVLQSSGLYSLSSVVTVPSSSLGTKT YTCNVDHKPSNTKVDKRVESKYGPPCPP CPAPEFLGGPSVFLFPPKPKDTLMISRTPE VTCVVVDVSQEDPEVQFNWYVDGVEVH NAKTKPREEQFNSTYRVVSVLTVLHQDW LNGKEYKCKVSNKGLPSSIEKTISKAKGQ PREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVM HEALHNHYTQKSLSLSLG (SEQ ID NO: 32)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPD RFSGSGSGTDFTLTISSLEAEDFATYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 28)
PHRHL-43	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIWAR GS**TNYKDSLKGRLTISKDNSKNTVYLQM NSLRAEDTAVYYCAV**YYGYQFFAY**WGQ GTLVTVSSASTKGPSVFPLAPCSRSTSEST AALGCLVKDYFPEPVTVSWNSGALTSGV HTFPAVLQSSGLYSLSSVVTVPSSSLGTKT YTCNVDHKPSNTKVDKRVESKYGPPCPP CPAPEFLGGPSVFLFPPKPKDTLMISRTPE VTCVVVDVSQEDPEVQFNWYVDGVEVH NAKTKPREEQFNSTYRVVSVLTVLHQDW LNGKEYKCKVSNKGLPSSIEKTISKAKGQ PREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVM HEALHNHYTQKSLSLSLG (SEQ ID NO: 33)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPD RFSGSGSGTDFTLTISSLEAEDFATYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 28)

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
PHRHL-44	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIWAR GS**TNYQDSLKGRLTISKDNSKNTVYLQM NSLRAEDTAVYYCAV**YYGYQFFAY**WGQ GTLVTVSSASTKGPSVFPLAPCSRSTSEST AALGCLVKDYFPEPVTVSWNSGALTSGV HTFPAVLQSSGLYSLSSVVTVPSSSLGTKT YTCNVDHKPSNTKVDKRVESKYGPPCPP CPAPEFLGGPSVFLFPPKPKDTLMISRTPE VTCVVVDVSQEDPEVQFNWYVDGVEVH NAKTKPREEQFNSTYRVVSVLTVLHQDW LNGKEYKCKVSNKGLPSSIEKTISKAKGQ PREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVM HEALHNHYTQKSLSLSLG (SEQ ID NO: 34)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPD RFSGSGSGTDFTLTISSLEAEDFATYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 28)
PHRHL-45	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIWAR GS**TNYRDSLKGRLTISKDNSKNTVYLQM NSLRAEDTAVYYCAV**YYGYQFFAY**WGQ GTLVTVSSASTKGPSVFPLAPCSRSTSEST AALGCLVKDYFPEPVTVSWNSGALTSGV HTFPAVLQSSGLYSLSSVVTVPSSSLGTKT YTCNVDHKPSNTKVDKRVESKYGPPCPP CPAPEFLGGPSVFLFPPKPKDTLMISRTPE VTCVVVDVSQEDPEVQFNWYVDGVEVH NAKTKPREEQFNSTYRVVSVLTVLHQDW LNGKEYKCKVSNKGLPSSIEKTISKAKGQ PREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVM HEALHNHYTQKSLSLSLG (SEQ ID NO: 35)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPD RFSGSGSGTDFTLTISSLEAEDFATYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 28)
PHRHL-46	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIWAR**	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPD

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	GSTNYTDSLKGRLTISKDNSKNTVYLQM NSLRAEDTAVYYCAV**YYGYQFFAY**WGQ GTLVTVSSASTKGPSVFPLAPCSRSTSEST AALGCLVKDYFPEPVTVSWNSGALTSGV HTFPAVLQSSGLYSLSSVVTVPSSSLGTKT YTCNVDHKPSNTKVDKRVESKYGPPCPP CPAPEFLGGPSVFLFPPKPKDTLMISRTPE VTCVVVDVSQEDPEVQFNWYVDGVEVH NAKTKPREEQFNSTYRVVSVLTVLHQDW LNGKEYKCKVSNKGLPSSIEKTISKAKGQ PREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVM HEALHNHYTQKSLSLSLG (SEQ ID NO: 36)	RFSGSGSGTDFTLTISSLEAEDFATYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 28)
PHRHL-47	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIWAR GS**TNYNPSLKGRLTISKDNSKNTVYLQM NSLRAEDTAVYYCAV**YYGYQFFAY**WGQ GTLVTVSSASTKGPSVFPLAPCSRSTSEST AALGCLVKDYFPEPVTVSWNSGALTSGV HTFPAVLQSSGLYSLSSVVTVPSSSLGTKT YTCNVDHKPSNTKVDKRVESKYGPPCPP CPAPEFLGGPSVFLFPPKPKDTLMISRTPE VTCVVVDVSQEDPEVQFNWYVDGVEVH NAKTKPREEQFNSTYRVVSVLTVLHQDW LNGKEYKCKVSNKGLPSSIEKTISKAKGQ PREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVM HEALHNHYTQKSLSLSLG (SEQ ID NO: 37)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPD RFSGSGSGTDFTLTISSLEAEDFATYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 28)
PHRHL-48	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIWAR GS**TNYNDALKGRLTISKDNSKNTVYLQM NSLRAEDTAVYYCAV**YYGYQFFAY**WGQ	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPD RFSGSGSGTDFTLTISSLEAEDFATYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	GTLVTVSSASTKGPSVFPLAPCSRSTSEST AALGCLVKDYFPEPVTVSWNSGALTSGV HTFPAVLQSSGLYSLSSVVTVPSSSLGTKT YTCNVDHKPSNTKVDKRVESKYGPPCPP CPAPEFLGGPSVFLFPPKPKDTLMISRTPE VTCVVVDVSQEDPEVQFNWYVDGVEVH NAKTKPREEQFNSTYRVVSVLTVLHQDW LNGKEYKCKVSNKGLPSSIEKTISKAKGQ PREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVM HEALHNHYTQKSLSLSLG (SEQ ID NO: 38)	SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 28)
PHRHL-49	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIFARG S**TNYNDSLKGRLTISKDNSKNTVYLQMN SLRAEDTAVYYCAV**YYGYQFFAY**WGQG TLVTVSSASTKGPSVFPLAPCSRSTSESTA ALGCLVKDYFPEPVTVSWNSGALTSGVH TFPAVLQSSGLYSLSSVVTVPSSSLGTKTY TCNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLSLG (SEQ ID NO: 39)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPD RFSGSGSGTDFTLTISSLEAEDFATYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 28)
PHRHL-50	QVQLVESGGGVVQPGGSLRLSCAASGFT LS**SYGVH**WVRQAPGKGLEWVG**VIYARG S**TNYNDSLKGRLTISKDNSKNTVYLQMN SLRAEDTAVYYCAV**YYGYQFFAY**WGQG TLVTVSSASTKGPSVFPLAPCSRSTSESTA ALGCLVKDYFPEPVTVSWNSGALTSGVH TFPAVLQSSGLYSLSSVVTVPSSSLGTKTY	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPD RFSGSGSGTDFTLTISSLEAEDFATYYC**FQ GSGYPLT**FGGGTKVEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLNNFYPREAKVQW KVDNALQSGNSQESVTEQDSKDSTYSLSS

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	TCNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLSLG (SEQ ID NO: 40)	TLTLSKADYEKHKVYACEVTHQGLSSPV TKSFNRGEC (SEQ ID NO: 28)
PHRHL-51	QVQLVESGGGVVQPGGSLRLSCAASGFT L**SSYGVH**WVRQAPGKGLEWVG**VIWAR GS**TNYADSLKGRLTISKDNSKNTVYLQM NSLRAEDTAVYYCAV**YYGYQFFAY**WGQ GTLVTVSSASTKGPSVFPLAPCSRSTSEST AALGCLVKDYFPEPVTVSWNSGALTSGV HTFPAVLQSSGLYSLSSVVTVPSSSLGTKT YTCNVDHKPSNTKVDKRVESKYGPPCPP CPAPEFLGGPSVFLFPPKPKDTLMISRTPE VTCVVVDVSQEDPEVQFNWYVDGVEVH NAKTKPREEQFNSTYRVVSVLTVLHQDW LNGKEYKCKVSNKGLPSSIEKTISKAKGQ PREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVM HEALHNHYTQKSLSLSLG (SEQ ID NO: 32)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPAR FSGSGSGTDYTLTISSLEPEDFAVYYC**FQG SGYPLT**FGGGTKVEIKRTVAAPSVFIFPPS DEQLKSGTASVVCLLNNFYPREAKVQWK VDNALQSGNSQESVTEQDSKDSTYSLSST LTLSKADYEKHKVYACEVTHQGLSSPVT KSFNRGEC (SEQ ID NO: 41)
PHRHL-100	QVQLQESGPGLVKPSQTLSLTCAVSGYSI T**SGYSWH**WIRQPPGKGLEWMG**YIHYSG STKYNPSLKS**RITFSRDTSKNQFSLKLSSV TAADTAVYYCVR**GTDYAMDY**WGQGTL VTVSSASTKGPSVFPLAPCSRSTSESTAAL GCLVKDYFPEPVTVSWNSGALTSGVHTFP AVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAP EFLGGPSVFLFPPKPKDTLMISRTPEVTCV VVDVSQEDPEVQFNWYVDGVEVHNAKT	DIVMTQSPESLAVSLGERATINC**KSSQSLL YSNNQKNYLA**WYQQKPGQPPKLLIY**WA STRES**GVPDRFSGSGSGTDFTLTISSLQAE DVAVYYC**QQYYLYPLT**FGQGTKLEIKRT VAAPSVFIFPPSDEQLKSGTASVVCLLNNF YPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 43)

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	KPREEQFNSTYRVVSVLTVLHQDWLNGK EYKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLS (SEQ ID NO: 42)	
PHRHL-101	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT **SGYSWH**WIRQPPGKGLEWMG**YIHYSGS TKYNPSLKS**RISFSRDTSKNQFSLKLNSVT AADTAVYYCVR**GTDYAMDY**WGQGTLV TVSSASTKGPSVFPLAPCSRSTSESTAALG CLVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLS (SEQ ID NO: 44)	DIVMTQSPESLAVSLGERATINC**KSSQSLL YSNNQKNYLA**WYQQKPGQPPKLLIY**WA STRES**GVPDRFSGSGSGTDFTLTISSLQAE DVAVYYC**QQYYLYPLT**FGQGTKLEIKRT VAAPSVFIFPPSDEQLKSGTASVVCLLNNF YPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 43)
PHRHL-102	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT **SGYSWH**WVRQPPGKGLEWMG**YIHYSGS TKYNPSLKS**RISFSRDTSKNQFSLKLNSVT AADTAVYYCVR**GTDYAMDY**WGQGTLV TVSSASTKGPSVFPLAPCSRSTSESTAALG CLVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 45)	
PHRHL-103	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT **SGYSWH**WIRQPPGKGLEWMG**YIHYSGS TKYNPSLKS**RISYSRDTSKNQFSLKLNSV TAADTAVYYCVR**GTDYAMDY**WGQGTL VTVSSASTKGPSVFPLAPCSRSTSESTAAL GCLVKDYFPEPVTVSWNSGALTSGVHTFP AVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAP EFLGGPSVFLFPPKPKDTLMISRTPEVTCV VVDVSQEDPEVQFNWYVDGVEVHNAKT KPREEQFNSTYRVVSVLTVLHQDWLNGK EYKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 47)	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)
PHRHL-104	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT **SGYSWH**WVRQPPGKGLEWMG**YIHYSGS TRYNPSLKS**RISFSRDTSKNQFSLKLNSVT AADTAVYYCVR**GTDYAMDY**WGQGTLV TVSSASTKGPSVFPLAPCSRSTSESTAALG CLVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 48)	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)
PHRHL-105	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT **SGYSWH**WVRQPPGKGLEWMG**YIHYSGS**	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W**

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	TRYNPSLKSRISYSRDTSKNQFSLKLNSV TAADTAVYYCVR**GTDYAMDY**WGQGTL VTVSSASTKGPSVFPLAPCSRSTSESTAAL GCLVKDYFPEPVTVSWNSGALTSGVHTFP AVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAP EFLGGPSVFLFPPKPKDTLMISRTPEVTCV VVDVSQEDPEVQFNWYVDGVEVHNAKT KPREEQFNSTYRVVSVLTVLHQDWLNGK EYKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 49)	**ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)
PHRHL-106	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT **SGYSWH**WVRQPPGKGLEWMG**YIHYSGS TRYNPSLRS**RISFSRDTSKNQFSLKLNSVT AADTAVYYCVR**GTDYAMDY**WGQGTLV TVSSASTKGPSVFPLAPCSRSTSESTAALG CLVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 50)	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)
PHRHL-107	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT **SGYSWH**WVRQPPGKGLEWMG**YIHYSGS TKYNPSLRS**RISFSRDTSKNQFSLKLNSVT AADTAVYYCVR**GTDYAMDY**WGQGTLV TVSSASTKGPSVFPLAPCSRSTSESTAALG CLVKDYFPEPVTVSWNSGALTSGVHTFPA	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 51)	DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)
PHRHL-108	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT **SGYSWH**WIRQPPGKGLEWMG**YIHYSGS TKYNPSLRS**RISFSRDTSKNQFSLKLNSVT AADTAVYYCVR**GTDYAMDY**WGQGTLV TVSSASTKGPSVFPLAPCSRSTSESTAALG CLVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 52)	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)
PHRHL-109	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT **SGYSWH**WIRQPPGKGLEWMG**YIHYSGS TRYNPSLKS**RISFSRDTSKNQFSLKLNSVT AADTAVYYCVR**GTDYAMDY**WGQGTLV TVSSASTKGPSVFPLAPCSRSTSESTAALG CLVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 53)	
PHRHL-112	QVQLQESGPGLVKPSQTLSLTCTVSGYSIS **SGYSWH**WIRQPPGKGLEWIG**YIHYSGST KYNPSLKS**RVSISVDTSKNQFSLKLNSVT AADTAVYYCAR**GTDYAMDY**WGQGTLV TVSSASTKGPSVFPLAPCSRSTSESTAALG CLVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 54)	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)
PHRHL-113	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT **SGYSWH**WIRQPPGKGLEWMG**YIHYSGS TKYNPSLKS**RISFSRDTSKNQFSLKLNSVT AADTAVYYCVR**GTDYAMDY**WGQGTLV TVSSASTKGPSVFPLAPCSRSTSESTAALG CLVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLS (SEQ ID NO: 44)	
PHRHL-114	QVQLQESGPGLVKPSDTLSLTCTVTGYSIT **SGYSWH**WIRQPPGKGLEWIG**YIHYSGST KYNPSLKS**RVTMSVDTSKNQFSLKLSSVT AVDTAVYYCAR**GTDYAMDY**WGQGTLV TVSSASTKGPSVFPLAPCSRSTSESTAALG CLVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 55)	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)
PHRHL-115	QVQLQESGPGLVKPSETLSLTCTVTGYSIT **SGYSWH**WIRQPPGKGLEWIG**YIHYSGST KYNPSLKS**RVTISVDTSKNQFSLKLSSVT AADTAVYYCAR**GTDYAMDY**WGQGTLV TVSSASTKGPSVFPLAPCSRSTSESTAALG CLVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 56)	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)
PHRHL-116	QVQLQESGPGLVKPSETLSLTCTVTGYSIT **SGYSWH**WIRQPPGKGLEWIG**YIHYSGST**	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W**

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	KYNPSLKSRVTISVDTSKNQFSLKLSSVT AADTAVYYCAR**GTDYAMDY**WGQGTMV TVSSASTKGPSVFPLAPCSRSTSESTAALG CLVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 57)	**ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)
PHRHL-117	QVQLQESGPGLVKPSQTLSLTCAVSGYSI T**SGYSWH**WIRQPPGKGLEWMG**YIHYSG STKYNPSLKS**RITFSRDTSKNQFSLKLSSV TAADTAVYYCVR**GTDYAMDY**WGQGTL VTVSSASTKGPSVFPLAPCSRSTSESTAAL GCLVKDYFPEPVTVSWNSGALTSGVHTFP AVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAP EFLGGPSVFLFPPKPKDTLMISRTPEVTCV VVDVSQEDPEVQFNWYVDGVEVHNAKT KPREEQFNSTYRVVSVLTVLHQDWLNGK EYKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLS (SEQ ID NO: 42)	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)
PHRHL-118	QVQLQESGPGLVKPSQTLSLTCAVSGGSIS **SGYSWH**WIRQPPGKGLEWIG**YIHYSGST KYNPSLKS**RVTISVDTSKNQFSLKLSSVT AADTAVYYCAR**GTDYAMDY**WGQGTLV TVSSASTKGPSVFPLAPCSRSTSESTAALG CLVKDYFPEPVTVSWNSGALTSGVHTFPA	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 58)	DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)
PHRHL-119	QVQLQESGPGLVKPSQTLSLTCAVSGYSI T**SGYSWH**WIRQPPGKGLEWMG**YIHYSG STKYNPSLKS**RITFSRDTSKNQFSLKLSSV TAADTAVYYCVR**GTDYAMDY**WGQGTL VTVSSASTKGPSVFPLAPCSRSTSESTAAL GCLVKDYFPEPVTVSWNSGALTSGVHTFP AVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAP EFLGGPSVFLFPPKPKDTLMISRTPEVTCV VVDVSQEDPEVQFNWYVDGVEVHNAKT KPREEQFNSTYRVVSVLTVLHQDWLNGK EYKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLS (SEQ ID NO: 42)	DIVMTQSPESLAVSLGERATINC**KSSQSLL YSSNQKNYLA**WYQQKPGQPPKLLIY**WA STRES**GVPDRFSGSGSGTDFTLTISSLQAE DVAVYYC**QQYYLYPLT**FGQGTKLEIKRT VAAPSVFIFPPSDEQLKSGTASVVCLLNNF YPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 59)
PHRHL-120	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT **SGYSWH**WIRQPPGKGLEWMG**YIHYSGS TKYNPSLKS**RISFSRDTSKNQFSLKLNSVT AADTAVYYCVR**GTDYAMDY**WGQGTLV TVSSASTKGPSVFPLAPCSRSTSESTAALG CLVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK	DIVMTQSPESLAVSLGERATINC**KSSQSLL YSSNQKNYLA**WYQQKPGQPPKLLIY**WA STRES**GVPDRFSGSGSGTDFTLTISSLQAE DVAVYYC**QQYYLYPLT**FGQGTKLEIKRT VAAPSVFIFPPSDEQLKSGTASVVCLLNNF YPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 59)

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLS (SEQ ID NO: 44)	
PHRHL-121	QVQLQESGPGLVKPSQTLSLTCAVSGYSI T**SGYSWH**WIRQPPGKGLEWMG**YIHYSG STKYNPSLKS**RITFSRDTSKNQFSLKLSSV TAADTAVYYCVR**GTDYAMDY**WGQGTL VTVSSASTKGPSVFPLAPCSRSTSESTAAL GCLVKDYFPEPVTVSWNSGALTSGVHTFP AVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAP EFLGGPSVFLFPPKPKDTLMISRTPEVTCV VVDVSQEDPEVQFNWYVDGVEVHNAKT KPREEQFNSTYRVVSVLTVLHQDWLNGK EYKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLS (SEQ ID NO: 42)	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSSNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 60)
PHRHL-122	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT **SGYSWH**WIRQPPGKGLEWMG**YIHYSGS TKYNPSLKS**RISFSRDTSKNQFSLKLNSVT AADTAVYYCVR**GTDYAMDY**WGQGTLV TVSSASTKGPSVFPLAPCSRSTSESTAALG CLVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSSNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 60)

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLS (SEQ ID NO: 44)	
PHRHL-123	DVQLQESGPDLVKPSQSLSLTCTVTGYSIT **SGYSWH**WIRQFPGNKLEWMG**YIHYSGS TKYNPSLKS**RISFTRDTSKNQFFLQLNSV TTEDTATYYCVR**GTDYAMDY**WGQGTSV TVSSAKTTPPSVYPLAPGSAAQTNSMVTL GCLVKGYFPEPVTVTWNSGSLSSGVHTFP AVLQSDLYTLSSSVTVPSSTWPSQTVTCN VAHPASSTKVDKKIVPRDCGCKPCICTVP EVSSVFIFPPKPKDVLTITLTPKVTCVVVDI SKDDPEVQFSWFVDDVEVHTAQTKPREE QFNSTFRSVSELPIMHQDWLNGKEFKCRV NSAAFPAPIEKTISKTKGRPKAPQVYTIPPP KEQMAKDKVSLTCMITNFFPEDITVEWQ WNGQPAENYKNTQPIMDTDGSYFVYSKL NVQKSNWEAGNTFTCSVLHEGLHNHHTE KSLSHSPGK (SEQ ID NO: 61)	DIVMSQSPSSLTVSVGEKVTMSC**KSSQSL LYSNNQKNYLA**WYQQKPGQSPKLLIY**W ASTRES**GVPDRFTGSGSGTDFTLTISSVKA EDLAVYYC**QQYYLYPLT**FGAGTKLEIKR ADAAPTVSIFPPSSEQLTSGGASVVCFLNN FYPKDINVKWKIDGSERQNGVLNSWTDQ DSKDSTYSMSSTLTLTKDEYERHNSYTCE ATHKTSTSPIVKSFNRNEC (SEQ ID NO: 62)
PHRHL-124	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT **SGYSWH**WVRQPPGKGLEWIG**YIHYSGST RYNPSLKS**RISFSRDTSKNQFSLKLNSVTA ADTAVYYCVR**GTDYAMDY**WGQGTLVT VSSASTKGPSVFPLAPCSRSTSESTAALGC LVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 63)	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLAW**YQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)
PHRHL-125	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT **SGYSWH**WVRQPPGKGLEWIG**YIHYSGST**	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W**

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	RYNPSLKSRVSFSRDTSKNQFSLKLNSVT AADTAVYYCVR**GTDYAMDY**WGQGTLV TVSSASTKGPSVFPLAPCSRSTSESTAALG CLVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 64)	**ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)
PHRHL-126	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT **SGYSWH**WVRQPPGKGLEWMG**YIHYSGS TRYNPSLKS**RISFSRDTSKNQFSLKLNSVT AADTAVYYCVR**GTDYAMDY**WGQGTLV TVSSASTKGPSVFPLAPCSRSTSESTAALG CLVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 48)	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSRNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 65)
PHRHL-127	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT **SGYSWH**WVRQPPGKGLEWIG**YIHYSGST RYNPSLKS**RISFSRDTSKNQFSLKLNSVTA ADTAVYYCAR**GTDYAMDY**WGQGTLVT VSSASTKGPSVFPLAPCSRSTSESTAALGC LVKDYFPEPVTVSWNSGALTSGVHTFPA	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 66)	DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)
PHRHL-128	QVQLQESGPGLVKPSQTLSLTCTVSGYSIS S**GYSWH**WVRQPPGKGLEWIG**YIHYSGST RYNPSLKS**RVSFSRDTSKNQFSLKLNSVT AADTAVYYCVR**GTDYAMDY**WGQGTLV TVSSASTKGPSVFPLAPCSRSTSESTAALG CLVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 67)	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)
PHRHL-129	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT S**GYSWH**WVRQPPGKGLEWIG**YIHYSGST RYNPSLKS**RVSFSRDTSKNQFSLKLNSVT AADTAVYYCAR**GTDYAMDY**WGQGTLV TVSSASTKGPSVFPLAPCSRSTSESTAALG CLVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 68)	
PHRHL-130	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT S**GYSWH**WIRQPPGKGLEWMG**YIHYSGS TRYNPSLRS**RISFSRDTSKNQFSLKLNSVT AADTAVYYCVR**GTDYAMDY**WGQGTLV TVSSASTKGPSVFPLAPCSRSTSESTAALG CLVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 69)	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)
PHRHL-131	QVQLQESGPGLVKPSQTLSLTCTVSGYSIS S**GYSWH**WVRQPPGKGLEWIG**YIHYSGST RYNPSLKS**RISFSRDTSKNQFSLKLNSVTA ADTAVYYCAR**GTDYAMDY**WGQGTLVT VSSASTKGPSVFPLAPCSRSTSESTAALGC LVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 70)	
PHRHL-132	QVQLQESGPGLVKPSQTLSLTCTVSGYSIS S**GYSWH**WVRQPPGKGLEWIG**YIHYSGST RYNPSLKS**RVSFSRDTSKNQFSLKLNSVT AADTAVYYCAR**GTDYAMDY**WGQGTLV TVSSASTKGPSVFPLAPCSRSTSESTAALG CLVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKE YKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 71)	DIVMTQSPDSLAVSLGERATINC**KSSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)
PHRHL-133	QVQLQESGPGLVKPSQTLSLTCTVSGYSIS S**GYSWH**WVRQPPGKGLEWMG**YIHYSGS TRYNPSLKS**RVSFSRDTSKNQFSLKLNSV TAADTAVYYCAR**GTDYAMDY**WGQGTL VTVSSASTKGPSVFPLAPCSRSTSESTAAL GCLVKDYFPEPVTVSWNSGALTSGVHTFP AVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAP EFLGGPSVFLFPPKPKDTLMISRTPEVTCV VVDVSQEDPEVQFNWYVDGVEVHNAKT KPREEQFNSTYRVVSVLTVLHQDWLNGK EYKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 72)	DIVMTQSPDSLAVSLGERATINCK**SSQSL LYSNNQKNYLA**WYQQKPGQPPKLLIY**W ASTRES**GVPDRFSGSGSGTDFTLTISSLQA EDVAVYYC**QQYYLYPLT**FGQGTKLEIKR TVAAPSVFIFPPSDEQLKSGTASVVCLLNN FYPREAKVQWKVDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKADYEKHKVYACE VTHQGLSSPVTKSFNRGEC (SEQ ID NO: 46)
PHRHL-200	QVQLKESGPGLVAPSQSLSITCTVSGFSLT **SYGVH**WVRQPPGKGLEWLG**VIWAGGST**	ENVLTQSPAIMSASPGEKVTMTC**SASLSV SYMH**WYQQKSSTSPKLWIY**DTSKLAS**GV

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	NYNSALMSRLSISKDNSKSQVFLKMNSL QTDDTDMYYCAI**NYGYDAFAY**WGQGTL VTVSAAKTTPPSVYPLAPGSAAQTNSMVT LGCLVKGYFPEPVTVTWNSGSLSSGVHTF PAVLQSDLYTLSSSVTVPSSTWPSQTVTC NVAHPASSTKVDKKIVPRDCGCKPCICTV PEVSSVFIFPPKPKDVLTITLTPKVTCVVV DISKDDPEVQFSWFVDDVEVHTAQTKPR EEQFNSTFRSVSELPIMHQDWLNGKEFKC RVNSAAFPAPIEKTISKTKGRPKAPQVYTI PPPKEQMAKDKVSLTCMITNFFPEDITVE WQWNGQPAENYKNTQPIMDTDGSYFVY SKLNVQKSNWEAGNTFTCSVLHEGLHNH HTEKSLSHSPGK (SEQ ID NO: 73)	PGRFSGSGSGNSYSLTISSMEAEDVATYY C**FQGSGYPLT**FGAGTKLELKADAAPTVSI FPPSSEQLTSGGASVVCFLNNFYPKDINVK WKIDGSERQNGVLNSWTDQDSKDSTYSM SSTLTLTKDEYERHNSYTCEATHKTSTSPI VKSFNRNEC (SEQ ID NO: 74)
PHRHL-201	QVQLQESGPGLVKPSQTLSLTCTVSGGSL T**SYGVH**WVRQPPGKGLEWLG**VIWAGGS TNYNSALMS**RLSISLDTSKSQVSLKLNSL TAADTAMYYCAR**NYGYDAFAY**WGQGT LVTVSSASTKGPSVFPLAPCSRSTSESTAA LGCLVKDYFPEPVTVSWNSGALTSGVHT FPAVLQSSGLYSLSSVVTVPSSSLGTKTYT CNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLSLG (SEQ ID NO: 75)	EIVLTQSPATLSLSPGERATLSC**SASLSVS YMH**WYQQKPGKAPKLLIY**DTSKLAS**GV PSRFSGSGSGTDFTLTISSLQAEDFATYYC **FQGSGYPLT**FGQGTKLEIKRTVAAPSVFI FPPSDEQLKSGTASVVCLLNNFYPREAKV QWKVDNALQSGNSQESVTEQDSKDSTYS LSSTLTLSKADYEKHKVYACEVTHQGLSS PVTKSFNRGEC (SEQ ID NO: 22)
PHRHL-202	QVQLQESGPGLVKPSQTLSLTCTVSGGSL T**SYGVH**WVRQPPGKGLEWLG**VIWAGGS TNYNSALMS**RLSISLDTSKSQVSLKLNSL TAADTAMYYCAR**NYGYDAFAY**WGQGT LVTVSSASTKGPSVFPLAPCSRSTSESTAA LGCLVKDYFPEPVTVSWNSGALTSGVHT	EIVLTQSPDFQSVTPKEKVTITC**SASLSVS YMH**WYQQKPGKAPKLWIY**DTSKLAS**GV PSRFSGSGSGNDYTLTISSLQPEDFATYYC **FQGSGYPLT**FGQGTKLEIKRTVAAPSVFI FPPSDEQLKSGTASVVCLLNNFYPREAKV QWKVDNALQSGNSQESVTEQDSKDSTYS

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	FPAVLQSSGLYSLSSVVTVPSSSLGTKTYT CNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNA KTKPREEQFNSTYRVVSVLTVLHQDWLN GKEYKCKVSNKGLPSSIEKTISKAKGQPR EPQVYTLPPSQEEMTKNQVSLTCLVKGFY PSDIAVEWESNGQPENNYKTTPPVLDSDG SFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLSLG (SEQ ID NO: 75)	LSSTLTLSKADYEKHKVYACEVTHQGLSS PVTKSFNRGEC (SEQ ID NO: 23)
PHRHL-203	QVQLQESGPGLVKPSETLSLTCTVSGFSLT **SYGVH**WIRQPPGKGLEWLG**VIWAGGST NYNSALMS**RLTISKDNSKNQVSLKLSSVT AADTAVYYCAI**NYGYDAFAY**WGQGTM VTVSSASTKGPSVFPLAPCSRSTSESTAAL GCLVKDYFPEPVTVSWNSGALTSGVHTFP AVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAP EFLGGPSVFLFPPKPKDTLMISRTPEVTCV VVDVSQEDPEVQFNWYVDGVEVHNAKT KPREEQFNSTYRVVSVLTVLHQDWLNGK EYKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 24)	EIVLTQSPATLSLSPGERATLSC**SASLSVS YMH**WYQQKPGKAPKLLIY**DTSKLAS**GV PSRFSGSGSGTDFTLTISSLQAEDFATYYC **FQGSGYPLT**FGQGTKLEIKRTVAAPSVFI FPPSDEQLKSGTASVVCLLNNFYPREAKV QWKVDNALQSGNSQESVTEQDSKDSTYS LSSTLTLSKADYEKHKVYACEVTHQGLSS PVTKSFNRGEC (SEQ ID NO: 22)
PHRHL-204	QVQLQESGPGLVKPSETLSLTCTVSGFSLT **SYGVH**WIRQPPGKGLEWLG**VIWAGGST NYNSALMS**RLTISKDNSKNQVSLKLSSVT AADTAVYYCAI**NYGYDAFAY**WGQGTM VTVSSASTKGPSVFPLAPCSRSTSESTAAL GCLVKDYFPEPVTVSWNSGALTSGVHTFP AVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAP EFLGGPSVFLFPPKPKDTLMISRTPEVTCV VVDVSQEDPEVQFNWYVDGVEVHNAKT	EIVLTQSPDFQSVTPKEKVTITC**SASLSVS YMH**WYQQKPGKAPKLWIY**DTSKLAS**GV PSRFSGSGSGNDYTLTISSLQPEDFATYYC **FQGSGYPLT**FGQGTKLEIKRTVAAPSVFI FPPSDEQLKSGTASVVCLLNNFYPREAKV QWKVDNALQSGNSQESVTEQDSKDSTYS LSSTLTLSKADYEKHKVYACEVTHQGLSS PVTKSFNRGEC (SEQ ID NO: 23)

Antibody ID	Heavy chain sequence (HC)	Light chain sequence (LC)
	KPREEQFNSTYRVVSVLTVLHQDWLNGK EYKCKVSNKGLPSSIEKTISKAKGQPREPQ VYTLPPSQEEMTKNQVSLTCLVKGFYPSD IAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG (SEQ ID NO: 24)	

[0061] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 1, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 2, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 1, and the LC consists of the amino acid sequence of SEQ ID NO: 2.

[0062] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 3, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 31, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 3, and the LC consists of the amino acid sequence of SEQ ID NO: 31.

[0063] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 4, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID

NO: 5, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 4, and the LC consists of the amino acid sequence of SEQ ID NO: 5.

[0064] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 4, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 6, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 4, and the LC consists of the amino acid sequence of SEQ ID NO: 6.

[0065] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 4, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 7, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 4, and the LC consists of the amino acid sequence of SEQ ID NO: 7.

[0066] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 8, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 6, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%,

93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 8, and the LC consists of the amino acid sequence of SEQ ID NO: 6.

[0067] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 9, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 7, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 9, and the LC consists of the amino acid sequence of SEQ ID NO: 7.

[0068] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 8, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 7, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 8, and the LC consists of the amino acid sequence of SEQ ID NO: 7.

[0069] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 9, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 6, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments,

provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 9, and the LC consists of the amino acid sequence of SEQ ID NO: 6.

[0070] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 8, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 8, and the LC consists of the amino acid sequence of SEQ ID NO: 5.

[0071] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 9, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 9, and the LC consists of the amino acid sequence of SEQ ID NO: 5.

[0072] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 10, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 11, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 10, and the LC consists of the amino acid sequence of SEQ ID NO: 11.

[0073] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 12, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 13, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 12, and the LC consists of the amino acid sequence of SEQ ID NO: 13.

[0074] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 14, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 11, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 14, and the LC consists of the amino acid sequence of SEQ ID NO: 11.

[0075] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 4, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 15, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 4, and the LC consists of the amino acid sequence of SEQ ID NO: 15.

[0076] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 16, or an amino acid sequence comprising at

least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 15, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 16, and the LC consists of the amino acid sequence of SEQ ID NO: 15.

[0077] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 16, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 16, and the LC consists of the amino acid sequence of SEQ ID NO: 5.

[0078] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 17, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 17, and the LC consists of the amino acid sequence of SEQ ID NO: 5.

[0079] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 18, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%

sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 18, and the LC consists of the amino acid sequence of SEQ ID NO: 5.

[0080] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 18, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 15, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 18, and the LC consists of the amino acid sequence of SEQ ID NO: 15.

[0081] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 19, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 20, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 19, and the LC consists of the amino acid sequence of SEQ ID NO: 20.

[0082] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 21, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 20, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%,

77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 21, and the LC consists of the amino acid sequence of SEQ ID NO: 20.

[0083] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 17, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 15, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 17, and the LC consists of the amino acid sequence of SEQ ID NO: 15.

[0084] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 25, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 25, and the LC consists of the amino acid sequence of SEQ ID NO: 26.

[0085] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 27, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments,

provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 27, and the LC consists of the amino acid sequence of SEQ ID NO: 28.

[0086] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 25, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 25, and the LC consists of the amino acid sequence of SEQ ID NO: 28.

[0087] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 27, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 27, and the LC consists of the amino acid sequence of SEQ ID NO: 26.

[0088] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 29, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 30, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 29, and the LC consists of the amino acid sequence of SEQ ID NO: 30.

[0089] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 29, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 29, and the LC consists of the amino acid sequence of SEQ ID NO: 28.

[0090] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 25, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 30, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 25, and the LC consists of the amino acid sequence of SEQ ID NO: 30.

[0091] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 32, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 32, and the LC consists of the amino acid sequence of SEQ ID NO: 26.

[0092] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 33, or an amino acid sequence comprising at

least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 33, and the LC consists of the amino acid sequence of SEQ ID NO: 26.

[0093] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 34, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 34, and the LC consists of the amino acid sequence of SEQ ID NO: 26.

[0094] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 35, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 35, and the LC consists of the amino acid sequence of SEQ ID NO: 26.

[0095] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 36, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%

sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 36, and the LC consists of the amino acid sequence of SEQ ID NO: 26.

[0096] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 37, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 37, and the LC consists of the amino acid sequence of SEQ ID NO: 26.

[0097] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 38, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 38, and the LC consists of the amino acid sequence of SEQ ID NO: 26.

[0098] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 39, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%,

77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 39, and the LC consists of the amino acid sequence of SEQ ID NO: 26.

[0099] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 40, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 40, and the LC consists of the amino acid sequence of SEQ ID NO: 26.

[0100] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 32, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 32, and the LC consists of the amino acid sequence of SEQ ID NO: 28.

[0101] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 33, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments,

provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 33, and the LC consists of the amino acid sequence of SEQ ID NO: 28.

[0102] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 34, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 34, and the LC consists of the amino acid sequence of SEQ ID NO: 28.

[0103] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 35, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 35, and the LC consists of the amino acid sequence of SEQ ID NO: 28.

[0104] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 36, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 36, and the LC consists of the amino acid sequence of SEQ ID NO: 28.

[0105] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 37, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 37, and the LC consists of the amino acid sequence of SEQ ID NO: 28.

[0106] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 38, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 38, and the LC consists of the amino acid sequence of SEQ ID NO: 28.

[0107] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 39, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 39, and the LC consists of the amino acid sequence of SEQ ID NO: 28.

[0108] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 40, or an amino acid sequence comprising at

least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 40, and the LC consists of the amino acid sequence of SEQ ID NO: 28.

[0109] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 32, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 41, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 32, and the LC consists of the amino acid sequence of SEQ ID NO: 41.

[0110] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 42, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 43, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 42, and the LC consists of the amino acid sequence of SEQ ID NO: 43.

[0111] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 44, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%

sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 43, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 44, and the LC consists of the amino acid sequence of SEQ ID NO: 43.

[0112] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 45, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 45, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0113] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 47, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 47, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0114] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 48, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%,

77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 48, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0115] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 49, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 49, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0116] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 50, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 50, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0117] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 51, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments,

provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 51, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0118] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 52, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 52, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0119] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 53, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 53, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0120] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 54, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 54, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0121] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 44, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 44, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0122] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 55, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 55, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0123] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 56, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 56, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0124] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 57, or an amino acid sequence comprising at

least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 57, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0125] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 42, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 42, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0126] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 58, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 58, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0127] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 42, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%

sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 59, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 42, and the LC consists of the amino acid sequence of SEQ ID NO: 59.

[0128] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 44, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 59, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 44, and the LC consists of the amino acid sequence of SEQ ID NO: 59.

[0129] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 42, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 60, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 42, and the LC consists of the amino acid sequence of SEQ ID NO: 60.

[0130] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 44, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 60, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%,

77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 44, and the LC consists of the amino acid sequence of SEQ ID NO: 60.

[0131] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 61, comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 62, comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 61, and the LC consists of the amino acid sequence of SEQ ID NO: 62.

[0132] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 63, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 63, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0133] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 64, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments,

provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 64, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0134] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 48, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 65, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 48, and the LC consists of the amino acid sequence of SEQ ID NO: 65.

[0135] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 66, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 66, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0136] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 67, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 67, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0137] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 68, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 68, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0138] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 69, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 69, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0139] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 70, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 70, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0140] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 71, or an amino acid sequence comprising at

least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 71, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0141] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 72, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 72, and the LC consists of the amino acid sequence of SEQ ID NO: 46.

[0142] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 73, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 74, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 73, and the LC consists of the amino acid sequence of SEQ ID NO: 74.

[0143] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 75, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%

sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 22, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 75, and the LC consists of the amino acid sequence of SEQ ID NO: 22.

[0144] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 75, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 23, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 75, and the LC consists of the amino acid sequence of SEQ ID NO: 23.

[0145] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 24, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 22, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 24, and the LC consists of the amino acid sequence of SEQ ID NO: 22.

[0146] In some embodiments, provided herein is a humanized CD24 antibody, wherein the HC comprises the amino acid sequence of SEQ ID NO: 24, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the LC comprises the amino acid sequence of SEQ ID NO: 23, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%,

77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the HC consists of the amino acid sequence of SEQ ID NO: 24, and the LC consists of the amino acid sequence of SEQ ID NO: 23.

[0147] Also included are variants thereof that bind to CD24, for example, variants having 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 modifications (e.g. substitutions, additions, and/or deletions) in one or more framework regions of any one or more of the foregoing HC and/or LC sequences.

[0148] In some embodiments, the CD24 antibody of the disclosure comprises one or more HC framework region residues selected from the group consisting of: a serine (S) at position 30, a valine (V) at position 37, an isoleucine (I) at position 48, a valine (V) at position 67, and an alanine (A) at position 93, or any combination thereto, according to Kabat numbering.

[0149] Table 2 provides exemplary heavy chain variable (VH) and light chain variable (VL) sequences of the CD24 antibodies of the disclosure. Exemplary complementarity determining regions (CDRs) (e.g. as determined by Kabat) are indicated in bold and underlined.

Table 2: Exemplary Variable Heavy Chain and Variable Light Chain Amino Acid Sequences of CD24 Antibodies

Antibody ID	Heavy chain variable region sequence (VH)	Light chain variable region sequence (VL)
PHRHL-01	QVQLKESGPGLVAPSQSLSITCTVSGFSLT**S YGVH**WVRQPPGKGLEWIG**VIWAGGSTNY NSALMS**RLSISKDNSKSQVFLKMNSLQTD DTAMYYCAV**YYGYLFFAY**WGQGTLVTV SA (SEQ ID NO: 79)	ENVLTQSPAIMSASPGEKVTMTC**SASSSVS YMH**WYQQKSTTSPKLWIY**DTSKLAS**GVP GRFSGSGSGNSYSLTISSMEAEDVATYYC**F QGSGYPLT**FGGGTKLEIK (SEQ ID NO: 80)
PHRHL-02	QVQLKESGPGLVAPSQSLSITCTVSGFSLT**S YGVH**WVRQPPGKGLEWIG**VIWAGGSTNY NSALMS**RLSISKDNSKSQVFLKMNSLQTD DTAMYYCAV**YYGYLFFAY**WGQGTLVTV SA (SEQ ID NO: 79)	ENVLTQSPAIMSASPGEKVTMTC**SASSSVS YMH**WYQQKSTTSPKLWIY**DTSKLAS**GVP GRFSGSGSGNSYSLTISSMEAEDVATYYC**F QGSGYPLT**FGGGTKLEIK (SEQ ID NO: 80)
PHRHL-03	QVQLVESGGGLVQPGQSLRLSCAVSGFTLS **SYGVH**WVRQAPGKGLEWVG**VIWAGGST NYNDSLKG**RLTISKDNSKNTVYLQMNSLR AEDTAVYYCAV**YYGYLFFAY**WGQGTLVT VSS (SEQ ID NO: 82)	EIVLTQSPATLSASPGEKVTITC**SASSSVSYL H**WYQQKPGTSPKLLIY**DTSKRPS**GVPDRF SGSGSGNSYSLTISSMEAEDVATYYC**FQGS GYPLT**FGGGTKLEIK (SEQ ID NO: 83)
PHRHL-04	QVQLVESGGGLVQPGQSLRLSCAVSGFTLS **SYGVH**WVRQAPGKGLEWVG**VIWAGGST NYNDSLKG**RLTISKDNSKNTVYLQMNSLR	ENVLTQSPATLSASPGEKVTITC**SASSSVSY MH**WYQQKPGTSPKLLIY**DTSKLAS**GVPDR

Antibody ID	Heavy chain variable region sequence (VH)	Light chain variable region sequence (VL)
	AEDTAVYYCAV**YYGYLFFAY**WGQGTLVT VSS (SEQ ID NO: 82)	FSGSGSGNSYSLTISSLEAEDVATYYC**FQG SGYPLT**FGGGTKLEIK (SEQ ID NO: 84)
PHRHL-05	QVQLVESGGGLVQPGQSLRLSCAVSGFTLS **SYGVH**WVRQAPGKGLEWVG**VIWAGGST NYNDSLKG**RLTISKDNSKNTVYLQMNSLR AEDTAVYYCAV**YYGYLFFAY**WGQGTLVT VSS (SEQ ID NO: 82)	ENVLTQSPATLSASPGEKVTITC**SASSSVSY MH**WYQQKPGQSPKLWIY**DTSKLAS**GVPG RFSGSGSGTDYTLTISGLQAEDEADYYC**FQ GSGYPLT**FGGGTKLEIK (SEQ ID NO: 85)
PHRHL-06	QVQLVESGGGLVQPGQSLRLSCAVSGFTLS **SYGVH**WVRQAPGKGLEWVG**VIWAGGST NYNSALMS**RLTISKDNSKNTVYLQMNSLR AEDTAVYYCAV**YYGYLFFAY**WGQGTLVT VSS (SEQ ID NO: 86)	ENVLTQSPATLSASPGEKVTITC**SASSSVSY MH**WYQQKPGTSPKLLIY**DTSKLAS**GVPDR FSGSGSGNSYSLTISSLEAEDVATYYC**FQG SGYPLT**FGGGTKLEIK (SEQ ID NO: 84)
PHRHL-07	QVQLVESGGGLVQPGQSLRLSCAVSGFSLT **SYGVH**WVRQAPGKGLEWVG**VIWAGGST NYNDSLKG**RFTISKDNSKNTVYLQMNSLR AEDTAVYYCAV**YYGYLFFAY**WGQGTLVT VSS (SEQ ID NO: 87)	ENVLTQSPATLSASPGEKVTITC**SASSSVSY MH**WYQQKPGQSPKLWIY**DTSKLAS**GVPG RFSGSGSGTDYTLTISGLQAEDEADYYC**FQ GSGYPLT**FGGGTKLEIK (SEQ ID NO: 85)
PHRHL-08	QVQLVESGGGLVQPGQSLRLSCAVSGFTLS **SYGVH**WVRQAPGKGLEWVG**VIWAGGST NYNSALMS**RLTISKDNSKNTVYLQMNSLR AEDTAVYYCAV**YYGYLFFAY**WGQGTLVT VSS (SEQ ID NO: 86)	ENVLTQSPATLSASPGEKVTITC**SASSSVSY MH**WYQQKPGQSPKLWIY**DTSKLAS**GVPG RFSGSGSGTDYTLTISGLQAEDEADYYC**FQ GSGYPLT**FGGGTKLEIK (SEQ ID NO: 85)
PHRHL-09	QVQLVESGGGLVQPGQSLRLSCAVSGFSLT **SYGVH**WVRQAPGKGLEWVG**VIWAGGST NYNDSLKG**RFTISKDNSKNTVYLQMNSLR AEDTAVYYCAV**YYGYLFFAY**WGQGTLVT VSS (SEQ ID NO: 87)	ENVLTQSPATLSASPGEKVTITC**SASSSVSY MH**WYQQKPGTSPKLLIY**DTSKLAS**GVPDR FSGSGSGNSYSLTISSLEAEDVATYYC**FQG SGYPLT**FGGGTKLEIK (SEQ ID NO: 84)
PHRHL-10	QVQLVESGGGLVQPGQSLRLSCAVSGFTLS **SYGVH**WVRQAPGKGLEWVG**VIWAGGST NYNSALM**SRLTISKDNSKNTVYLQMNSLR AEDTAVYYCAV**YYGYLFFAY**WGQGTLVT VSS (SEQ ID NO: 86)	EIVLTQSPATLSASPGEKVTITC**SASSSVSYL H**WYQQKPGTSPKLLIY**DTSKRPS**GVPDRF SGSGSGNSYSLTISSMEAEDVATYYC**FQGS GYPLT**FGGGTKLEIK (SEQ ID NO: 83)
PHRHL-11	QVQLVESGGGLVQPGQSLRLSCAVSGFSLT **SYGVH**WVRQAPGKGLEWVG**VIWAGGST NYNDSLKG**RFTISKDNSKNTVYLQMNSLR	EIVLTQSPATLSASPGEKVTITC**SASSSVSYL H**WYQQKPGTSPKLLIY**DTSKRPS**GVPDRF SGSGSGNSYSLTISSMEAEDVATYYC**FQGS GYPLT**FGGGTKLEIK (SEQ ID NO: 83)

Antibody ID	Heavy chain variable region sequence (VH)	Light chain variable region sequence (VL)
	AEDTAVYYCAV**YYGYLFFAY**WGQGTLVT VSS (SEQ ID NO: 87)	
PHRHL-12	QVQLVESGGGVVQPGGSLRLSCAASGFSL T**SYGVH**WVRQAPGKGLEWIG**VIWAGGST NYNSALMS**RLTISKDNSKNTVYLQMNSLR AEDTAVYYCAV**YYGYLFFAY**WGQGTLVT VSS (SEQ ID NO: 88)	ENVLTQSPDFQSVTPKEKVTITC**SASSSVSY MH**WYQQKPGKAPKLWIY**DTSKLAS**GVPS RFSGSGSGNDYTLTISSLQPEDFATYYC**FQ GSGYPLT**FGGGTKVEIK (SEQ ID NO: 89)
PHRHL-13	QVQLQESGPGLVKPSQTLSLTCTVSGGSLT **SYGVH**WVRQPPGKGLEWIG**VIWAGGSTN YNSALMS**RLSISVDTSKSQFSLKLNSVTAA DTAMYYCAR**YYGYLFFAY**WGQGTLVTVS S (SEQ ID NO: 90)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY MH**WYQQKPGKAPKLLIY**DTSKLAS**GVPS RFSGSGSGTDFTLTISSLQAEDFATYYC**FQ GSGYPLT**FGGGTKVEIK (SEQ ID NO: 91)
PHRHL-14	QVQLQESGPGLVKPSETLSLTCTVSGFSLT**S YGVH**WIRQPPGKGLEWIG**VIWAGGSTNY NSALMS**RLTISKDNSKNQVSLKLSSVTAAD TAVYYCAV**YYGYLFFAY**WGQGTLVTVSS (SEQ ID NO: 92)	ENVLTQSPDFQSVTPKEKVTITC**SASSSVSY MH**WYQQKPGKAPKLWIY**DTSKLAS**GVPS RFSGSGSGNDYTLTISSLQPEDFATYYC**FQ GSGYPLT**FGGGTKVEIK (SEQ ID NO: 89)
PHRHL-15	QVQLVESGGGLVQPGQSLRLSCAVSGFTLS **SYGVH**WVRQAPGKGLEWVG**VIWAGGST NYNDSLKG**RLTISKDNSKNTVYLQMNSLR AEDTAVYYCAV**YYGYLFFAY**WGQGTLVT VSS (SEQ ID NO: 82)	EIVLTQSPATLSASPGEKVTITC**SASSSVSYL H**WYQQKPGTSPKLLIY**DTSKRPS**GVPDRF SGSGSGNSYSLTISSLEAEDVATYYC**FQGS GYPLT**FGGGTKLEIK (SEQ ID NO: 93)
PHRHL-16	QVQLVESGGGLVQPGQSLRLSCAVSGFTLS **SYGVH**WVRQAPGKGLEWVG**VIWARGST NYNDSLKG**RLTISKDNSKNTVYLQMNSLR AEDTAVYYCAV**YYGYLFFAY**WGQGTLVT VSS (SEQ ID NO: 94)	EIVLTQSPATLSASPGEKVTITC**SASSSVSYL H**WYQQKPGTSPKLLIY**DTSKRPS**GVPDRF SGSGSGNSYSLTISSLEAEDVATYYC**FQGS GYPLT**FGGGTKLEIK (SEQ ID NO: 93)
PHRHL-17	QVQLVESGGGLVQPGQSLRLSCAVSGFTLS **SYGVH**WVRQAPGKGLEWVG**VIWARGST NYNDSLKG**RLTISKDNSKNTVYLQMNSLR AEDTAVYYCAV**YYGYLFFAY**WGQGTLVT VSS (SEQ ID NO: 94)	EIVLTQSPATLSASPGEKVTITC**SASSSVSYL H**WYQQKPGTSPKLLIY**DTSKRPS**GVPDRF SGSGSGNSYSLTISSMEAEDVATYYC**FQGS GYPLT**FGGGTKLEIK (SEQ ID NO: 83)
PHRHL-18	QVQLVESGGGLVQPGQSLRLSCAVSGFTLS **SYGVH**WVRQAPGKGLEWVG**VIWAGGST NYNDSLKG**RLTISKDNSKNTVYLQMNSLR	EIVLTQSPATLSASPGEKVTITC**SASSSVSYL H**WYQQKPGTSPKLLIY**DTSKRPS**GVPDRF SGSGSGNSYSLTISSMEAEDVATYYC**FQGS GYPLT**FGGGTKLEIK (SEQ ID NO: 83)

Antibody ID	Heavy chain variable region sequence (VH)	Light chain variable region sequence (VL)
	AEDTAVYYCAV**YYGYQFFAY**WGQGTLVT VSS (SEQ ID NO: 95)	
PHRHL-19	QVQLVESGGGLVQPGQSLRLSCAVSGFTLS **SYGVH**WVRQAPGKGLEWVG**VIWARGST NYNDSLKG**RLTISKDNSKNTVYLQMNSLR AEDTAVYYCAV**YYGYQFFAY**WGQGTLVT VSS (SEQ ID NO: 96)	EIVLTQSPATLSASPGEKVTITC**SASSSVSYL H**WYQQKPGTSPKLLIY**DTSKRPS**GVPDRF SGSGSGNSYSLTISSMEAEDVATYYC**FQGS GYPLT**FGGGTKLEIK (SEQ ID NO: 83)
PHRHL-20	QVQLVESGGGLVQPGQSLRLSCAVSGFTLS **SYGVH**WVRQAPGKGLEWVG**VIWARGST NYNDSLKG**RLTISKDNSKNTVYLQMNSLR AEDTAVYYCAV**YYGYQFFAY**WGQGTLVT VSS (SEQ ID NO: 96)	EIVLTQSPATLSASPGEKVTITC**SASSSVSYL H**WYQQKPGTSPKLLIY**DTSKRPS**GVPDRF SGSGSGNSYSLTISSLEAEDVATYYC**FQGS GYPLT**FGGGTKLEIK (SEQ ID NO: 93)
PHRHL-21	QVQLVESGGGVVQPGGSLRLSCAASGFTFS **SYGVH**WVRQAPGKGLEWVS**VIWARGST NYADSLKG**RFTISRDNSKNTLYLQMNSLR AEDTAVYYCAK**YYGYQFFAY**WGQGTLVT VSS (SEQ ID NO: 97)	EIVLTQSPATLSLSPGERATLSC**RASSSVSY LA**WYQQKPGQAPRLLIY**DTSNRAT**GIPAR FSGSGSGTDFTLTISSLEPEDFAVYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 98)
PHRHL-22	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGMH**WVRQAPGKGLEWVS**VIWARGS TYYADSVKG**RFTISRDNSKNTLYLQMNSL RAEDTAVYYCAV**YYGYQFFAY**WGQGTL VTVSS (SEQ ID NO: 99)	EIVLTQSPATLSLSPGERATLSC**RASSSVSY LA**WYQQKPGQAPRLLIY**DTSNRAT**GIPAR FSGSGSGTDFTLTISSLEPEDFAVYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 98)
PHRHL-23	QVQLVESGGGLVQPGQSLRLSCAVSGFTLS **SYGVH**WVRQAPGKGLEWVG**VIWAGGST NYNDSLKG**RLTISKDNSKNTVYLQMNSLR AEDTAVYYCAV**YYGYQFFAY**WGQGTLVT VSS (SEQ ID NO: 95)	EIVLTQSPATLSASPGEKVTITC**SASSSVSYL H**WYQQKPGTSPKLLIY**DTSKRPS**GVPDRF SGSGSGNSYSLTISSLEAEDVATYYC**FQGS GYPLT**FGGGTKLEIK (SEQ ID NO: 93)
PHRHL-26	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS TNYNDSLKG**RLTISKDNSKNTVYLQMNSL RAEDTAVYYCAV**YYGYQFFAY**WGQGTL VTVSS (SEQ ID NO: 81)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPARF SGSGSGNDYTLTISSLEPEDFAVYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 100)
PHRHL-27	EVQLVESGGGLVQPGGSLRLSCAASGFTFS **SYGVH**WVRQAPGKGLEWVS**VIWARGST NYNDSLKG**RFTISRDNSKNTLYLQMNSLR	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPDR FSGSGSGTDFTLTISSLEAEDFATYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 102)

Antibody ID	Heavy chain variable region sequence (VH)	Light chain variable region sequence (VL)
	AEDTAVYYCAR**YYGYQFFAY**WGQGTLVT VSS (SEQ ID NO: 101)	
PHRHL-28	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS TNYNDSLKG**RLTISKDNSKNTVYLQMNSL RAEDTAVYYCAV**YYGYQFFAY**WGQGTL VTVSS (SEQ ID NO: 81)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPDR FSGSGSGTDFTLTISSLEAEDFATYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 102)
PHRHL-29	EVQLVESGGGLVQPGGSLRLSCAASGFTFS **SYGVH**WVRQAPGKGLEWVS**VIWARGST NYNDSLKG**RFTISRDNSKNTLYLQMNSLR AEDTAVYYCAR**YYGYQFFAY**WGQGTLVT VSS (SEQ ID NO: 101)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPARF SGSGSGNDYTLTISSLEPEDFAVYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 100)
PHRHL-30	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIFARGST NYQDSLKG**RLTISKDNSKNTVYLQMNSLR AEDTAVYYCAV**YYGYQFFAY**WGQGTLVT VSS (SEQ ID NO: 103)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**ETSKRPS**GVPDR FSGSGSGTDFTLTISSLEAEDFATYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 104)
PHRHL-31	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIFARGST NYQDSLKG**RLTISKDNSKNTVYLQMNSLR AEDTAVYYCAV**YYGYQFFAY**WGQGTLVT VSS (SEQ ID NO: 103)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPDR FSGSGSGTDFTLTISSLEAEDFATYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 102)
PHRHL-32	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS TNYNDSLKG**RLTISKDNSKNTVYLQMNSL RAEDTAVYYCAV**YYGYQFFAY**WGQGTL VTVSS (SEQ ID NO: 81)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**ETSKRPS**GVPDR FSGSGSGTDFTLTISSLEAEDFATYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 104)
PHRHL-33	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS TNYADSLKG**RLTISKDNSKNTVYLQMNSL RAEDTAVYYCAV**YYGYQFFAY**WGQGTL VTVSS (SEQ ID NO: 105)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPARF SGSGSGNDYTLTISSLEPEDFAVYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 100)
PHRHL-34	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS TNYKDSLKG**RLTISKDNSKNTVYLQMNSL	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPARF SGSGSGNDYTLTISSLEPEDFAVYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 100)

Antibody ID	Heavy chain variable region sequence (VH)	Light chain variable region sequence (VL)
	RAEDTAVYYCAV**YYGYQFFAY**WGQGTL VTVSS (SEQ ID NO: 107)	
PHRHL-35	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS TNYQDSLKG**RLTISKDNSKNTVYLQMNSL RAEDTAVYYCAV**YYGYQFFAY**WGQGTL VTVSS (SEQ ID NO: 108)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPARF SGSGSGNDYTLTISSLEPEDFAVYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 100)
PHRHL-36	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS TNYRDSLKG**RLTISKDNSKNTVYLQMNSL RAEDTAVYYCAV**YYGYQFFAY**WGQGTL VTVSS (SEQ ID NO: 109)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPARF SGSGSGNDYTLTISSLEPEDFAVYYCFQGS GYPLTFGGGTKVEIK (SEQ ID NO: 100)
PHRHL-37	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS TNYTDSLKG**RLTISKDNSKNTVYLQMNSL RAEDTAVYYCAV**YYGYQFFAY**WGQGTL VTVSS (SEQ ID NO: 110)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPARF SGSGSGNDYTLTISSLEPEDFAVYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 100)
PHRHL-38	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS TNYNPSLKG**RLTISKDNSKNTVYLQMNSL RAEDTAVYYCAV**YYGYQFFAY**WGQGTL VTVSS (SEQ ID NO: 111)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPARF SGSGSGNDYTLTISSLEPEDFAVYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 100)
PHRHL-39	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS TNYNDALKG**RLTISKDNSKNTVYLQMNSL RAEDTAVYYCAV**YYGYQFFAY**WGQGTL VTVSS (SEQ ID NO: 112)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPARF SGSGSGNDYTLTISSLEPEDFAVYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 100)
PHRHL-40	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIFARGST NYNDSLKG**RLTISKDNSKNTVYLQMNSLR AEDTAVYYCAV**YYGYQFFAY**WGQGTLVT VSS (SEQ ID NO: 113)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPARF SGSGSGNDYTLTISSLEPEDFAVYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 100)
PHRHL-41	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIYARGST NYNDSLKG**RLTISKDNSKNTVYLQMNSLR	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPARF SGSGSGNDYTLTISSLEPEDFAVYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 100)

Antibody ID	Heavy chain variable region sequence (VH)	Light chain variable region sequence (VL)
	AEDTAVYYCAV**YYGYQFFAY**WGQGTLVT VSS (SEQ ID NO: 114)	
PHRHL-42	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS TNYADSLKG**RLTISKDNSKNTVYLQMNSL RAEDTAVYYCAV**YYGYQFFAY**WGQGTL VTVSS (SEQ ID NO: 105)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPDR FSGSGSGTDFTLTISSLEAEDFATYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 102)
PHRHL-43	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS TNYKDSLKG**RLTISKDNSKNTVYLQMNSL RAEDTAVYYCAV**YYGYQFFAY**WGQGTL VTVSS (SEQ ID NO: 107)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPDR FSGSGSGTDFTLTISSLEAEDFATYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 102)
PHRHL-44	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS TNYQDSLKG**RLTISKDNSKNTVYLQMNSL RAEDTAVYYCAV**YYGYQFFAY**WGQGTL VTVSS (SEQ ID NO: 108)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPDR FSGSGSGTDFTLTISSLEAEDFATYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 102)
PHRHL-45	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS TNYRDSLKG**RLTISKDNSKNTVYLQMNSL RAEDTAVYYCAV**YYGYQFFAY**WGQGTL VTVSS (SEQ ID NO: 109)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPDR FSGSGSGTDFTLTISSLEAEDFATYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 102)
PHRHL-46	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS TNYTDSLKG**RLTISKDNSKNTVYLQMNSL RAEDTAVYYCAV**YYGYQFFAY**WGQGTL VTVSS (SEQ ID NO: 110)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPDR FSGSGSGTDFTLTISSLEAEDFATYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 102)
PHRHL-47	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS TNYNPSLKG**RLTISKDNSKNTVYLQMNSL RAEDTAVYYCAVY**YGYQFFAY**WGQGTL VTVSS (SEQ ID NO: 111)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPDR FSGSGSGTDFTLTISSLEAEDFATYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 102)
PHRHL-48	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS TNYNDALKG**RLTISKDNSKNTVYLQMNSL	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPDR FSGSGSGTDFTLTISSLEAEDFATYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 102)

Antibody ID	Heavy chain variable region sequence (VH)	Light chain variable region sequence (VL)
	RAEDTAVYYCAV**YYGYQFFAY**WGQGTL VTVSS (SEQ ID NO: 112)	
PHRHL-49	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIFARGST NYNDSLKG**RLTISKDNSKNTVYLQMNSLR AEDTAVYYCAV**YYGYQFFAY**WGQGTLVT VSS (SEQ ID NO: 113)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPDR FSGSGSGTDFTLTISSLEAEDFATYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 102)
PHRHL-50	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIYARGST NYNDSLKGR**LTISKDNSKNTVYLQMNSLR AEDTAVYYCAV**YYGYQFFAY**WGQGTLVT VSS (SEQ ID NO: 114)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPKLLIY**DTSKRPS**GVPDR FSGSGSGTDFTLTISSLEAEDFATYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 102)
PHRHL-51	QVQLVESGGGVVQPGGSLRLSCAASGFTL S**SYGVH**WVRQAPGKGLEWVG**VIWARGS TNYADSLKGR**LTISKDNSKNTVYLQMNSL RAEDTAVYYCAV**YYGYQFFAY**WGQGTL VTVSS (SEQ ID NO: 105)	EIVLTQSPATLSLSPGERATLSC**SASSSVSY LH**WYQQKPGQAPRLLIY**DTSKRPS**GIPARF SGSGSGTDYTLTISSLEPEDFAVYYC**FQGS GYPLT**FGGGTKVEIK (SEQ ID NO: 116)
PHRHL-100	QVQLQESGPGLVKPSQTLSLTCAVSGYSIT **SGYSWH**WIRQPPGKGLEWMG**YIHYSGST KYNPSLKS**RITFSRDTSKNQFSLKLSSVTA ADTAVYYCVR**GTDYAMDY**WGQGTLVTV SS (SEQ ID NO: 117)	DIVMTQSPESLAVSLGERATINC**KSSQSLL YSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 118)
PHRHL-101	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT**S GYSWH**WIRQPPGKGLEWMG**YIHYSGSTK YNPSLKS**RISFSRDTSKNQFSLKLNSVTAA DTAVYYCVR**GTDYAMDY**WGQGTLVTVS S (SEQ ID NO: 119)	DIVMTQSPESLAVSLGERATINC**KSSQSLL YSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 118)
PHRHL-102	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT**S GYSWH**WVRQPPGKGLEWMG**YIHYSGST KYNPSLKS**RISFSRDTSKNQFSLKLNSVTA ADTAVYYCVR**GTDYAMDY**WGQGTLVTV SS (SEQ ID NO: 120)	DIVMTQSPDSLAVSLGERATINC**KSSQSLL YSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-103	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT**S GYSWH**WIRQPPGKGLEWMG**YIHYSGSTK YNPSLKS**RISYSRDTSKNQFSLKLNSVTAA	DIVMTQSPDSLAVSLGERATINC**KSSQSLL YSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV

Antibody ID	Heavy chain variable region sequence (VH)	Light chain variable region sequence (VL)
	DTAVYYCVR**GTDYAMDY**WGQGTLVTVSS (SEQ ID NO: 122)	AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-104	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT**SGYSWH**WVRQPPGKGLEWMG**YIHYSGST RYNPSLKS**RISFSRDTSKNQFSLKLNSVTA ADTAVYYCVR**GTDYAMDY**WGQGTLVTV SS (SEQ ID NO: 123)	DIVMTQSPDSLAVSLGERATINC**KSSQSLL YSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-105	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT**SGYSWH**WVRQPPGKGLEWMG**YIHYSGST RYNPSLKS**RISYSRDTSKNQFSLKLNSVTA ADTAVYYCVR**GTDYAMDY**WGQGTLVTV SS (SEQ ID NO: 124)	DIVMTQSPDSLAVSLGERATINC**KSSQSLL YSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-106	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT**SGYSWH**WVRQPPGKGLEWMG**YIHYSGST RYNPSLRS**RISFSRDTSKNQFSLKLNSVTA ADTAVYYCVR**GTDYAMDY**WGQGTLVTV SS (SEQ ID NO: 125)	DIVMTQSPDSLAVSLGERATINC**KSSQSLL YSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-107	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT**SGYSWH**WVRQPPGKGLEWMG**YIHYSGST KYNPSLRS**RISFSRDTSKNQFSLKLNSVTA ADTAVYYCVR**GTDYAMDY**WGQGTLVTV SS (SEQ ID NO: 126)	DIVMTQSPDSLAVSLGERATINC**KSSQSLL YSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-108	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT**SGYSWH**WIRQPPGKGLEWMG**YIHYSGSTK YNPSLRS**RISFSRDTSKNQFSLKLNSVTAA DTAVYYCVR**GTDYAMDY**WGQGTLVTVS S (SEQ ID NO: 127)	DIVMTQSPDSLAVSLGERATINC**KSSQSLL YSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-109	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT**SGYSWH**WIRQPPGKGLEWMG**YIHYSGSTR YNPSLKS**RISFSRDTSKNQFSLKLNSVTAA DTAVYYCVR**GTDYAMDY**WGQGTLVTVS S (SEQ ID NO: 128)	DIVMTQSPDSLAVSLGERATINC**KSSQSLL YSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-112	QVQLQESGPGLVKPSQTLSLTCTVSGYSIS**SGYSWH**WIRQPPGKGLEWIG**YIHYSGSTKY NPSLKS**RVSISVDTSKNQFSLKLNSVTAAD	DIVMTQSPDSLAVSLGERATINC**KSSQSLL YSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV

Antibody ID	Heavy chain variable region sequence (VH)	Light chain variable region sequence (VL)
	TAVYYCAR**GTDYAMDY**WGQGTLVTVSS (SEQ ID NO: 129)	AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-113	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT**SGYSWH**WIRQPPGKGLEWMG**YIHYSGSTKYNPSLKS**RISFSRDTSKNQFSLKLNSVTAADTAVYYCVR**GTDYAMDY**WGQGTLVTVSS (SEQ ID NO: 119)	DIVMTQSPDSLAVSLGERATINC**KSSQSLLYSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDVAVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-114	QVQLQESGPGLVKPSDTLSLTCTVTGYSIT**SGYSWH**WIRQPPGKGLEWIG**YIHYSGSTKYNPSLKS**RVTMSVDTSKNQFSLKLSSVTAVDTAVYYCAR**GTDYAMDY**WGQGTLVTVSS (SEQ ID NO: 130)	DIVMTQSPDSLAVSLGERATINC**KSSQSLLYSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDVAVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-115	QVQLQESGPGLVKPSETLSLTCTVTGYSIT**SGYSWH**WIRQPPGKGLEWIG**YIHYSGSTKYNPSLKS**RVTISVDTSKNQFSLKLSSVTAADTAVYYCAR**GTDYAMDY**WGQGTLVTVSS (SEQ ID NO: 131)	DIVMTQSPDSLAVSLGERATINC**KSSQSLLYSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDVAVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-116	QVQLQESGPGLVKPSETLSLTCTVTGYSIT**SGYSWH**WIRQPPGKGLEWIG**YIHYSGSTKYNPSLKS**RVTISVDTSKNQFSLKLSSVTAADTAVYYCAR**GTDYAMDY**WGQGTMVTVSS (SEQ ID NO: 147)	DIVMTQSPDSLAVSLGERATINC**KSSQSLLYSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDVAVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-117	QVQLQESGPGLVKPSQTLSLTCAVSGYSIT**SGYSWH**WIRQPPGKGLEWMG**YIHYSGSTKYNPSLKS**RITFSRDTSKNQFSLKLSSVTAADTAVYYCVR**GTDYAMDY**WGQGTLVTVSS (SEQ ID NO: 117)	DIVMTQSPDSLAVSLGERATINC**KSSQSLLYSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDVAVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-118	QVQLQESGPGLVKPSQTLSLTCAVSGGSIS**SGYSWH**WIRQPPGKGLEWIG**YIHYSGSTKYNPSLKS**RVTISVDTSKNQFSLKLSSVTAADTAVYYCAR**GTDYAMDY**WGQGTLVTVSS (SEQ ID NO: 132)	DIVMTQSPDSLAVSLGERATINC**KSSQSLLYSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDVAVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-119	QVQLQESGPGLVKPSQTLSLTCAVSGYSIT**SGYSWH**WIRQPPGKGLEWMG**YIHYSGSTKYNPSLKS**RITFSRDTSKNQFSLKLSSVTA	DIVMTQSPESLAVSLGERATINC**KSSQSLLYSSNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV

Antibody ID	Heavy chain variable region sequence (VH)	Light chain variable region sequence (VL)
	ADTAVYYCVR**GTDYAMDY**WGQGTLVTV SS (SEQ ID NO: 117)	AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 133)
PHRHL-120	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT**S GYSWH**WIRQPPGKGLEWMG**YIHYSGSTK YNPSLKS**RISFSRDTSKNQFSLKLNSVTAA DTAVYYCVR**GTDYAMDY**WGQGTLVTVS S (SEQ ID NO: 119)	DIVMTQSPESLAVSLGERATINC**KSSQSLL YSSNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 133)
PHRHL-121	QVQLQESGPGLVKPSQTLSLTCAVSGYSIT **SGYSWH**WIRQPPGKGLEWMG**YIHYSGST KYNPSLKS**RITFSRDTSKNQFSLKLSSVTA ADTAVYYCVR**GTDYAMDY**WGQGTLVTV SS (SEQ ID NO: 117)	DIVMTQSPDSLAVSLGERATINC**KSSQSLL YSSNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 134)
PHRHL-122	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT**S GYSWH**WIRQPPGKGLEWMG**YIHYSGSTK YNPSLKS**RISFSRDTSKNQFSLKLNSVTAA DTAVYYCVR**GTDYAMDY**WGQGTLVTVS S (SEQ ID NO: 119)	DIVMTQSPDSLAVSLGERATINC**KSSQSLL YSSNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 134)
PHRHL-123	DVQLQESGPDLVKPSQSLSLTCTVTGYSIT**S GYSWH**WIRQFPGNKLEWMG**YIHYSGSTK YNPSLKS**RISFTRDTSKNQFFLQLNSVTTED TATYYCVR**GTDYAMDY**WGQGTSVTVSS (SEQ ID NO: 135)	DIVMSQSPSSLTVSVGEKVTMSC**KSSQSLL YSNNQKNYLA**WYQQKPGQSPKLLIY**WAS TRES**GVPDRFTGSGSGTDFTLTISSVKAED LAVYYC**QQYYLYPLT**FGAGTKLEIK (SEQ ID NO: 136)
PHRHL-124	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT**S GYSWH**WVRQPPGKGLEWIG**YIHYSGSTR YNPSLKS**RISFSRDTSKNQFSLKLNSVTAA DTAVYYCVR**GTDYAMDY**WGQGTLVTVS S (SEQ ID NO: 137)	DIVMTQSPDSLAVSLGERATINC**KSSQSLL YSNNQKNYLAW**YQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-125	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT**S GYSWH**WVRQPPGKGLEWIG**YIHYSGSTR YNPSLKS**RVSFSRDTSKNQFSLKLNSVTAA DTAVYYCVR**GTDYAMDY**WGQGTLVTVS S (SEQ ID NO: 138)	DIVMTQSPDSLAVSLGERATINC**KSSQSLL YSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-126	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT**S GYSWH**WVRQPPGKGLEWMG**YIHYSGST RYNPSLKS**RISFSRDTSKNQFSLKLNSVTA	DIVMTQSPDSLAVSLGERATINC**KSSQSLL YSRNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV

Antibody ID	Heavy chain variable region sequence (VH)	Light chain variable region sequence (VL)
	ADTAVYYCVR**GTDYAMDY**WGQGTLVTV SS (SEQ ID NO: 123)	AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 139)
PHRHL-127	QVQLQESGPGLVKPSQTLSLTCTVSGYSIT**S GYSWH**WVRQPPGKGLEWIG**YIHYSGSTR YNPSLKS**RISFSRDTSKNQFSLKLNSVTAA DTAVYYCAR**GTDYAMDY**WGQGTLVTVS S (SEQ ID NO: 140)	DIVMTQSPDSLAVSLGERATINC**KSSQSLL YSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-128	QVQLQESGPGLVKPSQTLSLTCTVSGYSISS **GYSWH**WVRQPPGKGLEWIG**YIHYSGSTR YNPSLKS**RVSFSRDTSKNQFSLKLNSVTAA DTAVYYCVR**GTDYAMDY**WGQGTLVTVS S (SEQ ID NO: 141)	DIVMTQSPDSLAVSLGERATINC**KSSQSLL YSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-129	QVQLQESGPGLVKPSQTLSLTCTVSGYSITS **GYSWH**WVRQPPGKGLEWIG**YIHYSGSTR YNPSLKS**RVSFSRDTSKNQFSLKLNSVTAA DTAVYYCAR**GTDYAMDY**WGQGTLVTVS S (SEQ ID NO: 142)	DIVMTQSPDSLAVSLGERATINC**KSSQSLL YSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-130	QVQLQESGPGLVKPSQTLSLTCTVSGYSITS **GYSWH**WIRQPPGKGLEWMG**YIHYSGSTR YNPSLRS**RISFSRDTSKNQFSLKLNSVTAA DTAVYYCVR**GTDYAMDY**WGQGTLVTVS S (SEQ ID NO: 143)	DIVMTQSPDSLAVSLGERATINC**KSSQSLL YSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-131	QVQLQESGPGLVKPSQTLSLTCTVSGYSISS **GYSWH**WVRQPPGKGLEWIG**YIHYSGSTR YNPSLKS**RISFSRDTSKNQFSLKLNSVTAA DTAVYYCAR**GTDYAMDY**WGQGTLVTVS S (SEQ ID NO: 144)	DIVMTQSPDSLAVSLGERATINC**KSSQSLL YSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-132	QVQLQESGPGLVKPSQTLSLTCTVSGYSISS **GYSWH**WVRQPPGKGLEWIG**YIHYSGSTR YNPSLKS**RVSFSRDTSKNQFSLKLNSVTAA DTAVYYCAR**GTDYAMDY**WGQGTLVTVS S (SEQ ID NO: 145)	DIVMTQSPDSLAVSLGERATINC**KSSQSLL YSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-133	QVQLQESGPGLVKPSQTLSLTCTVSGYSISS **GYSWH**WVRQPPGKGLEWMG**YIHYSGST RYNPSLKS**RVSFSRDTSKNQFSLKLNSVTA	DIVMTQSPDSLAVSLGERATINCK**SSQSLL YSNNQKNYLA**WYQQKPGQPPKLLIY**WAS TRES**GVPDRFSGSGSGTDFTLTISSLQAEDV

Antibody ID	Heavy chain variable region sequence (VH)	Light chain variable region sequence (VL)
	ADTAVYYCAR**GTDYAMDY**WGQGTLVTV SS (SEQ ID NO: 146)	AVYYC**QQYYLYPLT**FGQGTKLEIK (SEQ ID NO: 121)
PHRHL-200	QVQLKESGPGLVAPSQSLSITCTVSGFSLT**S YGVH**WVRQPPGKGLEWLG**VIWAGGSTN YNSALMS**RLSISKDNSKSQVFLKMNSLQT DDTDMYYCAI**NYGYDAFAY**WGQGTLVTV SA (SEQ ID NO: 148)	ENVLTQSPAIMSASPGEKVTMTC**SASLSVS YMH**WYQQKSSTSPKLWIY**DTSKLAS**GVP GRFSGSGSGNSYSLTISSMEAEDVATYYC**F QGSGYPLT**FGAGTKLELK (SEQ ID NO: 106)
PHRHL-201	QVQLQESGPGLVKPSQTLSLTCTVSGGSLT **SYGVH**WVRQPPGKGLEWLG**VIWAGGST NYNSALMS**RLSISLDTSKSQVSLKLNSLTA ADTAMYYCAR**NYGYDAFAY**WGQGTLVT VSS (SEQ ID NO: 115)	EIVLTQSPATLSLSPGERATLSC**SASLSVSY MH**WYQQKPGKAPKLLIY**DTSKLAS**GVPS RFSGSGSGTDFTLTISSLQAEDFATYYC**FQ GSGYPLT**FGQGTKLEIK (SEQ ID NO: 77)
PHRHL-202	QVQLQESGPGLVKPSQTLSLTCTVSGGSLT **SYGVH**WVRQPPGKGLEWLG**VIWAGGST NYNSALMS**RLSISLDTSKSQVSLKLNSLTA ADTAMYYCAR**NYGYDAFAY**WGQGTLVT VSS (SEQ ID NO: 115)	EIVLTQSPDFQSVTPKEKVTITC**SASLSVSY MH**WYQQKPGKAPKLWIY**DTSKLAS**GVPS RFSGSGSGNDYTLTISSLQPEDFATYYC**FQ GSGYPLT**FGQGTKLEIK (SEQ ID NO:78)
PHRHL-203	QVQLQESGPGLVKPSETLSLTCTVSGFSLT**S YGVH**WIRQPPGKGLEWLG**VIWAGGSTNY NSALMS**RLTISKDNSKNQVSLKLSSVTAAD TAVYYCAI**NYGYDAFAY**WGQGTMVTVSS (SEQ ID NO: 79)	EIVLTQSPATLSLSPGERATLSC**SASLSVSY MH**WYQQKPGKAPKLLIY**DTSKLAS**GVPS RFSGSGSGTDFTLTISSLQAEDFATYYC**FQ GSGYPLT**FGQGTKLEIK (SEQ ID NO: 77)
PHRHL-204	QVQLQESGPGLVKPSETLSLTCTVSGFSLT**S YGVH**WIRQPPGKGLEWLG**VIWAGGSTNY NSALMS**RLTISKDNSKNQVSLKLSSVTAAD TAVYYCAI**NYGYDAFAY**WGQGTMVTVSS (SEQ ID NO: 79)	EIVLTQSPDFQSVTPKEKVTITC**SASLSVSY MH**WYQQKPGKAPKLWIY**DTSKLAS**GVPS RFSGSGSGNDYTLTISSLQPEDFATYYC**FQ GSGYPLT**FGQGTKLEIK (SEQ ID NO: 78)

[0150] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 79, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 80, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%,

93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 79, and the VL consists of the amino acid sequence of SEQ ID NO: 80.

[0151] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 82, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 82, and the VL consists of the amino acid sequence of SEQ ID NO: 83.

[0152] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 82, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 84, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 82, and the VL consists of the amino acid sequence of SEQ ID NO: 84.

[0153] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 82, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 85, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments,

provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 82, and the VL consists of the amino acid sequence of SEQ ID NO: 85.

[0154] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 86, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 84, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 86, and the VL consists of the amino acid sequence of SEQ ID NO: 84.

[0155] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 87, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 85, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 87, and the VL consists of the amino acid sequence of SEQ ID NO: 85.

[0156] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 86, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 85, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 86, and the VL consists of the amino acid sequence of SEQ ID NO: 85.

[0157] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 87, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 84, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 87, and the VL consists of the amino acid sequence of SEQ ID NO: 84.

[0158] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 86, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 86, and the VL consists of the amino acid sequence of SEQ ID NO: 83.

[0159] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 87, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 87, and the VL consists of the amino acid sequence of SEQ ID NO: 83.

[0160] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 88, or an amino acid sequence comprising at

least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 89, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 88, and the VL consists of the amino acid sequence of SEQ ID NO: 89.

[0161] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 90, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 91, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 90, and the VL consists of the amino acid sequence of SEQ ID NO: 91.

[0162] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 92, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 89, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 92, and the VL consists of the amino acid sequence of SEQ ID NO: 89.

[0163] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 82, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%

sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 93, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 82, and the VL consists of the amino acid sequence of SEQ ID NO: 93.

[0164] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 94, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 93, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 94, and the VL consists of the amino acid sequence of SEQ ID NO: 93.

[0165] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 94, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 94, and the VL consists of the amino acid sequence of SEQ ID NO: 83.

[0166] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 95, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%,

77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 95, and the VL consists of the amino acid sequence of SEQ ID NO: 83.

[0167] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 96, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 96, and the VL consists of the amino acid sequence of SEQ ID NO: 83.

[0168] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 96, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 93, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 96, and the VL consists of the amino acid sequence of SEQ ID NO: 93.

[0169] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 97, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 98, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments,

provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 97, and the VL consists of the amino acid sequence of SEQ ID NO: 98.

[0170] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 99, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 98, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 99, and the VL consists of the amino acid sequence of SEQ ID NO: 98.

[0171] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 95, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 93, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 95, and the VL consists of the amino acid sequence of SEQ ID NO: 93.

[0172] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 81, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 81, and the VL consists of the amino acid sequence of SEQ ID NO: 100.

[0173] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 101, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 101, and the VL consists of the amino acid sequence of SEQ ID NO: 102.

[0174] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 81, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 81, and the VL consists of the amino acid sequence of SEQ ID NO: 102.

[0175] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 101, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 101, and the VL consists of the amino acid sequence of SEQ ID NO: 100.

[0176] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 103, or an amino acid sequence comprising

at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 104, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 103, and the VL consists of the amino acid sequence of SEQ ID NO: 104.

[0177] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 103, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 103, and the VL consists of the amino acid sequence of SEQ ID NO: 102.

[0178] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 81, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 104, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 81, and the VL consists of the amino acid sequence of SEQ ID NO: 104.

[0179] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 105, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%

sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 105, and the VL consists of the amino acid sequence of SEQ ID NO: 100.

[0180] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 107, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 107, and the VL consists of the amino acid sequence of SEQ ID NO: 100.

[0181] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 108, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 108, and the VL consists of the amino acid sequence of SEQ ID NO: 100.

[0182] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 109, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%,

77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 109, and the VL consists of the amino acid sequence of SEQ ID NO: 100.

[0183] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 110, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 110, and the VL consists of the amino acid sequence of SEQ ID NO: 100.

[0184] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 111, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 111, and the VL consists of the amino acid sequence of SEQ ID NO: 100.

[0185] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 112, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments,

provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 112, and the VL consists of the amino acid sequence of SEQ ID NO: 100.

[0186] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 113, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 113, and the VL consists of the amino acid sequence of SEQ ID NO: 100.

[0187] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 114, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 114, and the VL consists of the amino acid sequence of SEQ ID NO: 100.

[0188] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 105, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 105, and the VL consists of the amino acid sequence of SEQ ID NO: 102.

[0189] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 107, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 107, and the VL consists of the amino acid sequence of SEQ ID NO: 102.

[0190] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 108, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 108, and the VL consists of the amino acid sequence of SEQ ID NO: 102.

[0191] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 109, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 109, and the VL consists of the amino acid sequence of SEQ ID NO: 102.

[0192] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 110, or an amino acid sequence comprising

at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 110, and the VL consists of the amino acid sequence of SEQ ID NO: 102.

[0193] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 111, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 111, and the VL consists of the amino acid sequence of SEQ ID NO: 102.

[0194] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 112, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 112, and the VL consists of the amino acid sequence of SEQ ID NO: 102.

[0195] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 113, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%

sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 113, and the VL consists of the amino acid sequence of SEQ ID NO: 102.

[0196] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 114, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 114, and the VL consists of the amino acid sequence of SEQ ID NO: 102.

[0197] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 105, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 116, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 105, and the VL consists of the amino acid sequence of SEQ ID NO: 116.

[0198] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 117, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 118, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%,

77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 117, and the VL consists of the amino acid sequence of SEQ ID NO: 118.

[0199] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 119, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 118, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 119, and the VL consists of the amino acid sequence of SEQ ID NO: 118.

[0200] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 120, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 120, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0201] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 122, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments,

provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 122, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0202] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 123, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 123, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0203] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 124, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 124, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0204] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 125, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 125, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0205] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 126, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 126, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0206] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 127, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 127, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0207] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 128, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 128, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0208] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 129, or an amino acid sequence comprising

at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 129, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0209] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 119, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 119, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0210] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 130, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 130, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0211] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 131, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%

sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 131, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0212] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 147, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 147, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0213] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 117, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 117, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0214] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 132, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%,

77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 132, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0215] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 117, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 133, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 117, and the VL consists of the amino acid sequence of SEQ ID NO: 133.

[0216] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 119, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 133, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 119, and the VL consists of the amino acid sequence of SEQ ID NO: 133.

[0217] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 117, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 134, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments,

provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 117, and the VL consists of the amino acid sequence of SEQ ID NO: 134.

[0218] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 119, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 134, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 119, and the VL consists of the amino acid sequence of SEQ ID NO: 134.

[0219] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 135, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 136, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 135, and the VL consists of the amino acid sequence of SEQ ID NO: 136.

[0220] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 137, comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121 comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 137, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0221] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 138, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 138, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0222] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 123, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 139, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 123, and the VL consists of the amino acid sequence of SEQ ID NO: 139.

[0223] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 140, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 140, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0224] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 141, or an amino acid sequence comprising

at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 141, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0225] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 142, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 142, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0226] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 143, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 143, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0227] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 144, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%

sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 144, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0228] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 145, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 145, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0229] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 146, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 146, and the VL consists of the amino acid sequence of SEQ ID NO: 121.

[0230] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 148, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 106, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%,

77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 148, and the VL consists of the amino acid sequence of SEQ ID NO: 106.

[0231] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 115, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 77, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 115, and the VL consists of the amino acid sequence of SEQ ID NO: 77.

[0232] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 115, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 78, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 115, and the VL consists of the amino acid sequence of SEQ ID NO: 78.

[0233] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 79, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 77, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments,

provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 79, and the VL consists of the amino acid sequence of SEQ ID NO: 77.

[0234] In some embodiments, provided herein is a humanized CD24 antibody, wherein the VH comprises the amino acid sequence of SEQ ID NO: 79, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto; and wherein the VL comprises the amino acid sequence of SEQ ID NO: 78, or an amino acid sequence comprising at least 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity thereto. In some embodiments, provided herein is a CD24 antibody, wherein the VH consists of the amino acid sequence of SEQ ID NO: 79, and the VL consists of the amino acid sequence of SEQ ID NO: 78.

[0235] Also included are variants thereof that bind to CD24, for example, variants having 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 modifications (e.g. substitutions, additions, and/or deletions) in one or more framework regions of any one or more of the foregoing VH and/or VL sequences.

[0236] In some embodiments, the CD24 antibody of the disclosure comprises one or more VH framework region residues selected from the group consisting of: a serine (S) at position 30, a valine (V) at position 37, an isoleucine (I) at position 48, a valine (V) at position 67, and an alanine (A) at position 93, or any combination thereto, according to Kabat numbering.

[0237] Table 3 provides exemplary six CDR combinations of the CD24 antibodies of the disclosure.

Table 3: Exemplary CD24 Antibody CDR Combinations

Antibody ID	**CDRH1**	**CDHR2**	**CDRH3**	**CDRL1**	**CDRL2**	**CDRL3**
PHRHL-01	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNSALMS (SEQ ID NO: 150)	YYGYLFFA Y (SEQ ID NO: 151)	SASSSVSYM H (SEQ ID NO: 152)	DTSKLAS (SEQ ID NO: 153)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-02	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNSALMS (SEQ ID NO: 150)	YYGYLFFA Y (SEQ ID NO: 151)	SASSSVSYM H (SEQ ID NO: 152)	DTSKLAS (SEQ ID NO: 153)	FQGSGYPLT (SEQ ID NO: 154)

Antibody ID	CDRH1	CDHR2	CDRH3	CDRL1	CDRL2	CDRL3
PHRHL-03	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNDSLKG (SEQ ID NO: 155)	YYGYLFFA Y (SEQ ID NO: 151)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-04	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNDSLKG (SEQ ID NO: 155)	YYGYLFFA Y (SEQ ID NO: 151)	SASSSVSYM H (SEQ ID NO: 152)	DTSKLAS (SEQ ID NO: 153)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-05	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNDSLKG (SEQ ID NO: 155)	YYGYLFFA Y (SEQ ID NO: 151)	SASSSVSYM H (SEQ ID NO: 152)	DTSKLAS (SEQ ID NO: 153)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-06	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNSALMS (SEQ ID NO: 150)	YYGYLFFA Y (SEQ ID NO: 151)	SASSSVSYM H (SEQ ID NO: 152)	DTSKLAS (SEQ ID NO: 153)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-07	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNDSLKG (SEQ ID NO: 155)	YYGYLFFA Y (SEQ ID NO: 151)	SASSSVSYM H (SEQ ID NO: 152)	DTSKLAS (SEQ ID NO: 153)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-08	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNSALMS (SEQ ID NO: 150)	YYGYLFFA Y (SEQ ID NO: 151)	SASSSVSYM H (SEQ ID NO: 152)	DTSKLAS (SEQ ID NO: 153)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-09	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNDSLKG (SEQ ID NO: 155)	YYGYLFFA Y (SEQ ID NO: 151)	SASSSVSYM H (SEQ ID NO: 152)	DTSKLAS (SEQ ID NO: 153)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-10	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNSALMS (SEQ ID NO: 150)	YYGYLFFA Y (SEQ ID NO: 151)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-11	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNDSLKG (SEQ ID NO: 155)	YYGYLFFA Y (SEQ ID NO: 151)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)

Antibody ID	CDRH1	CDHR2	CDRH3	CDRL1	CDRL2	CDRL3
PHRHL-12	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNSALMS (SEQ ID NO: 150)	YYGYLFFA Y (SEQ ID NO: 151)	SASSSVSYM H (SEQ ID NO: 152)	DTSKLAS (SEQ ID NO: 153)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-13	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNSALMS (SEQ ID NO: 150)	YYGYLFFA Y (SEQ ID NO: 151)	SASSSVSYM H (SEQ ID NO: 152)	DTSKLAS (SEQ ID NO: 153)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-14	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNSALMS (SEQ ID NO: 150)	YYGYLFFA Y (SEQ ID NO: 151)	SASSSVSYM H (SEQ ID NO: 152)	DTSKLAS (SEQ ID NO: 153)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-15	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNDSLKG (SEQ ID NO: 155)	YYGYLFFA Y (SEQ ID NO: 151)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-16	SYGVH (SEQ ID NO: 149)	VIWARGST NYNDSLKG (SEQ ID NO: 158)	YYGYLFFA Y (SEQ ID NO: 151)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-17	SYGVH (SEQ ID NO: 149)	VIWARGST NYNDSLKG (SEQ ID NO: 158)	YYGYLFFA Y (SEQ ID NO: 151)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-18	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNDSLKG (SEQ ID NO: 155)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-19	SYGVH (SEQ ID NO: 149)	VIWARGST NYNDSLKG (SEQ ID NO: 158)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-20	SYGVH (SEQ ID NO: 149)	VIWARGST NYNDSLKG (SEQ ID NO: 158)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)

Antibody ID	CDRH1	CDHR2	CDRH3	CDRL1	CDRL2	CDRL3
PHRHL-21	SYGVH (SEQ ID NO: 149)	VIWARGST NYADSLKG (SEQ ID NO: 160)	YYGYQFFA Y (SEQ ID NO: 159)	RASSSVSYL A (SEQ ID NO: 161)	DTSNRAT (SEQ ID NO: 162)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-22	SYGMH (SEQ ID NO: 163)	VIWARGST YYADSVK (SEQ ID NO: 164)	YYGYQFFA Y (SEQ ID NO: 159)	RASSSVSYL A (SEQ ID NO: 161)	DTSNRAT (SEQ ID NO: 162)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-23	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNDSLKG (SEQ ID NO: 155)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-26	SYGVH (SEQ ID NO: 149)	VIWARGST NYNDSLKG (SEQ ID NO: 158)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-27	SYGVH (SEQ ID NO: 149)	VIWARGST NYNDSLKG (SEQ ID NO: 158)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-28	SYGVH (SEQ ID NO: 149)	VIWARGST NYNDSLKG (SEQ ID NO: 158)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-29	SYGVH (SEQ ID NO: 149)	VIWARGST NYNDSLKG (SEQ ID NO: 158)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-30	SYGVH (SEQ ID NO: 149)	VIFARGSTN YQDSLKG (SEQ ID NO: 165)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	ETSKRPS (SEQ ID NO: 166)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-31	SYGVH (SEQ ID NO: 149)	VIFARGSTN YQDSLKG (SEQ ID NO: 165)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)

Antibody ID	CDRH1	CDHR2	CDRH3	CDRL1	CDRL2	CDRL3
PHRHL-32	SYGVH (SEQ ID NO: 149)	VIWARGST NYNDSLKG (SEQ ID NO: 158)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	ETSKRPS (SEQ ID NO: 166)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-33	SYGVH (SEQ ID NO: 149)	VIWARGST NYADSLKG (SEQ ID NO: 160)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-34	SYGVH (SEQ ID NO: 149)	VIWARGST NYKDSLKG (SEQ ID NO: 167)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-35	SYGVH (SEQ ID NO: 149)	VIWARGST NYQDSLKG (SEQ ID NO: 168)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-36	SYGVH (SEQ ID NO: 149)	VIWARGST NYRDSLKG (SEQ ID NO: 169)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-37	SYGVH (SEQ ID NO: 149)	VIWARGST NYTDSLKG (SEQ ID NO: 170)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-38	SYGVH (SEQ ID NO: 149)	VIWARGST NYNPSLKG (SEQ ID NO: 171)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-39	SYGVH (SEQ ID NO: 149)	VIWARGST NYNDALKG (SEQ ID NO: 172)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-40	SYGVH (SEQ ID NO: 149)	VIFARGSTN YNDSLKG (SEQ ID NO: 173)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)

Antibody ID	CDRH1	CDHR2	CDRH3	CDRL1	CDRL2	CDRL3
PHRHL-41	SYGVH (SEQ ID NO: 149)	VIYARGSTN YNDSLKG (SEQ ID NO: 174)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-42	SYGVH (SEQ ID NO: 149)	VIWARGST NYADSLKG (SEQ ID NO: 160)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-43	SYGVH (SEQ ID NO: 149)	VIWARGST NYKDSLKG (SEQ ID NO: 167)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-44	SYGVH (SEQ ID NO: 149)	VIWARGST NYQDSLKG (SEQ ID NO: 168)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-45	SYGVH (SEQ ID NO: 149)	VIWARGST NYRDSLKG (SEQ ID NO: 169)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-46	SYGVH (SEQ ID NO: 149)	VIWARGST NYTDSLKG (SEQ ID NO: 170)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-47	SYGVH (SEQ ID NO: 149)	VIWARGST NYNPSLKG (SEQ ID NO: 171)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-48	SYGVH (SEQ ID NO: 149)	VIWARGST NYNDALKG (SEQ ID NO: 172)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-49	SYGVH (SEQ ID NO: 149)	VIFARGSTN YNDSLKG (SEQ ID NO: 173)	YYGYQFFA Y (SEQ ID NO: 159)	SASSSVSYL H (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)

Antibody ID	CDRH1	CDHR2	CDRH3	CDRL1	CDRL2	CDRL3
PHRHL-50	SYGVH (SEQ ID NO: 149)	VIYARGSTNYNDSLKG (SEQ ID NO: 174)	YYGYQFFAY (SEQ ID NO: 159)	SASSSVSYLH (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-51	SYGVH (SEQ ID NO: 149)	VIWARGSTNYADSLKG (SEQ ID NO: 160)	YYGYQFFAY (SEQ ID NO: 159)	SASSSVSYLH (SEQ ID NO: 156)	DTSKRPS (SEQ ID NO: 157)	FQGSGYPLT (SEQ ID NO: 154)
PHRHL-100	SGYSWH (SEQ ID NO: 175)	YIHYSGSTKYNPSLKS (SEQ ID NO: 176)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYSNNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPLT (SEQ ID NO: 180)
PHRHL-101	SGYSWH (SEQ ID NO: 175)	YIHYSGSTKYNPSLKS (SEQ ID NO: 176)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYSNNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPLT (SEQ ID NO: 180)
PHRHL-102	SGYSWH (SEQ ID NO: 175)	YIHYSGSTKYNPSLKS (SEQ ID NO: 176)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYSNNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPLT (SEQ ID NO: 180)
PHRHL-103	SGYSWH (SEQ ID NO: 175)	YIHYSGSTKYNPSLKS (SEQ ID NO: 176)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYSNNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPLT (SEQ ID NO: 180)
PHRHL-104	SGYSWH (SEQ ID NO: 175)	YIHYSGSTRYNPSLKS (SEQ ID NO: 181)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYSNNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPLT (SEQ ID NO: 180)
PHRHL-105	SGYSWH (SEQ ID NO: 175)	YIHYSGSTRYNPSLKS (SEQ ID NO: 181)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYSNNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPLT (SEQ ID NO: 180)
PHRHL-106	SGYSWH (SEQ ID NO: 175)	YIHYSGSTRYNPSLRS (SEQ ID NO: 182)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYSNNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPLT (SEQ ID NO: 180)

Antibody ID	CDRH1	CDHR2	CDRH3	CDRL1	CDRL2	CDRL3
PHRHL-107	SGYSWH (SEQ ID NO: 175)	YIHYSGSTK YNPSLRS (SEQ ID NO: 183)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS NNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-108	SGYSWH (SEQ ID NO: 175)	YIHYSGSTK YNPSLRS (SEQ ID NO: 183)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS NNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-109	SGYSWH (SEQ ID NO: 175)	YIHYSGSTR YNPSLKS (SEQ ID NO: 181)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS NNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-112	SGYSWH (SEQ ID NO: 175)	YIHYSGSTK YNPSLKS (SEQ ID NO: 176)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS NNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-113	SGYSWH (SEQ ID NO: 175)	YIHYSGSTK YNPSLKS (SEQ ID NO: 176)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS NNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-114	SGYSWH (SEQ ID NO: 175)	YIHYSGSTK YNPSLKS (SEQ ID NO: 176)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS NNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-115	SGYSWH (SEQ ID NO: 175)	YIHYSGSTK YNPSLKS (SEQ ID NO: 176)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS NNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-116	SGYSWH (SEQ ID NO: 175)	YIHYSGSTK YNPSLKS (SEQ ID NO: 176)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS NNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-117	SGYSWH (SEQ ID NO: 175)	YIHYSGSTK YNPSLKS (SEQ ID NO: 176)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS NNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)

Antibody ID	CDRH1	CDHR2	CDRH3	CDRL1	CDRL2	CDRL3
PHRHL-118	SGYSWH (SEQ ID NO: 175)	YIHYSGSTK YNPSLKS (SEQ ID NO: 176)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS NNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-119	SGYSWH (SEQ ID NO: 175)	YIHYSGSTK YNPSLKS (SEQ ID NO: 176)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS SNQKNYLA (SEQ ID NO: 184)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-120	SGYSWH (SEQ ID NO: 175)	YIHYSGSTK YNPSLKS (SEQ ID NO: 176)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS SNQKNYLA (SEQ ID NO: 184)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-121	SGYSWH (SEQ ID NO: 175)	YIHYSGSTK YNPSLKS (SEQ ID NO: 176)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS SNQKNYLA (SEQ ID NO: 184)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-122	SGYSWH (SEQ ID NO: 175)	YIHYSGSTK YNPSLKS (SEQ ID NO: 176)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS SNQKNYLA (SEQ ID NO: 184)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-123	SGYSWH (SEQ ID NO: 175)	YIHYSGSTK YNPSLKS (SEQ ID NO: 176)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS NNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-124	SGYSWH (SEQ ID NO: 175)	YIHYSGSTR YNPSLKS (SEQ ID NO: 181)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS NNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-125	SGYSWH (SEQ ID NO: 175)	YIHYSGSTR YNPSLKS (SEQ ID NO: 181)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS NNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-126	SGYSWH (SEQ ID NO: 175)	YIHYSGSTR YNPSLKS (SEQ ID NO: 181)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS RNQKNYLA (SEQ ID NO: 185)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)

Antibody ID	CDRH1	CDHR2	CDRH3	CDRL1	CDRL2	CDRL3
PHRHL-127	SGYSWH (SEQ ID NO: 175)	YIHYSGSTR YNPSLKS (SEQ ID NO: 181)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS NNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-128	SGYSWH (SEQ ID NO: 175)	YIHYSGSTR YNPSLKS (SEQ ID NO: 181)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS NNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-129	SGYSWH (SEQ ID NO: 175)	YIHYSGSTR YNPSLKS (SEQ ID NO: 181)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS NNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-130	SGYSWH (SEQ ID NO: 175)	YIHYSGSTR YNPSLRS (SEQ ID NO: 182)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS NNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-131	SGYSWH (SEQ ID NO: 175)	YIHYSGSTR YNPSLKS (SEQ ID NO: 181)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS NNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-132	SGYSWH (SEQ ID NO: 175)	YIHYSGSTR YNPSLKS (SEQ ID NO: 181)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS NNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-133	SGYSWH (SEQ ID NO: 175)	YIHYSGSTR YNPSLKS (SEQ ID NO: 181)	GTDYAMDY (SEQ ID NO: 177)	KSSQSLLYS NNQKNYLA (SEQ ID NO: 178)	WASTRES (SEQ ID NO: 179)	QQYYLYPL T (SEQ ID NO: 180)
PHRHL-200	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNSALMS (SEQ ID NO:150)	NYGYDAFA Y (SEQ ID NO:186)	SASLSVSYM H (SEQ ID NO:187)	DTSKLAS (SEQ ID NO:153)	FQGSGYPLT (SEQ ID NO:154)
PHRHL-201	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNSALMS (SEQ ID NO:150)	NYGYDAFA Y (SEQ ID NO:186)	SASLSVSYM H (SEQ ID NO:187)	DTSKLAS (SEQ ID NO: 153)	FQGSGYPLT (SEQ ID NO:154)

Antibody ID	CDRH1	CDHR2	CDRH3	CDRL1	CDRL2	CDRL3
PHRHL-202	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNSALMS (SEQ ID NO:150)	NYGYDAFA Y (SEQ ID NO:186)	SASLSVSYM H (SEQ ID NO:187)	DTSKLAS (SEQ ID NO: 153)	FQGSGYPLT (SEQ ID NO:154)
PHRHL-203	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNSALMS (SEQ ID NO:150)	NYGYDAFA Y (SEQ ID NO:186)	SASLSVSYM H (SEQ ID NO:187)	DTSKLAS (SEQ ID NO: 153)	FQGSGYPLT (SEQ ID NO:154)
PHRHL-204	SYGVH (SEQ ID NO: 149)	VIWAGGST NYNSALMS (SEQ ID NO:150)	NYGYDAFA Y (SEQ ID NO:186)	SASLSVSYM H (SEQ ID NO:187)	DTSKLAS (SEQ ID NO: 153)	FQGSGYPLT (SEQ ID NO:154)

[0238] In some embodiments, provided herein is a humanized CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 150, SEQ ID NO: 151, SEQ ID NO: 152, SEQ ID NO: 153, and SEQ ID NO: 154.

[0239] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 155, SEQ ID NO: 151, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154.

[0240] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 155, SEQ ID NO: 151, SEQ ID NO: 152, SEQ ID NO: 153, and SEQ ID NO: 154.

[0241] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 150, SEQ ID NO: 151, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154.

[0242] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 155, SEQ ID NO: 151, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154.

[0243] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 158, SEQ ID NO: 151, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154.

[0244] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 155, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154.

[0245] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 158, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154.

[0246] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 160, SEQ ID NO: 159, SEQ ID NO: 161, SEQ ID NO: 162, and SEQ ID NO: 154.

[0247] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 163, SEQ ID NO: 164, SEQ ID NO: 159, SEQ ID NO: 161, SEQ ID NO: 162, and SEQ ID NO: 154.

[0248] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 165, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 166, and SEQ ID NO: 154.

[0249] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 165, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154.

[0250] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 158, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 166, and SEQ ID NO: 154.

[0251] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 160, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154.

[0252] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 167, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154.

[0253] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 168, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154.

[0254] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 169, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154.

[0255] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 170, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154.

[0256] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 171, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154.

[0257] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 172, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154.

[0258] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 173, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154.

[0259] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 174, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154.

[0260] In some embodiments, provided herein is a humanized CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 175, SEQ ID NO: 176, SEQ ID NO: 177, SEQ ID NO: 178, SEQ ID NO: 179, and SEQ ID NO: 180.

[0261] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 175, SEQ ID NO: 181, SEQ ID NO: 177, SEQ ID NO: 178, SEQ ID NO: 179, and SEQ ID NO: 180.

[0262] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 175, SEQ ID NO: 182, SEQ ID NO: 177, SEQ ID NO: 178, SEQ ID NO: 179, and SEQ ID NO: 180.

[0263] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 175, SEQ ID NO: 183, SEQ ID NO: 177, SEQ ID NO: 178, SEQ ID NO: 179, and SEQ ID NO: 180.

[0264] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 175, SEQ ID NO: 176, SEQ ID NO: 177, SEQ ID NO: 184, SEQ ID NO: 179, and SEQ ID NO: 180.

[0265] In some embodiments, provided herein is a CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 175, SEQ ID NO: 181, SEQ ID NO: 177, SEQ ID NO: 185, SEQ ID NO: 179, and SEQ ID NO: 180.

[0266] In some embodiments, provided herein is a humanized CD24 antibody comprising the CDR amino acid sequences of SEQ ID NO: 149, SEQ ID NO: 150, SEQ ID NO: 186, SEQ ID NO: 187, SEQ ID NO: 153, and SEQ ID NO: 154.

[0267] Also included are minor variants of the foregoing CDRs. In some embodiments, variants bind to CD24 and have 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 modifications (e.g. substitutions, additions, and/or deletions) s in any one or more of the individual CDRs, for example, any one or more the CDRH1, CDRH2, CDRH3, CDRL1, CDRL2, and/or CDRL3 provided in the foregoing.

[0268] In some embodiments, provided herein is a CD24 antibody, wherein:

(a) the CDRH1 sequence comprises: SYGX_1H (SEQ ID NO: 188), wherein X_1=V or M;

(b) the CDRH2 sequence comprises VIX_2AX_3GSTX_4Y$X_5$$X_6$$X_7LX_8$$X_9$ (SEQ ID NO: 189), wherein X_2=W, F or Y, X_3=G or R, X_4=N or Y, X_5= N, Q, K, R, T or A; X_6 = S, D, or P, X_7= A or S, X_8=M or K, and X_9= S, G, or is absent;

(c) the CDRH3 sequence comprises YYGYX_{10}FFAY (SEQ ID NO: 190) wherein X_{10}= L or Q;

(d) the CDRL1 sequence comprises X_{11}ASSSVSY$X_{12}$$X_{13}$ (SEQ ID NO: 191), wherein X_{11}= S or R, X_{12} = M or L, and X_{13}= H or A;

(e) the CDRL2 sequence comprises X_{14}TS$X_{15}$$X_{16}$$X_{17}$$X_{18}$ (SEQ ID NO: 192), wherein X_{14} = D or E and X_{15}= K or N, X_{16} = L or R, X_{17} = A or P, and X_{18}= S or T; and

(f) the CDRL3 sequence comprises SEQ ID NO: 154.

[0269] In some embodiments, provided herein is a CD24 antibody, wherein:

(a) the CDRH1 sequence comprises: SEQ ID NO: 175;

(b) the CDRH2 sequence comprises YIHYSGSTX_1YNPSLX_2S (SEQ ID NO: 193), wherein X_1=K or R, and X_2=N, S, or R;

(c) the CDRH3 sequence comprises SEQ ID NO: 177;

(d) the CDRL1 sequence comprises KSSQSLLYSX$_3$NQKNYLA (SEQ ID NO: 194), wherein X_3 = N, S, or R;

(e) the CDRL2 sequence comprises SEQ ID NO: 179; and

(f) the CDRL3 sequence comprises SEQ ID NO: 180.

[0270] Also provided are nucleic acids encoding the antibodies disclosed herein, expression vectors comprising nucleic acids encoding such antibodies, and host cells comprising such vectors. In some embodiments, the vector is a mammalian vector. In some embodiments, the vector is a viral vector.

[0271] The CD24 antibodies of the disclosure may be included in antibody drug conjugates, immunotoxins (i.e. antibody designed to deliver a toxin to targeted cells), or radioimmunoconjugates. The CD24 targeting component of such compositions may allow specific delivery of the conjugate to cancer cells or other diseased tissues, while limiting exposure of normal cells and tissues and thus preventing off target toxicity.

[0272] The disclosure also provides pharmaceutical compositions comprising any one of the CD24 antibodies disclosed herein, and optionally a pharmaceutical acceptable excipient or carrier. In some embodiments, the pharmaceutical composition is sterile. The pharmaceutical compositions may be formulated to be compatible with their intended routes of administration. In some embodiments, the pharmaceutical compositions of the disclosure are suitable for administration to a human subject.

III. Methods of Use

[0273] The CD24 antibodies, or pharmaceutical compositions comprising such antibodies, may be used to treat or prevent cancer, another abnormal proliferative disease, or an immune-related disease. Accordingly, provided herein are methods of such use in a subject in need thereof, and may comprise administering the CD24 antibody, or a pharmaceutical composition comprising the foregoing, to the subject. Such antibodies and pharmaceutical compositions may also be used in the manufacture of a medicament for treating or preventing cancer, another abnormal proliferative disease, or an immune-related disease. As used herein, the term “cancer” refers to a neoplasm or tumor resulting from abnormal uncontrolled growth of cells. As used herein, cancer explicitly includes both solid cancers, as well as blood cancers such as leukemias and lymphomas. The term also refers to a disease involving cells that have the potential to metastasize to distal sites. The subject may be a human.

[0274] The cancer or other abnormal proliferative disease may be (but is not limited to) one or more of the following: carcinoma, including that of the bladder, breast, colon, kidney, liver, lung, ovary, pancreas, stomach, cervix, thyroid and skin; including squamous cell carcinoma; hematopoietic tumors of lymphoid lineage, including leukemia, acute lymphocytic leukemia, acute lymphoblastic leukemia, B-cell lymphoma, T-cell lymphoma, Burkett's lymphoma; hematopoietic tumors of myeloid lineage, including acute and chronic myelogenous leukemias and promyelocytic leukemia; tumors of mesenchymal origin, including fibrosarcoma and rhabdomyosarcoma; other tumors, including melanoma, neuroblastoma and glioma; and tumors of the central and peripheral nervous system.

[0275] The immune-related disease may be (but is not limited to) one or more of the following: sepsis, tissue damage-induced inflammation, rheumatoid arthritis, and multiple sclerosis.

[0276] It is also contemplated that cancers caused by aberrations in apoptosis would also be treated by the methods and compositions of the disclosure. Such cancers may include, but are not limited to carcinomas with mutations, follicular lymphomas, hormone dependent tumors of the breast, prostate and ovary, and precancerous lesions.

[0277] In some embodiments, the CD24 antibodies thereof may be included in antibody drug conjugates, immunotoxins, or radioimmunoconjugates. The anti-CD24 targeting component of such compositions may allow specific delivery of the conjugate to the cancer cells and tissues, while limiting exposure of normal cells and tissues and thus preventing off target toxicity.

[0278] In some embodiments, CD24 antibodies may be used to stimulate cancer cell death through at least one of antibody-mediated cellular cytotoxicity (ADCC) and antibody-mediated cellular phagocytosis (ADCP).

[0279] In other embodiments, antibodies, the antibodies provided herein may also be used for diagnostic purposes. For example, diagnostic antibodies could be used for detecting the presence of a CD24-mediated disorder, or for detecting CD24 levels in a subject prior to dosing (e.g. as a companion diagnostic).

[0280] In some embodiments, CD24 antibodies may be expressed in a suitable host cell. The suitable host cell may be derived from (but is not limited to) one or more of the following: yeast, insects, amphibians, fish, reptiles, birds, mammals or humans, or fusion tumors. The host cell may be an unmodified cell or cell line, or a genetically modified cell or cell line.

[0281] In other embodiments, the antigen binding domain of the CD24 antibody (e.g., a single chain variable fragment (scFv)) may be linked to T-cell receptor signaling or T-cell receptor

activation domains to construct a chimeric antigen receptor (CAR). The CAR may be expressed in mammalian or non-mammalian cells. In some embodiments the cells are immune cells. In some embodiments the immune cells are T cells (CAR T cells). In other embodiments, the immune cells are NK cells (CAR NK cells).

IV. Combination Therapies

[0282] The administration of any one of the CD24 antibodies or pharmaceutical compositions comprising such antibodies provided herein may be in combination with any other known drugs or treatments for diseases or conditions described above. For example the CD24 antibodies and pharmaceutical compositions may be used in combination with one or more other anti-tumor therapies, including but not limited to, current standard and experimental chemotherapies, hormonal therapies, biological therapies, immunotherapies, radiation therapies, or surgery. Exemplary combinations, e.g. for the treatment of a cancer, includes one of the CD24 antibodies of the disclosure, administered in conjunction with a cytotoxic agent, such as a platinum-based chemotherapy, and an immunotherapy, such as a T cell checkpoint inhibitor.

V. Administration of CD24 Antibodies

[0283] The *in vivo* administration of the CD24 antibodies and pharmaceutical compositions described herein may be intravenous, intramuscular, subcutaneous, topical, oral, transdermal, intraperitoneal, intraorbital, intrathecal, intraventricular, intranasal, transmucosal, through implantation, or through inhalation. Intravenous administration may be carried out via injection or infusion. In some embodiments, the CD24 antibodies of the disclosure are administered intravenously. In some embodiments, the CD24 antibodies of the disclosure are administered intraperitoneally. In some embodiments, the CD24 antibodies of the disclosure are administered subcutaneously. Administration of the CD24 antibodies may be performed with any suitable excipients, carriers, or other agents to provide suitable or improved tolerance, transfer, delivery, and the like.

VI. Kits and Articles of Manufacture

[0284] The disclosure also provides a kit or article of manufacture comprising any one of the antibodies disclosed herein, or any pharmaceutical composition disclosed herein. In some embodiments, the kits may further include instructional materials for carrying out any of the

methods disclosed herein. In some embodiments, the kits may further include sterile containers or vials for holding the antibodies and/or pharmaceutical compositions disclosed herein. In some embodiments, the kits may further include sterile delivery devices for administering the antibodies and/or pharmaceutical compositions disclosed herein. In some embodiments, an article of manufacture comprises any pharmaceutical composition of the disclosure.

Enumerated Embodiments

[0285] The following non-limiting enumerated embodiments are provided as exemplary.

Enumerated Embodiments I

[0286] Embodiment I-1. A CD24-specific antibody comprising the complementarity determining regions (CDRs) as set forth in:

a. SEQ ID NO: 149, SEQ ID NO: 155, SEQ ID NO: 151, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
b. SEQ ID NO: 149, SEQ ID NO: 155, SEQ ID NO: 151, SEQ ID NO: 152, SEQ ID NO: 153, and SEQ ID NO: 154;
c. SEQ ID NO: 149, SEQ ID NO: 150, SEQ ID NO: 151, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
d. SEQ ID NO: 149, SEQ ID NO: 155, SEQ ID NO: 151, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
e. SEQ ID NO: 149, SEQ ID NO: 158, SEQ ID NO: 151, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
f. SEQ ID NO: 149, SEQ ID NO: 155, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
g. SEQ ID NO: 149, SEQ ID NO: 158, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
h. SEQ ID NO: 149, SEQ ID NO: 160, SEQ ID NO: 159, SEQ ID NO: 161, SEQ ID NO: 162, and SEQ ID NO: 154;
i. SEQ ID NO: 163, SEQ ID NO: 164, SEQ ID NO: 159, SEQ ID NO: 161, SEQ ID NO: 162, and SEQ ID NO: 154;
j. SEQ ID NO: 149, SEQ ID NO: 165, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 166, and SEQ ID NO: 154;

k. SEQ ID NO: 149, SEQ ID NO: 165, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
l. SEQ ID NO: 149, SEQ ID NO: 158, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 166, and SEQ ID NO: 154;
m. SEQ ID NO: 149, SEQ ID NO: 160, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
n. SEQ ID NO: 149, SEQ ID NO: 167, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
o. SEQ ID NO: 149, SEQ ID NO: 168, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
p. SEQ ID NO: 149, SEQ ID NO: 169, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
q. SEQ ID NO: 149, SEQ ID NO: 170, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
r. SEQ ID NO: 149, SEQ ID NO: 171, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
s. SEQ ID NO: 149, SEQ ID NO: 172, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
t. SEQ ID NO: 149, SEQ ID NO: 173, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
u. SEQ ID NO: 149, SEQ ID NO: 174, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

[0287] Embodiment I-2. A CD24-specific humanized antibody comprising the complementarity determining regions (CDRs) as set forth in:

a) SEQ ID NO: 149, SEQ ID NO: 150, SEQ ID NO: 151, SEQ ID NO: 152, SEQ ID NO: 153, and SEQ ID NO: 154.

[0288] Embodiment I-3. A CD24-specific antibody comprising:

a. a variable heavy region (VH) comprising the amino acid sequence of SEQ ID NO: 79, or an amino acid sequence comprising at least 70% sequence identity thereto; and a variable light region (VL) comprising the amino acid sequence of SEQ ID NO: 80, or an amino acid sequence comprising at least 70% sequence identity thereto;

b. a VH comprising the amino acid sequence of SEQ ID NO: 82, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70% sequence identity thereto;

c. a VH comprising the amino acid sequence of SEQ ID NO: 82, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 84, or an amino acid sequence comprising at least 70% sequence identity thereto;

d. a VH comprising the amino acid sequence of SEQ ID NO: 82, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 85, or an amino acid sequence comprising at least 70% sequence identity thereto;

e. a VH comprising the amino acid sequence of SEQ ID NO: 86, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 84, or an amino acid sequence comprising at least 70% sequence identity thereto;

f. a VH comprising the amino acid sequence of SEQ ID NO: 87, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 85, or an amino acid sequence comprising at least 70% sequence identity thereto;

g. a VH comprising the amino acid sequence of SEQ ID NO: 86, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 85, or an amino acid sequence comprising at least 70% sequence identity thereto;

h. a VH comprising the amino acid sequence of SEQ ID NO: 87, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 84, or an amino acid sequence comprising at least 70% sequence identity thereto;

i. a VH comprising the amino acid sequence of SEQ ID NO: 86, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70% sequence identity thereto;

j. a VH comprising the amino acid sequence of SEQ ID NO: 87, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70% sequence identity thereto;

k. a VH comprising the amino acid sequence of SEQ ID NO: 88, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 89, or an amino acid sequence comprising at least 70% sequence identity thereto;

l. a VH comprising the amino acid sequence of SEQ ID NO: 90, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 91, or an amino acid sequence comprising at least 70% sequence identity thereto;

m. a VH comprising the amino acid sequence of SEQ ID NO: 92, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 89, or an amino acid sequence comprising at least 70% sequence identity thereto;

n. a VH comprising the amino acid sequence of SEQ ID NO: 82, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 93, or an amino acid sequence comprising at least 70% sequence identity thereto;

o. a VH comprising the amino acid sequence of SEQ ID NO: 94, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 93, or an amino acid sequence comprising at least 70% sequence identity thereto;

p. a VH comprising the amino acid sequence of SEQ ID NO: 94, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70% sequence identity thereto;

q. a VH comprising the amino acid sequence of SEQ ID NO: 95, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70% sequence identity thereto;

r. a VH comprising the amino acid sequence of SEQ ID NO: 96, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70% sequence identity thereto;

s. a VH comprising the amino acid sequence of SEQ ID NO: 96, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 93, or an amino acid sequence comprising at least 70% sequence identity thereto;

t. a VH comprising the amino acid sequence of SEQ ID NO: 97, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 98, or an amino acid sequence comprising at least 70% sequence identity thereto;

u. a VH comprising the amino acid sequence of SEQ ID NO: 99, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 98, or an amino acid sequence comprising at least 70% sequence identity thereto;

v. a VH comprising the amino acid sequence of SEQ ID NO: 95, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 93, or an amino acid sequence comprising at least 70% sequence identity thereto;

w. a VH comprising the amino acid sequence of SEQ ID NO: 81, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

x. a VH comprising the amino acid sequence of SEQ ID NO: 101, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

y. a VH comprising the amino acid sequence of SEQ ID NO: 81, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

z. a VH comprising the amino acid sequence of SEQ ID NO: 101, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

aa. a VH comprising the amino acid sequence of SEQ ID NO: 103, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 104, or an amino acid sequence comprising at least 70% sequence identity thereto;

bb. a VH comprising the amino acid sequence of SEQ ID NO: 103, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

cc. a VH comprising the amino acid sequence of SEQ ID NO: 81, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 104, or an amino acid sequence comprising at least 70% sequence identity thereto;

dd. a VH comprising the amino acid sequence of SEQ ID NO: 105, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

ee. a VH comprising the amino acid sequence of SEQ ID NO: 107, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

ff. a VH comprising the amino acid sequence of SEQ ID NO: 108, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

gg. a VH comprising the amino acid sequence of SEQ ID NO: 109, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

hh. a VH comprising the amino acid sequence of SEQ ID NO: 110, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

ii. a VH comprising the amino acid sequence of SEQ ID NO: 111, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

jj. a VH comprising the amino acid sequence of SEQ ID NO: 112, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

kk. a VH comprising the amino acid sequence of SEQ ID NO: 113, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

ll. a VH comprising the amino acid sequence of SEQ ID NO: 114, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

mm. a VH comprising the amino acid sequence of SEQ ID NO: 105, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

nn. a VH comprising the amino acid sequence of SEQ ID NO: 107, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

oo. a VH comprising the amino acid sequence of SEQ ID NO: 108, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

pp. a VH comprising the amino acid sequence of SEQ ID NO: 109, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

qq. a VH comprising the amino acid sequence of SEQ ID NO: 110, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

rr. a VH comprising the amino acid sequence of SEQ ID NO: 111, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

ss. a VH comprising the amino acid sequence of SEQ ID NO: 112, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

tt. a VH comprising the amino acid sequence of SEQ ID NO: 113, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

uu. a VH comprising the amino acid sequence of SEQ ID NO: 114, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto; or

vv. a VH comprising the amino acid sequence of SEQ ID NO: 105, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 116, or an amino acid sequence comprising at least 70% sequence identity thereto.

[0289] Embodiment I-4. The CD24-specific antibody of embodiment I-3, comprising:

a. a heavy chain (HC) comprising the amino acid sequence of SEQ ID NO: 1, or an amino acid sequence comprising at least 70% sequence identity thereto; and a light chain (LC) comprising the amino acid sequence of SEQ ID NO: 2, or an amino acid sequence comprising at least 70% sequence identity thereto;

b. an HC comprising the amino acid sequence of SEQ ID NO: 3, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 31, or an amino acid sequence comprising at least 70% sequence identity thereto;

c. an HC comprising the amino acid sequence of SEQ ID NO: 4, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70% sequence identity thereto;

d. an HC comprising the amino acid sequence of SEQ ID NO: 4, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 6, or an amino acid sequence comprising at least 70% sequence identity thereto;

e. an HC comprising the amino acid sequence of SEQ ID NO: 4, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 7, or an amino acid sequence comprising at least 70% sequence identity thereto;

f. an HC comprising the amino acid sequence of SEQ ID NO: 8, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 6, or an amino acid sequence comprising at least 70% sequence identity thereto;

g. an HC comprising the amino acid sequence of SEQ ID NO: 9, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 7, or an amino acid sequence comprising at least 70% sequence identity thereto;

h. an HC comprising the amino acid sequence of SEQ ID NO: 8, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 7, or an amino acid sequence comprising at least 70% sequence identity thereto;

i. an HC comprising the amino acid sequence of SEQ ID NO: 9, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 6, or an amino acid sequence comprising at least 70% sequence identity thereto;

j. an HC comprising the amino acid sequence of SEQ ID NO: 8, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70% sequence identity thereto;

k. an HC comprising the amino acid sequence of SEQ ID NO: 9, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70% sequence identity thereto;

l. an HC comprising the amino acid sequence of SEQ ID NO: 10, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 11, or an amino acid sequence comprising at least 70% sequence identity thereto;

m. an HC comprising the amino acid sequence of SEQ ID NO: 12, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 13, or an amino acid sequence comprising at least 70% sequence identity thereto;

n. an HC comprising the amino acid sequence of SEQ ID NO: 14, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 11, or an amino acid sequence comprising at least 70% sequence identity thereto;

o. an HC comprising the amino acid sequence of SEQ ID NO: 4, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 15, or an amino acid sequence comprising at least 70% sequence identity thereto;

p. an HC comprising the amino acid sequence of SEQ ID NO: 16, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 15, or an amino acid sequence comprising at least 70% sequence identity thereto;

q. an HC comprising the amino acid sequence of SEQ ID NO: 16, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70% sequence identity thereto;

r. an HC comprising the amino acid sequence of SEQ ID NO: 17, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70% sequence identity thereto;

s. an HC comprising the amino acid sequence of SEQ ID NO: 18, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70% sequence identity thereto;

t. an HC comprising the amino acid sequence of SEQ ID NO: 18, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 15, or an amino acid sequence comprising at least 70% sequence identity thereto;

u. an HC comprising the amino acid sequence of SEQ ID NO: 19, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 20, or an amino acid sequence comprising at least 70% sequence identity thereto;

v. an HC comprising the amino acid sequence of SEQ ID NO: 21, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 20, or an amino acid sequence comprising at least 70% sequence identity thereto;

w. an HC comprising the amino acid sequence of SEQ ID NO: 17, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 15, or an amino acid sequence comprising at least 70% sequence identity thereto;

x. an HC comprising the amino acid sequence of SEQ ID NO: 25, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

y. an HC comprising the amino acid sequence of SEQ ID NO: 27, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

z. an HC comprising the amino acid sequence of SEQ ID NO: 25, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

aa. an HC comprising the amino acid sequence of SEQ ID NO: 27, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

bb. an HC comprising the amino acid sequence of SEQ ID NO: 29, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 30, or an amino acid sequence comprising at least 70% sequence identity thereto;

cc. an HC comprising the amino acid sequence of SEQ ID NO: 29, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

dd. an HC comprising the amino acid sequence of SEQ ID NO: 25, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 30, or an amino acid sequence comprising at least 70% sequence identity thereto;

ee. an HC comprising the amino acid sequence of SEQ ID NO: 32, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

ff. an HC comprising the amino acid sequence of SEQ ID NO: 33, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

gg. an HC comprising the amino acid sequence of SEQ ID NO: 34, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

hh. an HC comprising the amino acid sequence of SEQ ID NO: 35, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

ii. an HC comprising the amino acid sequence of SEQ ID NO: 36, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

jj. an HC comprising the amino acid sequence of SEQ ID NO: 37, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

kk. an HC comprising the amino acid sequence of SEQ ID NO: 38, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

ll. an HC comprising the amino acid sequence of SEQ ID NO: 39, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

mm. an HC comprising the amino acid sequence of SEQ ID NO: 40, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

nn. an HC comprising the amino acid sequence of SEQ ID NO: 32, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

oo. an HC comprising the amino acid sequence of SEQ ID NO: 33, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

pp. an HC comprising the amino acid sequence of SEQ ID NO: 34, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

qq. an HC comprising the amino acid sequence of SEQ ID NO: 35, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

rr. an HC comprising the amino acid sequence of SEQ ID NO: 36, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

ss. an HC comprising the amino acid sequence of SEQ ID NO: 37, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

tt. an HC comprising the amino acid sequence of SEQ ID NO: 38, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

uu. an HC comprising the amino acid sequence of SEQ ID NO: 39, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

vv. an HC comprising the amino acid sequence of SEQ ID NO: 40, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto; or

ww. an HC comprising the amino acid sequence of SEQ ID NO: 32, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 41, or an amino acid sequence comprising at least 70% sequence identity thereto.

[0290] Embodiment I-5. The antibody of any one of embodiments I-1, I-3, and I-4, wherein the antibody is humanized.

[0291] Embodiment I-6. The antibody of any one of embodiments I-1 to I-5, wherein the antibody is a full length antibody.

[0292] Embodiment I-7. The antibody of any one of embodiments I-1 to I-5, wherein the antibody is an antigen-binding antibody fragment.

[0293] Embodiment I-8. The antibody of any one of embodiments I-1 to I-7, wherein the antibody comprises a Fc domain, and the Fc domain is selected from the group consisting of a human IgG1, IgG2, IgG3, and IgG4 heavy chain sequence.

[0294] Embodiment I-9. The antibody of any one of embodiments I-1 to I-8, wherein the binding of the antibody does not disrupt the interaction between CD24 and Siglec-10.

[0295] Embodiment I-10. The antibody of any one of embodiments I-1 to I-8, wherein the binding of the antibody disrupts the interaction between CD24 and Siglec-10.

[0296] Embodiment I-11. The antibody of any one of embodiments I-1 to I-10, wherein, the antibody binds human CD24 and cynomolgus monkey CD24.

[0297] Embodiment I-12. The antibody comprising of anyone of embodiments I-1 to I-11, wherein the antibody comprises a binding affinity to CD24 lower than about 500 nM.

[0298] Embodiment I-13. A pharmaceutical composition comprising the antibody of any one of embodiments I-1 to I-12, and optionally a pharmaceutically acceptable carrier.

[0299] Embodiment I-14. A nucleic acid encoding for the antibody of any one of embodiments I-1 to I-12.

[0300] Embodiment I-15. A vector comprising the nucleic acid of embodiment I-14.

[0301] Embodiment I-16. A method of treating a disease or condition in a subject in need thereof, comprising administering to the subject a therapeutically effective amount of the antibody of any one of embodiments I-1 to I-12 or the pharmaceutical composition of embodiment I-13.

[0302] Embodiment I-17. The method of embodiment I-16, wherein the disease or condition comprises cancer.

[0303] Embodiment I-18. The method of embodiment I-17, wherein the cancer comprises a solid cancer.

[0304] Embodiment I-19. The method of embodiment I-18, wherein the solid cancer is a carcinoma or a sarcoma.

[0305] Embodiment I-20. The method of embodiment I-19, wherein the carcinoma is selected from the group consisting of bladder, breast, colon, kidney, liver, lung, ovary, pancreas, stomach, cervix, thyroid and skin.

[0306] Embodiment I-21. The method of embodiment I-19, wherein the sarcoma is fibrosarcoma or rhabdomyosarcoma.

[0307] Embodiment I-22. The method of embodiment I-17, wherein the cancer comprises a hematological cancer.

[0308] Embodiment I-23. The method of embodiment I-22, wherein the hematological cancer is selected from the group consisting of acute lymphocytic leukemia, acute lymphoblastic

leukemia, B-cell lymphoma, T-cell lymphoma, Burkett's lymphoma; acute myelogenous leukemia, chronic myelogenous leukemia, and promyelocytic leukemia.

[0309] Embodiment I-24. The method of embodiment I-17, wherein the cancer is selected from the group consisting of melanoma, neuroblastoma, glioma, tumors of the central nervous system, and tumors of the peripheral nervous system.

[0310] Embodiment I-25. The method of any one of embodiments I-16 to I-24, wherein the route of administration is intravenous or subcutaneous administration.

[0311] Embodiment I-26. The method of any one of embodiments I-16 to I-25, wherein the subject is human.

Enumerated Embodiments II

[0312] Embodiment II-1. A CD24-specific antibody comprising the complementarity determining regions (CDRs) as set forth in:

a) SEQ ID NO: 175, SEQ ID NO: 181, SEQ ID NO: 177, SEQ ID NO: 178, SEQ ID NO: 179, and SEQ ID NO: 180;
b) SEQ ID NO: 175, SEQ ID NO: 182, SEQ ID NO: 177, SEQ ID NO: 178, SEQ ID NO: 179, and SEQ ID NO: 180;
c) SEQ ID NO: 175, SEQ ID NO: 183, SEQ ID NO: 177, SEQ ID NO: 178, SEQ ID NO: 179, and SEQ ID NO: 180;
d) SEQ ID NO: 175, SEQ ID NO: 176, SEQ ID NO: 177, SEQ ID NO: 184, SEQ ID NO: 179, and SEQ ID NO: 180; or
e) SEQ ID NO: 175, SEQ ID NO: 181, SEQ ID NO: 177, SEQ ID NO: 185, SEQ ID NO: 179, and SEQ ID NO: 180.

[0313] Embodiment II-2. A CD24-specific humanized antibody comprising the complementarity determining regions (CDRs) as set forth in:

a) SEQ ID NO: 175, SEQ ID NO: 176, SEQ ID NO: 177, SEQ ID NO: 178, SEQ ID NO: 179, and SEQ ID NO: 180.

[0314] Embodiment II-3. A CD24-specific antibody comprising:

a) a VH comprising the amino acid sequence of SEQ ID NO: 117, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 118, or an amino acid sequence comprising at least 70% sequence identity thereto;

b) a VH comprising the amino acid sequence of SEQ ID NO: 119, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 118, or an amino acid sequence comprising at least 70% sequence identity thereto;

c) a VH comprising the amino acid sequence of SEQ ID NO: 120, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

d) a VH comprising the amino acid sequence of SEQ ID NO: 122, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

e) a VH comprising the amino acid sequence of SEQ ID NO: 123, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

f) a VH comprising the amino acid sequence of SEQ ID NO: 124, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

g) a VH comprising the amino acid sequence of SEQ ID NO: 125, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

h) a VH comprising the amino acid sequence of SEQ ID NO: 126, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

i) a VH comprising the amino acid sequence of SEQ ID NO: 127, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

j) a VH comprising the amino acid sequence of SEQ ID NO: 128, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

k) a VH comprising the amino acid sequence of SEQ ID NO: 129, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

l) a VH comprising the amino acid sequence of SEQ ID NO: 119, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

m) a VH comprising the amino acid sequence of SEQ ID NO: 130, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

n) a VH comprising the amino acid sequence of SEQ ID NO: 131, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

o) a VH comprising the amino acid sequence of SEQ ID NO: 147, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

p) a VH comprising the amino acid sequence of SEQ ID NO: 117, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

q) a VH comprising the amino acid sequence of SEQ ID NO: 132, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

r) a VH comprising the amino acid sequence of SEQ ID NO: 117, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 133, or an amino acid sequence comprising at least 70% sequence identity thereto;

s) a VH comprising the amino acid sequence of SEQ ID NO: 119, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 133, or an amino acid sequence comprising at least 70% sequence identity thereto;

t) a VH comprising the amino acid sequence of SEQ ID NO: 117, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 134, or an amino acid sequence comprising at least 70% sequence identity thereto;

u) a VH comprising the amino acid sequence of SEQ ID NO: 119, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 134, or an amino acid sequence comprising at least 70% sequence identity thereto;

v) a VH comprising the amino acid sequence of SEQ ID NO: 135, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 136, or an amino acid sequence comprising at least 70% sequence identity thereto;

w) a VH comprising the amino acid sequence of SEQ ID NO: 137, comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121 comprising at least 70% sequence identity thereto;

x) a VH comprising the amino acid sequence of SEQ ID NO: 138, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

y) a VH comprising the amino acid sequence of SEQ ID NO: 123, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 139, or an amino acid sequence comprising at least 70% sequence identity thereto;

z) a VH comprising the amino acid sequence of SEQ ID NO: 140, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

aa) a VH comprising the amino acid sequence of SEQ ID NO: 141, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

bb) a VH comprising the amino acid sequence of SEQ ID NO: 142, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

cc) a VH comprising the amino acid sequence of SEQ ID NO: 143, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

dd) a VH comprising the amino acid sequence of SEQ ID NO: 144, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

ee) a VH comprising the amino acid sequence of SEQ ID NO: 145, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto; or

ff) a VH comprising the amino acid sequence of SEQ ID NO: 146, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto.

[0315] Embodiment II-4. The CD24-specific antibody of embodiment II-3, comprising:

a) an HC comprising the amino acid sequence of SEQ ID NO: 42, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising

the amino acid sequence of SEQ ID NO: 43, or an amino acid sequence comprising at least 70% sequence identity thereto;

b) an HC comprising the amino acid sequence of SEQ ID NO: 44, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 43, or an amino acid sequence comprising at least 70% sequence identity thereto;

c) an HC comprising the amino acid sequence of SEQ ID NO: 45, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

d) an HC comprising the amino acid sequence of SEQ ID NO: 47, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

e) an HC comprising the amino acid sequence of SEQ ID NO: 48, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

f) an HC comprising the amino acid sequence of SEQ ID NO: 49, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

g) an HC comprising the amino acid sequence of SEQ ID NO: 50, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

h) an HC comprising the amino acid sequence of SEQ ID NO: 51, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

i) an HC comprising the amino acid sequence of SEQ ID NO: 52, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising

the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

j) an HC comprising the amino acid sequence of SEQ ID NO: 53, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

k) an HC comprising the amino acid sequence of SEQ ID NO: 54, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

l) an HC comprising the amino acid sequence of SEQ ID NO: 44, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

m) an HC comprising the amino acid sequence of SEQ ID NO: 55, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

n) an HC comprising the amino acid sequence of SEQ ID NO: 56, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

o) an HC comprising the amino acid sequence of SEQ ID NO: 57, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

p) an HC comprising the amino acid sequence of SEQ ID NO: 42, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

q) an HC comprising the amino acid sequence of SEQ ID NO: 58, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising

the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

r) an HC comprising the amino acid sequence of SEQ ID NO: 42, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 59, or an amino acid sequence comprising at least 70% sequence identity thereto;

s) an HC comprising the amino acid sequence of SEQ ID NO: 44, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 59, or an amino acid sequence comprising at least 70% sequence identity thereto;

t) an HC comprising the amino acid sequence of SEQ ID NO: 42, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 60, or an amino acid sequence comprising at least 70% sequence identity thereto;

u) an HC comprising the amino acid sequence of SEQ ID NO: 44, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 60, or an amino acid sequence comprising at least 70% sequence identity thereto;

v) an HC comprising the amino acid sequence of SEQ ID NO: 61, comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 62, comprising at least 70% sequence identity thereto;

w) an HC comprising the amino acid sequence of SEQ ID NO: 63, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

x) an HC comprising the amino acid sequence of SEQ ID NO: 64, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

y) an HC comprising the amino acid sequence of SEQ ID NO: 48, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising

the amino acid sequence of SEQ ID NO: 65, or an amino acid sequence comprising at least 70% sequence identity thereto;

z) an HC comprising the amino acid sequence of SEQ ID NO: 66, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

aa) an HC comprising the amino acid sequence of SEQ ID NO: 67, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

bb) an HC comprising the amino acid sequence of SEQ ID NO: 68, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

cc) an HC comprising the amino acid sequence of SEQ ID NO: 69, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

dd) an HC comprising the amino acid sequence of SEQ ID NO: 70, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

ee) an HC comprising the amino acid sequence of SEQ ID NO: 71, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto; or

ff) an HC comprising the amino acid sequence of SEQ ID NO: 72, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto.

[0316] Embodiment II-5. The antibody of any one of embodiments II-1, II-3, and II-4, wherein the antibody is humanized.

[0317] Embodiment II-6. The antibody of any one of embodiments II-1- to II-5, wherein the antibody is a full length antibody.

[0318] Embodiment II-7. The antibody of any one of embodiments II-1 to II-5, wherein the antibody is an antigen-binding antibody fragment.

[0319] Embodiment II-8. The antibody of any one of embodiments II-1 to II-7, wherein the antibody comprises a Fc domain, and the Fc domain is selected from the group consisting of a human IgG1, IgG2, IgG3, and IgG4 heavy chain sequence.

[0320] Embodiment II-9. The antibody of any one of embodiments II-1 to II-8, wherein the binding of the antibody does not disrupt the interaction between CD24 and Siglec-10.

[0321] Embodiment II-10. The antibody of any one of embodiments II-1 to II-8, wherein the binding of the antibody disrupts the interaction between CD24 and Siglec-10.

[0322] Embodiment II-11. The antibody of any one of embodiments II-1 to II-10, wherein, the antibody binds human CD24 and cynomolgus monkey CD24.

[0323] Embodiment II-12. The antibody comprising of anyone of embodiments II-1 to II-11, wherein the antibody comprises a binding affinity to CD24 lower than about 500 nM.

[0324] Embodiment II-13. A pharmaceutical composition comprising the antibody of any one of embodiments II-1 to II-12, and optionally a pharmaceutically acceptable carrier.

[0325] Embodiment II-14. A nucleic acid encoding for the antibody of any one of embodiments II-1 to II-12.

[0326] Embodiment II-15. A vector comprising the nucleic acid of embodiment II-14.

[0327] Embodiment II-16. A method of treating a disease or condition in a subject in need thereof, comprising administering to the subject a therapeutically effective amount of the antibody of any one of embodiments II-1 to II-12 or the pharmaceutical composition of embodiment II-13.

[0328] Embodiment II-17. The method of embodiment II-16, wherein the disease or condition comprises cancer.

[0329] Embodiment II-18. The method of embodiment II-17, wherein the cancer comprises a solid cancer.

[0330] Embodiment II-19. The method of embodiment II-18, wherein the solid cancer is a carcinoma or a sarcoma.

[0331] Embodiment II-20. The method of embodiment II-19, wherein the carcinoma is selected from the group consisting of bladder, breast, colon, kidney, liver, lung, ovary, pancreas, stomach, cervix, thyroid and skin.

[0332] Embodiment II-21. The method of embodiment II-19, wherein the sarcoma is fibrosarcoma or rhabdomyosarcoma.

[0333] Embodiment II-22. The method of embodiment II-17, wherein the cancer comprises a hematological cancer.

[0334] Embodiment II-23. The method of embodiment II-22, wherein the hematological cancer is selected from the group consisting of acute lymphocytic leukemia, acute lymphoblastic leukemia, B-cell lymphoma, T-cell lymphoma, Burkett's lymphoma; acute myelogenous leukemia, chronic myelogenous leukemia, and promyelocytic leukemia.

[0335] Embodiment II-24. The method of embodiment II-17, wherein the cancer is selected from the group consisting of melanoma, neuroblastoma, glioma, tumors of the central nervous system, and tumors of the peripheral nervous system.

[0336] Embodiment II-25. The method of any one of embodiments II-16 to II-24, wherein the route of administration is intravenous or subcutaneous administration.

[0337] Embodiment II-26. The method of any one of embodiments II-16 to II-25, wherein the subject is human.

Enumerated Embodiments III

[0338] Embodiment III-1. A CD24-specific humanized antibody comprising the complementarity determining regions (CDRs) as set forth in:

a) SEQ ID NO: 149, SEQ ID NO: 150, SEQ ID NO: 186, SEQ ID NO: 187, SEQ ID NO: 153, and SEQ ID NO: 154.

[0339] Embodiment III-2. A CD24-specific antibody comprising:

a) a VH comprising the amino acid sequence of SEQ ID NO: 148, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 106, or an amino acid sequence comprising at least 70% sequence identity thereto;

b) a VH comprising the amino acid sequence of SEQ ID NO: 115, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the

amino acid sequence of SEQ ID NO: 77, or an amino acid sequence comprising at least 70% sequence identity thereto;

c) a VH comprising the amino acid sequence of SEQ ID NO: 115, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 78, or an amino acid sequence comprising at least 70% sequence identity thereto;

d) a VH comprising the amino acid sequence of SEQ ID NO: 79, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 77, or an amino acid sequence comprising at least 70% sequence identity thereto; or

e) a VH comprising the amino acid sequence of SEQ ID NO: 79, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 78, or an amino acid sequence comprising at least 70% sequence identity thereto.

[0340] Embodiment III-3. The CD24-specific antibody of Embodiment III-1 or III-2, comprising:

a) an HC comprising the amino acid sequence of SEQ ID NO: 73, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 74, or an amino acid sequence comprising at least 70% sequence identity thereto;

b) an HC comprising the amino acid sequence of SEQ ID NO: 75, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 22, or an amino acid sequence comprising at least 70% sequence identity thereto;

c) an HC comprising the amino acid sequence of SEQ ID NO: 75, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 23, or an amino acid sequence comprising at least 70% sequence identity thereto;

d) an HC comprising the amino acid sequence of SEQ ID NO: 24, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 22, or an amino acid sequence comprising at least 70% sequence identity thereto; or

e) an HC comprising the amino acid sequence of SEQ ID NO: 24, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 23, or an amino acid sequence comprising at least 70% sequence identity thereto.

[0341] Embodiment III-4. The antibody of Embodiment III-2 or III-3, wherein the antibody is humanized.

[0342] Embodiment III-5. The antibody of any one of Embodiments III-1 to III-4, wherein the antibody is a full length antibody.

[0343] Embodiment III-6. The antibody of any one of Embodiments III-1 to III-4, wherein the antibody is an antigen-binding antibody fragment.

[0344] Embodiment III-7. The antibody of any one of Embodiments III-1 to III-6, wherein the antibody comprises a Fc domain, and the Fc domain is selected from the group consisting of a human IgG1, IgG2, IgG3, and IgG4 heavy chain sequence.

[0345] Embodiment III-8. The antibody of any one of Embodiments III-1 to III-7, wherein the binding of the antibody does not disrupt the interaction between CD24 and Siglec-10.

[0346] Embodiment III-9. The antibody of any one of Embodiments III-1 to III-7, wherein the binding of the antibody disrupts the interaction between CD24 and Siglec-10.

[0347] Embodiment III-10. The antibody of any one of Embodiments III-1 to III-9, wherein, the antibody binds human CD24 and cynomolgus monkey CD24.

[0348] Embodiment III-11. The antibody comprising of anyone of Embodiment III-1 to III-10, wherein the antibody comprises a binding affinity to CD24 lower than about 500 nM.

[0349] Embodiment III-12. A pharmaceutical composition comprising the antibody of any one of Embodiments III-1 to III-11, and optionally a pharmaceutically acceptable carrier.

[0350] Embodiment III-13. A nucleic acid encoding for the antibody of any one of Embodiments III-1 to III-11.

[0351] Embodiment III-14. A vector comprising the nucleic acid of Embodiment III-13.

[0352] Embodiment III-15. A method of treating a disease or condition in a subject in need thereof, comprising administering to the subject a therapeutically effective amount of the antibody of any one of Embodiments III-1 to III-11 or the pharmaceutical composition of Embodiment III-12.

[0353] Embodiment III-16. The method of Embodiment III-15, wherein the disease or condition comprises cancer.

[0354] Embodiment III-17. The method of Embodiment III-16, wherein the cancer comprises a solid cancer.

[0355] Embodiment III-18. The method of Embodiment III-17, wherein the solid cancer is a carcinoma or a sarcoma.

[0356] Embodiment III-19. The method of Embodiment III-18, wherein the carcinoma is selected from the group consisting of bladder, breast, colon, kidney, liver, lung, ovary, pancreas, stomach, cervix, thyroid and skin.

[0357] Embodiment III-20. The method of Embodiment III-18, wherein the sarcoma is fibrosarcoma or rhabdomyosarcoma.

[0358] Embodiment III-21. The method of Embodiment III-16, wherein the cancer comprises a hematological cancer.

[0359] Embodiment III-22. The method of Embodiment III-21, wherein the hematological cancer is selected from the group consisting of acute lymphocytic leukemia, acute lymphoblastic leukemia, B-cell lymphoma, T-cell lymphoma, Burkett's lymphoma; acute myelogenous leukemia, chronic myelogenous leukemia, and promyelocytic leukemia.

[0360] Embodiment III-23. The method of Embodiment III-16, wherein the cancer is selected from the group consisting of melanoma, neuroblastoma, glioma, tumors of the central nervous system, and tumors of the peripheral nervous system.

[0361] Embodiment III-24. The method of any one of Embodiments III-15 to III-23, wherein the route of administration is intravenous or subcutaneous administration.

[0362] Embodiment III-25. The method of any one of Embodiments III-15 to III-24, wherein the subject is human.

Enumerated Embodiments IV

[0363] Embodiment IV-1. A CD24-specific antibody comprising the complementarity determining regions (CDRs) as set forth in:

a) SEQ ID NO: 149, SEQ ID NO: 155, SEQ ID NO: 151, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
b) SEQ ID NO: 149, SEQ ID NO: 155, SEQ ID NO: 151, SEQ ID NO: 152, SEQ ID NO: 153, and SEQ ID NO: 154;
c) SEQ ID NO: 149, SEQ ID NO: 150, SEQ ID NO: 151, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

d) SEQ ID NO: 149, SEQ ID NO: 155, SEQ ID NO: 151, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

e) SEQ ID NO: 149, SEQ ID NO: 158, SEQ ID NO: 151, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

f) SEQ ID NO: 149, SEQ ID NO: 155, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

g) SEQ ID NO: 149, SEQ ID NO: 158, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

h) SEQ ID NO: 149, SEQ ID NO: 160, SEQ ID NO: 159, SEQ ID NO: 161, SEQ ID NO: 162, and SEQ ID NO: 154;

i) SEQ ID NO: 163, SEQ ID NO: 164, SEQ ID NO: 159, SEQ ID NO: 161, SEQ ID NO: 162, and SEQ ID NO: 154;

j) SEQ ID NO: 149, SEQ ID NO: 165, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 166, and SEQ ID NO: 154;

k) SEQ ID NO: 149, SEQ ID NO: 165, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

l) SEQ ID NO: 149, SEQ ID NO: 158, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 166, and SEQ ID NO: 154;

m) SEQ ID NO: 149, SEQ ID NO: 160, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

n) SEQ ID NO: 149, SEQ ID NO: 167, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

o) SEQ ID NO: 149, SEQ ID NO: 168, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

p) SEQ ID NO: 149, SEQ ID NO: 169, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

q) SEQ ID NO: 149, SEQ ID NO: 170, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

r) SEQ ID NO: 149, SEQ ID NO: 171, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

s) SEQ ID NO: 149, SEQ ID NO: 172, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

t) SEQ ID NO: 149, SEQ ID NO: 173, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

u) SEQ ID NO: 149, SEQ ID NO: 174, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

v) SEQ ID NO: 175, SEQ ID NO: 181, SEQ ID NO: 177, SEQ ID NO: 178, SEQ ID NO: 179, and SEQ ID NO: 180;

w) SEQ ID NO: 175, SEQ ID NO: 182, SEQ ID NO: 177, SEQ ID NO: 178, SEQ ID NO: 179, and SEQ ID NO: 180;

x) SEQ ID NO: 175, SEQ ID NO: 183, SEQ ID NO: 177, SEQ ID NO: 178, SEQ ID NO: 179, and SEQ ID NO: 180;

y) SEQ ID NO: 175, SEQ ID NO: 176, SEQ ID NO: 177, SEQ ID NO: 184, SEQ ID NO: 179, and SEQ ID NO: 180; or

z) SEQ ID NO: 175, SEQ ID NO: 181, SEQ ID NO: 177, SEQ ID NO: 185, SEQ ID NO: 179, and SEQ ID NO: 180;

wherein each sequence may include 1, 2, or 3 amino acid modifications thereto.

[0364] Embodiment IV-2. A CD24-specific humanized antibody comprising the complementarity determining regions (CDRs) as set forth in:

a) SEQ ID NO: 149, SEQ ID NO: 150, SEQ ID NO: 151, SEQ ID NO: 152, SEQ ID NO: 153, and SEQ ID NO: 154;

b) SEQ ID NO: 175, SEQ ID NO: 176, SEQ ID NO: 177, SEQ ID NO: 178, SEQ ID NO: 179, and SEQ ID NO: 180; or

c) SEQ ID NO: 149, SEQ ID NO: 150, SEQ ID NO: 186, SEQ ID NO: 187, SEQ ID NO: 153, and SEQ ID NO: 154,

wherein each sequence may include 1, 2, or 3 amino acid modifications thereto.

[0365] Embodiment IV-3. A CD24-specific antibody comprising complementarity determining regions (CDRs), wherein:

a) the CDRH1 sequence comprises: SYGX_1H (SEQ ID NO: 188), wherein X_1=V or M;

b) the CDRH2 sequence comprises VIX_2AX_3GSTX_4Y$X_5$$X_6$$X_7LX_8$$X_9$ (SEQ ID NO: 189), wherein X_2=W, F or Y, X_3=G or R, X_4=N or Y, X_5= N, Q, K, R, T or A; X_6 = S, D, or P, X_7= A or S, X_8=M or K, and X_9= S, G, or is absent;

c) the CDRH3 sequence comprises YYGYX$_{10}$FFAY (SEQ ID NO: 190) wherein X$_{10}$= L or Q;

d) the CDRL1 sequence comprises X$_{11}$ASSSVSYX$_{12}$X$_{13}$ (SEQ ID NO: 191), wherein X$_{11}$= S or R, X$_{12}$ = M or L, and X$_{13}$= H or A;

e) the CDRL2 sequence comprises X$_{14}$TSX$_{15}$X$_{16}$X$_{17}$X$_{18}$ (SEQ ID NO: 192), wherein X$_{14}$ = D or E and X$_{15}$= K or N, X$_{16}$ = L or R, X$_{17}$ = A or P, and X$_{18}$= S or T; and

f) the CDRL3 sequence comprises SEQ ID NO: 154.

[0366] Embodiment IV-4. A CD24-specific antibody comprising complementarity determining regions (CDRs), wherein:

a) the CDRH1 sequence comprises: SEQ ID NO: 175;

b) the CDRH2 sequence comprises YIHYSGSTX$_1$YNPSLX$_2$S (SEQ ID NO: 193), wherein X$_1$=K or R, and X$_2$=N, S, or R;

c) the CDRH3 sequence comprises SEQ ID NO: 177;

d) the CDRL1 sequence comprises KSSQSLLYSX$_3$NQKNYLA (SEQ ID NO: 194), wherein X$_3$ = N, S, or R;

e) the CDRL2 sequence comprises SEQ ID NO: 179; and

f) the CDRL3 sequence comprises SEQ ID NO: 180.

[0367] Embodiment IV-5. A CD24-specific antibody comprising:

a) a variable heavy region (VH) comprising the amino acid sequence of SEQ ID NO: 79, or an amino acid sequence comprising at least 70% sequence identity thereto; and a variable light region (VL) comprising the amino acid sequence of SEQ ID NO: 80, or an amino acid sequence comprising at least 70% sequence identity thereto;

b) a VH comprising the amino acid sequence of SEQ ID NO: 82, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70% sequence identity thereto;

c) a VH comprising the amino acid sequence of SEQ ID NO: 82, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 84, or an amino acid sequence comprising at least 70% sequence identity thereto;

d) a VH comprising the amino acid sequence of SEQ ID NO: 82, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the

amino acid sequence of SEQ ID NO: 85, or an amino acid sequence comprising at least 70% sequence identity thereto;

e) a VH comprising the amino acid sequence of SEQ ID NO: 86, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 84, or an amino acid sequence comprising at least 70% sequence identity thereto;

f) a VH comprising the amino acid sequence of SEQ ID NO: 87, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 85, or an amino acid sequence comprising at least 70% sequence identity thereto;

g) a VH comprising the amino acid sequence of SEQ ID NO: 86, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 85, or an amino acid sequence comprising at least 70% sequence identity thereto;

h) a VH comprising the amino acid sequence of SEQ ID NO: 87, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 84, or an amino acid sequence comprising at least 70% sequence identity thereto;

i) a VH comprising the amino acid sequence of SEQ ID NO: 86, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70% sequence identity thereto;

j) a VH comprising the amino acid sequence of SEQ ID NO: 87, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70% sequence identity thereto;

k) a VH comprising the amino acid sequence of SEQ ID NO: 88, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 89, or an amino acid sequence comprising at least 70% sequence identity thereto;

l) a VH comprising the amino acid sequence of SEQ ID NO: 90, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the

amino acid sequence of SEQ ID NO: 91, or an amino acid sequence comprising at least 70% sequence identity thereto;

m) a VH comprising the amino acid sequence of SEQ ID NO: 92, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 89, or an amino acid sequence comprising at least 70% sequence identity thereto;

n) a VH comprising the amino acid sequence of SEQ ID NO: 82, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 93, or an amino acid sequence comprising at least 70% sequence identity thereto;

o) a VH comprising the amino acid sequence of SEQ ID NO: 94, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 93, or an amino acid sequence comprising at least 70% sequence identity thereto;

p) a VH comprising the amino acid sequence of SEQ ID NO: 94, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70% sequence identity thereto;

q) a VH comprising the amino acid sequence of SEQ ID NO: 95, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70% sequence identity thereto;

r) a VH comprising the amino acid sequence of SEQ ID NO: 96, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70% sequence identity thereto;

s) a VH comprising the amino acid sequence of SEQ ID NO: 96, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 93, or an amino acid sequence comprising at least 70% sequence identity thereto;

t) a VH comprising the amino acid sequence of SEQ ID NO: 97, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the

amino acid sequence of SEQ ID NO: 98, or an amino acid sequence comprising at least 70% sequence identity thereto;

u) a VH comprising the amino acid sequence of SEQ ID NO: 99, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 98, or an amino acid sequence comprising at least 70% sequence identity thereto;

v) a VH comprising the amino acid sequence of SEQ ID NO: 95, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 93, or an amino acid sequence comprising at least 70% sequence identity thereto;

w) a VH comprising the amino acid sequence of SEQ ID NO: 81, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

x) a VH comprising the amino acid sequence of SEQ ID NO: 101, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

y) a VH comprising the amino acid sequence of SEQ ID NO: 81, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

z) a VH comprising the amino acid sequence of SEQ ID NO: 101, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

aa) a VH comprising the amino acid sequence of SEQ ID NO: 103, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 104, or an amino acid sequence comprising at least 70% sequence identity thereto;

bb) a VH comprising the amino acid sequence of SEQ ID NO: 103, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the

amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

cc) a VH comprising the amino acid sequence of SEQ ID NO: 81, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 104, or an amino acid sequence comprising at least 70% sequence identity thereto;

dd) a VH comprising the amino acid sequence of SEQ ID NO: 105, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

ee) a VH comprising the amino acid sequence of SEQ ID NO: 107, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

ff) a VH comprising the amino acid sequence of SEQ ID NO: 108, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

gg) a VH comprising the amino acid sequence of SEQ ID NO: 109, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

hh) a VH comprising the amino acid sequence of SEQ ID NO: 110, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

ii) a VH comprising the amino acid sequence of SEQ ID NO: 111, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

jj) a VH comprising the amino acid sequence of SEQ ID NO: 112, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the

amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

kk) a VH comprising the amino acid sequence of SEQ ID NO: 113, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

ll) a VH comprising the amino acid sequence of SEQ ID NO: 114, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

mm) a VH comprising the amino acid sequence of SEQ ID NO: 105, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

nn) a VH comprising the amino acid sequence of SEQ ID NO: 107, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

oo) a VH comprising the amino acid sequence of SEQ ID NO: 108, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

pp) a VH comprising the amino acid sequence of SEQ ID NO: 109, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

qq) a VH comprising the amino acid sequence of SEQ ID NO: 110, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

rr) a VH comprising the amino acid sequence of SEQ ID NO: 111, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the

amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

ss) a VH comprising the amino acid sequence of SEQ ID NO: 112, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

tt) a VH comprising the amino acid sequence of SEQ ID NO: 113, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

uu) a VH comprising the amino acid sequence of SEQ ID NO: 114, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

vv) a VH comprising the amino acid sequence of SEQ ID NO: 105, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 116, or an amino acid sequence comprising at least 70% sequence identity thereto;

ww) a VH comprising the amino acid sequence of SEQ ID NO: 117, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 118, or an amino acid sequence comprising at least 70% sequence identity thereto;

xx) a VH comprising the amino acid sequence of SEQ ID NO: 119, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 118, or an amino acid sequence comprising at least 70% sequence identity thereto;

yy) a VH comprising the amino acid sequence of SEQ ID NO: 120, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

zz) a VH comprising the amino acid sequence of SEQ ID NO: 122, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the

amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

aaa) a VH comprising the amino acid sequence of SEQ ID NO: 123, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

bbb) a VH comprising the amino acid sequence of SEQ ID NO: 124, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

ccc) a VH comprising the amino acid sequence of SEQ ID NO: 125, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

ddd) a VH comprising the amino acid sequence of SEQ ID NO: 126, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

eee) a VH comprising the amino acid sequence of SEQ ID NO: 127, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

fff) a VH comprising the amino acid sequence of SEQ ID NO: 128, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

ggg) a VH comprising the amino acid sequence of SEQ ID NO: 129, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

hhh) a VH comprising the amino acid sequence of SEQ ID NO: 119, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the

amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

iii) a VH comprising the amino acid sequence of SEQ ID NO: 130, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

jjj) a VH comprising the amino acid sequence of SEQ ID NO: 131, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

kkk) a VH comprising the amino acid sequence of SEQ ID NO: 147, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

lll) a VH comprising the amino acid sequence of SEQ ID NO: 117, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

mmm) a VH comprising the amino acid sequence of SEQ ID NO: 132, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

nnn) a VH comprising the amino acid sequence of SEQ ID NO: 117, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 133, or an amino acid sequence comprising at least 70% sequence identity thereto;

ooo) a VH comprising the amino acid sequence of SEQ ID NO: 119, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 133, or an amino acid sequence comprising at least 70% sequence identity thereto;

ppp) a VH comprising the amino acid sequence of SEQ ID NO: 117, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the

amino acid sequence of SEQ ID NO: 134, or an amino acid sequence comprising at least 70% sequence identity thereto;

qqq) a VH comprising the amino acid sequence of SEQ ID NO: 119, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 134, or an amino acid sequence comprising at least 70% sequence identity thereto;

rrr) a VH comprising the amino acid sequence of SEQ ID NO: 135, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 136, or an amino acid sequence comprising at least 70% sequence identity thereto;

sss) a VH comprising the amino acid sequence of SEQ ID NO: 137, comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121 comprising at least 70% sequence identity thereto;

ttt) a VH comprising the amino acid sequence of SEQ ID NO: 138, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

uuu) a VH comprising the amino acid sequence of SEQ ID NO: 123, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 139, or an amino acid sequence comprising at least 70% sequence identity thereto;

vvv) a VH comprising the amino acid sequence of SEQ ID NO: 140, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

www) a VH comprising the amino acid sequence of SEQ ID NO: 141, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

xxx) a VH comprising the amino acid sequence of SEQ ID NO: 142, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the

amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

yyy) a VH comprising the amino acid sequence of SEQ ID NO: 143, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

zzz) a VH comprising the amino acid sequence of SEQ ID NO: 144, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

aaaa) a VH comprising the amino acid sequence of SEQ ID NO: 145, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

bbbb) a VH comprising the amino acid sequence of SEQ ID NO: 146, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

cccc) a VH comprising the amino acid sequence of SEQ ID NO: 148, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 106, or an amino acid sequence comprising at least 70% sequence identity thereto;

dddd) a VH comprising the amino acid sequence of SEQ ID NO: 115, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 77, or an amino acid sequence comprising at least 70% sequence identity thereto;

eeee) a VH comprising the amino acid sequence of SEQ ID NO: 115, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 78, or an amino acid sequence comprising at least 70% sequence identity thereto;

ffff) a VH comprising the amino acid sequence of SEQ ID NO: 79, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the

amino acid sequence of SEQ ID NO: 77, or an amino acid sequence comprising at least 70% sequence identity thereto; or

gggg) a VH comprising the amino acid sequence of SEQ ID NO: 79, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 78, or an amino acid sequence comprising at least 70% sequence identity thereto.

[0368] Embodiment IV-6. The CD24-specific antibody of Embodiment IV-5, comprising:

a) a heavy chain (HC) comprising the amino acid sequence of SEQ ID NO: 1, or an amino acid sequence comprising at least 70% sequence identity thereto; and a light chain (LC) comprising the amino acid sequence of SEQ ID NO: 2, or an amino acid sequence comprising at least 70% sequence identity thereto;

b) an HC comprising the amino acid sequence of SEQ ID NO: 3, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 31, or an amino acid sequence comprising at least 70% sequence identity thereto;

c) an HC comprising the amino acid sequence of SEQ ID NO: 4, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70% sequence identity thereto;

d) an HC comprising the amino acid sequence of SEQ ID NO: 4, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 6, or an amino acid sequence comprising at least 70% sequence identity thereto;

e) an HC comprising the amino acid sequence of SEQ ID NO: 4, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 7, or an amino acid sequence comprising at least 70% sequence identity thereto;

f) an HC comprising the amino acid sequence of SEQ ID NO: 8, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 6, or an amino acid sequence comprising at least 70% sequence identity thereto;

g) an HC comprising the amino acid sequence of SEQ ID NO: 9, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 7, or an amino acid sequence comprising at least 70% sequence identity thereto;

h) an HC comprising the amino acid sequence of SEQ ID NO: 8, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 7, or an amino acid sequence comprising at least 70% sequence identity thereto;

i) an HC comprising the amino acid sequence of SEQ ID NO: 9, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 6, or an amino acid sequence comprising at least 70% sequence identity thereto;

j) an HC comprising the amino acid sequence of SEQ ID NO: 8, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70% sequence identity thereto;

k) an HC comprising the amino acid sequence of SEQ ID NO: 9, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70% sequence identity thereto;

l) an HC comprising the amino acid sequence of SEQ ID NO: 10, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 11, or an amino acid sequence comprising at least 70% sequence identity thereto;

m) an HC comprising the amino acid sequence of SEQ ID NO: 12, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 13, or an amino acid sequence comprising at least 70% sequence identity thereto;

n) an HC comprising the amino acid sequence of SEQ ID NO: 14, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 11, or an amino acid sequence comprising at least 70% sequence identity thereto;

o) an HC comprising the amino acid sequence of SEQ ID NO: 4, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 15, or an amino acid sequence comprising at least 70% sequence identity thereto;

p) an HC comprising the amino acid sequence of SEQ ID NO: 16, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 15, or an amino acid sequence comprising at least 70% sequence identity thereto;

q) an HC comprising the amino acid sequence of SEQ ID NO: 16, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70% sequence identity thereto;

r) an HC comprising the amino acid sequence of SEQ ID NO: 17, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70% sequence identity thereto;

s) an HC comprising the amino acid sequence of SEQ ID NO: 18, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70% sequence identity thereto;

t) an HC comprising the amino acid sequence of SEQ ID NO: 18, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 15, or an amino acid sequence comprising at least 70% sequence identity thereto;

u) an HC comprising the amino acid sequence of SEQ ID NO: 19, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 20, or an amino acid sequence comprising at least 70% sequence identity thereto;

v) an HC comprising the amino acid sequence of SEQ ID NO: 21, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 20, or an amino acid sequence comprising at least 70% sequence identity thereto;

w) an HC comprising the amino acid sequence of SEQ ID NO: 17, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 15, or an amino acid sequence comprising at least 70% sequence identity thereto;

x) an HC comprising the amino acid sequence of SEQ ID NO: 25, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

y) an HC comprising the amino acid sequence of SEQ ID NO: 27, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

z) an HC comprising the amino acid sequence of SEQ ID NO: 25, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

aa) an HC comprising the amino acid sequence of SEQ ID NO: 27, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

bb) an HC comprising the amino acid sequence of SEQ ID NO: 29, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 30, or an amino acid sequence comprising at least 70% sequence identity thereto;

cc) an HC comprising the amino acid sequence of SEQ ID NO: 29, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

dd) an HC comprising the amino acid sequence of SEQ ID NO: 25, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 30, or an amino acid sequence comprising at least 70% sequence identity thereto;

ee) an HC comprising the amino acid sequence of SEQ ID NO: 32, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

ff) an HC comprising the amino acid sequence of SEQ ID NO: 33, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

gg) an HC comprising the amino acid sequence of SEQ ID NO: 34, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

hh) an HC comprising the amino acid sequence of SEQ ID NO: 35, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

ii) an HC comprising the amino acid sequence of SEQ ID NO: 36, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

jj) an HC comprising the amino acid sequence of SEQ ID NO: 37, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

kk) an HC comprising the amino acid sequence of SEQ ID NO: 38, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

ll) an HC comprising the amino acid sequence of SEQ ID NO: 39, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

mm) an HC comprising the amino acid sequence of SEQ ID NO: 40, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

nn) an HC comprising the amino acid sequence of SEQ ID NO: 32, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

oo) an HC comprising the amino acid sequence of SEQ ID NO: 33, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

pp) an HC comprising the amino acid sequence of SEQ ID NO: 34, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

qq) an HC comprising the amino acid sequence of SEQ ID NO: 35, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

rr) an HC comprising the amino acid sequence of SEQ ID NO: 36, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

ss) an HC comprising the amino acid sequence of SEQ ID NO: 37, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

tt) an HC comprising the amino acid sequence of SEQ ID NO: 38, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

uu) an HC comprising the amino acid sequence of SEQ ID NO: 39, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

vv) an HC comprising the amino acid sequence of SEQ ID NO: 40, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

ww) an HC comprising the amino acid sequence of SEQ ID NO: 32, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 41, or an amino acid sequence comprising at least 70% sequence identity thereto;

xx) an HC comprising the amino acid sequence of SEQ ID NO: 42, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 43, or an amino acid sequence comprising at least 70% sequence identity thereto;

yy) an HC comprising the amino acid sequence of SEQ ID NO: 44, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 43, or an amino acid sequence comprising at least 70% sequence identity thereto;

zz) an HC comprising the amino acid sequence of SEQ ID NO: 45, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

aaa) an HC comprising the amino acid sequence of SEQ ID NO: 47, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

bbb) an HC comprising the amino acid sequence of SEQ ID NO: 48, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

ccc) an HC comprising the amino acid sequence of SEQ ID NO: 49, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

ddd) an HC comprising the amino acid sequence of SEQ ID NO: 50, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

eee) an HC comprising the amino acid sequence of SEQ ID NO: 51, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

fff) an HC comprising the amino acid sequence of SEQ ID NO: 52, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

ggg) an HC comprising the amino acid sequence of SEQ ID NO: 53, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

hhh) an HC comprising the amino acid sequence of SEQ ID NO: 54, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

iii) an HC comprising the amino acid sequence of SEQ ID NO: 44, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

jjj) an HC comprising the amino acid sequence of SEQ ID NO: 55, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

kkk) an HC comprising the amino acid sequence of SEQ ID NO: 56, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

lll) an HC comprising the amino acid sequence of SEQ ID NO: 57, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

mmm) an HC comprising the amino acid sequence of SEQ ID NO: 42, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

nnn) an HC comprising the amino acid sequence of SEQ ID NO: 58, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

ooo) an HC comprising the amino acid sequence of SEQ ID NO: 42, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 59, or an amino acid sequence comprising at least 70% sequence identity thereto;

ppp) an HC comprising the amino acid sequence of SEQ ID NO: 44, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 59, or an amino acid sequence comprising at least 70% sequence identity thereto;

qqq) an HC comprising the amino acid sequence of SEQ ID NO: 42, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 60, or an amino acid sequence comprising at least 70% sequence identity thereto;

rrr) an HC comprising the amino acid sequence of SEQ ID NO: 44, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 60, or an amino acid sequence comprising at least 70% sequence identity thereto;

sss) an HC comprising the amino acid sequence of SEQ ID NO: 61, comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 62, comprising at least 70% sequence identity thereto;

ttt) an HC comprising the amino acid sequence of SEQ ID NO: 63, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

uuu) an HC comprising the amino acid sequence of SEQ ID NO: 64, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

vvv) an HC comprising the amino acid sequence of SEQ ID NO: 48, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 65, or an amino acid sequence comprising at least 70% sequence identity thereto;

www) an HC comprising the amino acid sequence of SEQ ID NO: 66, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

xxx) an HC comprising the amino acid sequence of SEQ ID NO: 67, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

yyy) an HC comprising the amino acid sequence of SEQ ID NO: 68, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

zzz) an HC comprising the amino acid sequence of SEQ ID NO: 69, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

aaaa) an HC comprising the amino acid sequence of SEQ ID NO: 70, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

bbbb) an HC comprising the amino acid sequence of SEQ ID NO: 71, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

cccc) an HC comprising the amino acid sequence of SEQ ID NO: 72, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

dddd) an HC comprising the amino acid sequence of SEQ ID NO: 73, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 74, or an amino acid sequence comprising at least 70% sequence identity thereto;

eeee) an HC comprising the amino acid sequence of SEQ ID NO: 75, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 22, or an amino acid sequence comprising at least 70% sequence identity thereto;

ffff) an HC comprising the amino acid sequence of SEQ ID NO: 75, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 23, or an amino acid sequence comprising at least 70% sequence identity thereto;

gggg) an HC comprising the amino acid sequence of SEQ ID NO: 24, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 22, or an amino acid sequence comprising at least 70% sequence identity thereto; or

hhhh) an HC comprising the amino acid sequence of SEQ ID NO: 24, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 23, or an amino acid sequence comprising at least 70% sequence identity thereto.

[0369] Embodiment IV-7. The antibody of any one of Embodiments IV-1 and IV-3 to IV-6, wherein the antibody is humanized.

[0370] Embodiment IV-8. The antibody of any one of Embodiments IV-1 to IV-7, wherein the antibody is a full length antibody.

[0371] Embodiment IV-9. The antibody of any one of Embodiments IV-1 to IV-7, wherein the antibody is an antigen-binding antibody fragment.

[0372] Embodiment IV-10. The antibody of any one of Embodiments IV-1 to IV-8, wherein the antibody comprises a Fc domain, and the Fc domain is selected from the group consisting of a human IgG1, IgG2, IgG3, and IgG4 heavy chain sequence.

[0373] Embodiment IV-11. The antibody of any one of Embodiments IV-1 to IV-10, wherein the binding of the antibody does not disrupt the interaction between CD24 and Siglec-10.

[0374] Embodiment IV-12. The antibody of any one of Embodiments IV-1 to IV-10, wherein the binding of the antibody disrupts the interaction between CD24 and Siglec-10.

[0375] Embodiment IV-13. The antibody of any one of Embodiments IV-1 to IV-12, wherein, the antibody binds human CD24 and cynomolgus monkey CD24.

[0376] Embodiment IV-14. The antibody comprising of anyone of Embodiments IV-1 to IV-13, wherein the antibody comprises a binding affinity to CD24 lower than about 500 nM.

[0377] Embodiment IV-15. The antibody comprising of anyone of Embodiments IV-1 to IV-14, wherein the antibody binds to all CD24 glycoforms.

[0378] Embodiment IV-16. The antibody comprising of anyone of Embodiments IV-1 to IV-14, wherein the antibody binds to different CD24 glycoforms with varying affinities.

[0379] Embodiment IV-17. The antibody comprising of anyone of Embodiments IV-1 to IV-14, wherein the antibody binds to non-glycosylated CD24.

[0380] Embodiment IV-18. The antibody comprising of anyone of Embodiments IV-1 to IV-14, wherein the antibody binds to glycosylated CD24 in the recombinant form.

[0381] Embodiment IV-19. The antibody comprising of anyone of Embodiments IV-1 to IV-14, wherein the antibody binds to glycosylated CD24 on the surface of the cell.

[0382] Embodiment IV-20. The antibody comprising of anyone of Embodiments IV-1 to IV-14, wherein the antibody is a non-binder of certain CD24 glycoforms.

[0383] Embodiment IV-21. The antibody comprising of anyone of Embodiments IV-1 to IV-20, wherein the antibody induces or enhances phagocytosis in a glycosylation dependent manner.

[0384] Embodiment IV-22. The antibody comprising of anyone of Embodiments IV-1 to IV-20, wherein the antibody induces or enhances phagocytosis in a glycosylation independent manner.

[0385] Embodiment IV-23. A pharmaceutical composition comprising the antibody of any one of Embodiments IV-1 to IV-22, and optionally a pharmaceutically acceptable carrier.

[0386] Embodiment IV-24. A nucleic acid encoding for the antibody of any one of Embodiments IV-1 to IV-22.

[0387] Embodiment IV-25. A vector comprising the nucleic acid of Embodiment IV-24.

[0388] Embodiment IV-26. A method of treating a disease or condition in a subject in need thereof, comprising administering to the subject a therapeutically effective amount of the antibody of any one of Embodiments IV-1 to IV-22 or the pharmaceutical composition of Embodiment IV-23.

[0389] Embodiment IV-27. The method of Embodiment IV-26, wherein the disease or condition comprises cancer.

[0390] Embodiment IV-28. The method of Embodiment IV-27, wherein the cancer comprises a solid cancer.

[0391] Embodiment IV-29. The method of Embodiment IV-28, wherein the solid cancer is a carcinoma or a sarcoma.

[0392] Embodiment IV-30. The method of Embodiment IV-29, wherein the carcinoma is selected from the group consisting of bladder, breast, colon, kidney, liver, lung, ovary, pancreas, stomach, cervix, thyroid and skin.

[0393] Embodiment IV-31. The method of Embodiment IV-29, wherein the sarcoma is fibrosarcoma or rhabdomyosarcoma.

[0394] Embodiment IV-32. The method of Embodiment IV-27, wherein the cancer comprises a hematological cancer.

[0395] Embodiment IV-33. The method of Embodiment IV-32, wherein the hematological cancer is selected from the group consisting of acute lymphocytic leukemia, acute lymphoblastic leukemia, B-cell lymphoma, T-cell lymphoma, Burkett's lymphoma; acute myelogenous leukemia, chronic myelogenous leukemia, and promyelocytic leukemia.

[0396] Embodiment IV-34. The method of Embodiment IV-27, wherein the cancer is selected from the group consisting of melanoma, neuroblastoma, glioma, tumors of the central nervous system, and tumors of the peripheral nervous system.

[0397] Embodiment IV-35. The method of any one of Embodiments IV-26 to IV-34, wherein the route of administration is intravenous or subcutaneous administration.

[0398] Embodiment IV-36. The method of any one of Embodiments IV-26 to IV-35, wherein the subject is human.

[0399] Embodiment IV-37. Use of the CD24-specific antibody of any one of Embodiments IV-1 to IV-22 or the pharmaceutical composition of Embodiment IV-23 in the manufacture of a medicament for treating a disease or condition in a subject in need thereof, wherein the subject is administered a therapeutically effective amount of the antibody or pharmaceutical composition.

[0400] Embodiment IV-38. The CD24-specific antibody of any one of Embodiments IV-1 to IV-22 or the pharmaceutical composition of Embodiment IV-23 for use in treating a disease or condition in a subject in need thereof, wherein the subject is administered a therapeutically effective amount of the antibody or pharmaceutical composition.

[0401] Embodiment IV-39. A method of treating a disease or disorder in a human subject in need thereof, comprising administering to the subject a therapeutically effective amount of an antibody, wherein the antibody comprises a means for binding CD24.

EXAMPLES

Example 1: Antibody humanization

Antibody humanization of PHRHL-01

[0402] Antibody humanization was conducted using previously published techniques (PNAS 86, 10029–10033 (1989); and J Mol Biol. 224, 487–499 (1992)). Resulting antibodies from this humanization were PHRHL-03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 21, 22, 26, 27, 28, and 29. Briefly, mouse antibody sequences were analyzed using IgBlast (NCBI) to identify the most similar human frameworks. The sequences encoding murine heavy & light chain CDRs were grafted onto these human frameworks, and some residues located in the Vernier zone were back-mutated to the original murine residues. Different frameworks, CDR definitions (including IMGT, Kabat, Chothia and ProABC), combinations of framework Vernier zone back-mutations, and affinity-enhancing mutations discovered by yeast display were combined to generate an assortment of humanized anti-CD24 antibodies (Table 1).

Antibody humanization of PHRHL-123

[0403] Antibody humanization of PHRHL-123 was conducted using previously published techniques (PNAS 86, 10029–10033 (1989) and J Mol Biol. 224, 487–499 (1992)). Resulting antibodies from this humanization were PHRHL-110, 111, 112, 113, 114, 115, 116, 117, and 118. Briefly, mouse antibody sequences were analyzed using IgBlast (NCBI) to identify the most similar human frameworks. The sequences encoding murine heavy and light chain CDRs were grafted onto these human frameworks, and some residues located in the Vernier zone were back-mutated to the original murine residues. Different frameworks, combinations of framework Vernier zone back-mutations, and affinity-enhancing mutations discovered by yeast display were combined to generate an assortment of humanized anti-CD24 antibodies.

Antibody humanization of PHRHL-200

[0404] Antibody humanization was conducted using previously published techniques (PNAS 86, 10029–10033 (1989); and J Mol Biol. 224, 487–499 (1992)). Briefly, mouse antibody sequences were analyzed using IgBlast (NCBI) to identify the most similar human frameworks. The sequences encoding murine heavy & light chain CDRs were grafted onto these human frameworks, and some residues located in the Vernier zone were back-mutated to the original murine residues. Different frameworks, CDR definitions (including IMGT, Kabat, Chothia and ProABC), combinations of framework Vernier zone back-mutations, and affinity-enhancing mutations discovered by yeast display were combined to generate an assortment of humanized anti-CD24 antibodies (Table 1).

Example 2: Antibody affinity maturation

Yeast display affinity maturation of PHRHL-03

[0405] Yeast display selections were carried out as previously described with minor modifications (Nature protocols. 1, 755–68 (2006)). A single-chain Fv fragment (scFv) composed of the variable light chain followed by the variable heavy chain of the anti-CD24 antibody PHRHL-03, separated by a $(G_4S)_3$ linker, was cloned as a fusion protein with Aga2p into a yeast display vector also encoding a TRP1 auxotrophic marker. The scFv gene fragment was inserted at the C-terminus of Aga2p under control of the GAL1 promoter and appended by a myc tag. For mutagenesis, a library of scFvs was constructed by error prone PCR using Taq polymerase with the addition of $MnCl_2$ to the reaction mixture. The $MnCl_2$ concentration was

titrated to produce approximately 2 - 3 amino acid mutations (2 - 4 base pair mutations) per scFv molecule.

[0406] A library of mutants was transformed by two-piece homologous recombination in yeast. In short, the EBY100 strain yeast (*MATa AGA*1::*GAL*1-*AGA*1::*URA*3 *ura*3-52 *trp*1 *leu*2-Δ200 *his*3-Δ200 *pep*4::*HIS3 prb*1-Δ1.6R *can*1 *GAL*; ATCC) was grown overnight to stationary phase in YPD medium. The yeast were then diluted to an OD_{600} of 0.3 and grown until they reached an OD_{600} of 1.6 before being collected by centrifugation. The cell pellet was washed once with 50 ml of distilled water and twice with 50 ml of electroporation buffer (1 M sorbitol, 1 mM $CaCl_2$). The yeast were then conditioned in 0.1 M lithium acetate and 10 mM dithiothreitol for 20 minutes. After one more wash with electroporation buffer, the yeast were resuspended in 600 µl of electroporation buffer containing 10 µg of digested vector and 40 µg of insert, and transformed with an electroporator at 2.5 kV (Gemini X2, BTX). The library was recovered in YPD for 1 hour at 30 °C and then grown for 24 hours in SDCAA medium (20 g/L glucose, 5 g/L casamino acids, 6.7 g/L yeast nitrogen base without amino acids). The library was then induced in SGCAA medium (18 g/L galactose, 2 g/L glucose, 5 g/L casamino acids, 6.7 g/L yeast nitrogen base without amino acids) at an OD_{600} of 1.0 and grown for an additional 48 hours at 20 °C.

[0407] For magnetic selection, yeast cells comprising an approximately 10-fold library diversity were pelleted and resuspended in PBSA (PBS + 0.1% BSA). Streptavidin magnetic beads (Miltenyi) were coated with biotinylated decoy protein (Glycophorin A fused with mannose binding protein) for negative selections, or target protein (CD24 fused with mannose binding protein) for positive selections and incubated with the library for 1 hour at 4 °C. Selections were carried out by magnetic capture using an LS column (Miltenyi) according to the manufacturer's protocol.

[0408] For FACS, 10^8 yeast were pelleted and resuspended in PBSA containing biotinylated target protein and incubated for 1 hour at 4 °C. The yeast were washed twice, target binding was detected by AlexaFluor 647-conjugated streptavidin and yeast surface expression by PE-conjugated anti-myc antibody, and high affinity double positive yeast were sorted on a Sony SH800 sorter. Alternating rounds of positive and negative selections were carried out until the library was enriched for high affinity variants specific for CD24 binding (FIG. 1).

[0409] FIG. 1 depicts yeast display affinity maturation of PHRHL-03. Yeast from each round of selection were co-stained with PE-labeled anti-myc antibody to measure surface display and 1

μM biotinylated CD24-MBP (antigen utilized, a fusion protein of CD24 with maltose binding protein (MBP), detected with AlexaFluor-647 conjugated streptavidin) to measure antigen binding. Data are presented as a contour plot with CD24-MBP antigen binding on the Y axis and surface display (anti-myc) on the X axis.

[0410] Sequencing of both the bulk library and individual clones was performed to identify individual mutations producing improved affinity and stability.

[0411] Individual clones were titrated by staining with biotinylated antigen at a range of concentrations, followed by secondary staining with AlexaFluor-647 conjugated streptavidin and analysis by flow cytometry on a Novocyte (Agilent) or Quanteon (Agilent) (FIG. 2). **FIG. 2** depicts dose-response curves for antibody variants discovered by yeast display. Yeast expressing PHRHL-03 variants containing the indicated mutations (IMGT numbering) were stained with a range of CD24-MBP concentrations. Surface display-normalized fluorescence intensity was plotted against antigen concentration.

[0412] In some cases, the affinity matured molecules were subjected to further humanization after selection on yeast.

[0413] Affinity maturation using this process resulted in antibodies PHRHL- 15, 16, 17, 18, 19, 20, and 23.

Yeast display affinity maturation of PHRHL-117

[0414] Yeast display selections were carried out as previously described with minor modifications (*Nature Protocols*. **1**, 755–68 (2006)), with the antibody displayed in an antigen binding fragment (Fab) format. Using the bidirectional GAL1/GAL10 promoter, the VL+CL domains of the antibody PHRHL-113 were co-expressed with the corresponding VH+CH1 domains, which were in turn expressed as a fusion protein with Aga2p in a yeast display vector that also encoded a TRP1 auxotrophic marker. The VH+CH1 gene fragment was inserted at the N-terminus of Aga2p and appended by a myc tag. For mutagenesis, the Fab library was constructed by error prone PCR on the VH fragment using Taq polymerase with the addition of $MnCl_2$ to the reaction mixture. The $MnCl_2$ concentration was titrated to produce approximately 2 - 3 amino acid mutations (2 - 4 base pair mutations) per VH+CH1 molecule. A second library was produced with the same technique substituting the VH fragment of PHRHL-117 as the parental sequence, and the two libraries were pooled prior to yeast transformation.

[0415] A library of mutants was transformed by two-piece homologous recombination in yeast. In short, the EBY100 strain yeast (*MATa AGA*1::*GAL*1-*AGA*1::*URA*3 *ura*3-52 *trp*1 *leu*2-Δ200 *his*3-Δ200 *pep*4::*HIS3 prb*1-Δ1.6R *can*1 *GAL*; ATCC) was grown overnight to stationary phase in YPD medium. The yeast were then diluted to an OD_{600} of 0.3 and grown until they reached an OD_{600} of 1.6 before being collected by centrifugation. The cell pellet was washed once with 50 ml of distilled water and twice with 50 ml of electroporation buffer (1 M sorbitol, 1 mM $CaCl_2$). The yeast were then conditioned in 0.1 M lithium acetate and 10 mM dithiothreitol for 20 minutes. After one more wash with electroporation buffer, the yeast were resuspended in 600 µl of electroporation buffer containing 10 µg of digested vector and 40 µg of insert, and transformed with an electroporator at 2.5 kV (Gemini X2, BTX). The library was recovered in YPD for 1 hour at 30 °C and then grown for 24 hours in SDCAA medium (20 g/L glucose, 5 g/L casamino acids, 6.7 g/L yeast nitrogen base without amino acids). The library was then induced in SGCAA medium (18 g/L galactose, 2 g/L glucose, 5 g/L casamino acids, 6.7 g/L yeast nitrogen base without amino acids) at an OD_{600} of 1.0 and grown for an additional 48 hours at 20 °C.

[0416] For magnetic selection, yeast cells comprising an approximately 10-fold library diversity were pelleted and resuspended in PBSA (PBS + 0.1% BSA). Streptavidin magnetic beads (Miltenyi) were coated with a biotinylated decoy protein (Glycophorin A fused with mannose binding protein) for negative selections, or the target protein (CD24 fused with mannose binding protein) for positive selections, and incubated with the library for 1 hour at 4 °C. Selections were carried out by magnetic capture using an LS column (Miltenyi) according to the manufacturer's protocol.

[0417] For FACS, 10^8 yeast were pelleted and resuspended in PBSA containing biotinylated target protein and incubated for 1 hour at 4 °C. The yeast were washed twice, target binding was detected by AlexaFluor 647-conjugated streptavidin and yeast surface expression by PE-conjugated anti-myc antibody, and high affinity double positive yeast were sorted on a Sony SH800 sorter. Alternating rounds of positive and negative selections were carried out until the library was enriched for high affinity variants specific for CD24 binding (**FIG. 3**).

[0418] **FIG. 3** depicts yeast display affinity maturation of PHRHL-113 Yeast from each round of selection were stained 1 µM biotinylated CD24-MBP (antigen utilized, a fusion protein of CD24 with maltose binding protein (MBP), detected with AlexaFluor-647 conjugated

streptavidin) to measure antigen binding. Data are presented as a histogram depicting the relative number of events (Y axis) against CD24 staining intensity (X axis).

[0419] Sequencing of both the bulk library and individual clones was performed to identify individual mutations producing improved affinity and stability.

[0420] Individual clones were titrated by staining with biotinylated antigen at a range of concentrations, followed by secondary staining with AlexaFluor-647 conjugated streptavidin and analysis by flow cytometry on a Novocyte (Agilent) or Quanteon (Agilent) (**FIG. 4**). **FIG. 4** depicts dose-response curves for antibody variants discovered by yeast display. Yeast expressing PHRHL-113 variants containing the indicated mutations (IMGT numbering) were stained with a range of CD24-MBP concentrations. Surface display-normalized fluorescence intensity was plotted against antigen concentration.

[0421] In some cases, the affinity matured molecules were subjected to further humanization after selection on yeast.

[0422] Affinity maturation using this process resulted in antibodies PHRHL-102, 103, 104, 105, 106, 107, 108, 109, 124, 125, 127, 128, 129, 130, 131, 132 and 133.

Example 3: Antibody expression and purification

[0423] Antibodies were expressed either from hybridoma cell lines, or by transient transfection using the Expi293 expression system (Thermo Fisher Scientific). For transient transfections, separate plasmids with a CMV promoter and H7 peptide leader sequence were constructed for the heavy and light chains, which were transfected at a mass ratio of 1:2 respectively. Antibodies were purified using Protein A affinity chromatography and eluted with 0.1 M glycine-HCl, pH 3. Where the product was < 95% monomer, size exclusion chromatography was performed in PBS using either a Superdex 200 Increase 10/300 GL or HiLoad 16/600 Superdex 200 pg (Cytiva). The resulting antibody solution was aliquoted, flash-frozen in liquid nitrogen, and stored at -80 °C. **FIGS. 5A-5D** depict analytical SEC profiles of antibody variants.

Example 4: In vitro equilibrium binding affinity measurements

[0424] To determine the linear range of detection for solution equilibrium binding experiments, a solid phase ELISA experiment was performed first. 96-well high binding ELISA plates (Corning) were coated with 100 µl of purified antigen (CD24-MBP-Avi-His, 2 µg/ml, Pheast) in PBS (1x PBS, pH 7.4, Gibco) at 4 °C overnight. Plates were washed 3 times with 1x PBST

(Pierce) using a plate washer (BioTek TS 450). The plates were then blocked for 1 h at room temperature with 1x ELISA Assay Buffer (Invitrogen DS98200). The antibody was serially diluted in 1x Assay Buffer, then 100 µl of each dilution was added into the pre-coated plates and incubated at room temperature for 1 h, followed by washing 3 times with 1x PBST. Subsequently, 100 µl of HRP-conjugated goat anti-human IgG Fc (1:10000 dilution, Abcam) was added to the wells and incubated at room temperature for 1 h, followed by washing 3 times with 1x PBST. A colorimetric signal was detected by addition of 3,3′,5,5′-tetramethylbenzidine (TMB, Invitrogen) followed by incubation at room temperature for 1 - 10 min. The reaction was stopped by adding 100 µl of 2 M H_2SO_4 (ELISA Stop Solution, Invitrogen). The OD values were measured at 450 nm with a microplate reader (BioTek Synergy H1). The optimum antibody concentration for in-solution binding was determined as the IC_{50} calculated from a sigmoidal, 4PL non-linear fit analysis of the binding curve (GraphPad Prism).

[0425] Affinity measurements were made by measuring in-solution equilibrium of unlabeled IgG as described by Friguet et al. (J Immunol Methods. 77, 305–319 (1985)). In a low binding 96-well plate (Corning), the antigen (CD24-MBP, 200 uM, Pheast) was serially diluted and 100 µl of each dilution was added to 100 µl of a fixed concentration of antibody, as determined from the IC50 described above. A standard curve of the antibody was prepared by serially diluting the antibody and adding it to empty wells in the same plate. The plate was allowed to shake at room temperature overnight to reach binding equilibrium. For all antibody variants tested, two replicates of each dilution were performed. The next day, unbound antibody was detected by adding 100 µl of the equilibrated samples to an ELISA plate pre-coated with CD24-MBP-Avi-His. Solid-phase ELISA was performed as described above. Based on the standard curve of the antibody, the OD_{450} readings were interpolated to calculate the concentration of unbound antibodies after equilibration and then plotted against the antigen concentration. The monovalent equilibrium dissociation constant (KD) was calculated using the method of Stevens (Mol Immunol. 24, 1055–1060 (1987)) by nonlinear regression (GraphPad Prism).

[0426] Table 4 shows the CD24 antibody affinity measurements for antibodies of the disclosure. As described above, the antibodies were expressed by transient transfection in Expi293 cells, purified by Protein A affinity and analyzed by size exclusion chromatography. Isotype and approximate K_D for CD24 binding are reported. N.D. = “not determined.” The antibody ID refers to those antibody sequences provided in Tables 1-3. It is to be understood that the isotype

designation does not mean that antibody must be constructed with this isotype, but rather has been constructed with this isotype, for the purpose of the affinity measurements.

[0427] Table 4: CD24 antibody affinity measurements

Antibody ID	KD (nM)	Isotype
PHRHL-01	N.D.	mIgG1
PHRHL-02	N.D.	mIgG1
PHRHL-03	41	hIgG4
PHRHL-04	N.D.	hIgG4
PHRHL-05	N.D.	hIgG4
PHRHL-06	N.D.	hIgG4
PHRHL-07	N.D.	hIgG4
PHRHL-08	N.D.	hIgG4
PHRHL-09	N.D.	hIgG4
PHRHL-10	N.D.	hIgG4
PHRHL-11	N.D.	hIgG4
PHRHL-12	N.D.	hIgG4
PHRHL-13	N.D.	hIgG4
PHRHL-14	N.D.	hIgG4
PHRHL-15	N.D.	hIgG4
PHRHL-16	N.D.	hIgG4
PHRHL-17	N.D.	hIgG4
PHRHL-18	N.D.	hIgG4
PHRHL-19	N.D.	hIgG4
PHRHL-20	18	hIgG4
PHRHL-21	N.D.	hIgG4
PHRHL-22	3100	hIgG4
PHRHL-23	N.D.	hIgG4
PHRHL-26	23	hIgG4
PHRHL-27	33	hIgG4
PHRHL-28	6	hIgG4
PHRHL-29	5	hIgG4

Antibody ID	KD (nM)	Isotype
PHRHL-30	63	hIgG4
PHRHL-31	N.D.	hIgG4
PHRHL-32	N.D.	hIgG4
PHRHL-33	26	hIgG4
PHRHL-34	N.D.	hIgG4
PHRHL-35	N.D.	hIgG4
PHRHL-36	N.D.	hIgG4
PHRHL-37	N.D.	hIgG4
PHRHL-38	N.D.	hIgG4
PHRHL-39	19	hIgG4
PHRHL-40	498	hIgG4
PHRHL-41	480	hIgG4
PHRHL-42	44	hIgG4
PHRHL-43	N.D.	hIgG4
PHRHL-44	N.D.	hIgG4
PHRHL-45	N.D.	hIgG4
PHRHL-46	N.D.	hIgG4
PHRHL-47	N.D.	hIgG4
PHRHL-48	9	hIgG4
PHRHL-49	N.D.	hIgG4
PHRHL-50	N.D.	hIgG4
PHRHL-51	26	hIgG4
PHRHL-100		hIgG4
PHRHL-101		hIgG4
PHRHL-102	153	hIgG4
PHRHL-103	182	hIgG4
PHRHL-104	45	hIgG4
PHRHL-105	156	hIgG4
PHRHL-106		hIgG4
PHRHL-107		hIgG4

Antibody ID	KD (nM)	Isotype
PHRHL-108		hIgG4
PHRHL-109	175	hIgG4
PHRHL-112		hIgG4
PHRHL-113	364	hIgG4
PHRHL-114	N.D.	hIgG4
PHRHL-115	748	hIgG4
PHRHL-116	N.D.	hIgG4
PHRHL-117	401	hIgG4
PHRHL-118	2400	hIgG4
PHRHL-119	2400	hIgG4
PHRHL-120		hIgG4
PHRHL-121		hIgG4
PHRHL-122		hIgG4
PHRHL-123	110	mIgG1
PHRHL-124	106.9	hIgG4
PHRHL-125	36.9	hIgG4
PHRHL-126	99.4	hIgG4
PHRHL-127	12.9	hIgG4
PHRHL-128	109.2	hIgG4
PHRHL-129	114.7	hIgG4
PHRHL-130	276	hIgG4
PHRHL-131	126.4	hIgG4
PHRHL-132	28.7	hIgG4
PHRHL-133	131.4	hIgG4
PHRHL-200	364	mIgG1
PHRHL-201	N.D.	hIgG4
PHRHL-202	N.D.	hIgG4
PHRHL-203	708	hIgG4
PHRHL-204	293	hIgG4

Example 5: Macrophage differentiation and polarization

[0428] Leukocyte reduction system (LRS) chambers from anonymous donors were obtained from the Stanford Blood Center. Human CD14+CD16- monocytes were purified from fresh peripheral blood by negative selection (EasySep™, Stemcell Technologies). Unwanted cells were labeled with antibodies complexed to magnetic particles, and the magnetically labeled cells were separated from the untouched monocytes by using a magnet. Monocytes were stored frozen in liquid nitrogen and were differentiated into macrophages by 7-14 days of culture in IMDM + 10% human serum AB (Fisher Scientific). Following differentiation, macrophages were stimulated with 50 ng/ml human TGFβ1 (R&D Systems) and 50 ng/ml human IL-10 (R&D Systems) for an additional 7-11 days for polarization into suppressive macrophages (M2).

Example 6: Flow cytometry-based phagocytosis assay

[0429] All in vitro flow cytometry-based phagocytosis assays reported here were performed by co-culturing tumor target cells with M2 macrophages at the indicated ratio for 2-3 hours in a humidified, 5% CO_2 incubator at 37 °C in ultra-low-attachment 96-well U-bottom plates (Corning) in serum-free IMDM (Life Technologies). Tumor target cells were engineered to express GFP (OVCAR3 and BxPC-3 cells), or were labeled with CellTrace CFSE (Thermo Fisher) immediately before the experiment according to the manufacturer's instructions (HEC-1a cells). Cells were harvested from plates using TrypLE Express (Life Technologies) prior to co-culture with macrophages. For all assays, macrophages were harvested from plates using TrypLE Express. For phagocytosis assays involving treatment with monoclonal antibodies including anti-CD24 (as indicated) and anti-CD47 (Magrolimab), all antibodies or appropriate isotype controls were added at a concentration of 10 μg/ml or 50 μg/ml. After co-culture, phagocytosis assays were stopped by placing plates on ice, centrifuging at 400 x g for 5 min at 4 °C and staining with AlexaFluor-647-labeled anti-CD11b (Clone M1/70, Biolegend) to identify human macrophages. Assays were analyzed on a Novocyte (Agilent) or Quanteon (Agilent) flow cytometer, both using a high-throughput autosampler. Phagocytosis was measured as the number of CD11b+, GFP+ (or CFSE+) macrophages, quantified as a percentage of the total CD11b+ macrophages. Each phagocytosis reaction (independent donor and experimental group) was performed in a minimum of technical triplicate. All biological replicates indicate independent human macrophage donors.

[0430] FIGS. 6A-6B depicts phagocytosis of HEC-1a endometrial adenocarcinoma cells in the presence of antibodies. CSFE-labeled HEC-1a cells were incubated with human M2

macrophages at a 1:1 (FIG. 6A top panels) or 1:2 (FIG. 6A bottom panels and FIG. 6B) ratio for 2.5 h at 37 °C. Phagocytosis was measured by flow cytometry as coincidence of CFSE and CD11b staining and displayed as fold change relative to the isotype control. "Magro" is magrolimab, an anti-CD47 therapeutic monoclonal antibody. Each dataset represents a different monocyte donor.

[0431] FIG. 7A-7B depicts phagocytosis of OVCAR-3 ovarian adenocarcinoma cells in the presence of antibodies. GFP-expressing OVCAR-3 cells were incubated with human M2 macrophages at a 1:1 ratio for PHRHL-20 assays (FIG. 7A) or a 2:1 ratio for PHRHL-200 assays (FIG. 7B) for 2.5 h at 37 °C. Phagocytosis was measured by flow cytometry as coincidence of GFP and CD11b staining and displayed as fold change relative to the isotype control. "Magro" is magrolimab, an anti-CD47 therapeutic monoclonal antibody. Each dataset represents a different monocyte donor.

[0432] FIG. 8 depicts phagocytosis of OVCAR-8 ovarian adenocarcinoma cells in the presence of antibodies PHRHL-117 and PHRHL-113. GFP-expressing OVCAR-8 cells were incubated with human M2 macrophages at a 2:1 effector-to-target ratio for 2.5 h at 37 °C. Phagocytosis was measured by flow cytometry as coincidence of GFP and CD11b staining and displayed as % phagocytosis. "Magro" is magrolimab, an anti-CD47 therapeutic monoclonal antibody. Each data point represents a different monocyte donor.

[0433] FIG. 9A-9B depicts phagocytosis of BxPC-3 pancreatic adenocarcinoma cells in the presence of antibodies. GFP-expressing BxPC-3 cells were incubated with human M2 macrophages at a 1:1 ratio for PHRHL-20 assays (FIG. 9A) or a 2:1 ratio for PHRHL-113 and 117 assays (FIG. 9B) for 2.5 h at 37 °C. Phagocytosis was measured by flow cytometry as coincidence of GFP and CD11b staining and displayed as % phagocytosis. "Magro" is magrolimab, an anti-CD47 therapeutic monoclonal antibody. Each dataset represents a different monocyte donor.

[0434] FIG. 10 depicts phagocytosis of BT474 ductal adenocarcinoma cells in the presence of antibodies. GFP-expressing BT474 cells were incubated with human M2 macrophages at a 2:1 effector-to-target ratio for 2.5 h at 37 °C. Phagocytosis was measured by flow cytometry as coincidence of GFP and CD11b staining and displayed as % phagocytosis. "Magro" is magrolimab, an anti-CD47 therapeutic monoclonal antibody. Each data point represents a different monocyte donor.

[0435] FIG. 11 depicts phagocytosis of HAP1 chronic myelogenous leukemia cells in the presence of antibodies. GFP-expressing HAP1 cells were incubated with human M2 macrophages at a 2:1 effector-to-target ratio for 2.5 h at 37 °C. Phagocytosis was measured by flow cytometry as coincidence of GFP and CD11b staining and displayed as % phagocytosis. "Magro" is magrolimab, an anti-CD47 therapeutic monoclonal antibody. Each data point represents a different monocyte donor.

Example 7: Siglec-10 blocking assay methods

[0436] The ability of PHRHL-104 to block binding between CD24 and Siglec-10 was measured in a competitive ELISA experiment (FIG. 12). A high-binding surface 96-well plate (Ref # 9018, Lot # 1255014, Corning) was coated with 0.2 µg of CD24-MBP-Avi-His protein (293, Pheast) per well and stored at 4°C. The next day, the plate was washed three times with 1X PBS-T (Ref # 28352, Lot # XJ357035, Thermo Scientific) using a BioTek 405 TS microplate washer. It was then blocked for 1 hour at room temperature with 100 µL of 1X Assay Buffer (Cat # CNB001, Lot # 335811-000, Invitrogen) and washed again three times with 1X PBS-T. A 10 µM solution of the blocking antibody (Pheast) was prepared in 1X Assay Buffer. Subsequently, 100 µL of this solution was titrated across 12 wells using 1:3 serial dilutions. Two control wells received only buffer. Two technical replicates were carried out. The plate was incubated for 1 hour while shaking at room temperature, and subsequently washed three times with 1X PBS-T. To the titrated wells, 100 µL of Siglec10-WT-biotin (Cat # SIG-HMB410B, Lot # 041201-2, Kactus) was added at a fixed concentration of 400 nM. The control wells received either 100 µL of Siglec10-WT-biotin or Siglec10-R119A-biotin (Cat # SIG-HMB411B, Lot # 051203, Kactus) at a concentration of 400 nM. The plate was incubated for 1 hour while shaking at room temperature, and subsequently washed three times with 1X PBS-T. Then, 100 µL of Streptavidin-HRP (Ref # 21130, Lot # XH360982, Pierce) was added to the wells at a 1:10,000 dilution. The plate was incubated for 1 hour while shaking at room temperature, and subsequently washed three times with 1X PBS-T. The plate was developed with 100 µL of TMB substrate (Cat# CNB0011, Lot# 323599-000, Invitrogen). After approximately 5 minutes, 100 µL of H_2SO_4 stop solution (Cat# CNB0011, Lot # 298844-000, Invitrogen) was added and the absorbance at 450 nm was measured using a BioTek Synergy H1 microplate reader. The absorbance readings of the 12 wells with titrated antibody were normalized to the control wells, where 1 was defined as the absorbance at 450 nm for the Siglec10-WT-biotin only well and 0

was defined as the absorbance at 450 nm for the Siglec10-R119A-biotin only well. The values from the technical replicates were averaged and standard deviations calculated. A dose-response curve was generated using GraphPad Prism 10.2.2 (GraphPad Software; San Diego, CA, USA) with a nonlinear regression model, specifically a sigmoidal, four-parameter logistic (4PL) curve fit, where 'X' is concentration (FIG. 12). The IC50 was defined as the concentration of antibody where Siglec10-WT-biotin binding response was reduced by half. Other exemplary antibodies of the disclosure were also tested under these conditions and demonstrated equivalent effects.

[0437] Example 8: In vivo experiment methods

[0438] The PHRHL-104 was also tested in an in vivo mouse cancer model (FIG. 13). MFM-223 cells were purchased from ATCC and grown in DMEM containing 10% FBS. Prior to engraftment, cells were lifted using TrypLe and cell counting was performed by Cellometer K2 (Nexcelom). Parental MFM-223 cells were infected with GFP-luciferase lentivirus (EF1a-FLuc-F2A-GFP). After 48 hours, GFP+ cells were harvested and sorted by FACS.

[0439] NOD.Cg-Prkdc scid Il2rg tm1Wjl /SzJ (NSG) mice were purchased from Jackson Laboratory. Studies were performed in 8-week-old female NSG mice weighing between 22 and 26 grams. Mice were acclimated and maintained in a conventional light-cycled facility for at least 5 days prior to use. Animals had free access to food and water. 40 female NSG mice (8-week-old) were engrafted with MFM-223-GFP-Luc cells at 1.0×105 cells/per injection, after being suspended in 25% Matrigel. Ultra-Fine Insulin Syringes (31-gauge, BD Worldwide) were loaded with 100µl of cell suspension (1000 cells per ul) and inserted through the skin, subcutaneously, on the right hind flanks.

[0440] At day 3 post-engraftment (3DPE), mice were randomized into treatment groups and dosed intraperitoneally with isotype control or PHRHL-104 at 20mpk. RecombiMAb human IgG4 isotype control (clone S228P, BioXcell). Mice were dosed three times per week for a total 18 doses (Q3x18). Bioluminescence imaging was performed weekly throughout the study and after treatment withdrawal to assess tumor growth using an IVIS Spectrum in vivo imaging system (Perkin Elmer, Waltham, MA, USA). Mice were injected subcutaneously with 200ul of D-luciferin solution (3mg/mouse; Cayman Chemicals) and imaged 10-15min after D-luciferin injection. A total body standard region of interest (ROI) that encompassed the entire body, including both primary and distant metastatic tumors, was calculated using Living Image 4.3 software (Perkin Elmer). Bioluminescence, expressed as radiance, was quantified as p/s/cm2/sr

(FIG. 13 panels A-C). Kaplan-Meier survival curves of mice treated with PHRHL-104 or isotype control were constructed, demonstrating a P value of 0.0001 (FIG. 13 panel D). Other exemplary antibodies of the disclosure were also tested under these conditions and demonstrated equivalent effects.

[0441] While embodiments of the present invention have been shown and described herein, those skilled in the art will understand that such embodiments are provided by way of example only. Numerous variations, changes, and substitutions will now occur to those skilled in the art without departing from the invention. It should be understood that various alternatives to the embodiments of the invention described herein may be employed in practicing the invention. It is intended that the following claims define the scope of the invention and that methods and structures within the scope of these claims and their equivalents be covered thereby.

CLAIMS

1. A CD24-specific antibody comprising the complementarity determining regions (CDRs) as set forth in:
    a. SEQ ID NO: 149, SEQ ID NO: 155, SEQ ID NO: 151, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
    b. SEQ ID NO: 149, SEQ ID NO: 155, SEQ ID NO: 151, SEQ ID NO: 152, SEQ ID NO: 153, and SEQ ID NO: 154;
    c. SEQ ID NO: 149, SEQ ID NO: 150, SEQ ID NO: 151, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
    d. SEQ ID NO: 149, SEQ ID NO: 155, SEQ ID NO: 151, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
    e. SEQ ID NO: 149, SEQ ID NO: 158, SEQ ID NO: 151, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
    f. SEQ ID NO: 149, SEQ ID NO: 155, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
    g. SEQ ID NO: 149, SEQ ID NO: 158, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;
    h. SEQ ID NO: 149, SEQ ID NO: 160, SEQ ID NO: 159, SEQ ID NO: 161, SEQ ID NO: 162, and SEQ ID NO: 154;
    i. SEQ ID NO: 163, SEQ ID NO: 164, SEQ ID NO: 159, SEQ ID NO: 161, SEQ ID NO: 162, and SEQ ID NO: 154;
    j. SEQ ID NO: 149, SEQ ID NO: 165, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 166, and SEQ ID NO: 154;
    k. SEQ ID NO: 149, SEQ ID NO: 165, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

l. SEQ ID NO: 149, SEQ ID NO: 158, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 166, and SEQ ID NO: 154;

m. SEQ ID NO: 149, SEQ ID NO: 160, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

n. SEQ ID NO: 149, SEQ ID NO: 167, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

o. SEQ ID NO: 149, SEQ ID NO: 168, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

p. SEQ ID NO: 149, SEQ ID NO: 169, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

q. SEQ ID NO: 149, SEQ ID NO: 170, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

r. SEQ ID NO: 149, SEQ ID NO: 171, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

s. SEQ ID NO: 149, SEQ ID NO: 172, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

t. SEQ ID NO: 149, SEQ ID NO: 173, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

u. SEQ ID NO: 149, SEQ ID NO: 174, SEQ ID NO: 159, SEQ ID NO: 156, SEQ ID NO: 157, and SEQ ID NO: 154;

v. SEQ ID NO: 175, SEQ ID NO: 181, SEQ ID NO: 177, SEQ ID NO: 178, SEQ ID NO: 179, and SEQ ID NO: 180;

w. SEQ ID NO: 175, SEQ ID NO: 182, SEQ ID NO: 177, SEQ ID NO: 178, SEQ ID NO: 179, and SEQ ID NO: 180;

x. SEQ ID NO: 175, SEQ ID NO: 183, SEQ ID NO: 177, SEQ ID NO: 178, SEQ ID NO: 179, and SEQ ID NO: 180;

y. SEQ ID NO: 175, SEQ ID NO: 176, SEQ ID NO: 177, SEQ ID NO: 184, SEQ ID NO: 179, and SEQ ID NO: 180; or

z. SEQ ID NO: 175, SEQ ID NO: 181, SEQ ID NO: 177, SEQ ID NO: 185, SEQ ID NO: 179, and SEQ ID NO: 180,

wherein each sequence may include 1, 2, or 3 amino acid modifications thereto.

2. A CD24-specific humanized antibody comprising the complementarity determining regions (CDRs) as set forth in:

a. SEQ ID NO: 149, SEQ ID NO: 150, SEQ ID NO: 151, SEQ ID NO: 152, SEQ ID NO: 153, and SEQ ID NO: 154;

b. SEQ ID NO: 175, SEQ ID NO: 176, SEQ ID NO: 177, SEQ ID NO: 178, SEQ ID NO: 179, and SEQ ID NO: 180; or

c. SEQ ID NO: 149, SEQ ID NO: 150, SEQ ID NO: 186, SEQ ID NO: 187, SEQ ID NO: 153, and SEQ ID NO: 154,

wherein each sequence may include 1, 2, or 3 amino acid modifications thereto.

3. A CD24-specific antibody comprising complementarity determining regions (CDRs), wherein:

a. the CDRH1 sequence comprises: SYGX$_1$H (SEQ ID NO: 188), wherein X$_1$=V or M;

b. the CDRH2 sequence comprises VIX$_2$AX$_3$GSTX$_4$YX$_5$X$_6$X$_7$LX$_8$X$_9$ (SEQ ID NO: 189), wherein X$_2$=W, F or Y, X$_3$=G or R, X$_4$=N or Y, X$_5$= N, Q, K, R, T or A; X$_6$ = S, D, or P, X$_7$= A or S, X$_8$=M or K, and X$_9$= S, G, or is absent;

c. the CDRH3 sequence comprises YYGYX$_{10}$FFAY (SEQ ID NO: 190) wherein X$_{10}$= L or Q;

d. the CDRL1 sequence comprises X$_{11}$ASSSVSYX$_{12}$X$_{13}$ (SEQ ID NO: 191), wherein X$_{11}$= S or R, X$_{12}$ = M or L, and X$_{13}$= H or A;

e. the CDRL2 sequence comprises X$_{14}$TSX$_{15}$X$_{16}$X$_{17}$X$_{18}$ (SEQ ID NO: 192), wherein X$_{14}$ = D or E and X$_{15}$= K or N, X$_{16}$ = L or R, X$_{17}$ = A or P, and X$_{18}$= S or T; and

f. the CDRL3 sequence comprises SEQ ID NO: 154.

4. A CD24-specific antibody comprising complementarity determining regions (CDRs), wherein:

a. the CDRH1 sequence comprises: SEQ ID NO: 175;

b. the CDRH2 sequence comprises YIHYSGSTX$_1$YNPSLX$_2$S (SEQ ID NO: 193), wherein X$_1$=K or R, and X$_2$=N, S, or R;

c. the CDRH3 sequence comprises SEQ ID NO: 177;

d. the CDRL1 sequence comprises KSSQSLLYSX$_3$NQKNYLA (SEQ ID NO: 194), wherein X$_3$ = N, S, or R;

e. the CDRL2 sequence comprises SEQ ID NO: 179; and

f. the CDRL3 sequence comprises SEQ ID NO: 180.

5. A CD24-specific antibody comprising:

a. a variable heavy region (VH) comprising the amino acid sequence of SEQ ID NO: 79, or an amino acid sequence comprising at least 70% sequence identity thereto; and a variable light region (VL) comprising the amino acid sequence of SEQ ID NO: 80, or an amino acid sequence comprising at least 70% sequence identity thereto;

b. a VH comprising the amino acid sequence of SEQ ID NO: 82, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70% sequence identity thereto;

c. a VH comprising the amino acid sequence of SEQ ID NO: 82, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 84, or an amino acid sequence comprising at least 70% sequence identity thereto;

d. a VH comprising the amino acid sequence of SEQ ID NO: 82, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 85, or an amino acid sequence comprising at least 70% sequence identity thereto;

e. a VH comprising the amino acid sequence of SEQ ID NO: 86, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 84, or an amino acid sequence comprising at least 70% sequence identity thereto;

f. a VH comprising the amino acid sequence of SEQ ID NO: 87, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 85, or an amino acid sequence comprising at least 70% sequence identity thereto;

g. a VH comprising the amino acid sequence of SEQ ID NO: 86, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 85, or an amino acid sequence comprising at least 70% sequence identity thereto;

h. a VH comprising the amino acid sequence of SEQ ID NO: 87, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 84, or an amino acid sequence comprising at least 70% sequence identity thereto;

i. a VH comprising the amino acid sequence of SEQ ID NO: 86, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70% sequence identity thereto;

j. a VH comprising the amino acid sequence of SEQ ID NO: 87, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70% sequence identity thereto;

k. a VH comprising the amino acid sequence of SEQ ID NO: 88, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 89, or an amino acid sequence comprising at least 70% sequence identity thereto;

l. a VH comprising the amino acid sequence of SEQ ID NO: 90, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 91, or an amino acid sequence comprising at least 70% sequence identity thereto;

m. a VH comprising the amino acid sequence of SEQ ID NO: 92, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 89, or an amino acid sequence comprising at least 70% sequence identity thereto;

n. a VH comprising the amino acid sequence of SEQ ID NO: 82, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 93, or an amino acid sequence comprising at least 70% sequence identity thereto;

o. a VH comprising the amino acid sequence of SEQ ID NO: 94, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 93, or an amino acid sequence comprising at least 70% sequence identity thereto;

p. a VH comprising the amino acid sequence of SEQ ID NO: 94, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70% sequence identity thereto;

q. a VH comprising the amino acid sequence of SEQ ID NO: 95, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70% sequence identity thereto;

r. a VH comprising the amino acid sequence of SEQ ID NO: 96, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 83, or an amino acid sequence comprising at least 70% sequence identity thereto;

s. a VH comprising the amino acid sequence of SEQ ID NO: 96, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 93, or an amino acid sequence comprising at least 70% sequence identity thereto;

t. a VH comprising the amino acid sequence of SEQ ID NO: 97, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 98, or an amino acid sequence comprising at least 70% sequence identity thereto;

u. a VH comprising the amino acid sequence of SEQ ID NO: 99, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 98, or an amino acid sequence comprising at least 70% sequence identity thereto;

v. a VH comprising the amino acid sequence of SEQ ID NO: 95, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 93, or an amino acid sequence comprising at least 70% sequence identity thereto;

w. a VH comprising the amino acid sequence of SEQ ID NO: 81, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

x. a VH comprising the amino acid sequence of SEQ ID NO: 101, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

y. a VH comprising the amino acid sequence of SEQ ID NO: 81, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

z. a VH comprising the amino acid sequence of SEQ ID NO: 101, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

aa. a VH comprising the amino acid sequence of SEQ ID NO: 103, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 104, or an amino acid sequence comprising at least 70% sequence identity thereto;

bb. a VH comprising the amino acid sequence of SEQ ID NO: 103, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

cc. a VH comprising the amino acid sequence of SEQ ID NO: 81, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 104, or an amino acid sequence comprising at least 70% sequence identity thereto;

dd. a VH comprising the amino acid sequence of SEQ ID NO: 105, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

ee. a VH comprising the amino acid sequence of SEQ ID NO: 107, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

ff. a VH comprising the amino acid sequence of SEQ ID NO: 108, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

gg. a VH comprising the amino acid sequence of SEQ ID NO: 109, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

hh. a VH comprising the amino acid sequence of SEQ ID NO: 110, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

ii. a VH comprising the amino acid sequence of SEQ ID NO: 111, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

jj. a VH comprising the amino acid sequence of SEQ ID NO: 112, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

kk. a VH comprising the amino acid sequence of SEQ ID NO: 113, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

ll. a VH comprising the amino acid sequence of SEQ ID NO: 114, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 100, or an amino acid sequence comprising at least 70% sequence identity thereto;

mm. a VH comprising the amino acid sequence of SEQ ID NO: 105, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

nn. a VH comprising the amino acid sequence of SEQ ID NO: 107, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

oo. a VH comprising the amino acid sequence of SEQ ID NO: 108, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

pp. a VH comprising the amino acid sequence of SEQ ID NO: 109, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

qq. a VH comprising the amino acid sequence of SEQ ID NO: 110, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

rr. a VH comprising the amino acid sequence of SEQ ID NO: 111, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

ss. a VH comprising the amino acid sequence of SEQ ID NO: 112, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

tt. a VH comprising the amino acid sequence of SEQ ID NO: 113, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

uu. a VH comprising the amino acid sequence of SEQ ID NO: 114, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 102, or an amino acid sequence comprising at least 70% sequence identity thereto;

vv. a VH comprising the amino acid sequence of SEQ ID NO: 105, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 116, or an amino acid sequence comprising at least 70% sequence identity thereto;

ww. a VH comprising the amino acid sequence of SEQ ID NO: 117, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 118, or an amino acid sequence comprising at least 70% sequence identity thereto;

xx. a VH comprising the amino acid sequence of SEQ ID NO: 119, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 118, or an amino acid sequence comprising at least 70% sequence identity thereto;

yy. a VH comprising the amino acid sequence of SEQ ID NO: 120, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

zz. a VH comprising the amino acid sequence of SEQ ID NO: 122, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

aaa. a VH comprising the amino acid sequence of SEQ ID NO: 123, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

bbb. a VH comprising the amino acid sequence of SEQ ID NO: 124, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

ccc. a VH comprising the amino acid sequence of SEQ ID NO: 125, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

ddd. a VH comprising the amino acid sequence of SEQ ID NO: 126, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

eee. a VH comprising the amino acid sequence of SEQ ID NO: 127, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

fff. a VH comprising the amino acid sequence of SEQ ID NO: 128, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

ggg. a VH comprising the amino acid sequence of SEQ ID NO: 129, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

hhh. a VH comprising the amino acid sequence of SEQ ID NO: 119, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

iii. a VH comprising the amino acid sequence of SEQ ID NO: 130, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

jjj. a VH comprising the amino acid sequence of SEQ ID NO: 131, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

kkk. a VH comprising the amino acid sequence of SEQ ID NO: 147, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

lll. a VH comprising the amino acid sequence of SEQ ID NO: 117, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

mmm. a VH comprising the amino acid sequence of SEQ ID NO: 132, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

nnn. a VH comprising the amino acid sequence of SEQ ID NO: 117, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 133, or an amino acid sequence comprising at least 70% sequence identity thereto;

ooo. a VH comprising the amino acid sequence of SEQ ID NO: 119, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 133, or an amino acid sequence comprising at least 70% sequence identity thereto;

ppp. a VH comprising the amino acid sequence of SEQ ID NO: 117, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 134, or an amino acid sequence comprising at least 70% sequence identity thereto;

qqq. a VH comprising the amino acid sequence of SEQ ID NO: 119, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 134, or an amino acid sequence comprising at least 70% sequence identity thereto;

rrr. a VH comprising the amino acid sequence of SEQ ID NO: 135, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 136, or an amino acid sequence comprising at least 70% sequence identity thereto;

sss. a VH comprising the amino acid sequence of SEQ ID NO: 137, comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121 comprising at least 70% sequence identity thereto;

ttt. a VH comprising the amino acid sequence of SEQ ID NO: 138, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

uuu. a VH comprising the amino acid sequence of SEQ ID NO: 123, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 139, or an amino acid sequence comprising at least 70% sequence identity thereto;

vvv. a VH comprising the amino acid sequence of SEQ ID NO: 140, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

www. a VH comprising the amino acid sequence of SEQ ID NO: 141, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

xxx. a VH comprising the amino acid sequence of SEQ ID NO: 142, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

yyy. a VH comprising the amino acid sequence of SEQ ID NO: 143, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

zzz. a VH comprising the amino acid sequence of SEQ ID NO: 144, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

aaaa. a VH comprising the amino acid sequence of SEQ ID NO: 145, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

bbbb. a VH comprising the amino acid sequence of SEQ ID NO: 146, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 121, or an amino acid sequence comprising at least 70% sequence identity thereto;

cccc. a VH comprising the amino acid sequence of SEQ ID NO: 148, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 106, or an amino acid sequence comprising at least 70% sequence identity thereto;

dddd. a VH comprising the amino acid sequence of SEQ ID NO: 115, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 77, or an amino acid sequence comprising at least 70% sequence identity thereto;

eeee. a VH comprising the amino acid sequence of SEQ ID NO: 115, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 78, or an amino acid sequence comprising at least 70% sequence identity thereto;

ffff. a VH comprising the amino acid sequence of SEQ ID NO: 79, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 77, or an amino acid sequence comprising at least 70% sequence identity thereto; or

gggg. a VH comprising the amino acid sequence of SEQ ID NO: 79, or an amino acid sequence comprising at least 70% sequence identity thereto; and a VL comprising the amino acid sequence of SEQ ID NO: 78, or an amino acid sequence comprising at least 70% sequence identity thereto.

6. The CD24-specific antibody of claim 5, comprising:

a. a heavy chain (HC) comprising the amino acid sequence of SEQ ID NO: 1, or an amino acid sequence comprising at least 70% sequence identity thereto; and a light chain (LC) comprising the amino acid sequence of SEQ ID NO: 2, or an amino acid sequence comprising at least 70% sequence identity thereto;

b. an HC comprising the amino acid sequence of SEQ ID NO: 3, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 31, or an amino acid sequence comprising at least 70% sequence identity thereto;

c. an HC comprising the amino acid sequence of SEQ ID NO: 4, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70% sequence identity thereto;

d. an HC comprising the amino acid sequence of SEQ ID NO: 4, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 6, or an amino acid sequence comprising at least 70% sequence identity thereto;

e. an HC comprising the amino acid sequence of SEQ ID NO: 4, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 7, or an amino acid sequence comprising at least 70% sequence identity thereto;

f. an HC comprising the amino acid sequence of SEQ ID NO: 8, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 6, or an amino acid sequence comprising at least 70% sequence identity thereto;

g. an HC comprising the amino acid sequence of SEQ ID NO: 9, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 7, or an amino acid sequence comprising at least 70% sequence identity thereto;

h. an HC comprising the amino acid sequence of SEQ ID NO: 8, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 7, or an amino acid sequence comprising at least 70% sequence identity thereto;

i. an HC comprising the amino acid sequence of SEQ ID NO: 9, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 6, or an amino acid sequence comprising at least 70% sequence identity thereto;

j. an HC comprising the amino acid sequence of SEQ ID NO: 8, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70% sequence identity thereto;

k. an HC comprising the amino acid sequence of SEQ ID NO: 9, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70% sequence identity thereto;

l. an HC comprising the amino acid sequence of SEQ ID NO: 10, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 11, or an amino acid sequence comprising at least 70% sequence identity thereto;

m. an HC comprising the amino acid sequence of SEQ ID NO: 12, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 13, or an amino acid sequence comprising at least 70% sequence identity thereto;

n. an HC comprising the amino acid sequence of SEQ ID NO: 14, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 11, or an amino acid sequence comprising at least 70% sequence identity thereto;

o. an HC comprising the amino acid sequence of SEQ ID NO: 4, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 15, or an amino acid sequence comprising at least 70% sequence identity thereto;

p. an HC comprising the amino acid sequence of SEQ ID NO: 16, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 15, or an amino acid sequence comprising at least 70% sequence identity thereto;

q. an HC comprising the amino acid sequence of SEQ ID NO: 16, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70% sequence identity thereto;

r. an HC comprising the amino acid sequence of SEQ ID NO: 17, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70% sequence identity thereto;

s. an HC comprising the amino acid sequence of SEQ ID NO: 18, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 5, or an amino acid sequence comprising at least 70% sequence identity thereto;

t. an HC comprising the amino acid sequence of SEQ ID NO: 18, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 15, or an amino acid sequence comprising at least 70% sequence identity thereto;

u. an HC comprising the amino acid sequence of SEQ ID NO: 19, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 20, or an amino acid sequence comprising at least 70% sequence identity thereto;

v. an HC comprising the amino acid sequence of SEQ ID NO: 21, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 20, or an amino acid sequence comprising at least 70% sequence identity thereto;

w. an HC comprising the amino acid sequence of SEQ ID NO: 17, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 15, or an amino acid sequence comprising at least 70% sequence identity thereto;

x. an HC comprising the amino acid sequence of SEQ ID NO: 25, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

y. an HC comprising the amino acid sequence of SEQ ID NO: 27, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

z. an HC comprising the amino acid sequence of SEQ ID NO: 25, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

aa. an HC comprising the amino acid sequence of SEQ ID NO: 27, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

bb. an HC comprising the amino acid sequence of SEQ ID NO: 29, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 30, or an amino acid sequence comprising at least 70% sequence identity thereto;

cc. an HC comprising the amino acid sequence of SEQ ID NO: 29, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

dd. an HC comprising the amino acid sequence of SEQ ID NO: 25, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 30, or an amino acid sequence comprising at least 70% sequence identity thereto;

ee. an HC comprising the amino acid sequence of SEQ ID NO: 32, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

ff. an HC comprising the amino acid sequence of SEQ ID NO: 33, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

gg. an HC comprising the amino acid sequence of SEQ ID NO: 34, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

hh. an HC comprising the amino acid sequence of SEQ ID NO: 35, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

ii. an HC comprising the amino acid sequence of SEQ ID NO: 36, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

jj. an HC comprising the amino acid sequence of SEQ ID NO: 37, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

kk. an HC comprising the amino acid sequence of SEQ ID NO: 38, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

ll. an HC comprising the amino acid sequence of SEQ ID NO: 39, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

mm. an HC comprising the amino acid sequence of SEQ ID NO: 40, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 26, or an amino acid sequence comprising at least 70% sequence identity thereto;

nn. an HC comprising the amino acid sequence of SEQ ID NO: 32, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

oo. an HC comprising the amino acid sequence of SEQ ID NO: 33, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

pp. an HC comprising the amino acid sequence of SEQ ID NO: 34, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

qq. an HC comprising the amino acid sequence of SEQ ID NO: 35, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

rr. an HC comprising the amino acid sequence of SEQ ID NO: 36, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

ss. an HC comprising the amino acid sequence of SEQ ID NO: 37, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

tt. an HC comprising the amino acid sequence of SEQ ID NO: 38, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

uu. an HC comprising the amino acid sequence of SEQ ID NO: 39, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

vv. an HC comprising the amino acid sequence of SEQ ID NO: 40, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 28, or an amino acid sequence comprising at least 70% sequence identity thereto;

ww. an HC comprising the amino acid sequence of SEQ ID NO: 32, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 41, or an amino acid sequence comprising at least 70% sequence identity thereto;

xx. an HC comprising the amino acid sequence of SEQ ID NO: 42, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 43, or an amino acid sequence comprising at least 70% sequence identity thereto;

yy. an HC comprising the amino acid sequence of SEQ ID NO: 44, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 43, or an amino acid sequence comprising at least 70% sequence identity thereto;

zz. an HC comprising the amino acid sequence of SEQ ID NO: 45, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

aaa. an HC comprising the amino acid sequence of SEQ ID NO: 47, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

bbb. an HC comprising the amino acid sequence of SEQ ID NO: 48, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

ccc. an HC comprising the amino acid sequence of SEQ ID NO: 49, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

ddd. an HC comprising the amino acid sequence of SEQ ID NO: 50, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

eee. an HC comprising the amino acid sequence of SEQ ID NO: 51, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

fff. an HC comprising the amino acid sequence of SEQ ID NO: 52, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

ggg. an HC comprising the amino acid sequence of SEQ ID NO: 53, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

hhh. an HC comprising the amino acid sequence of SEQ ID NO: 54, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

iii. an HC comprising the amino acid sequence of SEQ ID NO: 44, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

jjj. an HC comprising the amino acid sequence of SEQ ID NO: 55, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

kkk. an HC comprising the amino acid sequence of SEQ ID NO: 56, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

lll. an HC comprising the amino acid sequence of SEQ ID NO: 57, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

mmm. an HC comprising the amino acid sequence of SEQ ID NO: 42, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

nnn. an HC comprising the amino acid sequence of SEQ ID NO: 58, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

ooo. an HC comprising the amino acid sequence of SEQ ID NO: 42, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 59, or an amino acid sequence comprising at least 70% sequence identity thereto;

ppp. an HC comprising the amino acid sequence of SEQ ID NO: 44, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 59, or an amino acid sequence comprising at least 70% sequence identity thereto;

qqq. an HC comprising the amino acid sequence of SEQ ID NO: 42, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 60, or an amino acid sequence comprising at least 70% sequence identity thereto;

rrr. an HC comprising the amino acid sequence of SEQ ID NO: 44, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 60, or an amino acid sequence comprising at least 70% sequence identity thereto;

sss. an HC comprising the amino acid sequence of SEQ ID NO: 61, comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 62, comprising at least 70% sequence identity thereto;

ttt. an HC comprising the amino acid sequence of SEQ ID NO: 63, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

uuu. an HC comprising the amino acid sequence of SEQ ID NO: 64, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

vvv. an HC comprising the amino acid sequence of SEQ ID NO: 48, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 65, or an amino acid sequence comprising at least 70% sequence identity thereto;

www. an HC comprising the amino acid sequence of SEQ ID NO: 66, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

xxx. an HC comprising the amino acid sequence of SEQ ID NO: 67, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

yyy. an HC comprising the amino acid sequence of SEQ ID NO: 68, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

zzz. an HC comprising the amino acid sequence of SEQ ID NO: 69, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

aaaa. an HC comprising the amino acid sequence of SEQ ID NO: 70, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

bbbb. an HC comprising the amino acid sequence of SEQ ID NO: 71, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

cccc. an HC comprising the amino acid sequence of SEQ ID NO: 72, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 46, or an amino acid sequence comprising at least 70% sequence identity thereto;

dddd. an HC comprising the amino acid sequence of SEQ ID NO: 73, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 74, or an amino acid sequence comprising at least 70% sequence identity thereto;

eeee. an HC comprising the amino acid sequence of SEQ ID NO: 75, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 22, or an amino acid sequence comprising at least 70% sequence identity thereto;

ffff. an HC comprising the amino acid sequence of SEQ ID NO: 75, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 23, or an amino acid sequence comprising at least 70% sequence identity thereto;

gggg. an HC comprising the amino acid sequence of SEQ ID NO: 24, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 22, or an amino acid sequence comprising at least 70% sequence identity thereto; or

hhhh. an HC comprising the amino acid sequence of SEQ ID NO: 24, or an amino acid sequence comprising at least 70% sequence identity thereto; and an LC comprising the amino acid sequence of SEQ ID NO: 23, or an amino acid sequence comprising at least 70% sequence identity thereto.

7. The antibody of any one of claims 1 and 3-6, wherein the antibody is humanized.

8. The antibody of any one of claims 1-7, wherein the antibody is a full length antibody.

9. The antibody of any one of claims 1-7, wherein the antibody is an antigen-binding antibody fragment.

10. The antibody of any one of claims 1-8, wherein the antibody comprises a Fc domain, and the Fc domain is selected from the group consisting of a human IgG1, IgG2, IgG3, and IgG4 heavy chain sequence.

11. The antibody of any one of claims 1-10, wherein the binding of the antibody does not disrupt the interaction between CD24 and Siglec-10.

12. The antibody of any one of claims 1-10, wherein the binding of the antibody disrupts the interaction between CD24 and Siglec-10.

13. The antibody of any one of claims 1-12, wherein, the antibody binds human CD24 and cynomolgus monkey CD24.

14. The antibody comprising of anyone of claims 1-13, wherein the antibody comprises a binding affinity to CD24 lower than about 500 nM.

15. The antibody comprising of anyone of claims 1-14, wherein the antibody binds to all CD24 glycoforms.

16. The antibody comprising of anyone of claims 1-14, wherein the antibody binds to different CD24 glycoforms with varying affinities.

17. The antibody comprising of anyone of claims 1-14, wherein the antibody binds to non-glycosylated CD24.

18. The antibody comprising of anyone of claims 1-14, wherein the antibody binds to glycosylated CD24 in the recombinant form.

19. The antibody comprising of anyone of claims 1-14, wherein the antibody binds to glycosylated CD24 on the surface of the cell.

20. The antibody comprising of anyone of claims 1-14, wherein the antibody is a non-binder of certain CD24 glycoforms.

21. The antibody comprising of anyone of claims 1-20, wherein the antibody induces or enhances phagocytosis in a glycosylation dependent manner.

22. The antibody comprising of anyone of claims 1-20, wherein the antibody induces or enhances phagocytosis in a glycosylation independent manner.

23. A pharmaceutical composition comprising the antibody of any one of claims 1-22, and optionally a pharmaceutically acceptable carrier.

24. A nucleic acid encoding for the antibody of any one of claims 1-22.

25. A vector comprising the nucleic acid of claim 24.

26. A method of treating a disease or condition in a subject in need thereof, comprising administering to the subject a therapeutically effective amount of the antibody of any one of claims 1-22 or the pharmaceutical composition of claim 23.

27. The method of claim 26, wherein the disease or condition comprises cancer.

28. The method of claim 27, wherein the cancer comprises a solid cancer.

29. The method of claim 28, wherein the solid cancer is a carcinoma or a sarcoma.

30. The method of claim 29, wherein the carcinoma is selected from the group consisting of bladder, breast, colon, kidney, liver, lung, ovary, pancreas, stomach, cervix, thyroid and skin.

31. The method of claim 29, wherein the sarcoma is fibrosarcoma or rhabdomyosarcoma.

32. The method of claim 27, wherein the cancer comprises a hematological cancer.

33. The method of claim 32, wherein the hematological cancer is selected from the group consisting of acute lymphocytic leukemia, acute lymphoblastic leukemia, B-cell lymphoma, T-cell lymphoma, Burkett's lymphoma; acute myelogenous leukemia, chronic myelogenous leukemia, and promyelocytic leukemia.

34. The method of claim 27, wherein the cancer is selected from the group consisting of melanoma, neuroblastoma, glioma, tumors of the central nervous system, and tumors of the peripheral nervous system.

35. The method of any one of claims 26-34, wherein the route of administration is intravenous or subcutaneous administration.

36. The method of any one of claims 26-35, wherein the subject is human.

37. Use of the CD24-specific antibody of any one of claims 1-22 or the pharmaceutical composition of claim 23 in the manufacture of a medicament for treating a disease or condition in a subject in need thereof, wherein the subject is administered a therapeutically effective amount of the antibody or pharmaceutical composition.

38. The CD24-specific antibody of any one of claims 1-22 or the pharmaceutical composition of claim 23 for use in treating a disease or condition in a subject in need thereof, wherein the subject is administered a therapeutically effective amount of the antibody or pharmaceutical composition.

39. A method of treating a disease or disorder in a human subject in need thereof, comprising administering to the subject a therapeutically effective amount of an antibody, wherein the antibody comprises a means for binding CD24.