

PETITIONER'S DEMONSTRATIVES

Ajinomoto Co., Inc. v. Abtis Co., Ltd.

IPR2025-00283 – U.S. Patent No. 11,896,675

May 8, 2026

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Exhibit 1061
AJINOMOTO CO., INC.
IPR2025-00283

Page 1 of 17

GROUNDS FOR OPPOSITION TO MTA

35 USC 112 (written description/enablement) and anticipation by '959 publication:

- A “modified antibody” that “comprises one or more modified heavy chain[s]” as in claims 14-16 encompasses amino acids adjacent to the modified Lys 248 different from those shown in each of formulas 8-1, 8-2, and 8-3, as well as a range of antibodies/proteins. Thus, the scope of proposed substitute claims 14-16 is broader than what is described in the specification. (Paper No. 25 at 3-4)
- Lack of sufficient support mean the '675 Patent is only entitled to priority as of its actual filing date, and therefore the '959 Publication is prior art (Paper No. 25 at 7-10)

35 USC 103:

- Claims 14-16 Are Obvious Over Yamada (EX1009) in view of Matsuda (EX1011). (Paper No. 25 at 10-19)
- Claims 14-16 are obvious in view of PepTalk Poster (EX1006), PepTalk Presentation (EX1007), Yamada, and/or Matsuda. (Paper No. 25 at 20-25)

35 USC 112 LACK OF WRITTEN DESCRIPTION & ENABLEMENT

- The '675 patent explains that, for the purposes of its invention, “there is disclosed a novel peptide for bringing a molecule to be labeled into close contact with a certain site of an antibody,” which is referred to as a “site-specific antibody interactome” or “SSAI.” EX1001, 33:18-23.
- The SSAI “may have binding activity for the Fc domain of the antibody” and such an SSAI is referred to as a “site-specific Fc interactome” or “SSFI.” Id., 33:39-40.
- Notably, the '675 patent only discloses SSAI that bind to an Fc domain (i.e., the '675 patent only discloses SSFI), and to this end, it only discloses SSFI designed to bind to IgG1 SEQ ID NO: 1 and “acceptable” variant sequences 8-1, 8-2 and 8-3. EX1001, 28:27-37.

(Paper No. 33 at 4)

35 USC 112 LACK OF WRITTEN DESCRIPTION & ENABLEMENT

- Figs. 1-10 of the '675 patent convey that the precise sequence of the Fc domain (SEQ ID NO:1) impacts whether or not it is possible for the SSAI/SSFI to succeed in modifying the Lys 248 residue.
(Paper No. 33 at 5)

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows a partial sequence of an Fc domain of SEQ ID NO: 1 and numbers in the sequence numbered according to the EU numbering system.

FIG. 2 shows positions of lysine residues in an Fc domain including lysine 246 and 248.

FIG. 3 and FIG. 4 show the topology between SSFI and the Fc domain.

FIG. 5 shows Xa_1 of the SSFI and lysine 246 and 248 in the Fc domain.

FIG. 6 shows a distance between an amine group of the lysine 246 and a beta carbon of the Xa_1 of the SSFI.

FIG. 7 shows a distance between an amine group of the lysine 248 and a beta carbon of the Xa_1 of the SSFI.

FIG. 8 shows a structure of $R_1'-L_2$ -SSFI and a distance (L_c) between a beta carbon and a first carbonyl carbon of (Xa_1)'.

FIG. 9 shows the topology between the $R_1'-L_2$ -SSFI and the Fc domain so that a side chain of (Xa_1)' has a direction (a dotted arrow) parallel with the x axis on the drawing.

FIG. 10 shows the conditions used to allow the first carbonyl carbon to react well with lysine 248.

35 USC 112 LACK OF WRITTEN DESCRIPTION & ENABLEMENT

- Figs. 3 and 4 “show topology between SSFI and the Fc domain [SEQ ID NO:1]”, and the specification states that mismatch between the SSFI amino acids and the Fc domain “may give a negative effect on the labeling process.” EX1001, 14:41-42 and 37:35-39.

(Paper No. 33 at 4)

FIG. 3 and FIG. 4 show the topology between SSFI and the Fc domain.

When the interaction between the SSFI and the Fc domain becomes unstable during the design of SSFI to disturb a topology between their molecules, it is unfavorable as the interaction may give a negative effect on the labeling process.

35 USC 112 LACK OF WRITTEN DESCRIPTION & ENABLEMENT

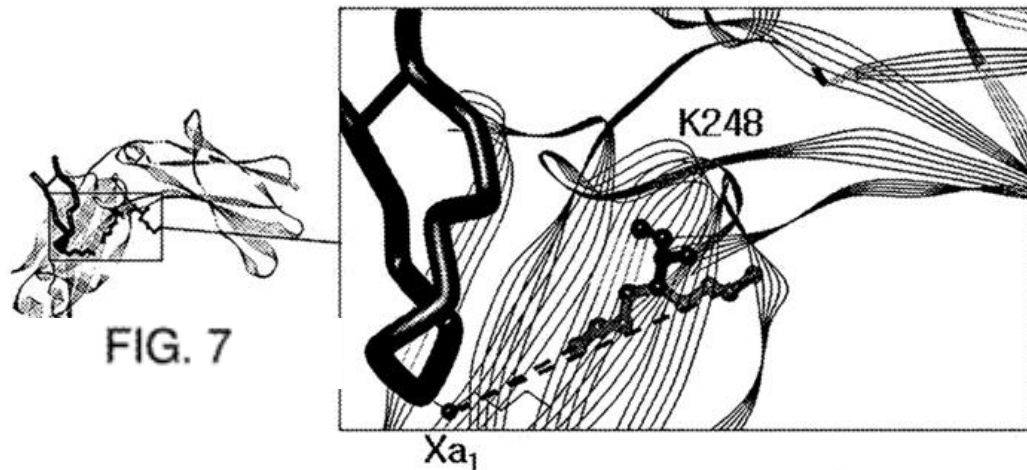
amino acid sequence :

G—P—S—V—F—L—F—P—P—K—P—K—D—T—L—M—I

EU numbering
for heavy chain :

237 239 241 243 245 247 249 251 253
238 240 242 244 246 248 250 252

FIG. 1



$D_{248,min}=6.723\text{ \AA}$
 $D_{248,max}=16.208\text{ \AA}$

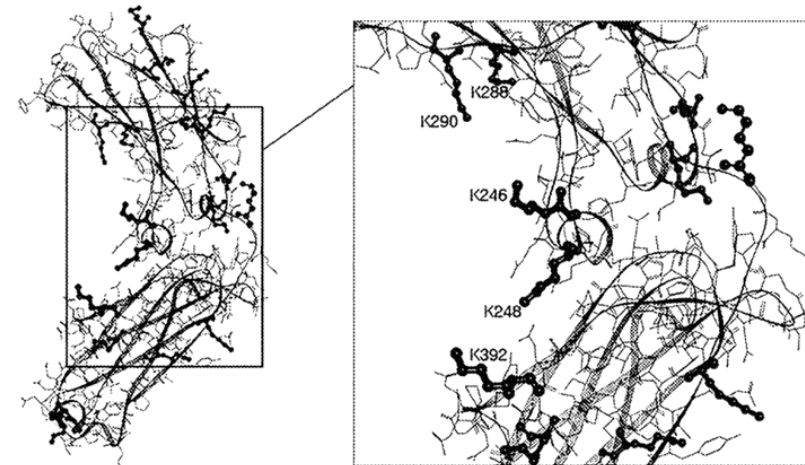


FIG. 2

EX1001 at FIGs. 1, 2, 7 (Paper No. 33 at 4-5)

35 USC 112 LACK OF WRITTEN DESCRIPTION & ENABLEMENT

- Dr. Tumey's Testimony:
 - SEQ ID NO: 1 corresponds to positions 237-253 in the CH2 region of a human IgG1, IgG2, or IgG4. EX1002, ¶79.
 - "There are many different isotypes of antibodies that have distinct Fc domains," and that even within IgG1, IgG2, and IgG4 isotypes, there are "variants such as IgG1 σ , IgG2 σ , IgG4 σ 1, and IgG4 σ 2" lacking SEQ ID NO: 1, while other isotypes such as IgA, IgM, IgD, and IgE have distinct Fc domain sequences. Id., ¶80; EX1033, 3; EX1034, 3.

(Paper No. 33 at 5-7)

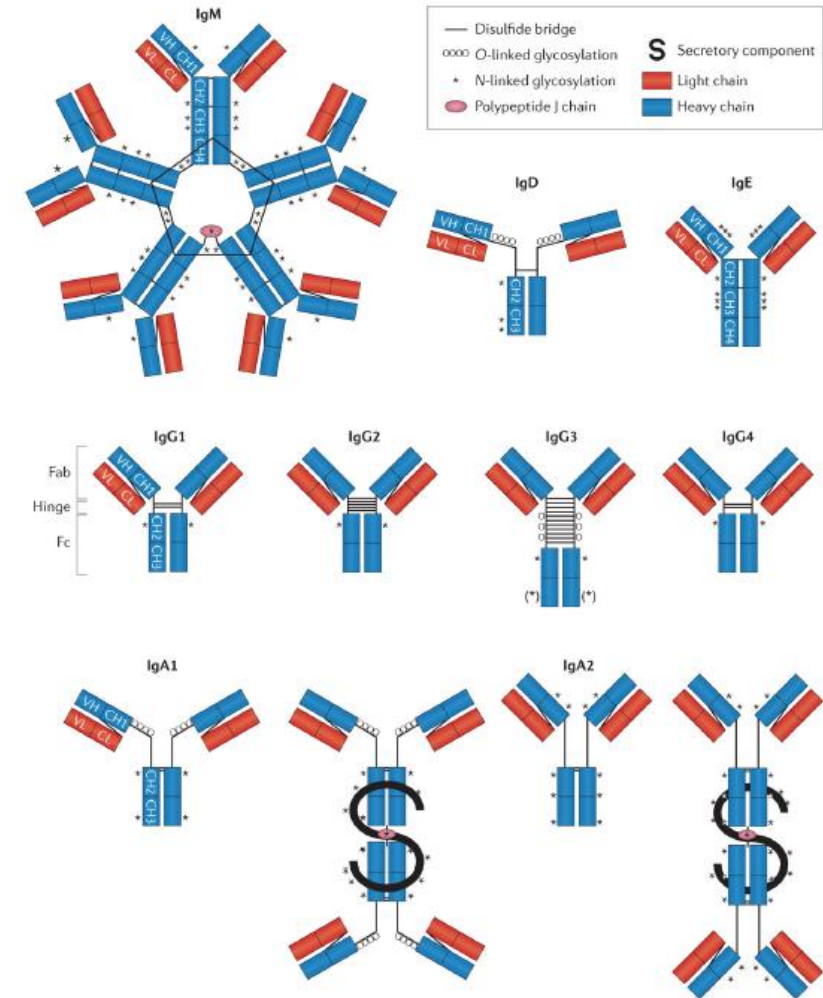


Figure 1 | Antibody isotypes and subclasses.

EX1034 at FIG. 1

35 USC 112 LACK OF WRITTEN DESCRIPTION & ENABLEMENT

- The disclosure of SSFI that only binds to IgG1 Fc domains (SEQ ID NO:1) is consistent with the limited scope of examples in the '675 patent, but inconsistent with the expansive scope of the claims.
- All of the modified lysine structures in the '675 patent, including those recited in claims 14-16, are depicted as associated with a particular Fc domain amino acid sequence: SEQ ID NO: 1.
- 10-1, 10-2, 10-3 (SEQ ID NOs: 23-25), 7-1, 7-2, 7-3 (SEQ ID NOs: 17-19), 8-1, 8-2, 8-3 (SEQ ID NOs: 20, 21, 22) are all “sequences [of SEQ ID NO:1] mutated in an acceptable range”. Ex. 1001, 28:27-37.

(Paper No. 33 at 5)

35 USC 112 LACK OF WRITTEN DESCRIPTION & ENABLEMENT

- Dr. Zhou agrees that such a scope is not supported:

“[I]mporting chemistry from other sources would not be considered routine or obvious.” EX2008, ¶134.

“A POSA would ... understand Yamada’s disclosed compounds as limited to what can actually be synthesized using Yamada’s taught chemistry.” *Id.*

“The existence of platform technologies such as AJICAP™, for example, do not demonstrate that particular site specific chemistries were predictable.” EX2008, ¶18.

(Paper No. 33 at 5-8)

See also EX2004 at 15-17

- Here, the '675 patent only discloses reagents (SSAI/SSFI) and synthesis schemes for modifying IgG1, and according to Dr. Zhou’s logic and reasoning, expanding those teachings to other compounds “would not be considered routine or obvious.”

(Paper No. 33 at 5-7)

35 USC 112 LACK OF WRITTEN DESCRIPTION & ENABLEMENT

- The foregoing reasons rebut Patent Owner's assertion in Paper No. 28 (p. 2) that a POSA would simply "recognize which antibodies have a heavy chain Fc domain that can be substituted with the claimed moieties."
(Paper No. 33 at 5)
- Patent Owner offers no evidence establishing that a POSA could generate other sequences that satisfy the steric fit requirements around Lys248.

Claims 14-16 Are Anticipated by the '959 Publication (EX1005)

- Example 3.1 (223-225) and Examples 3.2-3.4 of the '959 Publication anticipate claims 14-16.
(Paper No. 25 at 8-10)
- Claims 14-16 lack enablement and written description because they are broader than the disclosure (i.e., they are not supported by the singular example of an antibody modified with the claimed structures), but that singular example is sufficient to anticipate the claims.
(Paper No. 25 at 8)

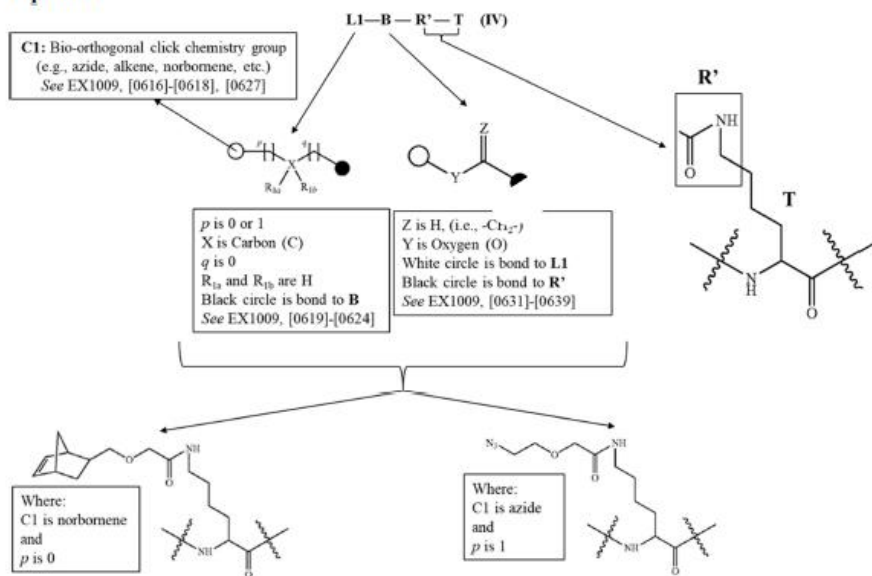
Claims 14-16 are obvious in view of Yamada (EX1009) and Matsuda (EX1011)

- The cited art teaches the necessary components of Yamada Formula (IV) to arrive at claims 14-16. EX1059, ¶¶29-30, 38; and there was motivation to select these components. EX1059, ¶¶31-36, 39-43. (Paper No. 33 at 12)
- A POSA would be motivated to select azide and norbornene:
 - Not only were azide and norbornene both disclosed as suitable functional groups in Yamada and Matsuda, azide and norbornene were also among the most well-established and commonly used click chemistry groups at the time. EX1059, ¶¶31-32, 39; EX1050; EX1053; EX1054; EX1055.
 - PepTalk Poster and Presentation disclose azide as only one of three functional groups. Ex. 1002, ¶¶202-203, 295-296.
- A POSA would also be motivated to select the linkers connecting the click chemistry groups to the lysines in claims 14-16. Short linkers—like those in claims 14 and 16—were preferred (EX1002, ¶¶256, 267, 351, 362) because they provide flexibility, which can be helpful for subsequent reactions, and both Yamada and Matsuda (as well as the PepTalk References) disclose short alkyl linkers similar to those in the claims. EX1059, ¶¶33-36, 39-43. (Paper No. 25 at 17)

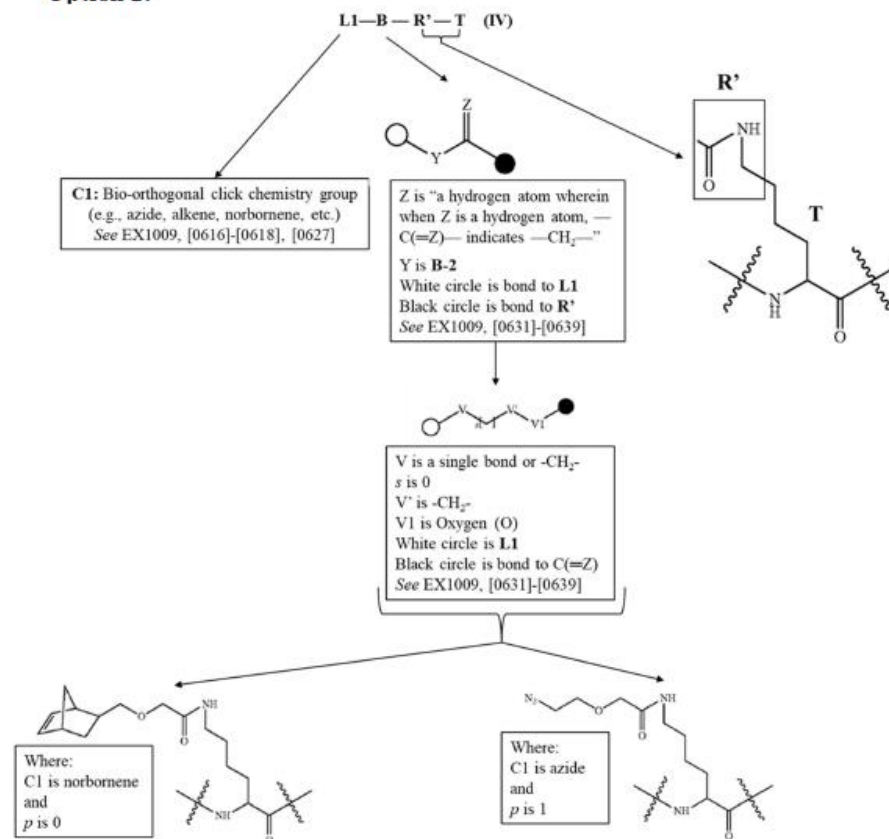
Claims 14-16 Are Obvious Over Yamada In View of Matsuda

- There are at least two ways that the modified lysine structures recited in claims 14 and 16 can be assembled from Formula (IV) (Paper No.25 at 15-16)

Option 1:



Option 2:



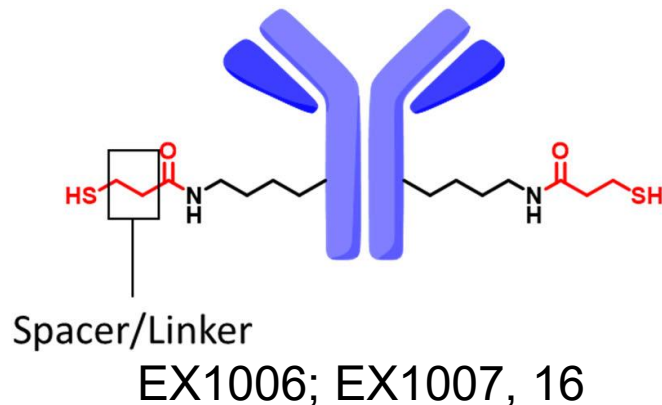
Claims 14-16 Are Obvious Over Yamada In View of Matsuda

- Patent Owner alleges that “Yamada does not identify any preference, advantage, or motivation to choose the claimed options” (MTA, 18), but “the requisite motivation can come from any number of sources and need not necessarily be explicit in the art.” *Eisai Co. Ltd. v. Dr. Reddy’s Labs., Ltd.*, 533 F.3d 1353, 1357 (Fed. Cir. 2008).
- Patent Owner argues that “Petitioner fails to show that Yamada teaches the modified residues of the substitute claims are scientifically feasible” (MTA, 21), but “Even if a reference discloses an inoperative device, it is prior art for all that it teaches.” *Beckman Instruments v. LKB Produkter A&B*, 892 F.2d 1847, 1551 (Fed. Cir. 1989)
- The level of skill and knowledge in the art would have allowed a POSA to make the claimed modified lysines.
- There were multiple well-established synthetic routes for creating the claimed lysine structures (id., ¶¶57-61; EX1056; EX1057), including Figure 1 of Matsuda. (Paper No. 25 at 18-19)

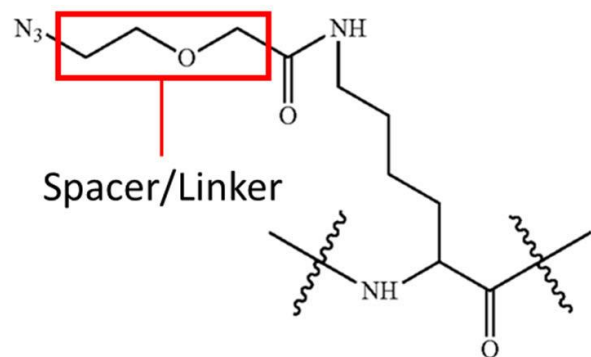
Claims 14-16 are obvious in view of PepTalk Poster (EX1006), PepTalk Presentation (EX1007), Yamada (EX1009), and/or Matsuda (EX1011)

- Matsuda, PepTalk Presentation, and PepTalk Poster disclose modified antibodies similar to claim 14.
- There are numerous benefits to incorporating an oxygen into the linker, and therefore a POSA would be motivated to incorporate an oxygen. EX1059, ¶33-36.
(Paper No. 25 at 21-22)

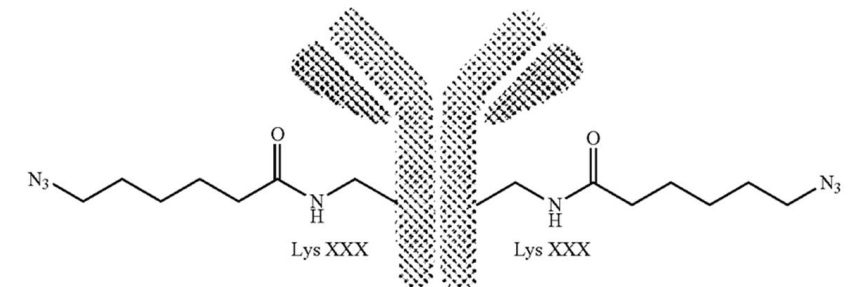
Disclosed in PepTalk References



Proposed Substitute Claim 14



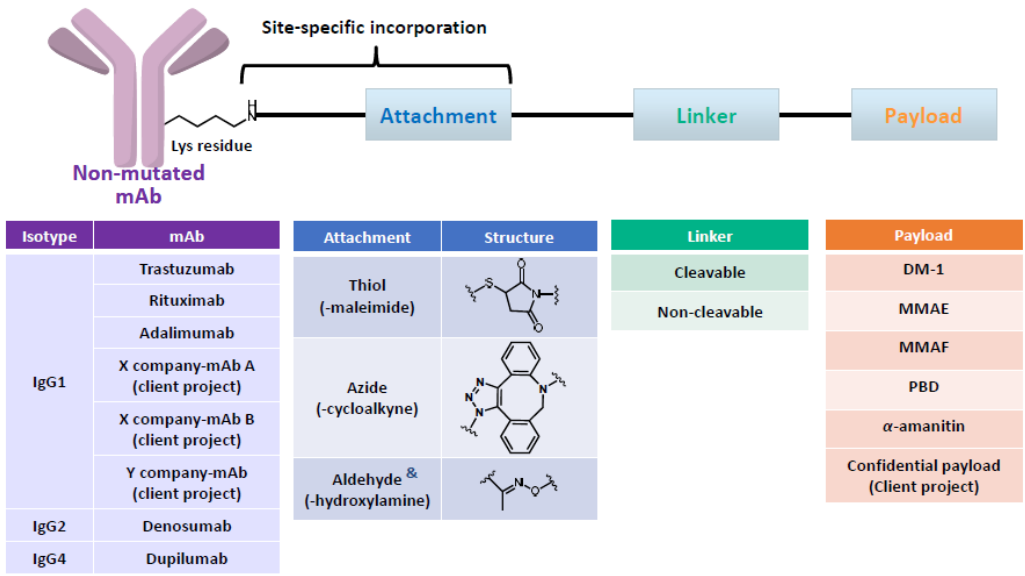
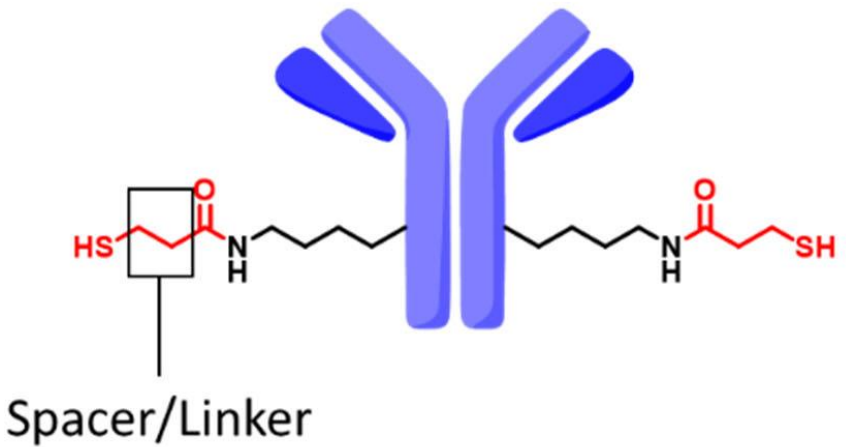
5-2-1



EX1011, 92

Claims 14-16 are obvious in view of PepTalk Poster, PepTalk Presentation, Yamada, and/or Matsuda

Disclosed in PepTalk References



✓ AJICAP™-technology has great potential for mAb isotypes: IgG1, 2, 4

✓ Several client projects are ongoing

&Studies in progress

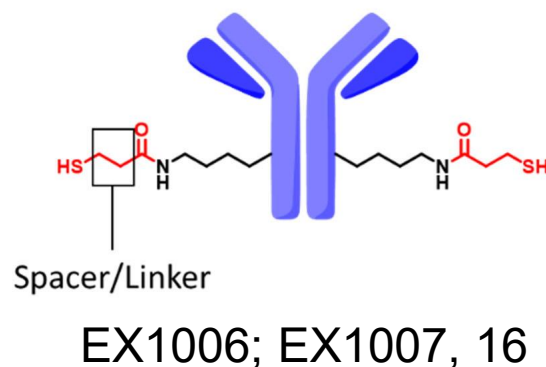


EX1006; EX1007 at 16, 20

Claims 14-16 are obvious in view of PepTalk Poster, PepTalk Presentation, Yamada, and/or Matsuda

- With respect to claims 15 and 16, the utility of norbornene was well-established, and Yamada and Matsuda both explicitly suggest it. EX1059, ¶39-42, 48, 49.
- The linker exemplified in the PepTalk References is highly similar to the linkers in claims 15 and 16, as well:
(Paper No. 25 at 22-23)

Disclosed in PepTalk References



Proposed Substitute Claim 16

