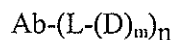


CLAIMS

What is claimed is:

1. An antibody drug conjugate of the formula



or a pharmaceutically acceptable salt thereof; wherein

Ab is an antibody or antigen binding fragment thereof that specifically binds to an epitope of human CDH6;

L is a linker;

D is a drug moiety;

m is an integer from 1 to 8; and

n is an integer from 1 to 10.

2. The antibody drug conjugate of claim 1, wherein said n is 3 or 4.

3. The antibody drug conjugate of claim 1 or 2, wherein said antibody or antigen binding fragment thereof specifically binds the extracellular domain of CDH6, comprising the amino acid sequence of SEQ ID NO:4.

4. The antibody drug conjugate of claim 1 or 2, wherein said antibody or antigen binding fragment specifically binds to an epitope of human CDH6 comprising the amino acid sequence of SEQ ID NO:534.

5. The antibody drug conjugate of any of claims 1-4, wherein said antibody or antigen binding fragment thereof comprises:

(i) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:224, (b) a LCDR2 of SEQ ID NO:225, (c) a LCDR3 of SEQ ID NO:226; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO: 227, (e) a HCDR2 of SEQ ID NO: 228, and (f) a HCDR3 of SEQ ID NO:229;

(ii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:210, (b) a LCDR2 of SEQ ID NO:211, (c) a LCDR3 of SEQ ID NO:212; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:213, (e) a HCDR2 of SEQ ID NO: 214, and (f) a HCDR3 of SEQ ID NO:215;

(iii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:266, (b) a LCDR2 of SEQ ID NO:267, (c) a LCDR3 of SEQ ID NO:268; and

a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO: 269, (e) a HCDR2 of SEQ ID NO:270, and (f) a HCDR3 of SEQ ID NO: 271;

(iv) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:308, (b) a LCDR2 of SEQ ID NO:309, (c) a LCDR3 of SEQ ID NO:310; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:311, (e) a HCDR2 of SEQ ID NO:312, and (f) a HCDR3 of SEQ ID NO:313;

(v) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:14, (b) a LCDR2 of SEQ ID NO:15, (c) a LCDR3 of SEQ ID NO:16; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:17, (e) a HCDR2 of SEQ ID NO:18, and (f) a HCDR3 of SEQ ID NO:19;

(vi) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:28, (b) a LCDR2 of SEQ ID NO:29, (c) a LCDR3 of SEQ ID NO:30; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:31, (e) a HCDR2 of SEQ ID NO:32, and (f) a HCDR3 of SEQ ID NO:33;

(vii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:42, (b) a LCDR2 of SEQ ID NO:43, (c) a LCDR3 of SEQ ID NO:44; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:45, (e) a HCDR2 of SEQ ID NO:46, and (f) a HCDR3 of SEQ ID NO:47;

(viii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:56, (b) a LCDR2 of SEQ ID NO:57, (c) a LCDR3 of SEQ ID NO:58; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:59, (e) a HCDR2 of SEQ ID NO:60, and (f) a HCDR3 of SEQ ID NO:61;

(ix) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:70, (b) a LCDR2 of SEQ ID NO:71, (c) a LCDR3 of SEQ ID NO:72; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:73, (e) a HCDR2 of SEQ ID NO:74, and (f) a HCDR3 of SEQ ID NO:75;

(x) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:84, (b) a LCDR2 of SEQ ID NO:85, (c) a LCDR3 of SEQ ID NO:86; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:87, (e) a HCDR2 of SEQ ID NO: 88, and (f) a HCDR3 of SEQ ID NO: 89;

(xi) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:98, (b) a LCDR2 of SEQ ID NO:99, (c) a LCDR3 of SEQ ID NO:100; and a

heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:101, (e) a HCDR2 of SEQ ID NO:102, and (f) a HCDR3 of SEQ ID NO:103;

(xii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:112, (b) a LCDR2 of SEQ ID NO:113, (c) a LCDR3 of SEQ ID NO:114; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:115, (e) a HCDR2 of SEQ ID NO:116, and (f) a HCDR3 of SEQ ID NO:117;

(xiii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:126, (b) a LCDR2 of SEQ ID NO:127, (c) a LCDR3 of SEQ ID NO:128; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:129, (e) a HCDR2 of SEQ ID NO:130, and (f) a HCDR3 of SEQ ID NO:131;

(xiv) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:140, (b) a LCDR2 of SEQ ID NO:141, (c) a LCDR3 of SEQ ID NO:142; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:143, (e) a HCDR2 of SEQ ID NO:144, and (f) a HCDR3 of SEQ ID NO:145;

(xv) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:154, (b) a LCDR2 of SEQ ID NO:155, (c) a LCDR3 of SEQ ID NO:156; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:157, (e) a HCDR2 of SEQ ID NO:158, and (f) a HCDR3 of SEQ ID NO:159;

(xvi) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:168, (b) a LCDR2 of SEQ ID NO:169, (c) a LCDR3 of SEQ ID NO:170; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:171, (e) a HCDR2 of SEQ ID NO:172, and (f) a HCDR3 of SEQ ID NO:173;

(xvii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:182, (b) a LCDR2 of SEQ ID NO:183, (c) a LCDR3 of SEQ ID NO:184; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:185, (e) a HCDR2 of SEQ ID NO:186, and (f) a HCDR3 of SEQ ID NO:187;

(xviii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:196, (b) a LCDR2 of SEQ ID NO:197, (c) a LCDR3 of SEQ ID NO:198; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:199, (e) a HCDR2 of SEQ ID NO:200, and (f) a HCDR3 of SEQ ID NO:201;

(xix) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:238, (b) a LCDR2 of SEQ ID NO:239, (c) a LCDR3 of SEQ ID NO:240; and

a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:241, (e) a HCDR2 of SEQ ID NO:242, and (f) a HCDR3 of SEQ ID NO:243;

(xx) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:252, (b) a LCDR2 of SEQ ID NO:253, (c) a LCDR3 of SEQ ID NO:254; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:255, (e) a HCDR2 of SEQ ID NO:256, and (f) a HCDR3 of SEQ ID NO:257;

(xxi) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:280, (b) a LCDR2 of SEQ ID NO:281, (c) a LCDR3 of SEQ ID NO:282; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:283, (e) a HCDR2 of SEQ ID NO:284, and (f) a HCDR3 of SEQ ID NO:285;

(xxii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:294, (b) a LCDR2 of SEQ ID NO:295, (c) a LCDR3 of SEQ ID NO:296; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:297, (e) a HCDR2 of SEQ ID NO:298, and (f) a HCDR3 of SEQ ID NO:299; or

(xxiii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:322, (b) a LCDR2 of SEQ ID NO:323, (c) a LCDR3 of SEQ ID NO:324; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:325, (e) a HCDR2 of SEQ ID NO:326, and (f) a HCDR3 of SEQ ID NO:327.

6. The antibody drug conjugate of any of the preceding claims in which at least one amino acid within a CDR is substituted by a corresponding residue of a corresponding CDR of another anti-CDH6 antibody in Table 5 or 6.

7. The antibody drug conjugate of any of the preceding claims in which one or two amino acids within a CDR have been modified, deleted or substituted.

8. The antibody drug conjugate of any of claims 1-4, wherein said antibody or antigen binding fragment thereof comprises:

(i) a heavy chain variable region (vH) that comprises SEQ ID NO: 230, and a light chain variable region (vL) that comprises SEQ ID NO:231;

(ii) a heavy chain variable region (vH) that comprises SEQ ID NO: 216, and a light chain variable region (vL) that comprises SEQ ID NO:217;

(iii) a heavy chain variable region (vH) that comprises SEQ ID NO: 272, and a light chain variable region (vL) that comprises SEQ ID NO:273;

- (iv) a heavy chain variable region (vH) that comprises SEQ ID NO:314, and a light chain variable region (vL) that comprises SEQ ID NO:315;
- (v) a heavy chain variable region (vH) that comprises SEQ ID NO:20, and a light chain variable region (vL) that comprises SEQ ID NO:21;
- (vi) a heavy chain variable region (vH) that comprises SEQ ID NO: 34, and a light chain variable region (vL) that comprises SEQ ID NO:35;
- (vii) a heavy chain variable region (vH) that comprises SEQ ID NO:48, and a light chain variable region (vL) that comprises SEQ ID NO:49;
- (viii) a heavy chain variable region (vH) that comprises SEQ ID NO:62, and a light chain variable region (vL) that comprises SEQ ID NO:63;
- (ix) a heavy chain variable region (vH) that comprises SEQ ID NO:76, and a light chain variable region (vL) that comprises SEQ ID NO:77;
- (x) a heavy chain variable region (vH) that comprises SEQ ID NO:90, and a light chain variable region (vL) that comprises SEQ ID NO:91;
- (xi) a heavy chain variable region (vH) that comprises SEQ ID NO:104, and a light chain variable region (vL) that comprises SEQ ID NO:105;
- (xii) a heavy chain variable region (vH) that comprises SEQ ID NO: 118, and a light chain variable region (vL) that comprises SEQ ID NO:119;
- (xiii) a heavy chain variable region (vH) that comprises SEQ ID NO: 132, and a light chain variable region (vL) that comprises SEQ ID NO:133;
- (xiv) a heavy chain variable region (vH) that comprises SEQ ID NO: 146, and a light chain variable region (vL) that comprises SEQ ID NO:147;
- (xv) a heavy chain variable region (vH) that comprises SEQ ID NO:160, and a light chain variable region (vL) that comprises SEQ ID NO:161;
- (xvi) a heavy chain variable region (vH) that comprises SEQ ID NO: 174, and a light chain variable region (vL) that comprises SEQ ID NO:175;
- (xvii) a heavy chain variable region (vH) that comprises SEQ ID NO: 188, and a light chain variable region (vL) that comprises SEQ ID NO:189;

(xviii) a heavy chain variable region (vH) that comprises SEQ ID NO: 202, and a light chain variable region (vL) that comprises SEQ ID NO:203;

(xix) a heavy chain variable region (vH) that comprises SEQ ID NO: 244, and a light chain variable region (vL) that comprises SEQ ID NO:245;

(xx) a heavy chain variable region (vH) that comprises SEQ ID NO:258, and a light chain variable region (vL) that comprises SEQ ID NO:259;

(xxi) a heavy chain variable region (vH) that comprises SEQ ID NO:286, and a light chain variable region (vL) that comprises SEQ ID NO:287;

(xxii) a heavy chain variable region (vH) that comprises SEQ ID NO:300, and a light chain variable region (vL) that comprises SEQ ID NO:301; or

(xxiii) a heavy chain variable region (vH) that comprises SEQ ID NO:328, and a light chain variable region (vL) that comprises SEQ ID NO:329.

9. The antibody drug conjugate of any of claims 1-4, wherein said antibody or antigen binding fragment thereof comprises:

(i) a heavy chain that comprises SEQ ID NO: 234, and a light chain that comprises SEQ ID NO:235;

(ii) a heavy chain that comprises SEQ ID NO: 220, and a light chain that comprises SEQ ID NO:221

(iii) a heavy chain that comprises SEQ ID NO: 276, and a light chain that comprises SEQ ID NO:277;

(iv) a heavy chain that comprises SEQ ID NO:318, and a light chain that comprises SEQ ID NO:319;

(v) a heavy chain that comprises SEQ ID NO:24, and a light chain that comprises SEQ ID NO:25;

(vi) a heavy chain that comprises SEQ ID NO: 38, and a light chain that comprises SEQ ID NO:39;

(vii) a heavy chain that comprises SEQ ID NO:52, and a light chain that comprises SEQ ID NO:53;

(viii) a heavy chain that comprises SEQ ID NO:66, and a light chain that comprises SEQ ID NO:67;

(ix) a heavy chain that comprises SEQ ID NO:80, and a light chain that comprises SEQ ID NO:81;

(x) a heavy chain that comprises SEQ ID NO:94, and a light chain that comprises SEQ ID NO:95;

(xi) a heavy chain that comprises SEQ ID NO:108, and a light chain that comprises SEQ ID NO:109;

(xii) a heavy chain that comprises SEQ ID NO: 122, and a light chain that comprises SEQ ID NO:123;

(xiii) a heavy chain that comprises SEQ ID NO: 136, and a light chain that comprises SEQ ID NO:137;

(xiv) a heavy chain that comprises SEQ ID NO: 150, and a light chain that comprises SEQ ID NO:151;

(xv) a heavy chain that comprises SEQ ID NO:164, and a light chain that comprises SEQ ID NO:165;

(xvi) a heavy chain that comprises SEQ ID NO: 178, and a light chain that comprises SEQ ID NO:179;

(xvii) a heavy chain that comprises SEQ ID NO: 192, and a light chain that comprises SEQ ID NO:193;

(xviii) a heavy chain that comprises SEQ ID NO: 206, and a light chain that comprises SEQ ID NO:207;

(xix) a heavy chain that comprises SEQ ID NO: 248, and a light chain that comprises SEQ ID NO:249;

(xx) a heavy chain that comprises SEQ ID NO:262, and a light chain that comprises SEQ ID NO:263;

(xxi) a heavy chain that comprises SEQ ID NO:290, and a light chain that comprises SEQ ID NO:291;

(xxii) a heavy chain that comprises SEQ ID NO:304, and a light chain that comprises SEQ ID NO:305; or

(xxiii) a heavy chain that comprises SEQ ID NO:332, and a light chain that comprises SEQ ID NO:333.

10. The antibody drug conjugate of any of the preceding claims that retains at least 90, 91, 92, 93, 94, 95, 96, 97, 98 or 99% identity over either the variable light or variable heavy region.

11. The antibody drug conjugate of any of the preceding claims wherein the antibody is a monoclonal antibody, a chimeric antibody, a humanized antibody, a human engineered antibody, a human antibody, a single chain antibody(scFv) or an antibody fragment.

12. The antibody drug conjugate of any one of claims 1-11, wherein said linker (L) is selected from the group consisting of a cleavable linker, a non-cleavable linker, a hydrophilic linker, a procharged linker and a dicarboxylic acid based linker.

13. The antibody drug conjugate of claim 12, wherein the linker is derived from a cross-linking reagent selected from the group consisting of: N-succinimidyl-4-(2-pyridyldithio)2-sulfo-butanoate (sulfo-SPDB), N-succinimidyl-3-(2-pyridyldithio)propionate (SPDP), N-succinimidyl 4-(2-pyridyldithio)pentanoate (SPP), N-succinimidyl 4-(2-pyridyldithio)butanoate (SPDB), N-succinimidyl iodoacetate (SIA), N-succinimidyl(4-iodoacetyl)aminobenzoate (SIAB), maleimide PEG NHS, N-succinimidyl 4-(maleimidomethyl) cyclohexanecarboxylate (SMCC), N-sulfosuccinimidyl 4-(maleimidomethyl) cyclohexanecarboxylate (sulfo-SMCC) or 2,5-dioxopyrrolidin-1-yl 17-(2,5-dioxo-2,5-dihydro-1H-pyrrol-1-yl)-5,8,11,14-tetraoxo-4,7,10,13-tetraazaheptadecan-1-oate (CX1-1).

14. The antibody drug conjugate of claim 13, wherein said linker is derived from N-succinimidyl-4-(2-pyridyldithio)2-sulfo-butanoate (sulfo-SPDB).

15. The antibody drug conjugate of any one of claims 1-14, wherein said drug moiety (D) is selected from a group consisting of: a maytansinoid, a V-ATPase inhibitor, a pro-apoptotic agent, a Bcl2 inhibitor, an MCL1 inhibitor, a HSP90 inhibitor, an IAP inhibitor, an mTor inhibitor, a microtubule stabilizer, a microtubule destabilizer, an auristatin, a dolastatin, a MetAP (methionine aminopeptidase), an inhibitor of nuclear export of proteins CRM1, a DPPIV inhibitor, proteasome inhibitors, inhibitors of phosphoryl transfer reactions in mitochondria, a protein synthesis inhibitor, a kinase inhibitor, a CDK2 inhibitor, a CDK9 inhibitor, a kinesin inhibitor, an HDAC inhibitor, a DNA damaging agent, a DNA alkylating agent, a DNA intercalator, a DNA minor groove binder and a DHFR inhibitor.

16. The antibody drug conjugate of claim 15, wherein the drug moiety is a maytansinoid.

17. The antibody drug conjugate of claim 16, wherein the maytansinoid is N(2')-deacetyl-N2-(4-mercapto-4-methyl-1-oxopentyl)-maytansine (DM4) or N(2')-deacetyl-N(2')-(3-mercapto-1-oxopropyl)-maytansine (DM1).

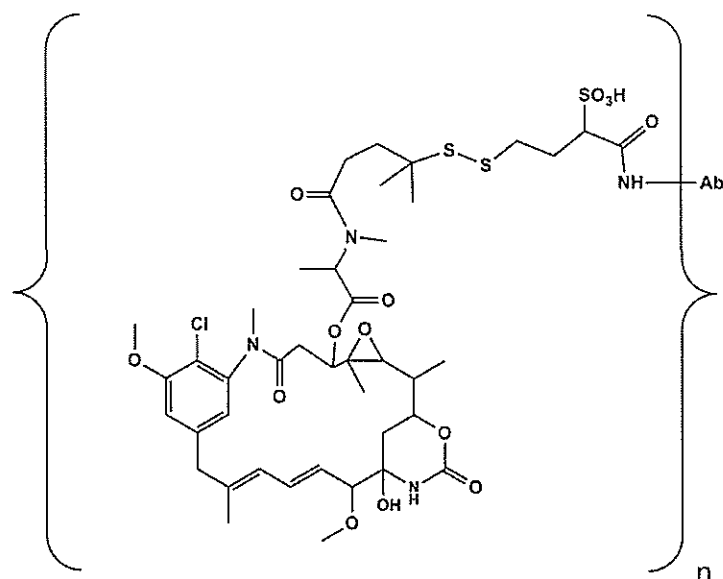
18. The antibody drug conjugate of any of the preceding claims in combination with another therapeutic agent.

19. The antibody drug conjugate of any of the preceding claims in combination with a therapeutic agent listed in Table 18.

20. The antibody drug conjugate of any of the preceding claims in combination with a BCL2 inhibitor, a BCL-XL inhibitor, a BCL2/BCL-XL inhibitor, an IAP inhibitor or a MEK inhibitor.

21. The antibody drug conjugate of any of the preceding claims in combination with an immune modulatory molecule.

22. An antibody drug conjugate of the formula:



Ab-sulfo-SPDB-DM4

or a pharmaceutically acceptable salt thereof; wherein;

Ab is an antibody or antigen binding fragment thereof that specifically binds to human CDH6, and n is an integer from 1 to 10.

23. The antibody drug conjugate of claim 22, wherein said antibody or antigen binding fragment specifically binds to an epitope of human CDH6 at (SEQ ID NO:4).

24. The antibody drug conjugate of claim 22, wherein said antibody or antigen binding fragment thereof specifically binds human CDH6 at (SEQ ID NO:534).

25. The antibody drug conjugate of claim 22, wherein said Ab is an antibody or antigen binding fragment thereof comprises:

(i) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:224, (b) a LCDR2 of SEQ ID NO:225, (c) a LCDR3 of SEQ ID NO:226; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO: 227, (e) a HCDR2 of SEQ ID NO: 228, and (f) a HCDR3 of SEQ ID NO:229;

(ii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:210, (b) a LCDR2 of SEQ ID NO:211, (c) a LCDR3 of SEQ ID NO:212; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:213, (e) a HCDR2 of SEQ ID NO: 214, and (f) a HCDR3 of SEQ ID NO:215;

(iii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:266, (b) a LCDR2 of SEQ ID NO:267, (c) a LCDR3 of SEQ ID NO:268; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO: 269, (e) a HCDR2 of SEQ ID NO:270, and (f) a HCDR3 of SEQ ID NO: 271;

(iv) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:308, (b) a LCDR2 of SEQ ID NO:309, (c) a LCDR3 of SEQ ID NO:310; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:311, (e) a HCDR2 of SEQ ID NO:312, and (f) a HCDR3 of SEQ ID NO:313;

(v) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:14, (b) a LCDR2 of SEQ ID NO:15, (c) a LCDR3 of SEQ ID NO:16; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:17, (e) a HCDR2 of SEQ ID NO:18, and (f) a HCDR3 of SEQ ID NO:19;

(vi) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:28, (b) a LCDR2 of SEQ ID NO:29, (c) a LCDR3 of SEQ ID NO:30; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:31, (e) a HCDR2 of SEQ ID NO:32, and (f) a HCDR3 of SEQ ID NO:33;

(vii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:42, (b) a LCDR2 of SEQ ID NO:43, (c) a LCDR3 of SEQ ID NO:44; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:45, (e) a HCDR2 of SEQ ID NO:46, and (f) a HCDR3 of SEQ ID NO:47;

(viii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:56, (b) a LCDR2 of SEQ ID NO:57, (c) a LCDR3 of SEQ ID NO:58; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:59, (e) a HCDR2 of SEQ ID NO:60, and (f) a HCDR3 of SEQ ID NO:61;

(ix) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:70, (b) a LCDR2 of SEQ ID NO:71, (c) a LCDR3 of SEQ ID NO:72; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:73, (e) a HCDR2 of SEQ ID NO:74, and (f) a HCDR3 of SEQ ID NO:75;

(x) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:84, (b) a LCDR2 of SEQ ID NO:85, (c) a LCDR3 of SEQ ID NO:86; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:87, (e) a HCDR2 of SEQ ID NO: 88, and (f) a HCDR3 of SEQ ID NO: 89;

(xi) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:98, (b) a LCDR2 of SEQ ID NO:99, (c) a LCDR3 of SEQ ID NO:100; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:101, (e) a HCDR2 of SEQ ID NO:102, and (f) a HCDR3 of SEQ ID NO:103;

(xii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:112, (b) a LCDR2 of SEQ ID NO:113, (c) a LCDR3 of SEQ ID NO:114; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:115, (e) a HCDR2 of SEQ ID NO:116, and (f) a HCDR3 of SEQ ID NO:117;

(xiii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:126, (b) a LCDR2 of SEQ ID NO:127, (c) a LCDR3 of SEQ ID NO:128; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:129, (e) a HCDR2 of SEQ ID NO:130, and (f) a HCDR3 of SEQ ID NO:131;

(xiv) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:140, (b) a LCDR2 of SEQ ID NO:141, (c) a LCDR3 of SEQ ID NO:142; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:143, (e) a HCDR2 of SEQ ID NO:144, and (f) a HCDR3 of SEQ ID NO:145;

(xv) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:154, (b) a LCDR2 of SEQ ID NO:155, (c) a LCDR3 of SEQ ID NO:156; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:157, (e) a HCDR2 of SEQ ID NO:158, and (f) a HCDR3 of SEQ ID NO:159;

(xvi) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:168, (b) a LCDR2 of SEQ ID NO:169, (c) a LCDR3 of SEQ ID NO:170; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:171, (e) a HCDR2 of SEQ ID NO:172, and (f) a HCDR3 of SEQ ID NO:173;

(xvii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:182, (b) a LCDR2 of SEQ ID NO:183, (c) a LCDR3 of SEQ ID NO:184; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:185, (e) a HCDR2 of SEQ ID NO:186, and (f) a HCDR3 of SEQ ID NO:187;

(xviii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:196, (b) a LCDR2 of SEQ ID NO:197, (c) a LCDR3 of SEQ ID NO:198; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:199, (e) a HCDR2 of SEQ ID NO:200, and (f) a HCDR3 of SEQ ID NO:201;

(xix) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:238, (b) a LCDR2 of SEQ ID NO:239, (c) a LCDR3 of SEQ ID NO:240; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:241, (e) a HCDR2 of SEQ ID NO:242, and (f) a HCDR3 of SEQ ID NO:243;

(xx) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:252, (b) a LCDR2 of SEQ ID NO:253, (c) a LCDR3 of SEQ ID NO:254; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:255, (e) a HCDR2 of SEQ ID NO:256, and (f) a HCDR3 of SEQ ID NO:257;

(xxi) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:280, (b) a LCDR2 of SEQ ID NO:281, (c) a LCDR3 of SEQ ID NO:282; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:283, (e) a HCDR2 of SEQ ID NO:284, and (f) a HCDR3 of SEQ ID NO:285;

(xxii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:294, (b) a LCDR2 of SEQ ID NO:295, (c) a LCDR3 of SEQ ID NO:296; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:297, (e) a HCDR2 of SEQ ID NO:298, and (f) a HCDR3 of SEQ ID NO:299; or

(xxiii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:322, (b) a LCDR2 of SEQ ID NO:323, (c) a LCDR3 of SEQ ID NO:324; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:325, (e) a HCDR2 of SEQ ID NO:326, and (f) a HCDR3 of SEQ ID NO:327.

26. The antibody drug conjugate of any of the preceding claims in which at least one amino acid within a CDR is substituted by a corresponding residue of a corresponding CDR of another anti-CDH6 antibody in Table 5 or 6.

27. The antibody drug conjugate of any of the preceding claims in which one or two amino acids within a CDR have been modified, deleted or substituted.

28. The antibody drug conjugate of claim 22, wherein said antibody or antigen binding fragment thereof comprises:

(i) a heavy chain variable region (vH) that comprises SEQ ID NO: 230, and a light chain variable region (vL) that comprises SEQ ID NO:231;

(ii) a heavy chain variable region (vH) that comprises SEQ ID NO: 216, and a light chain variable region (vL) that comprises SEQ ID NO:217;

- (iii) a heavy chain variable region (vH) that comprises SEQ ID NO: 272, and a light chain variable region (vL) that comprises SEQ ID NO:273;
- (iv) a heavy chain variable region (vH) that comprises SEQ ID NO:314, and a light chain variable region (vL) that comprises SEQ ID NO:315;
- (v) a heavy chain variable region (vH) that comprises SEQ ID NO:20, and a light chain variable region (vL) that comprises SEQ ID NO:21;
- (vi) a heavy chain variable region (vH) that comprises SEQ ID NO: 34, and a light chain variable region (vL) that comprises SEQ ID NO:35;
- (vii) a heavy chain variable region (vH) that comprises SEQ ID NO:48, and a light chain variable region (vL) that comprises SEQ ID NO:49;
- (viii) a heavy chain variable region (vH) that comprises SEQ ID NO:62, and a light chain variable region (vL) that comprises SEQ ID NO:63;
- (ix) a heavy chain variable region (vH) that comprises SEQ ID NO:76, and a light chain variable region (vL) that comprises SEQ ID NO:77;
- (x) a heavy chain variable region (vH) that comprises SEQ ID NO:90, and a light chain variable region (vL) that comprises SEQ ID NO:91;
- (xi) a heavy chain variable region (vH) that comprises SEQ ID NO:104, and a light chain variable region (vL) that comprises SEQ ID NO:105;
- (xii) a heavy chain variable region (vH) that comprises SEQ ID NO: 118, and a light chain variable region (vL) that comprises SEQ ID NO:119;
- (xiii) a heavy chain variable region (vH) that comprises SEQ ID NO: 132, and a light chain variable region (vL) that comprises SEQ ID NO:133;
- (xiv) a heavy chain variable region (vH) that comprises SEQ ID NO: 146, and a light chain variable region (vL) that comprises SEQ ID NO:147;
- (xv) a heavy chain variable region (vH) that comprises SEQ ID NO:160, and a light chain variable region (vL) that comprises SEQ ID NO:161;
- (xvi) a heavy chain variable region (vH) that comprises SEQ ID NO: 174, and a light chain variable region (vL) that comprises SEQ ID NO:175;

(xvii) a heavy chain variable region (vH) that comprises SEQ ID NO: 188, and a light chain variable region (vL) that comprises SEQ ID NO:189;

(xviii) a heavy chain variable region (vH) that comprises SEQ ID NO: 202, and a light chain variable region (vL) that comprises SEQ ID NO:203;

(xix) a heavy chain variable region (vH) that comprises SEQ ID NO: 244, and a light chain variable region (vL) that comprises SEQ ID NO:245;

(xx) a heavy chain variable region (vH) that comprises SEQ ID NO:258, and a light chain variable region (vL) that comprises SEQ ID NO:259;

(xxi) a heavy chain variable region (vH) that comprises SEQ ID NO:286, and a light chain variable region (vL) that comprises SEQ ID NO:287;

(xxii) a heavy chain variable region (vH) that comprises SEQ ID NO:300, and a light chain variable region (vL) that comprises SEQ ID NO:301; or

(xxiii) a heavy chain variable region (vH) that comprises SEQ ID NO:328, and a light chain variable region (vL) that comprises SEQ ID NO:329.

29. The antibody drug conjugate of any of the preceding claims that retains at least 90, 91, 92, 93, 94, 95, 96, 97, 98 or 99% identity over either the variable light or variable heavy region.

30. The antibody drug conjugate of any of claims 22-29, wherein the antibody is a monoclonal antibody, a chimeric antibody, a humanized antibody, a human engineered antibody, a human antibody, a single chain antibody(scFv) or an antibody fragment.

31. The antibody drug conjugate of any of claims 22-29, wherein said n is an integer from 2 to 8.

32. The antibody drug conjugate of any of claims 22-29, wherein said n is an integer from 3 to 4.

33. The antibody drug conjugate of any of claims 22-32 in combination with another therapeutic agent.

34. The antibody drug conjugate of any of claims 22-32 in combination with a therapeutic agent listed in Table 18.

35. The antibody drug conjugate of any of the preceding claims in combination with a BCL2 inhibitor, a BCL-XL inhibitor, a BCL2/BCL-XL inhibitor, an IAP inhibitor or a MEK inhibitor.

36. The antibody drug conjugate of any of the preceding claims in combination with an immune modulatory molecule.
37. A pharmaceutical composition comprising the antibody drug conjugate of any one of claims 1-32 and a pharmaceutically acceptable carrier.
38. The pharmaceutical composition of claim 37 wherein said composition is prepared as a lyophilisate.
39. Use of an antibody drug conjugate of any of claims 1-32, or the pharmaceutical composition of claims 37-38 in the manufacture of a medicament for the treatment of a CDH6 positive cancer in a patient in need thereof.
40. The use of claim 39, wherein said cancer is selected from the group consisting of: ovarian cancer, renal cancer, hepatic cancer, soft tissue cancer, CNS cancers, thyroid cancer and cholangiocarcinoma.
41. The use of claim 39, wherein the antibody drug conjugate or the pharmaceutical composition is to be administered in combination with another therapeutic agent.
42. The use of claim 39, wherein the antibody drug conjugate or the pharmaceutical composition is to be administered in combination with a therapeutic listed in Table 18.
43. The use of claim 39, wherein the antibody drug conjugate or the pharmaceutical composition is to be administered in combination with a BCL2 inhibitor, a BCL-XL inhibitor, a BCL2/BCL-XL inhibitor, an IAP inhibitor or a MEK inhibitor.
44. The use of claim 39, wherein the antibody drug conjugate or the pharmaceutical composition is to be administered in combination with an immune modulatory molecule.
45. The antibody drug conjugate of any of claims 1-32 for use as a medicament.
46. A nucleic acid that encodes the antibody or antigen binding fragment of any of claims 1-30.
47. A vector comprising the nucleic acid of claim 46.
48. A host cell comprising the vector according to claim 47.
49. A process for producing an antibody or antigen binding fragment comprising cultivating the host cell of claim 48 and recovering the antibody from the culture.
50. A process for producing an anti-CDH6 antibody drug conjugate, the process comprising:

- (a) chemically linking N-succinimidyl-4-(2-pyridyldithio)2-sulfo-butanoate (sulfo-SPDB) to a drug moiety DM-4;
- (b) conjugating said linker-drug to the antibody recovered from the cell culture of claim 49; and
- (c) purifying the antibody drug conjugate.

51. The antibody drug conjugate made according to claim 50 having an average maytansinoid to antibody ratio (MAR), measured with a UV spectrophotometer, about 3.5.

52. An antibody or antigen binding fragment thereof that comprises:

(i) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:224, (b) a LCDR2 of SEQ ID NO:225, (c) a LCDR3 of SEQ ID NO:226; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO: 227, (e) a HCDR2 of SEQ ID NO: 228, and (f) a HCDR3 of SEQ ID NO:229;

(ii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:210, (b) a LCDR2 of SEQ ID NO:211, (c) a LCDR3 of SEQ ID NO:212; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:213, (e) a HCDR2 of SEQ ID NO: 214, and (f) a HCDR3 of SEQ ID NO:215;

(iii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:266, (b) a LCDR2 of SEQ ID NO:267, (c) a LCDR3 of SEQ ID NO:268; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO: 269, (e) a HCDR2 of SEQ ID NO:270, and (f) a HCDR3 of SEQ ID NO: 271;

(iv) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:308, (b) a LCDR2 of SEQ ID NO:309, (c) a LCDR3 of SEQ ID NO:310; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:311, (e) a HCDR2 of SEQ ID NO:312, and (f) a HCDR3 of SEQ ID NO:313;

(v) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:14, (b) a LCDR2 of SEQ ID NO:15, (c) a LCDR3 of SEQ ID NO:16; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:17, (e) a HCDR2 of SEQ ID NO:18, and (f) a HCDR3 of SEQ ID NO:19;

(vi) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:28, (b) a LCDR2 of SEQ ID NO:29, (c) a LCDR3 of SEQ ID NO:30; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:31, (e) a HCDR2 of SEQ ID NO:32, and (f) a HCDR3 of SEQ ID NO:33;

(vii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:42, (b) a LCDR2 of SEQ ID NO:43, (c) a LCDR3 of SEQ ID NO:44; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:45, (e) a HCDR2 of SEQ ID NO:46, and (f) a HCDR3 of SEQ ID NO:47;

(viii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:56, (b) a LCDR2 of SEQ ID NO:57, (c) a LCDR3 of SEQ ID NO:58; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:59, (e) a HCDR2 of SEQ ID NO:60, and (f) a HCDR3 of SEQ ID NO:61;

(ix) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:70, (b) a LCDR2 of SEQ ID NO:71, (c) a LCDR3 of SEQ ID NO:72; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:73, (e) a HCDR2 of SEQ ID NO:74, and (f) a HCDR3 of SEQ ID NO:75;

(x) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:84, (b) a LCDR2 of SEQ ID NO:85, (c) a LCDR3 of SEQ ID NO:86; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:87, (e) a HCDR2 of SEQ ID NO: 88, and (f) a HCDR3 of SEQ ID NO: 89;

(xi) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:98, (b) a LCDR2 of SEQ ID NO:99, (c) a LCDR3 of SEQ ID NO:100; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:101, (e) a HCDR2 of SEQ ID NO:102, and (f) a HCDR3 of SEQ ID NO:103;

(xii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:112, (b) a LCDR2 of SEQ ID NO:113, (c) a LCDR3 of SEQ ID NO:114; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:115, (e) a HCDR2 of SEQ ID NO:116, and (f) a HCDR3 of SEQ ID NO:117;

(xiii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:126, (b) a LCDR2 of SEQ ID NO:127, (c) a LCDR3 of SEQ ID NO:128; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:129, (e) a HCDR2 of SEQ ID NO:130, and (f) a HCDR3 of SEQ ID NO:131;

(xiv) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:140, (b) a LCDR2 of SEQ ID NO:141, (c) a LCDR3 of SEQ ID NO:142; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:143, (e) a HCDR2 of SEQ ID NO:144, and (f) a HCDR3 of SEQ ID NO:145;

(xv) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:154, (b) a LCDR2 of SEQ ID NO:155, (c) a LCDR3 of SEQ ID NO:156; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:157, (e) a HCDR2 of SEQ ID NO:158, and (f) a HCDR3 of SEQ ID NO:159;

(xvi) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:168, (b) a LCDR2 of SEQ ID NO:169, (c) a LCDR3 of SEQ ID NO:170; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:171, (e) a HCDR2 of SEQ ID NO:172, and (f) a HCDR3 of SEQ ID NO:173;

(xvii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:182, (b) a LCDR2 of SEQ ID NO:183, (c) a LCDR3 of SEQ ID NO:184; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:185, (e) a HCDR2 of SEQ ID NO:186, and (f) a HCDR3 of SEQ ID NO:187;

(xviii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:196, (b) a LCDR2 of SEQ ID NO:197, (c) a LCDR3 of SEQ ID NO:198; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:199, (e) a HCDR2 of SEQ ID NO:200, and (f) a HCDR3 of SEQ ID NO:201;

(xix) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:238, (b) a LCDR2 of SEQ ID NO:239, (c) a LCDR3 of SEQ ID NO:240; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:241, (e) a HCDR2 of SEQ ID NO:242, and (f) a HCDR3 of SEQ ID NO:243;

(xx) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:252, (b) a LCDR2 of SEQ ID NO:253, (c) a LCDR3 of SEQ ID NO:254; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:255, (e) a HCDR2 of SEQ ID NO:256, and (f) a HCDR3 of SEQ ID NO:257;

(xxi) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:280, (b) a LCDR2 of SEQ ID NO:281, (c) a LCDR3 of SEQ ID NO:282; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:283, (e) a HCDR2 of SEQ ID NO:284, and (f) a HCDR3 of SEQ ID NO:285;

(xxii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:294, (b) a LCDR2 of SEQ ID NO:295, (c) a LCDR3 of SEQ ID NO:296; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:297, (e) a HCDR2 of SEQ ID NO:298, and (f) a HCDR3 of SEQ ID NO:299; or

(xxiii) a light chain variable region that comprises (a) a LCDR1 (CDR-Complementarity Determining Region) of SEQ ID NO:322, (b) a LCDR2 of SEQ ID NO:323, (c) a LCDR3 of SEQ ID NO:324; and a heavy chain variable region that comprises: (d) a HCDR1 of SEQ ID NO:325, (e) a HCDR2 of SEQ ID NO:326, and (f) a HCDR3 of SEQ ID NO:327.

53. The antibody or antigen binding fragment thereof of claim 52 in which at least one amino acid within a CDR is substituted by a corresponding residue of a corresponding CDR of another anti-CDH6 antibody in Table 5 or 6.

54. The antibody or antigen binding fragment thereof of claim 52, wherein said antibody or antigen binding fragment thereof comprises:

(i) a heavy chain variable region (vH) that comprises SEQ ID NO: 230, and a light chain variable region (vL) that comprises SEQ ID NO:231;

(ii) a heavy chain variable region (vH) that comprises SEQ ID NO: 216, and a light chain variable region (vL) that comprises SEQ ID NO:217;

(iii) a heavy chain variable region (vH) that comprises SEQ ID NO: 272, and a light chain variable region (vL) that comprises SEQ ID NO:273;

(iv) a heavy chain variable region (vH) that comprises SEQ ID NO:314, and a light chain variable region (vL) that comprises SEQ ID NO:315;

(v) a heavy chain variable region (vH) that comprises SEQ ID NO:20, and a light chain variable region (vL) that comprises SEQ ID NO:21;

(vi) a heavy chain variable region (vH) that comprises SEQ ID NO: 34, and a light chain variable region (vL) that comprises SEQ ID NO:35;

(vii) a heavy chain variable region (vH) that comprises SEQ ID NO:48, and a light chain variable region (vL) that comprises SEQ ID NO:49;

(viii) a heavy chain variable region (vH) that comprises SEQ ID NO:62, and a light chain variable region (vL) that comprises SEQ ID NO:63;

(ix) a heavy chain variable region (vH) that comprises SEQ ID NO:76, and a light chain variable region (vL) that comprises SEQ ID NO:77;

(x) a heavy chain variable region (vH) that comprises SEQ ID NO:90, and a light chain variable region (vL) that comprises SEQ ID NO:91;

- (xi) a heavy chain variable region (vH) that comprises SEQ ID NO:104, and a light chain variable region (vL) that comprises SEQ ID NO:105;
- (xii) a heavy chain variable region (vH) that comprises SEQ ID NO: 118, and a light chain variable region (vL) that comprises SEQ ID NO:119;
- (xiii) a heavy chain variable region (vH) that comprises SEQ ID NO: 132, and a light chain variable region (vL) that comprises SEQ ID NO:133;
- (xiv) a heavy chain variable region (vH) that comprises SEQ ID NO: 146, and a light chain variable region (vL) that comprises SEQ ID NO:147;
- (xv) a heavy chain variable region (vH) that comprises SEQ ID NO:160, and a light chain variable region (vL) that comprises SEQ ID NO:161;
- (xvi) a heavy chain variable region (vH) that comprises SEQ ID NO: 174, and a light chain variable region (vL) that comprises SEQ ID NO:175;
- (xvii) a heavy chain variable region (vH) that comprises SEQ ID NO: 188, and a light chain variable region (vL) that comprises SEQ ID NO:189;
- (xviii) a heavy chain variable region (vH) that comprises SEQ ID NO: 202, and a light chain variable region (vL) that comprises SEQ ID NO:203;
- (xix) a heavy chain variable region (vH) that comprises SEQ ID NO: 244, and a light chain variable region (vL) that comprises SEQ ID NO:245;
- (xx) a heavy chain variable region (vH) that comprises SEQ ID NO:258, and a light chain variable region (vL) that comprises SEQ ID NO:259;
- (xxi) a heavy chain variable region (vH) that comprises SEQ ID NO:286, and a light chain variable region (vL) that comprises SEQ ID NO:287;
- (xxii) a heavy chain variable region (vH) that comprises SEQ ID NO:300, and a light chain variable region (vL) that comprises SEQ ID NO:301; or
- (xxiii) a heavy chain variable region (vH) that comprises SEQ ID NO:328, and a light chain variable region (vL) that comprises SEQ ID NO:329.

55. A diagnostic reagent comprising the antibody or antigen binding fragment thereof of claim 52 or 54 which is labeled.

56. The diagnostic reagent of claim 55, wherein the label is selected from the group consisting of a radiolabel, a fluorophore, a chromophore, an imaging agent, and a metal ion.