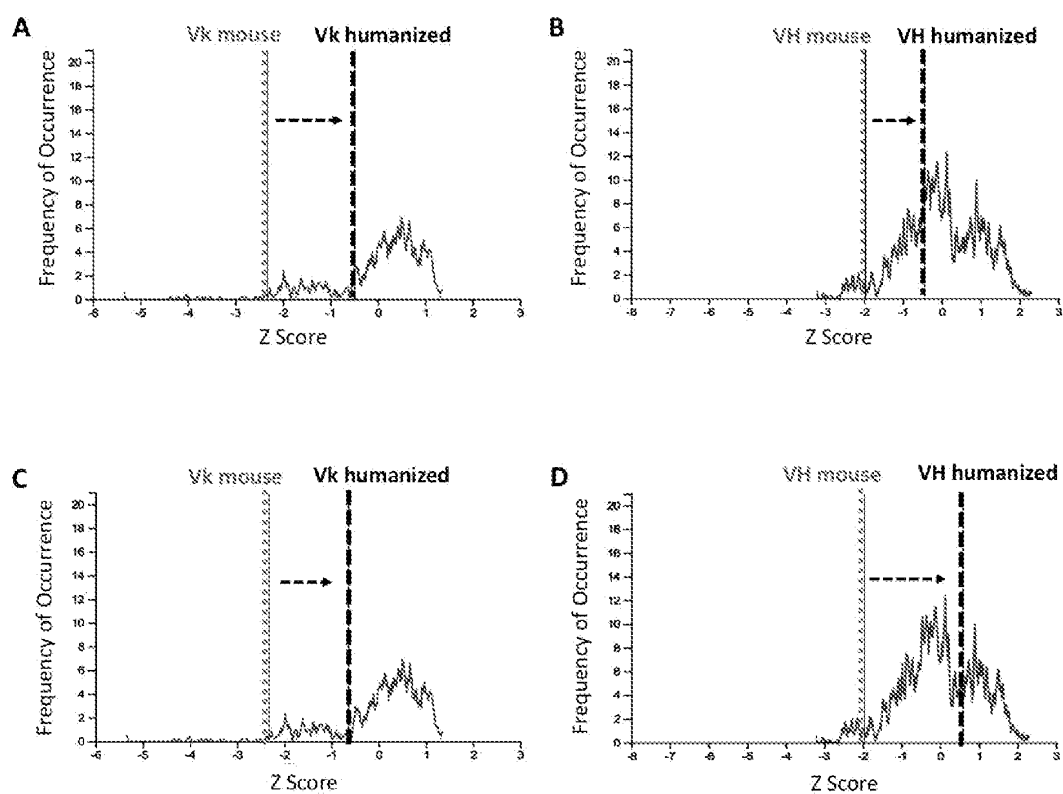


1/11

Figure 1 shows an increase in humanness scores (Z-score) from mouse sequence (grey line) to the humanized framework (dark line) in the variable regions of humanized BU12, H4 (Vk for kappa light chain in **1A**, and VH for heavy chain in **1B**) and H5 (Vk for kappa light chain in **1C** and VH for heavy chain in **1D**).



2/11

Figure 2 shows the sequence alignment of the variable regions (VL for light chain in **2A** and VH for heavy chain in **2B**) of humanized mouse BU12 (H1-H7) and human antibody (21D4).

Fig. 2A

```

H1VL  ENVLTQSPASLSASPGERVITITCSASSSV-SYMHWYQQKPGQAPKLWIYDTSKLASGVPS
H2VL  .....-.....
H3VL  .....-.....
H4VL  .....-.....
H5VL  .I.M...ST...V.D..I.....-.....K...L.....
H6VL  .I.M...ST...V.D..I.....-.....K...L.....
H7VL  .....-.....
21D4VL AIQ....S....V.D.....R..QGIS.ALA.....K...L...A.S.E....

H1VL  RFSGSGSGNDHTLTISSMEPEDFATYYCFQGSVYPFTFGQGTKLEIK
H2VL  .....IT.L
H3VL  .....TVL
H4VL  .....VTVL
H5VL  .....AEF.....LQ.D.....TVL
H6VL  .....AEF.....LQ.D.....TVL
H7VL  .....C...V...
21D4VL .....T.F.....LQ.....Q.FNS.....P...VD..

```

Fig. 2B

```

H1VH  QVTLKESGPGLVQPGQTLRLTCAFSGFSLSTSGMGVGWIRQPPGKGLEWLAHIWDD-DK
H2VH  .....-..
H3VH  .....-..
H4VH  .....-..
H5VH  E.Q.V...G.....GS...S.V.....V..A.....VG.....-..
H6VH  E.Q.V...G.....GS...S.S.....V..A.....VG.....-..
H7VH  .....C.....-..
21D4VH E.Q.VQ..AEVKK..ES.KIS.KG..Y.F.S.W--I..V..A.....MGI.YP..S.T

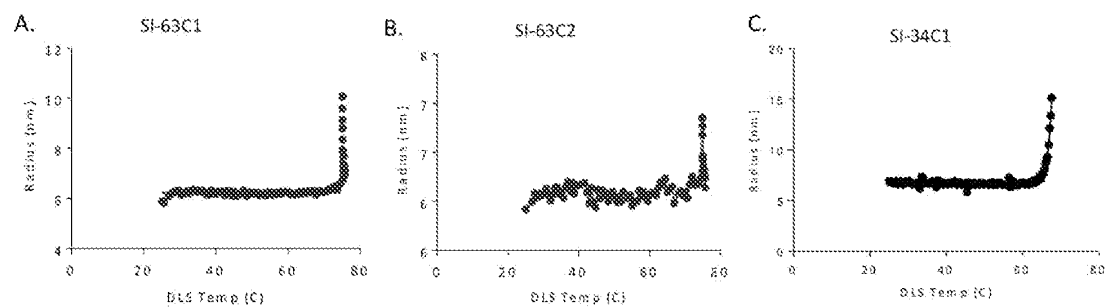
H1VH  RYNPALKSRLTISKDTSKNQVYLQMNSLDAEDTAVYYCAR--MELWSYYFDYWGGTTLVT
H2VH  .....--
H3VH  .....--
H4VH  .....--
H5VH  .....F...R....T.....R.....-..
H6VH  .....F...R....T.....R.....-..
H7VH  .....-..
21D4VH ..S.SFQGQV...A.K.IRTA...WS..K.S...M.....HVTMI.GVII.F.....

H1VH  VSS
H2VH  ...
H3VH  ...
H4VH  ...
H5VH  ...
H6VH  ...
H7VH  ...
21D4VH ...

```

3/11

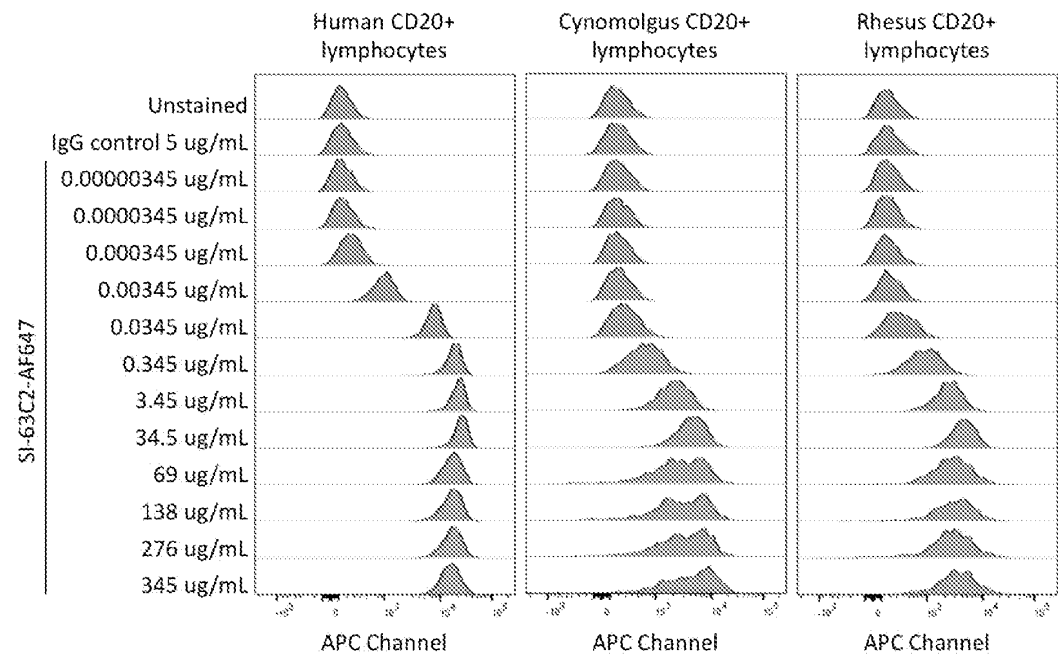
Figure 3 shows DLS thermal stability for SI-63C1 (BU12-chimeric), SI-63C2 (humanized BU12, H1) and SI-34C1 (human antibody, 21D4).



4/11

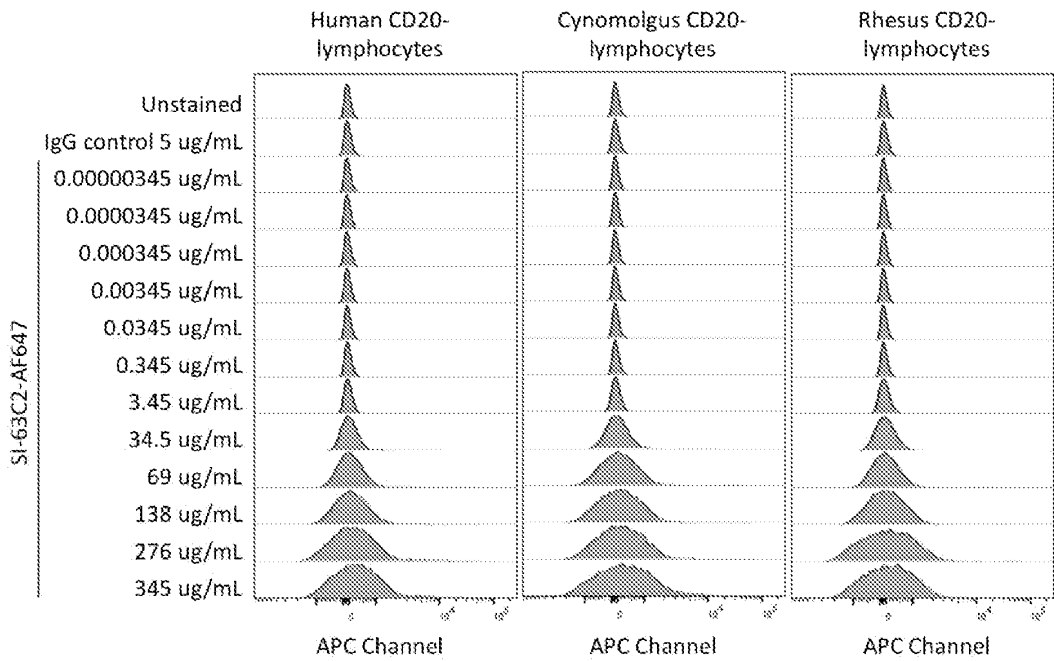
Figure 4 shows the histograms depicting the cross reactivity of the SI-63C2 antibody to human, cynomolgus, and rhesus CD20+ B cells (**4A**) and CD20- lymphocytes (**4B**).

Fig. 4A



4/11

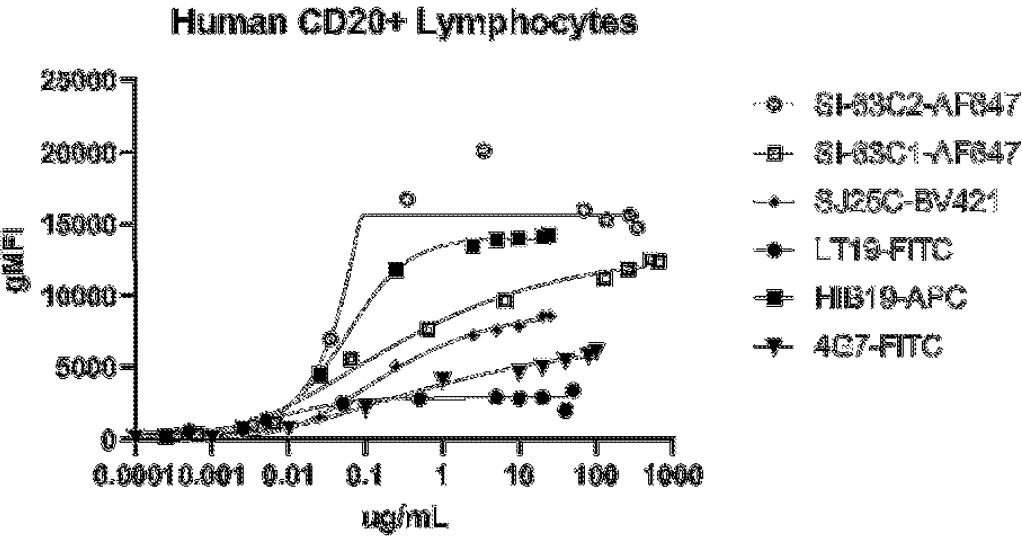
Fig. 4B



5/11

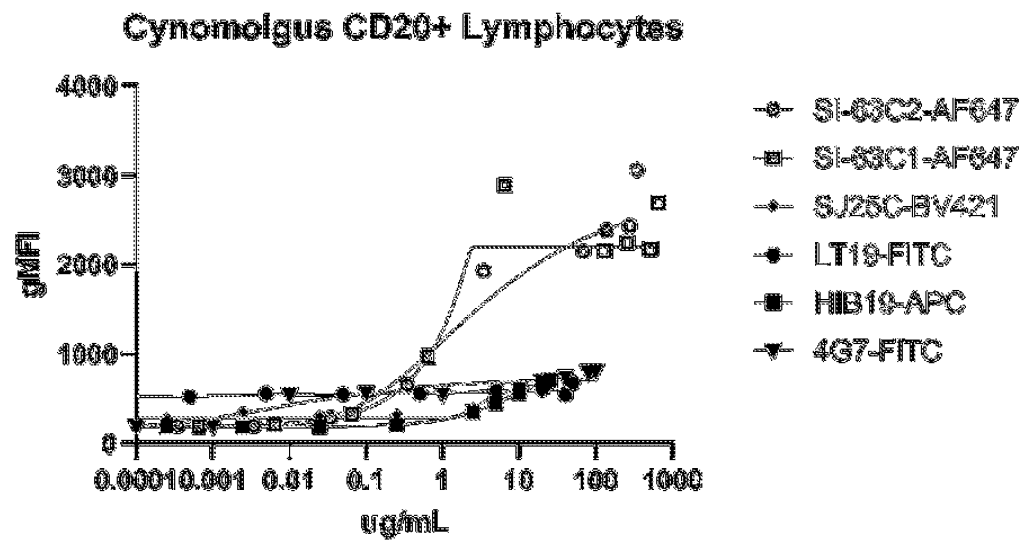
Figure 5 shows the dose-response curve of the SI-63C2 antibody binding to human (5A), cynomolgus (5B), and rhesus (5C) CD20+ lymphocytes, as compared to its parental control (SI-63C1) and mouse anti-human CD19 antibody controls (SJ25C, LT19, HIB19, and 4G7).

Fig. 5A



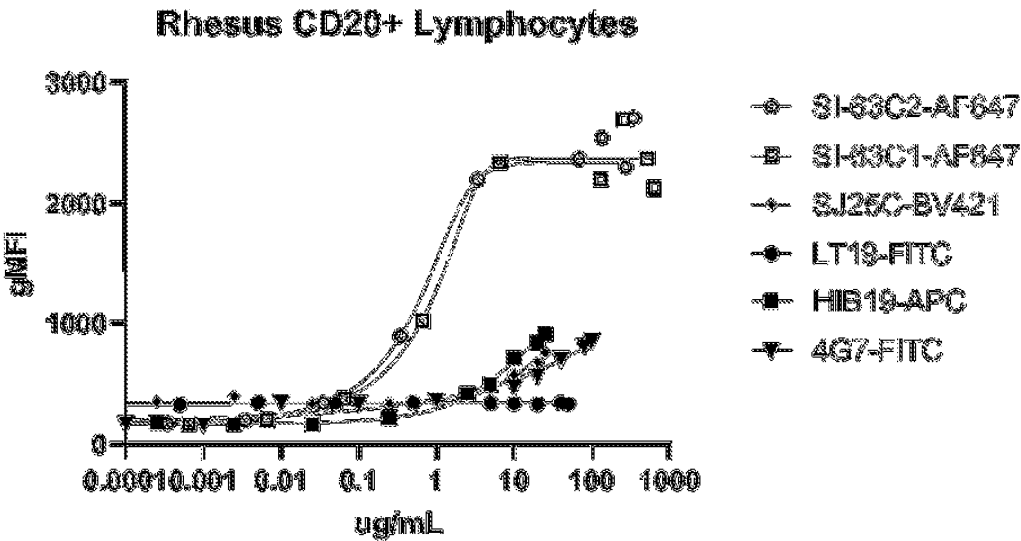
5/11

Fig. 5B



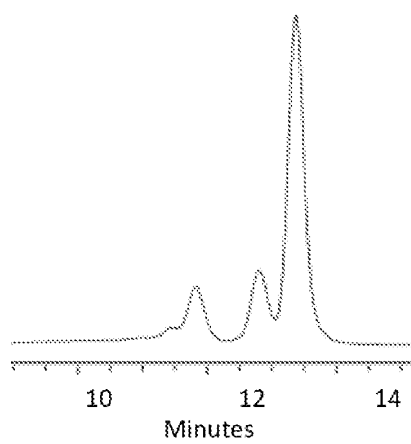
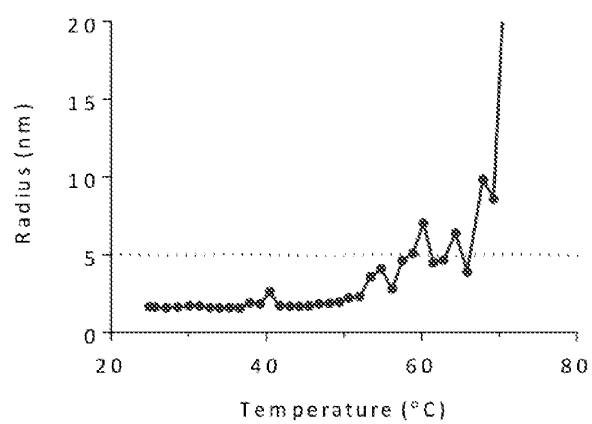
5/11

Fig. 5C



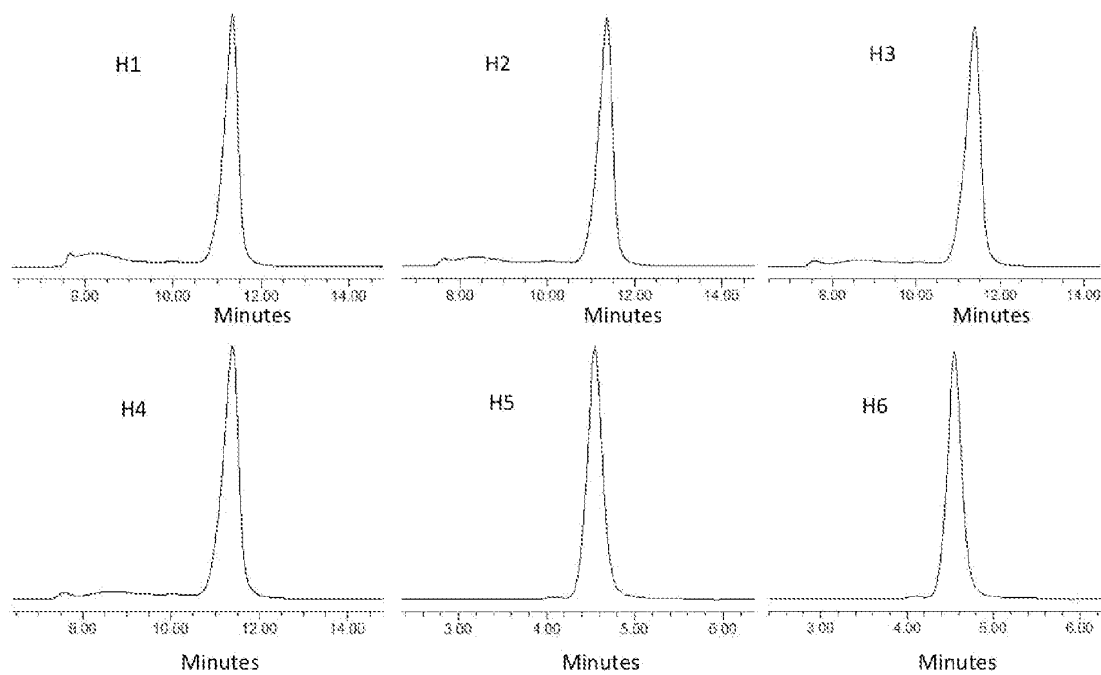
6/11

Figure 6 shows an analytical SEC profile of SI-63R1(H1), the protein-L purified recombinant anti-CD19 scFv-HIS protein (**6A**) and DLS Thermal Stability of SI-63R1(H1) with unfolding temperature at about 58.8°C (**6B**).

A.**B.**

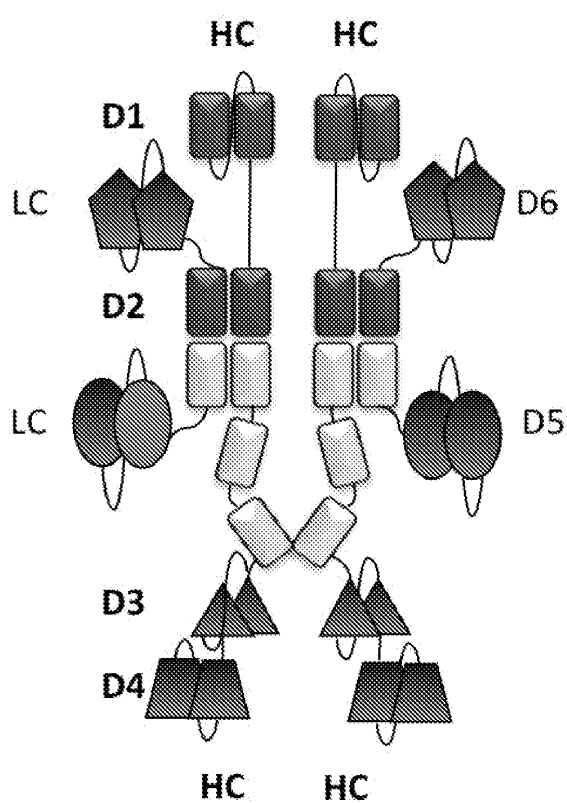
7/11

Figure 7 shows analytical SEC profile of the protein-A purified recombinant anti-CD19 scFv-monoFc proteins (H1 through H6) with >90% protein of interest (POI).



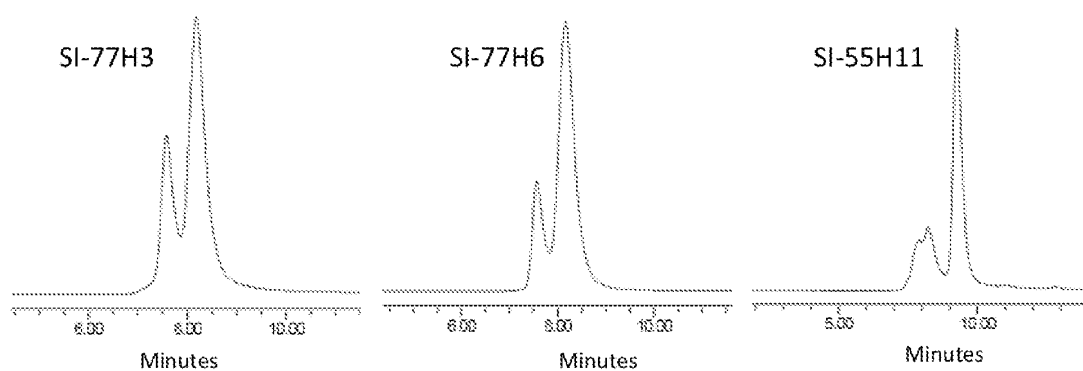
8/11

Figure 8 depicts a schematic diagram of six binding domains (D1-D6) in hexaGNC antibodies that comprise the core Fab (D2) and Fc regions and the additional D1, D3, and D4 on heavy chain (HC) and D5 and D6 on light chain (LC).



9/11

Figure 9 shows the ExpHCHO expression and purification of three hexaGNC antibodies SI-77H3, SI-77H6, and SI-55H11 with their humanized anti-CD19 domains, H4 at D1, H7 at D2 (Fab), and H4 at D6, respectively.

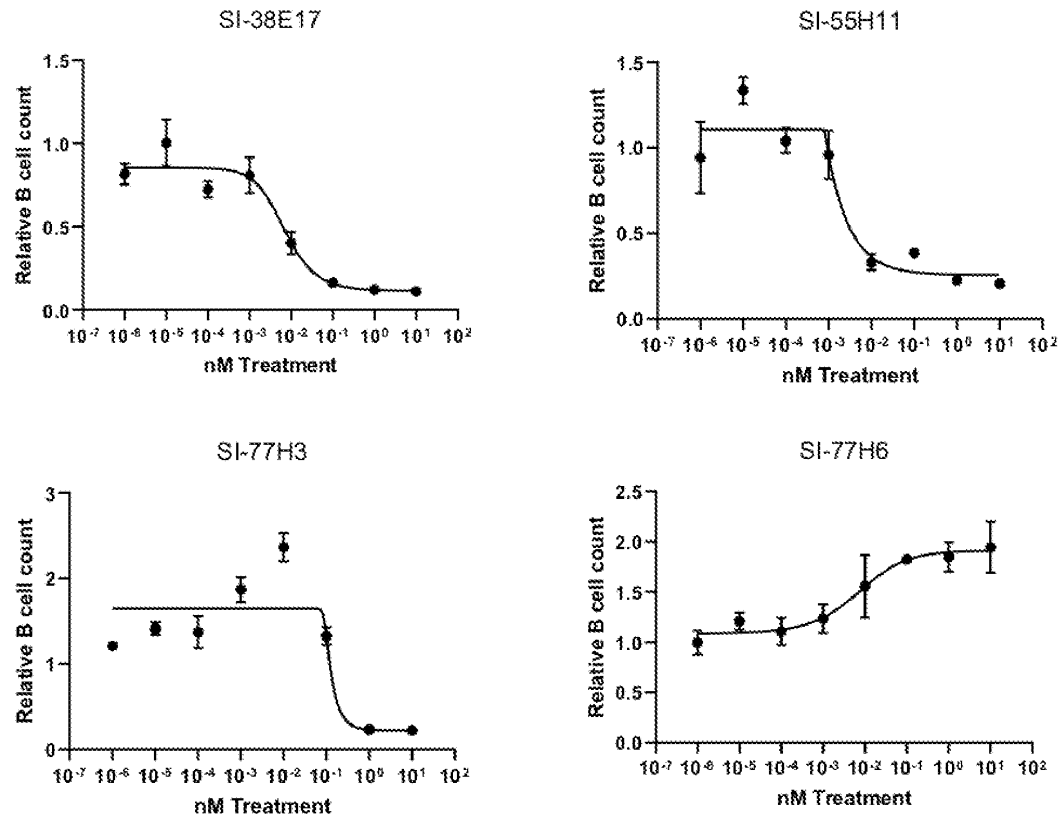


10/11

Figure 10 shows the dose-response curves of an antibody (SI-38E17, SI-55H11, SI-77H3, and SI-77H6, respectively) direct cellular cytotoxicity (ADCC) to either human (**10A**) or cynomolgus (**10B**) PBMC.

Fig. 10A

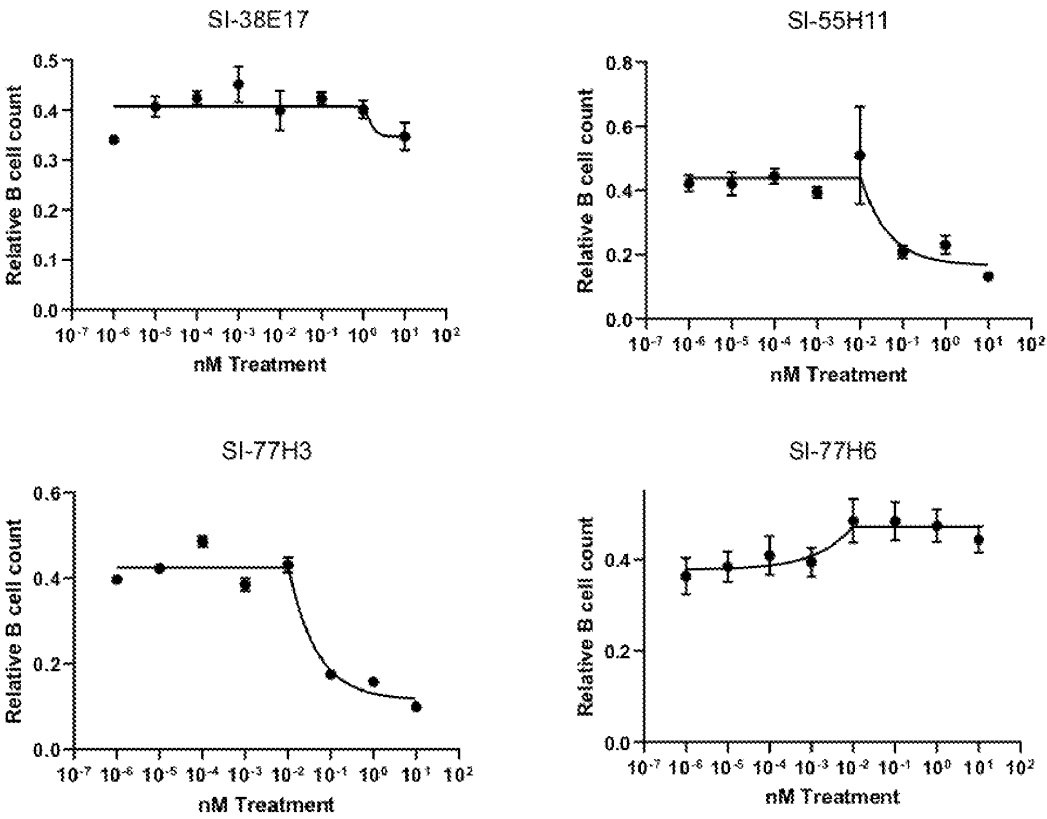
Human



10/11

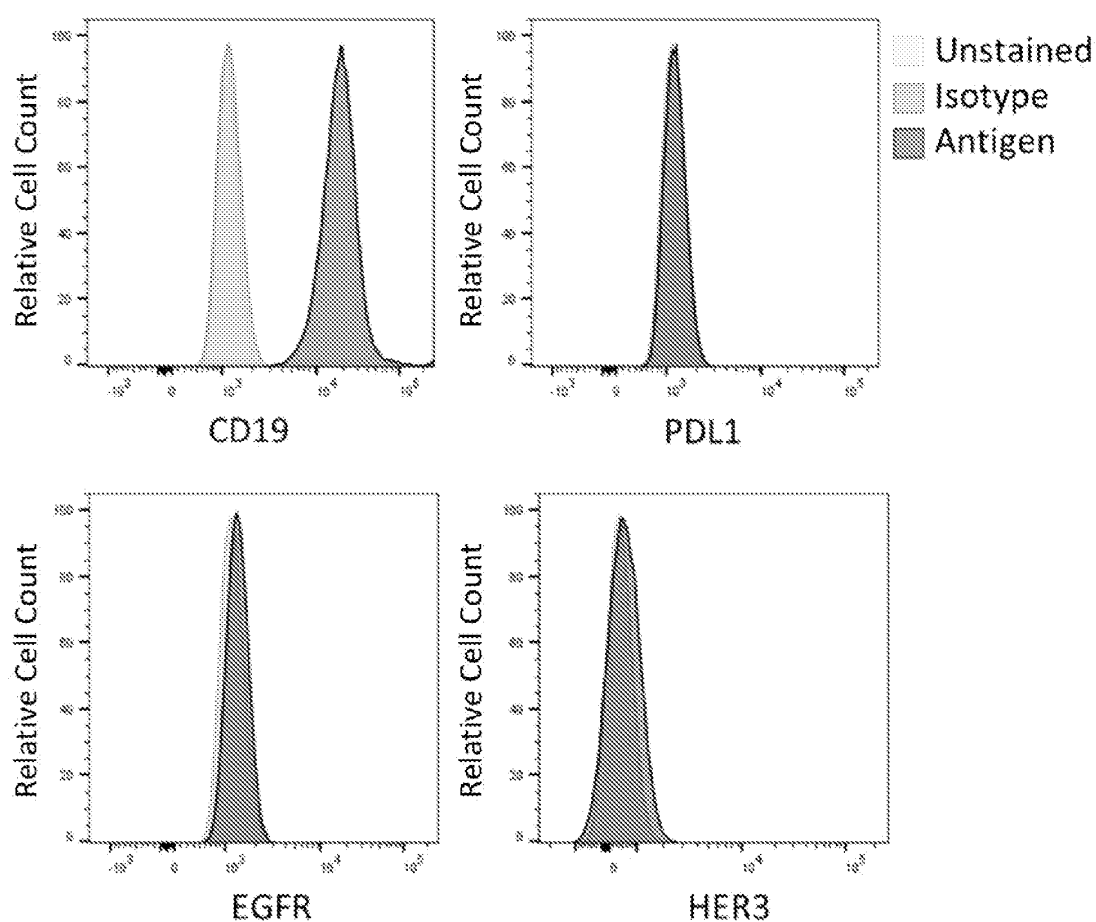
Fig. 10B

Cynomolgus



11/11

Figure 11 shows that the humanized CD19 binding domain of hexaGNC antibodies, such as SI-77H, SI-77H6, and SI-55H11, mediates the cytotoxicity of Raji lymphoma cells that express only CD19 but no other tumor antigens (**11A**) with a potent dose-response curve comparable to that of SI-38E17, a human anti-CD19 antibody (21D4) (**11B**).

Fig. 11A

11/11

Fig. 11B

