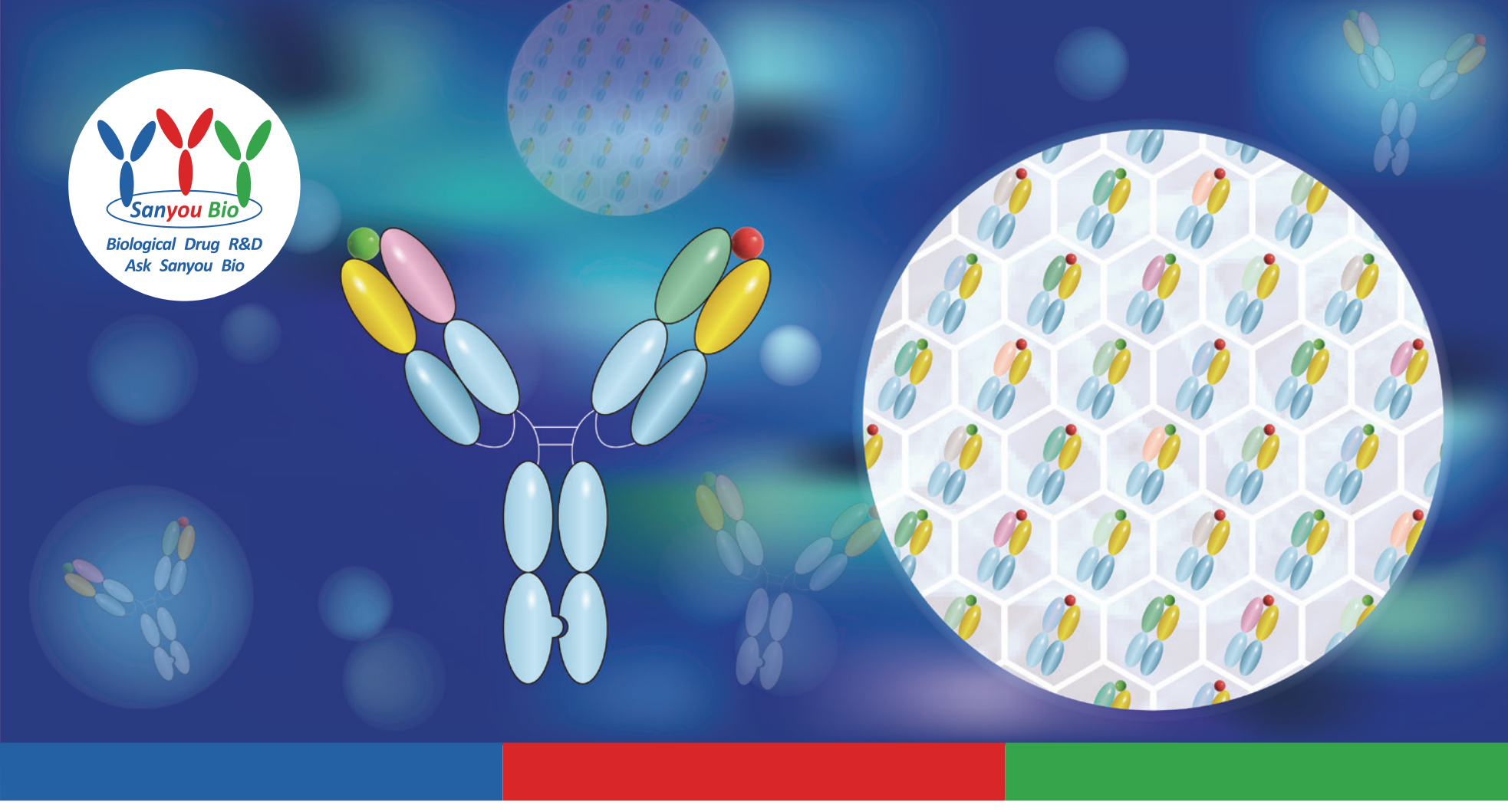

CRS: Catalog Representative

Sanyou Bispecific Reference Antibody

Vision

To improve the quality of people' s lives with innovative biological drugs

Mission

To make it easy to develop innovative biological drugs

Sanyou Biopharmaceuticals is a cutting-edge antibody drug discovery and development company, featured by its super-trillion antibody library and its capability of both AI and wet-lab R&D platforms, with the mission of “making innovative biologics R&D easy for clients worldwide.” Focusing on its intelligent super-trillion antibody library, Sanyou has built a world-leading, integrated and intelligent R&D platform for preclinical development of innovative biologics that seamlessly combines in silico and wet-lab capabilities. The company accelerates global new drug discovery and target research through four dimensions: new drug discovery, preclinical research, AI-driven drug development, and frontier scientific research.

Headquartered in Shanghai, China, Sanyou has subsidiaries in the United States, Europe, and other regions, with over 20,000 square meters of R&D and GMP-compliant facilities in operation or under development.

Sanyou offers its clients and partners a comprehensive "4C" service solution set that includes CRO, CDO, CPO (Collaborative Project Organization), and CRS (Core Reagent Solution) services. The company has established a global marketing network and formed strong partnerships with more than 1,200 pharmaceutical and biotech companies worldwide. It has successfully completed over 1,200 projects related to new drug discovery and development, more than 50 collaborative R&D projects, with 9 projects having completed IND submission.

Sanyou has been recognized as a National High-tech Enterprise, a Shanghai "Specialized and Innovative" Enterprise, a Shanghai "Little Giant" Enterprise, and a "Zhangjiang Star" Enterprise in Shanghai.

Abbreviation List Page

Abbreviation	Full Name
ADCC	Antibody-Dependent Cell-Mediated Cytotoxicity
BC (1% PBSM)	Blocking Buffer (1% PBS with Milk)
cell sec	Cell + Secondary Antibody
EC50	Half-Maximal Effective Concentration
ELISA	Enzyme-Linked Immunosorbent Assay
FACS	Fluorescence-Activated Cell Sorting
FL	Full Length
hu-	Human Origin
IC50	Half-Maximal Inhibitory Concentration
IgG1	Isotype Control
LDH	Lactate Dehydrogenase
M (In SDS-PAGE Figure)	Gel Mark Ladder
MASS	Mass Spectrometry
MFI (mean)	Mean Fluorescence Intensity
MW	Molecular Weight
NA	Not Available
NC (IPI)	Negative Control (Ipilimumab As Control)
NR (In SDS-PAGE Figure)	Non Reducing
OD450	Optical Density at 450 nm
QC	Quality Control
R (In SDS-PAGE Figure)	Reducing
SDS-PAGE	Sodium Dodecyl Sulfate-Polyacrylamide Gel Electrophoresis
SEC-HPLC	Size Exclusion High-Performance Liquid Chromatography

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By Targets (Alphabetical Order)

Sanyou Bispecific Reference Antibody

From Molecular Configuration to Functional Verification: Comprehensive Characterization of the Sanyou Bispecific Reference Antibody

Introduction

Sanyou Bispecific Reference Antibody is generated through our proprietary high-quality bispecific antibody preparation platform, which include majority bispecific antibody drugs that have been approved for market release, and representative drugs in different clinical stages. They are characterized by a comprehensive range of categories, diverse configurations, and thorough quality control. These reference antibodies are instrumental in accelerating the progress of bispecific antibody drug researches, by overcoming key challenges in their development.

Anti-CD3 & B7-H4 Reference Antibody (Gen1047)

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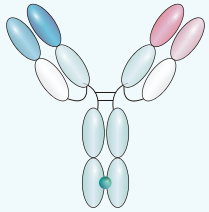


Information	
Name	Gen1047
Catalog number	CHBA047
Batch number	P268015-P268016
Inventor	Genmab
Targets	CD3 & B7H4
Target Accession	P07766 & Q7Z7D3

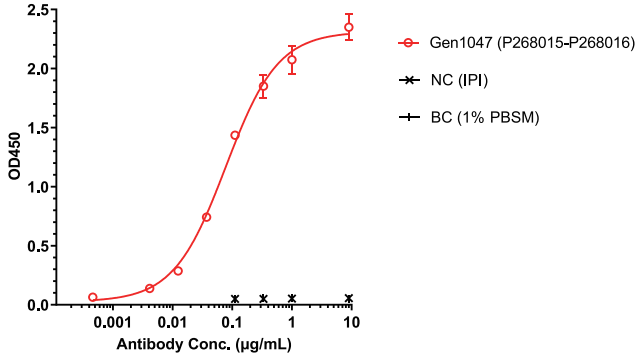


Fig 1. ELISA binding for B7-H4

To measure the binding ability of Gen1047 to huB7-H4-His. Coating B7-H4-His protein on ELISA plate, Gen1047 bound to B7-H4 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Gen1047 bound to huB7-H4-His, and the EC_{50} was 0.078 nM.

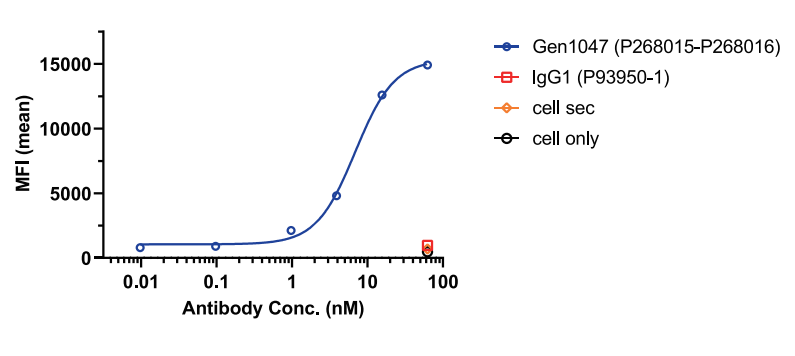


Fig 2. FACS binding for B7-H4

To measure the binding ability of Gen1047 in huB7-H4 CHO-K cells. Gen1047 bound to huB7-H4 CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 2, Gen1047 bound to huB7-H4 CHO-K cells, and the EC_{50} was 6.894 nM.

Anti-CD3 & B7-H4 Reference Antibody (Gen1047)

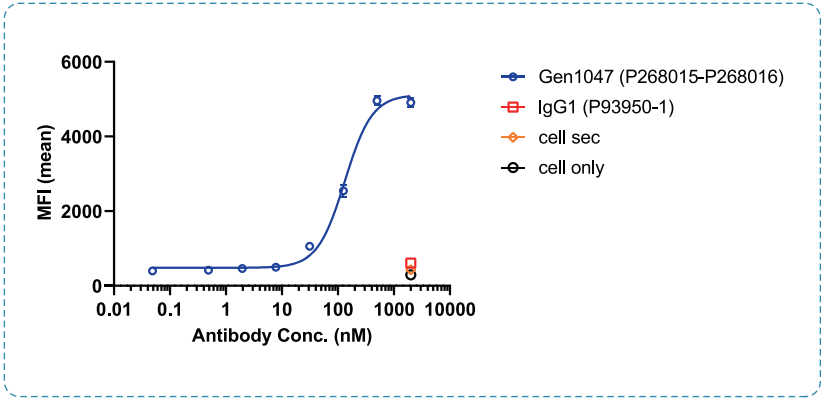


Fig 3. FACS binding for CD3

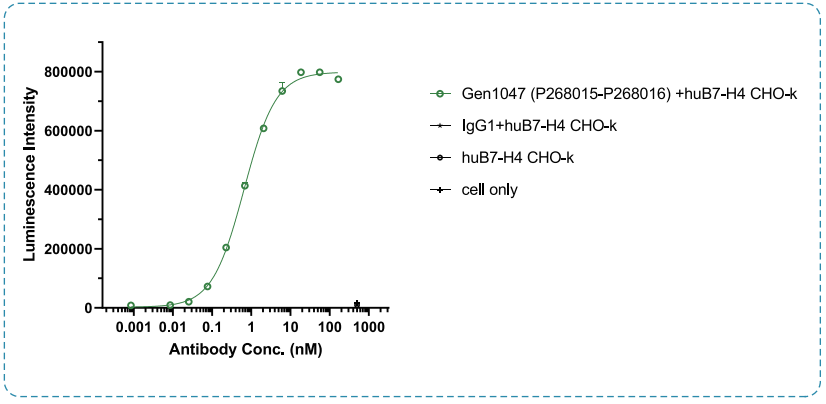
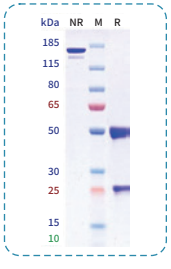


Fig 4. Luciferase reporter for CD3

To measure the binding ability of Gen1047 in huCD3ε-Jurkat cells. Gen1047 bound to huCD3ε-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Gen1047 bound to huCD3ε-Jurkat cells, and the EC_{50} was 132.600 nM.

To evaluate the activation activity of Gen1047 in huB7-H4 CHO-k and NF-AT-Jurkat cells. Co-incubation of Gen1047 with Jurkat cells, then with the addition of huB7-H4 CHO-k cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 4, Gen1047 was able to activate the NF-AT signaling pathway, and the EC_{50} was 0.651 nM.

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	97.20%
Calculated MW	144.48 kDa	144.74 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



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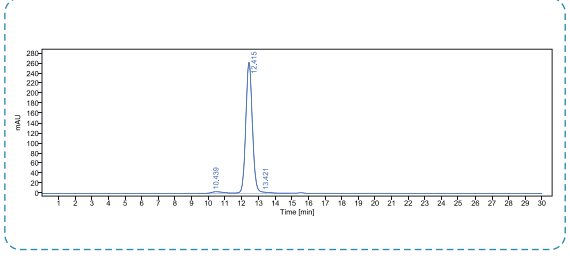
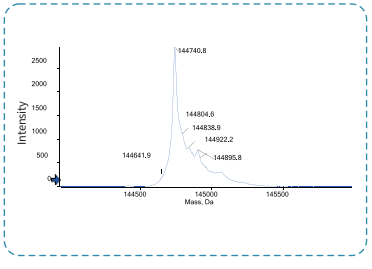


SEC-HPLC



MASS

Anti- CD3 & BCMA & BCMA Reference Antibody (TNB-383B)

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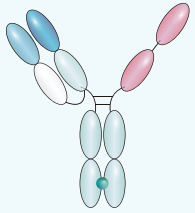


Information	
Name	TNB-383B
Catalog number	CHBA016
Batch number	P267981
Inventor	TeneoBio
Targets	CD3 & BCMA
Target Accession	P07766 & Q02223

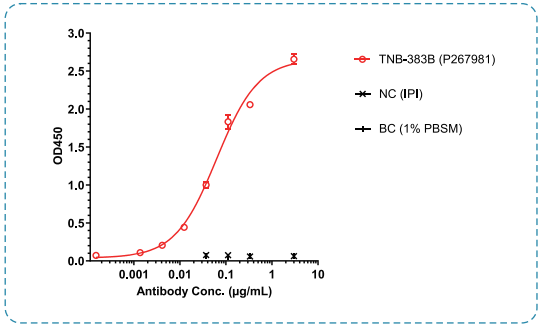


Fig 1. ELISA binding for BCMA

To measure the binding ability of TNB-383B to huBCMA-ECD-His. Coating BCMA-His protein on ELISA plate, TNB-383B bound to BCMA protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, TNB-383B bound to huBCMA-ECD-His, and the EC_{50} was 0.063 nM.

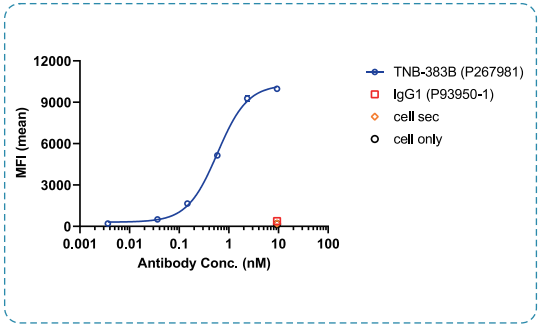


Fig 2. FACS binding for BCMA

To measure the binding ability of TNB-383B in huBCMA-HEK293 cells. TNB-383B bound to huBCMA-HEK293 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 2, TNB-383B bound to huBCMA-HEK293 cells, and the EC_{50} was 0.588 nM.

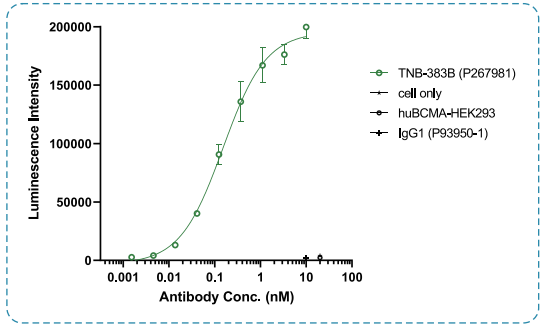
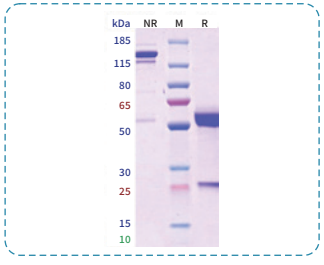


Fig 3. Luciferase reporter for CD3

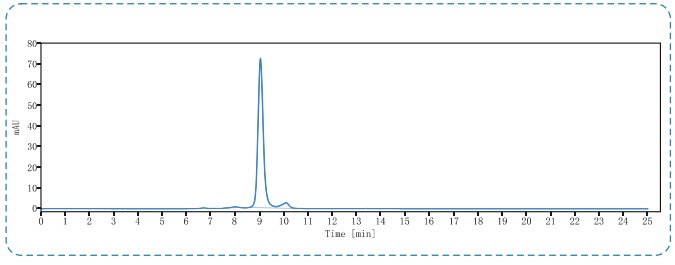
To evaluate the activation activity of TNB-383B in huBCMA-HEK293 and NF-AT-Jurkat cells. Co-incubation of TNB-383B with Jurkat cells, then with the addition of huBCMA-HEK293 cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 4, TNB-383B was able to activate the NF-AT signaling pathway, and the EC_{50} was 0.152 nM.

Anti- CD3 & BCMA & BCMA Reference Antibody (TNB-383B)

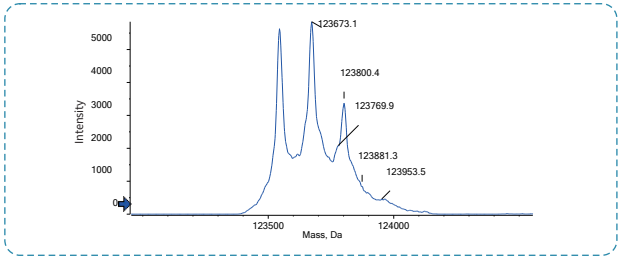
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	97.60%
Calculated MW	123.79 kDa	123.67 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE



SEC-HPLC



MASS

Anti-CD3 & BCMA Reference Antibody (Linvoseltamab)

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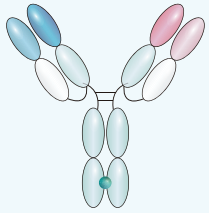


Information	
Name	Linvoseltamab
Catalog number	CHBA019
Batch number	P247892
Inventor	Regeneron Pharmaceuticals
Targets	CD3 & BCMA
Target Accession	P07766 & Q02223

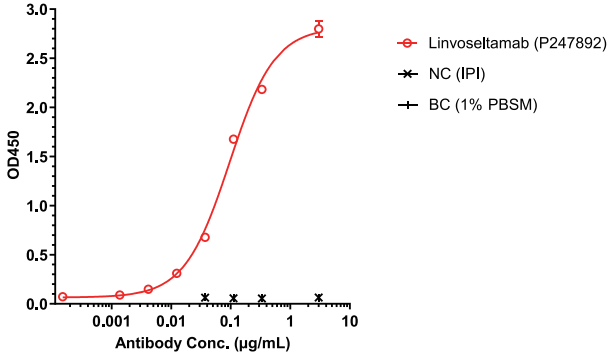


Fig 1. ELISA binding for BCMA

To measure the binding ability of Linvoseltamab to huBCMA-ECD-His. Coating BCMA-His protein on ELISA plate, Linvoseltamab bound to BCMA protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Linvoseltamab bound to huBCMA-ECD-His, and the EC_{50} was 0.096 nM.

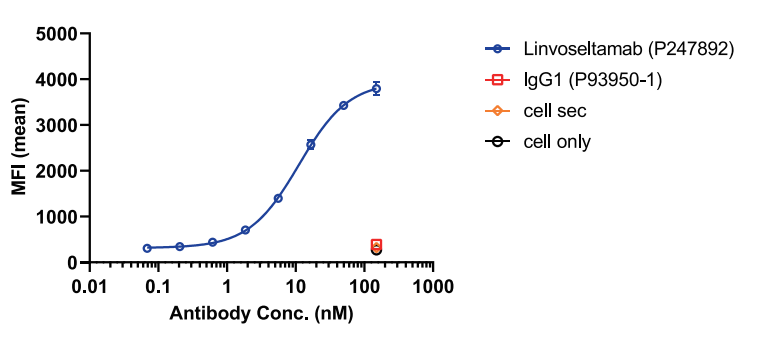


Fig 2. FACS binding for CD3

To measure the binding ability of Linvoseltamab in Jurket cells. Linvoseltamab bound to Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 2, Linvoseltamab bound to Jurket cells, and the EC50 was 11.160 nM.

Anti-CD3 & BCMA Reference Antibody (Linvoseltamab)

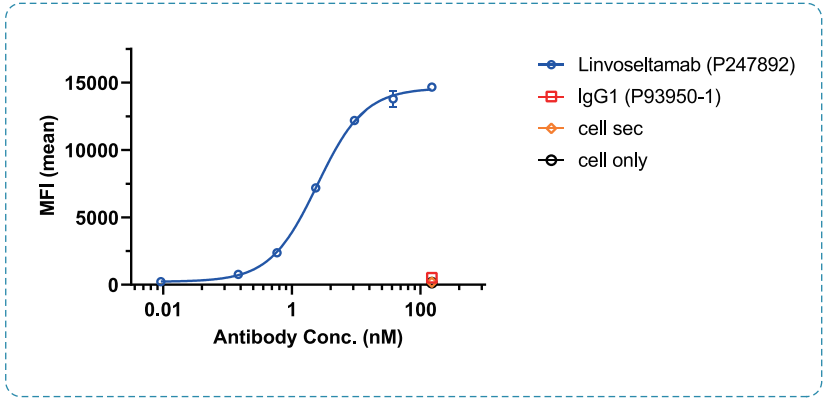


Fig 3. FACS binding for BCMA

To measure the binding ability of Linvoseltamab in huBCMA-HEK293 cells. Linvoseltamab bound to huBCMA-HEK293 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Linvoseltamab bound to huBCMA-HEK293 cells, and the EC_{50} was 2.486 nM.

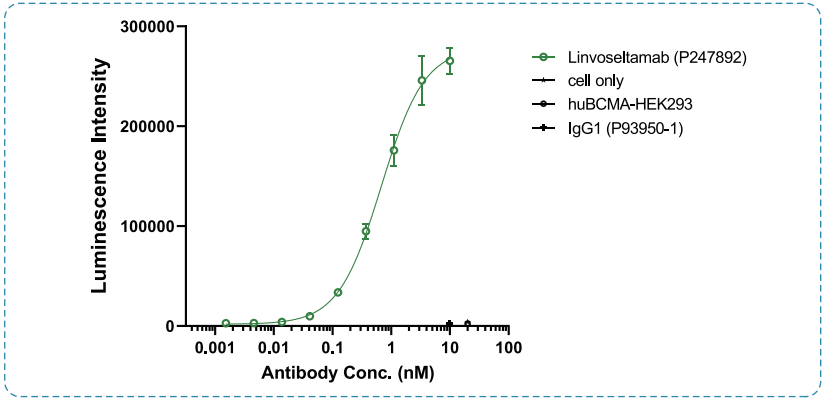
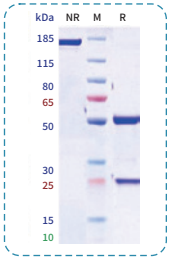


Fig 4. Luciferase reporter for CD3

To evaluate the activation activity of Linvoseltamab in huBCMA-HEK293 and NF-AT-Jurkat cells. Co-incubation of Linvoseltamab with Jurkat cells, then with the addition of huBCMA-HEK293 cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 4, Linvoseltamab was able to activate the NF-AT signaling pathway, and the EC_{50} was 0.678 nM.

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	97.71%
Calculated MW	145.78 kDa	145.95 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



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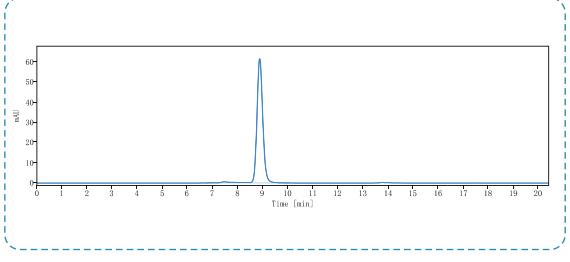
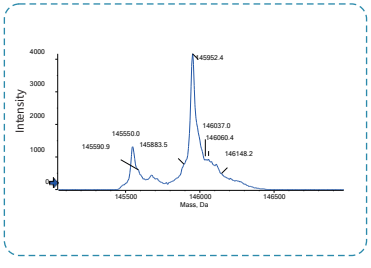


SEC-HPLC



MASS

Anti-CD3 & BCMA Reference Antibody (Elranatamab)

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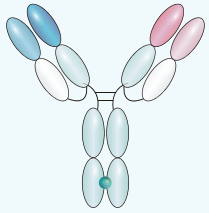


Information	
Name	Elranatamab
Catalog number	CHBA010
Batch number	P262500
Inventor	Pfizer
Targets	CD3 & BCMA
Target Accession	P07766 & Q02223

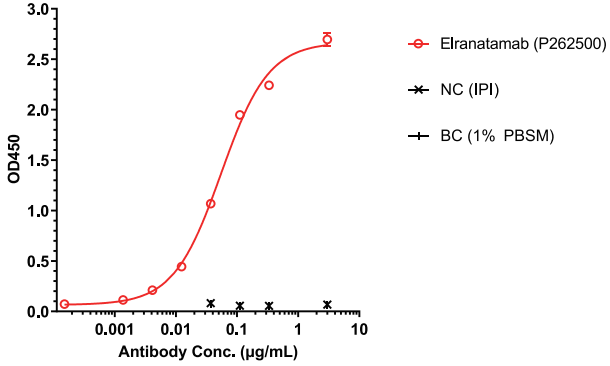


Fig 1. ELISA binding for BCMA

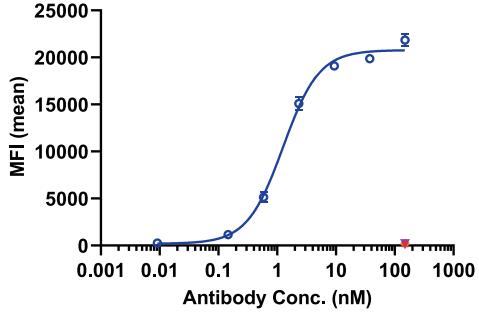


Fig 2. FACS binding for BCMA

To measure the binding ability of Elranatamab to huBCMA-ECD-His. Coating BCMA-His protein on ELISA plate, Elranatamab bound to BCMA protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Elranatamab bound to huBCMA-ECD-His, and the EC_{50} was 0.055 nM.

To measure the binding ability of Elranatamab in huBCMA-HEK293 cells. Elranatamab bound to huBCMA-HEK293 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 2, Elranatamab bound to huBCMA-HEK293 cells, and the EC_{50} was 1.263 nM.

Anti-CD3 & BCMA Reference Antibody (Elranatamab)

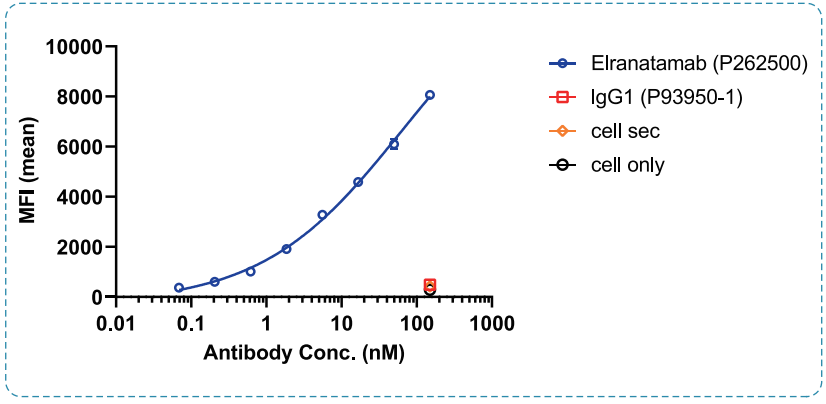


Fig 3. FACS binding for CD3

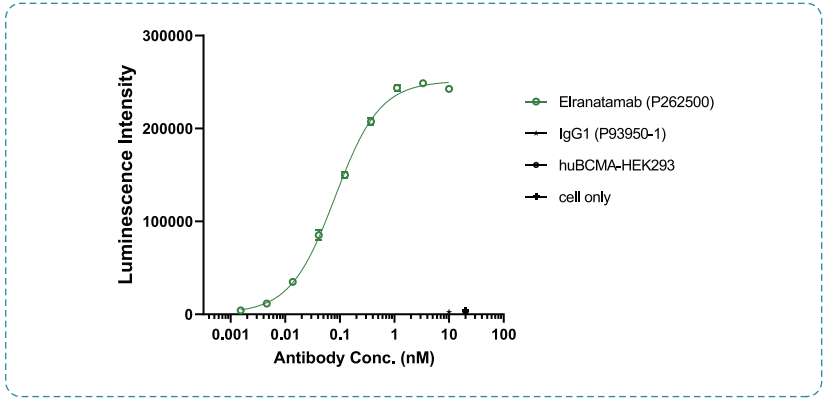
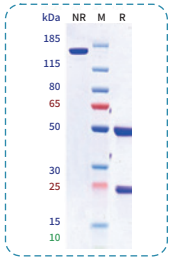


Fig 4. Luciferase reporter for CD3

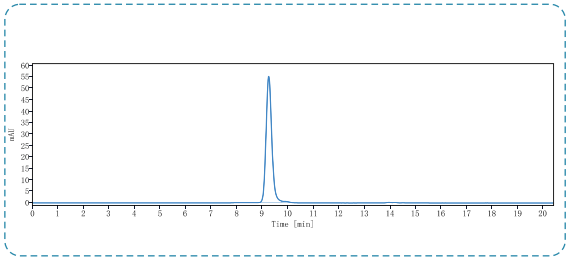
To measure the binding ability of Elranatamab in huCD3e-jurkat cells. Elranatamab bound to huCD3e-jurkat cells, then rebounded to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Elranatamab bound to huCD3e-jurkat cells, and the EC50 was 64.990 nM.

To evaluate the activation activity of Elranatamab in huBCMA-HEK293 and NF-AT-Jurkat cells. Co-incubation of Elranatamab with Jurkat cells, then with the addition of huBCMA-HEK293 cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 4, Elranatamab was able to activate the NF-AT signaling pathway, and the EC_{50} was 0.081 nM.

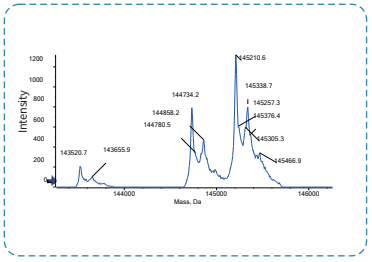
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	99.34%
Calculated MW	145.44 kDa	145.21 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE



SEC-HPLC



MASS*

The mass spectrum exhibits two peaks, suggesting the possible presence of a homodimer.

Anti-CD3 & BCMA Reference Antibody (Teclistamab)

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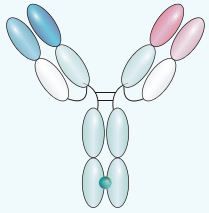


Information	
Name	Teclistamab
Catalog number	CHBA029
Batch number	P267977-P267978
Inventor	Johnson & Johnson
Targets	CD3 & BCMA
Target Accession	P07766 & Q02223

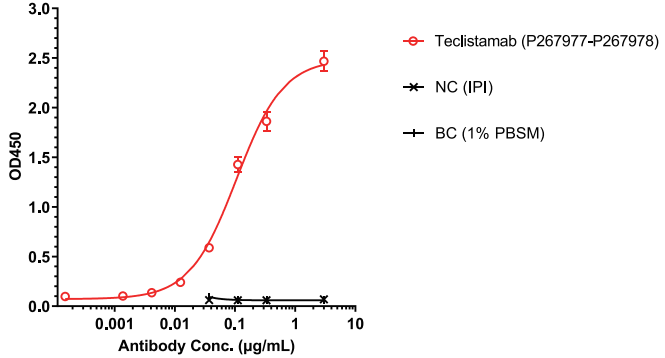


Fig 1. ELISA binding for BCMA

To measure the binding ability of Teclistamab to huBCMA-ECD-His. Coating BCMA-His protein on ELISA plate, Teclistamab bound to BCMA protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Teclistamab bound to huBCMA-ECD-His, and the EC_{50} was 0.106 nM.

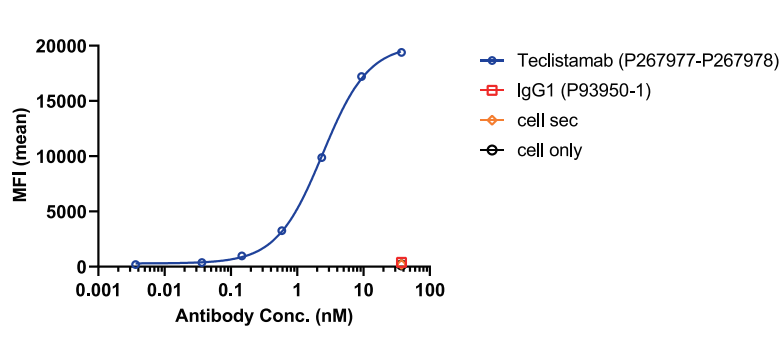


Fig 2. FACS binding for BCMA

To measure the binding ability of Teclistamab in huBCMA-HEK293 cells. Teclistamab bound to huBCMA-HEK293 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 2, Teclistamab bound to huBCMA-HEK293 cells, and the EC_{50} was 2.421 nM.

Anti-CD3 & BCMA Reference Antibody (Teclistamab)

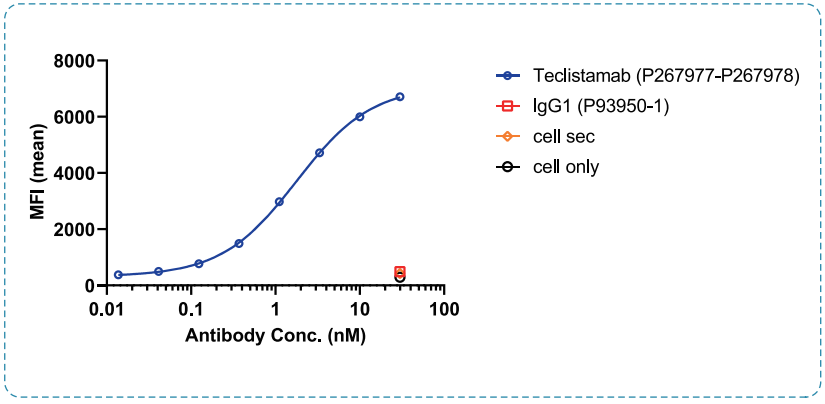


Fig 3. FACS binding for CD3

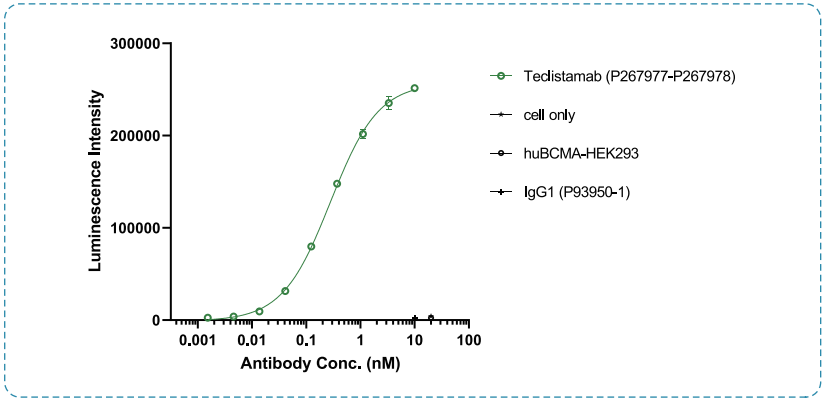
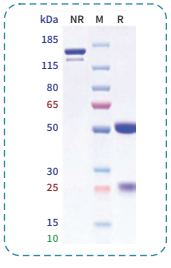


Fig 4. Luciferase reporter for CD3

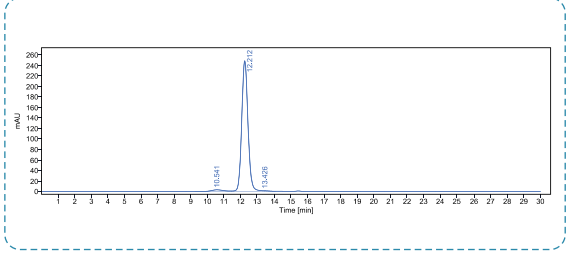
To measure the binding ability of Teclistamab in huCD3ε-Jurkat cells. Teclistamab bound to huCD3ε-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Teclistamab bound to huCD3ε-Jurkat cells, and the EC_{50} was 1.774 nM.

To evaluate the activation activity of Teclistamab in huBCMA-HEK293 and NF-AT-Jurkat cells. Co-incubation of Teclistamab with Jurkat cells, then with the addition of huBCMA-HEK293 cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 4, Teclistamab was able to activate the NF-AT signaling pathway, and the EC_{50} was 0.279 nM.

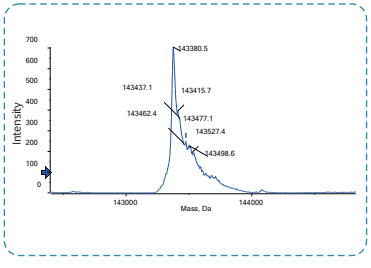
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	97.30%
Calculated MW	143.66 kDa	143.38 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE



SEC-HPLC



MASS

Anti-CD3 & BCMA Reference Antibody (Alnuctamab)

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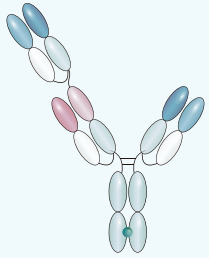


Information	
Name	Alnuctamab
Catalog number	CHBA030
Batch number	P267979C
Inventor	Bristol Myers Squibb
Targets	CD3 & BCMA
Target Accession	P07766 & Q02223

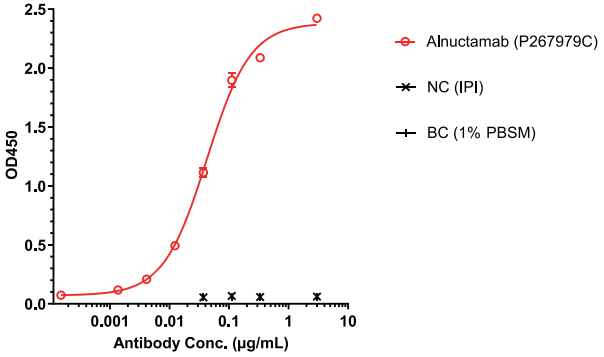


Fig 1. ELISA binding for BCMA

To measure the binding ability of Alnuctamab to huBCMA-ECD-His. Coating BCMA-His protein on ELISA plate, Alnuctamab bound to BCMA protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Alnuctamab bound to huBCMA-ECD-His , and the EC_{50} was 0.042 nM.

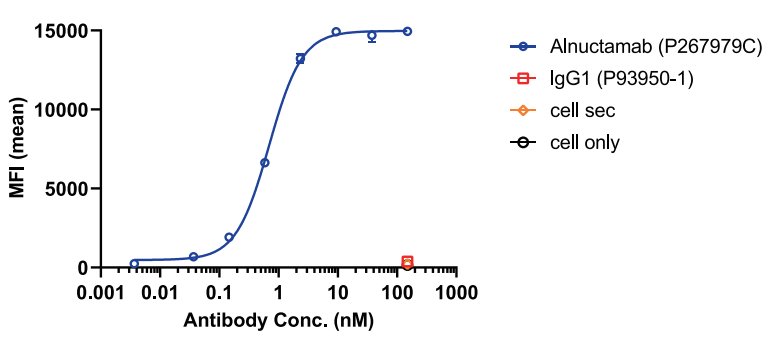


Fig 2. FACS binding for BCMA

To measure the binding ability of Alnuctamab in huBCMA-HEK293 cells. Alnuctamab bound to huBCMA-HEK293 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 2, Alnuctamab bound to huBCMA-HEK293 cells, and the EC_{50} was 0.693 nM.

Anti-CD3 & BCMA Reference Antibody (Alnuctamab)

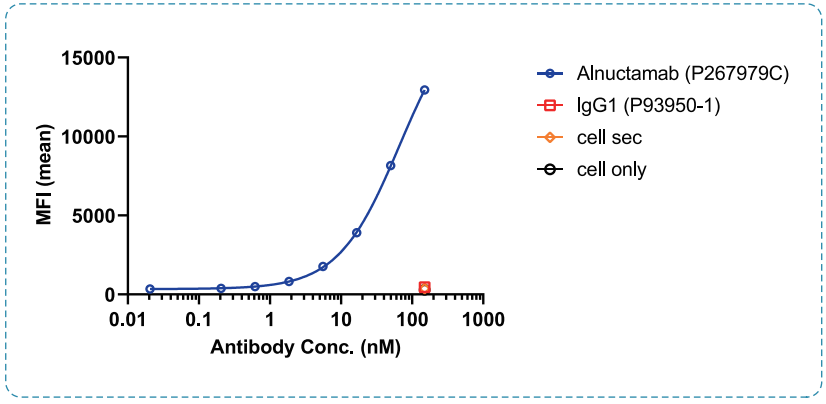


Fig 3. FACS binding for CD3

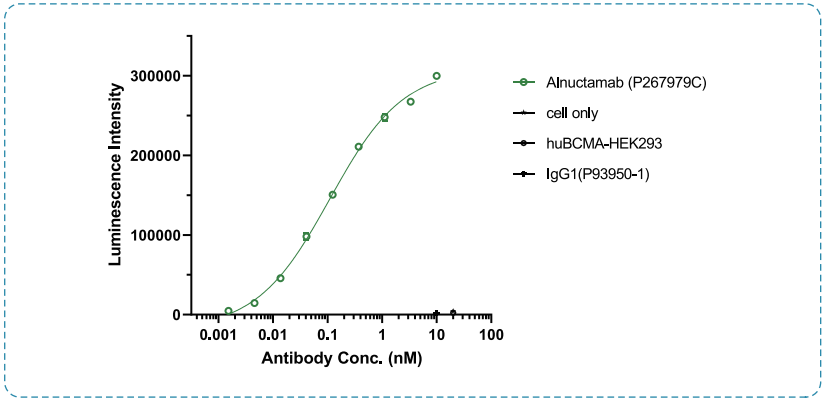
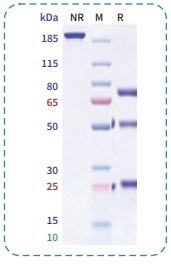


Fig 4. Luciferase reporter for CD3

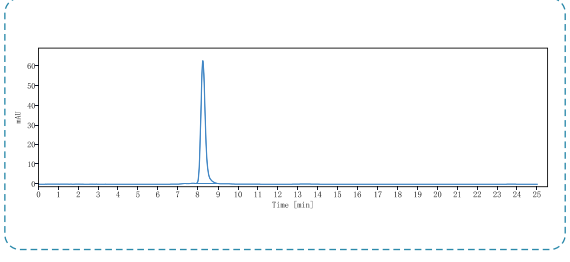
To measure the binding ability of Alnuctamab in huCD3ε-Jurkat cells. Alnuctamab bound to huCD3ε-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Alnuctamab bound to huCD3ε-Jurkat cells, and the EC_{50} was 66.190 nM.

To evaluate the activation activity of Alnuctamab in huBCMA-HEK293 and NF-AT-Jurkat cells. Co-incubation of Alnuctamab with Jurkat cells, then with the addition of huBCMA-HEK293 cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 4, Alnuctamab was able to activate the NF-AT signaling pathway, and the EC_{50} was 0.110 nM.

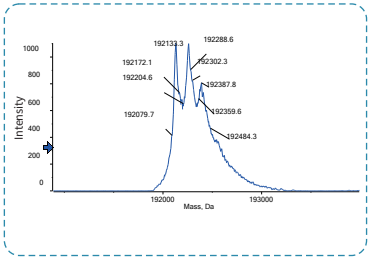
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	100.00%
Calculated MW	192.35 kDa	192.13 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE



SEC-HPLC



MASS

Anti-CD3 & BCMA Reference Antibody (Emb-06)

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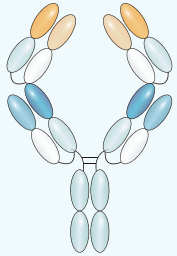


Information	
Name	Emb-06
Catalog number	CHBA040
Batch number	P268012
Inventor	Epimab Biotherapeutics
Targets	CD3 & BCMA
Target Accession	P07766 & Q02223

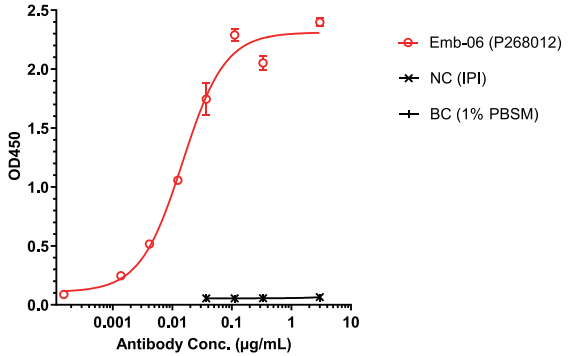


Fig 1. ELISA binding for BCMA

To measure the binding ability of Emb-06 to huBCMA-ECD-His. Coating BCMA-His protein on ELISA plate, Emb-06 bound to BCMA protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Emb-06 bound to huBCMA-ECD-His, and the EC_{50} was 0.015 nM.

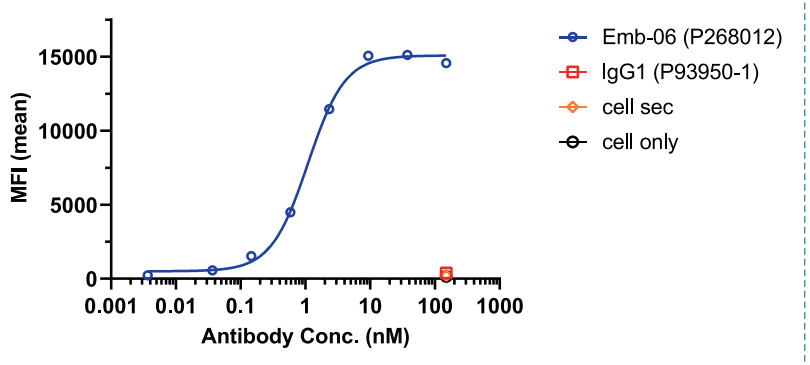


Fig 2. FACS binding for BCMA

To measure the binding ability of Emb-06 in huBCMA-HEK293 cells. Emb-06 bound to huBCMA-HEK293 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 2, Emb-06 bound to huBCMA-HEK293 cells, and the EC_{50} was 1.098 nM.

Anti-CD3 & BCMA Reference Antibody (Emb-06)

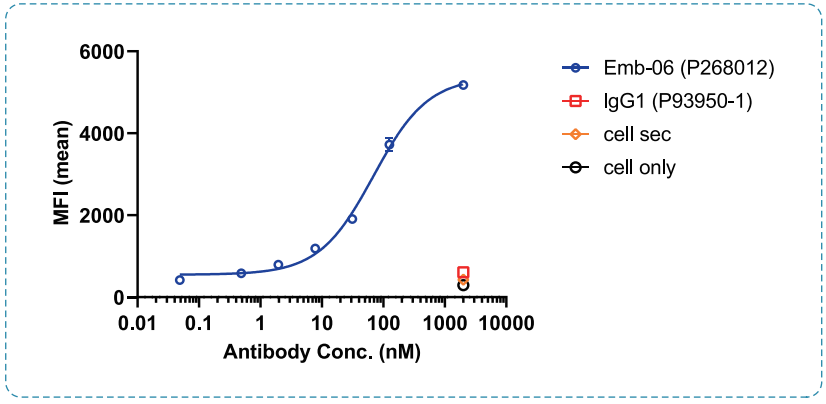


Fig 3. FACS binding for CD3

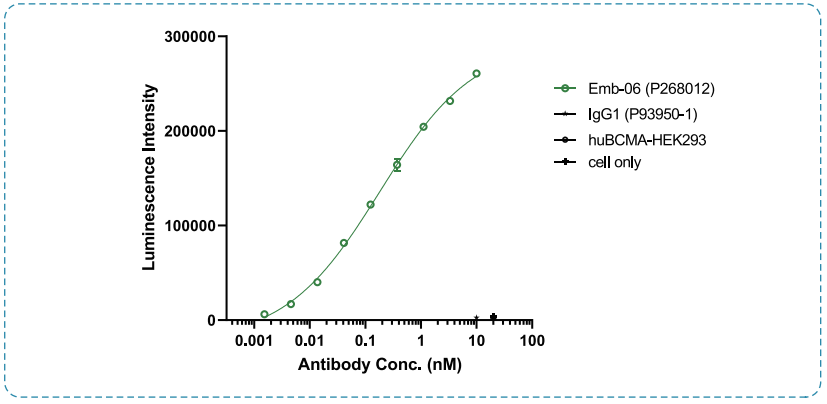
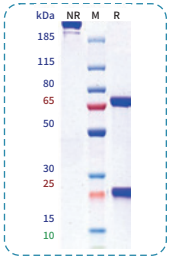


Fig 4. Luciferase reporter for CD3

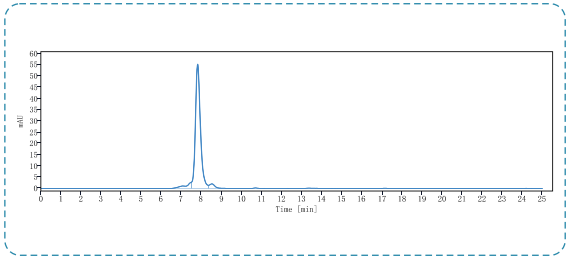
To measure the binding ability of Emb-06 in huCD3ε-Jurkat cells. Emb-06 bound to huCD3ε-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Emb-06 bound to huCD3ε-Jurkat cells, and the EC_{50} was 69.310 nM.

To evaluate the activation activity of Emb-06 in huBCMA-HEK293 and NF-AT-Jurkat cells. Co-incubation of Emb-06 with Jurkat cells, then with the addition of huBCMA-HEK293 cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 4, Emb-06 was able to activate the NF-AT signaling pathway, and the EC_{50} was 0.181 nM.

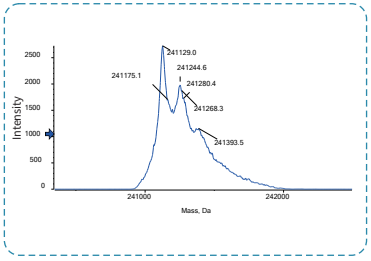
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	91.32%
Calculated MW	241.36 kDa	241.13 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

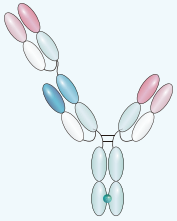


SEC-HPLC



MASS

Anti-CD3 & CD20 Reference Antibody (Glofitamab)

Configuration


Information	
Name	Glofitamab
Catalog number	CHBA015
Batch number	P263837C
Inventor	Roche
Targets	CD3 & CD20
Target Accession	P07766 & P11836

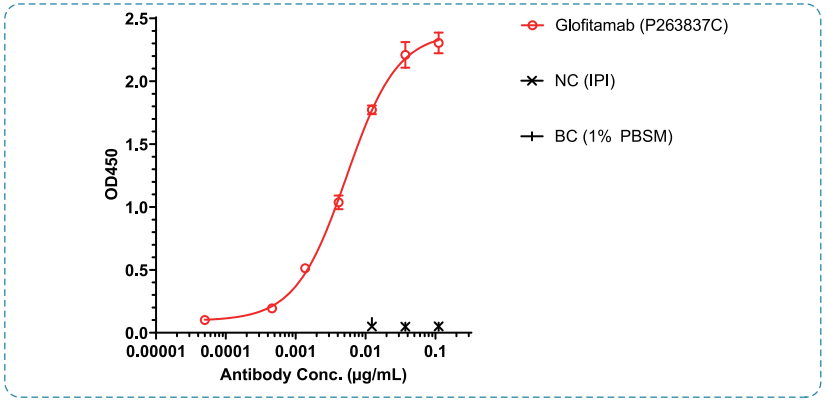


Fig 1. ELISA binding for CD20

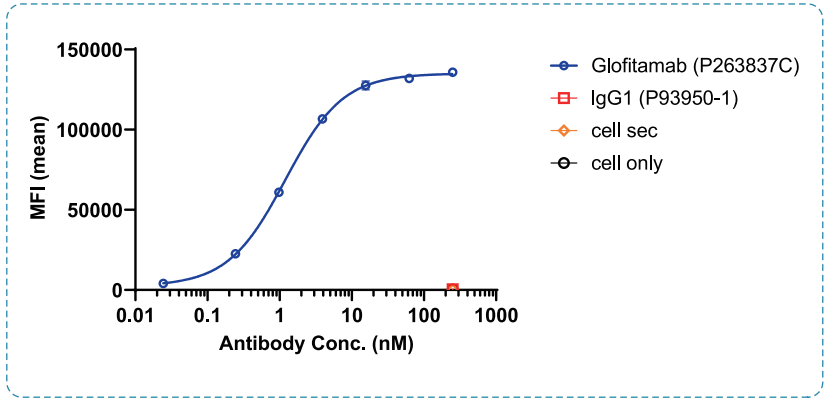


Fig 2. FACS binding for CD20

To measure the binding ability of Glofitamab to huCD20-VLP. Coating CD20-VLP protein on ELISA plate, Glofitamab bound to CD20 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Glofitamab bound to huCD20-VLP, and the EC_{50} was 0.005 nM.

To measure the binding ability of Glofitamab in Raji cells. Glofitamab bound to Raji cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 2, Glofitamab bound to Raji cells, and the EC_{50} was 1.199 nM.

Anti-CD3 & CD20 Reference Antibody (Glofitamab)

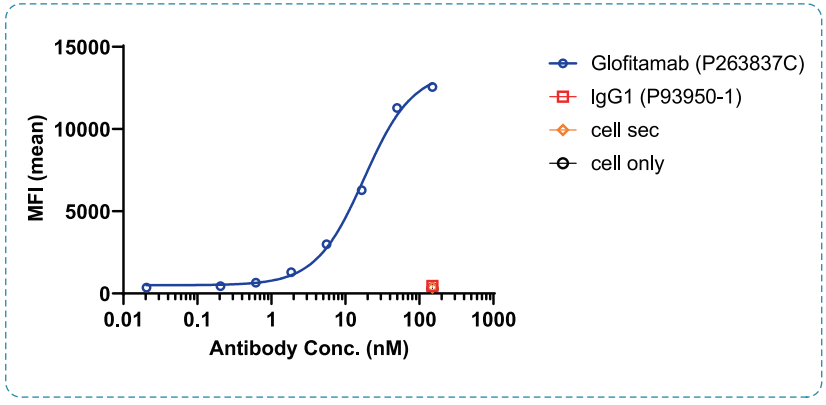


Fig 3. FACS binding for CD3

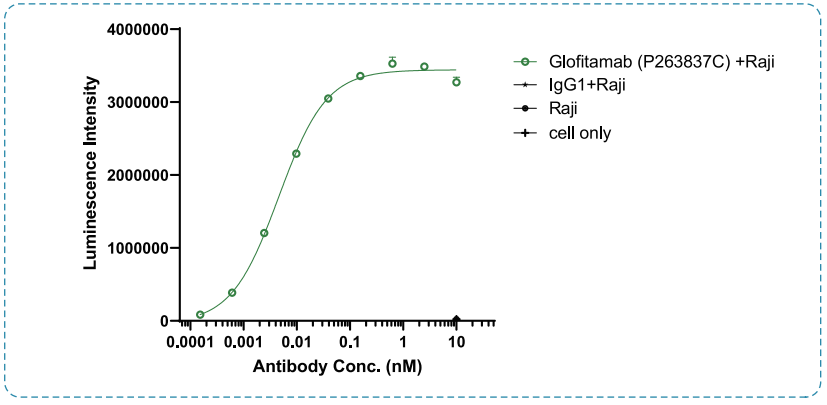
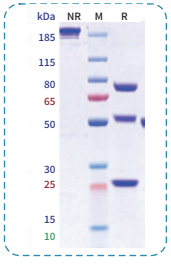


Fig 4. Luciferase reporter for CD3

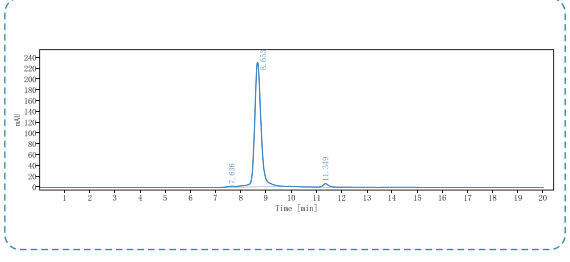
To measure the binding ability of Glofitamab in huCD3ε-Jurkat cells. Glofitamab bound to huCD3ε-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Glofitamab bound to huCD3ε-Jurkat cells, and the EC_{50} was 17.980 nM.

To evaluate the activation activity of Glofitamab in Raji and NF-AT-Jurkat cells. Co-incubation of Glofitamab with Jurkat cells, then with the addition of Raji cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 4, Glofitamab was able to activate the NF-AT signaling pathway, and the EC_{50} was 0.005 nM.

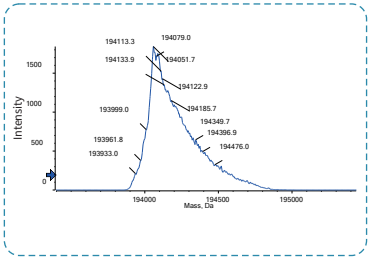
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	96.80%
Calculated MW	194.32 kDa	194.08 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

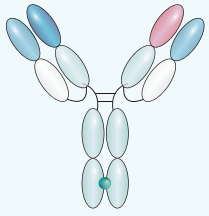


SEC-HPLC



MASS

Anti-CD3 & CD20 Reference Antibody (Odronextamab)

Configuration


Information	
Name	Odronextamab
Catalog number	CHBA045
Batch number	P247901
Inventor	Regeneron Pharmaceuticals
Targets	CD3 & CD20
Target Accession	P07766 & P11836

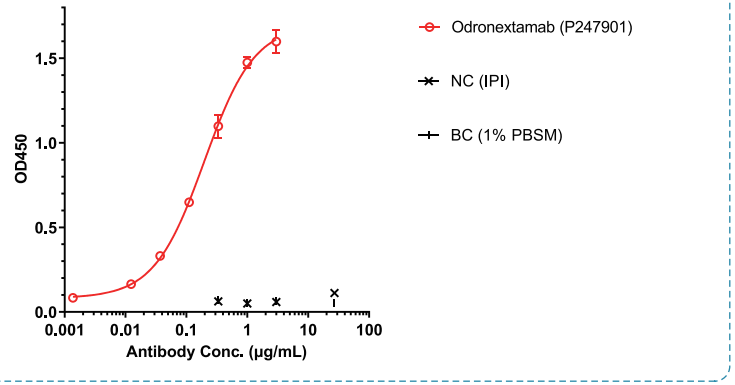


Fig 1. ELISA binding for CD20

To measure the binding ability of Odronextamab to huCD20-VLP. Coating CD21-VLP protein on ELISA plate, Odronextamab bound to CD20 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Odronextamab bound huCD20-VLP, and the EC_{50} was 0.196 nM.

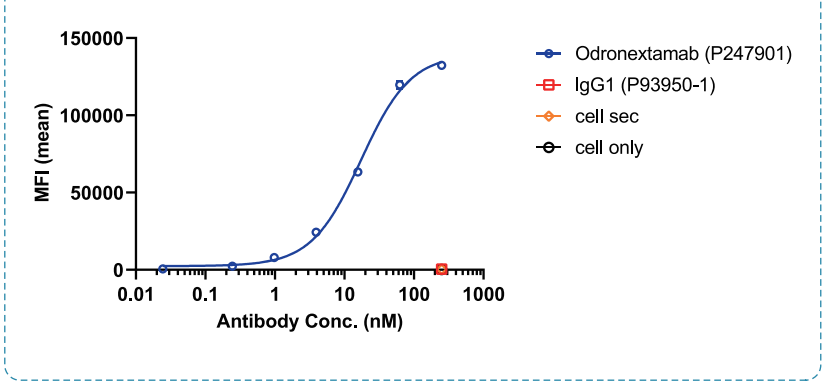


Fig 2. FACS binding for CD20

To measure the binding ability of Odronextamab in Raji cells. Odronextamab bound to Raji cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 2, Odronextamab bound to Raji cells, and the EC_{50} was 17.300 nM.

Anti-CD3 & CD20 Reference Antibody (Odronextamab)

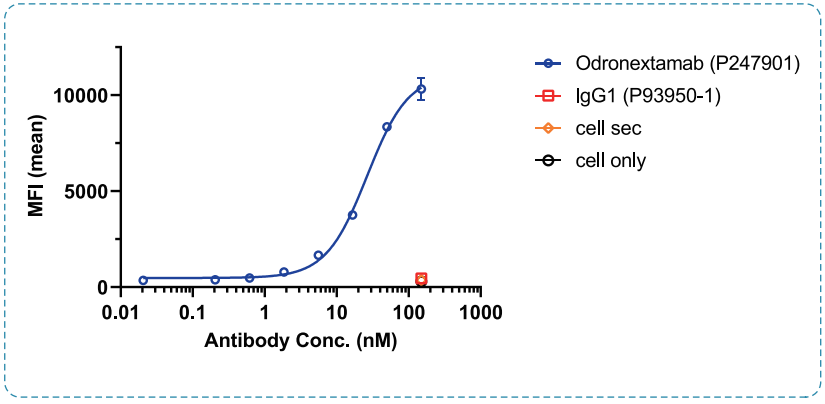


Fig 3. FACS binding for CD3

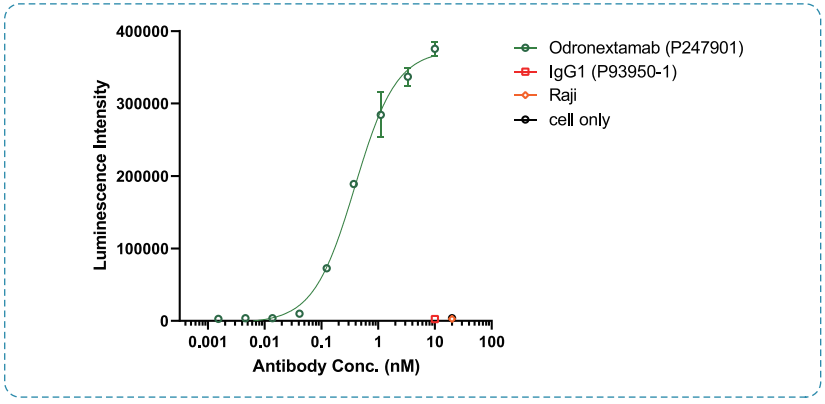
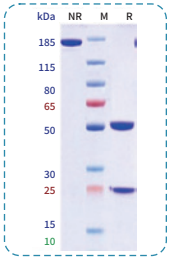


Fig 4. Luciferase reporter for CD3

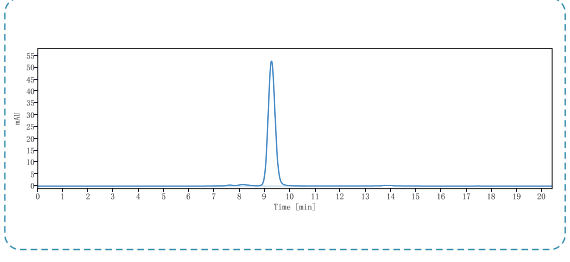
To measure the binding ability of Odronextamab in huCD3ε-Jurkat cells. Odronextamab bound to huCD3ε-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Odronextamab bound to huCD3ε-Jurkat cells, and the EC_{50} was 26.520 nM.

To evaluate the activation activity of Odronextamab in Raji and NF-AT-Jurkat cells. Co-incubation of Odronextab with Jurkat cells, then with the addition of Raji cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 4, Odronextamab was able to activate the NF-AT signaling pathway, and the EC_{50} was 0.390 nM.

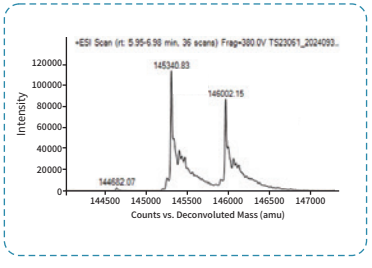
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	97.48%
Calculated MW	145.57 kDa	145.34 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE



SEC-HPLC



MASS

Anti-CD3 & CD123 Reference Antibody (Flotetuzumab)

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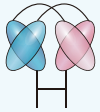


Information	
Name	Flotetuzumab
Catalog number	CHBA075
Batch number	P247893
Inventor	MacroGenics
Targets	CD3 & CD123
Target Accession	P07766 & P26951

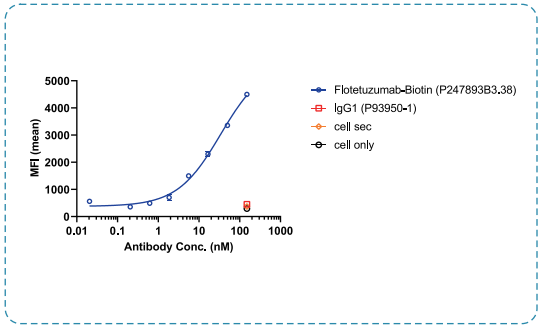


Fig 1. FACS binding for CD3

To measure the binding ability of Flotetuzumab in huCD3ε-Jurkat cells. Flotetuzumab-Biotin bound to huCD3ε-Jurkat cells, then bound to fluorescent secondary antibodies (PE Streptavidin). Signal tested by flow cytometry. As shown in fig 1, Flotetuzumab bound to huCD3ε-Jurkat cells, and the EC_{50} was 33.800 nM.

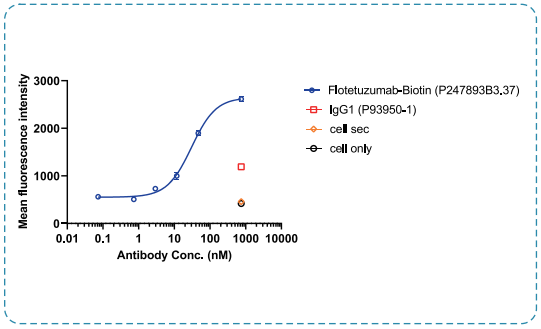


Fig 2. FACS binding for CD123

To measure the binding ability of Flotetuzumab in GSV0-huCD123-ECD-Fc cells. Flotetuzumab-Biotin bound to GSV0-huCD123-ECD-Fc cells, then bound to fluorescent secondary antibodies (PE Streptavidin). Signal tested by flow cytometry. As shown in fig 2, Flotetuzumab bound to GSV0-huCD123-ECD-Fc cells, and the EC_{50} was 31.240 nM.

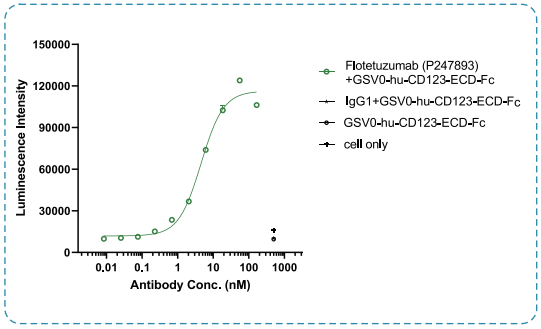
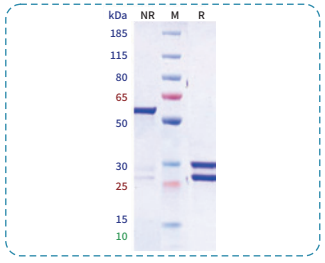


Fig 3. Luciferase reporter for CD3

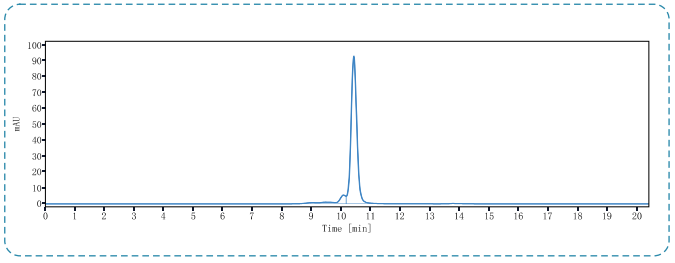
To evaluate the activation activity of Flotetuzumab in GSV0-huCD123-ECD-Fc and NF-AT-Jurkat cells. Co-incubation of Flotetuzumab with Jurkat cells, then with the addition of GSV0-huCD123-ECD-Fc cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 3, Flotetuzumab was able to activate the NF-AT signaling pathway, and the EC_{50} was 4.555 nM.

Anti-CD3 & CD123 Reference Antibody (Flotetuzumab)

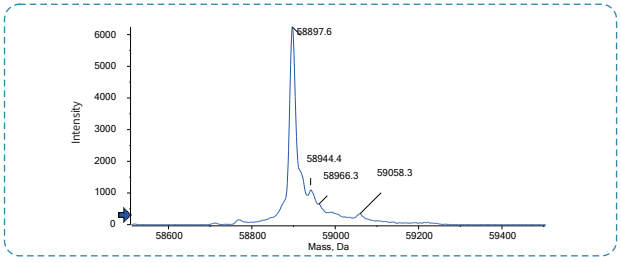
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	91.49%
Calculated MW	58.91 kDa	58.91 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE



SEC-HPLC



MASS

Anti-CD3 & GPRC5D Reference Antibody (Talquetamab)

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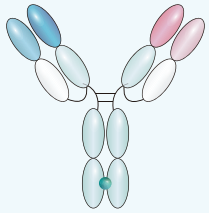


Information	
Name	Talquetamab
Catalog number	CHBA026
Batch number	P247885-P247881
Inventor	Genmab, Johnson & Johnson
Targets	CD3 & GPRC5D
Target Accession	P07766 & Q9NZD1

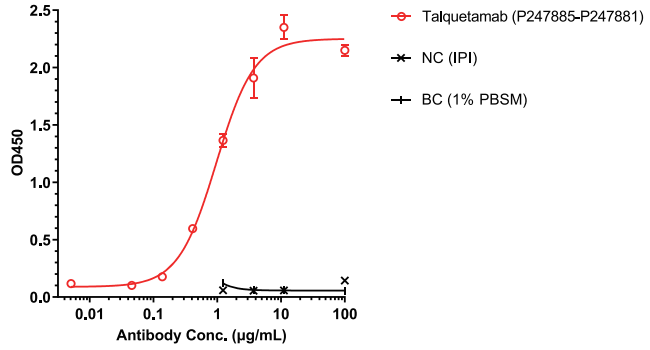


Fig 1. ELISA binding for GPRC5D

To measure the binding ability of Talquetamab to huGPRC5D-VLP. Coating GPRC5D-VLP protein on ELISA plate, Talquetamab bound to GPRC5D protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP), OD450 read. As shown in fig 1, Talquetamab bound to huGPRC5D-VLP, and the EC50 was 0.978 nM.

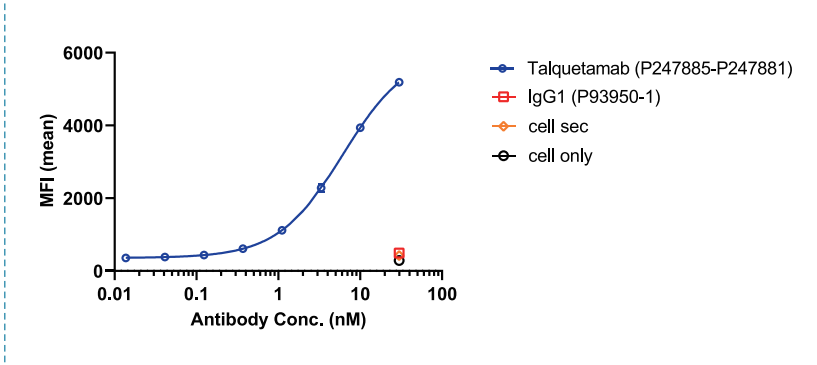


Fig 2. FACS binding for CD3

To measure the binding ability of Talquetamab in huCD3ε-Jurkat cells. Talquetamab bound to huCD3ε-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 2, Talquetamab bound to huCD3ε-Jurkat cells, and the EC50 was 6.175 nM.

Anti-CD3 & GPRC5D Reference Antibody (Talquetamab)

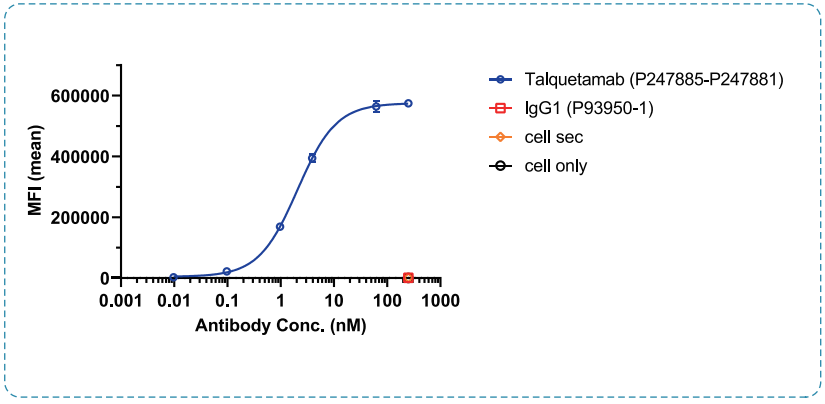


Fig 3. FACS binding for GPRC5D

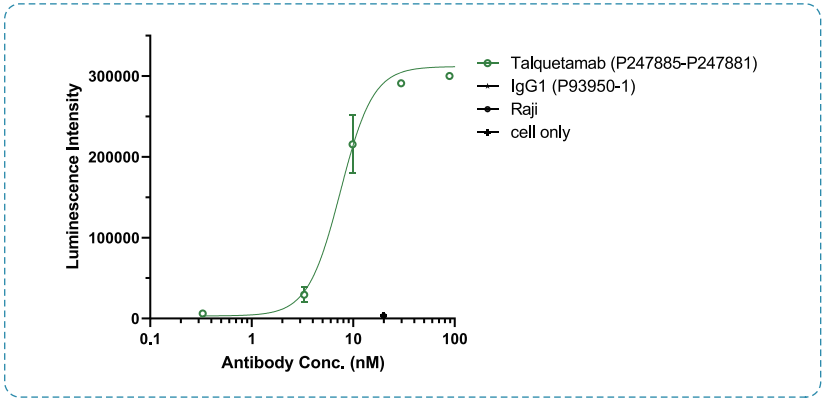
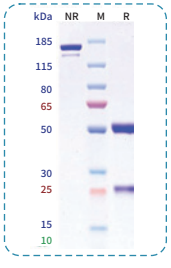


Fig 4. Luciferase reporter for CD3

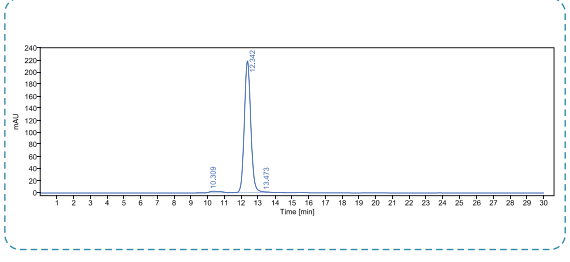
To measure the binding ability of Talquetamab in huGPRC5D-HEK293 cells. Talquetamab bound to huGPRC5D-HEK293 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Talquetamab bound to huGPRC5D-HEK293 cells, and the EC was 2.067 nM.

To evaluate the activation activity of Talquetamab in NF-AT-Jurkat cells. Plated and cultivated Talquetamab at 4°C overnight, then with the addition of NF-AT-Jurkat cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 4, Talquetamab was able to activate the NF-AT signaling pathway, and the EC_{50} was 7.499 nM.

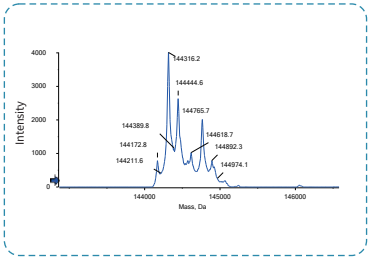
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	97.10%
Calculated MW	144.60 kDa	144.32 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE



SEC-HPLC



MASS

Anti-CD3 & TPBG Reference Antibody (Gen1044)

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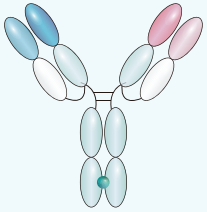


Information	
Name	Gen1044
Catalog number	CHBA037
Batch number	P268006-P268007
Inventor	Genmab
Targets	CD3 & TPBG
Target Accession	P07766 & Q13641

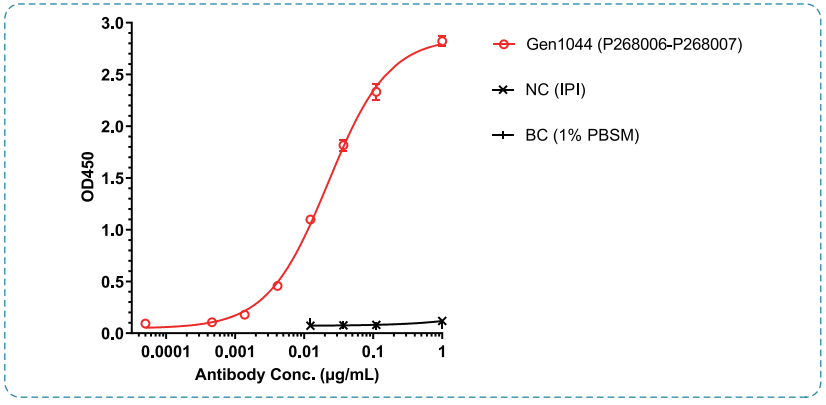


Fig 1. ELISA binding for TPBG

To measure the binding ability of Gen1044 to huTPBG-His. Coating TPBG-His protein on ELISA plate, Gen1044 bound to TPBG protein, and then bound to secondary antibodies (anti-human-IgG-Fc-HRP), OD450 read. As shown in fig 1, Gen1044 bound to huTPBG-His, and the EC_{50} was 0.022 nM.

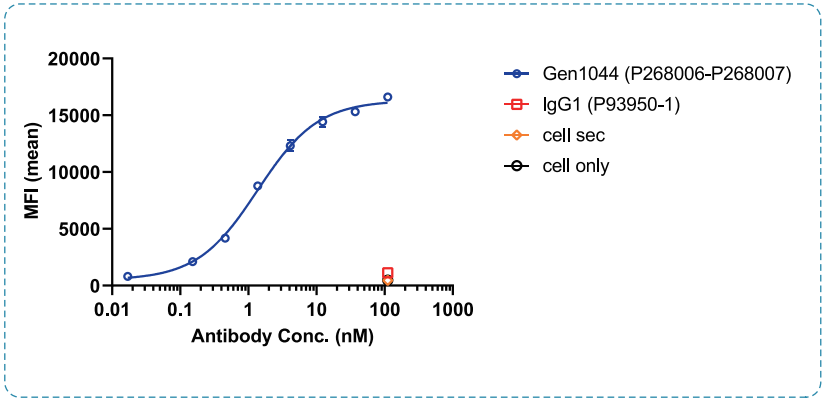


Fig 2. FACS binding for TPBG

To measure the binding ability of Gen1044 in MDA-MB-231 cells. Gen1044 bound to MDA-MB-231 cells, and then rebounded to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 2, Gen1044 bound to MDA-MB-231 cells, and the EC_{50} was 1.367nM.

Anti-CD3 & TPBG Reference Antibody (Gen1044)

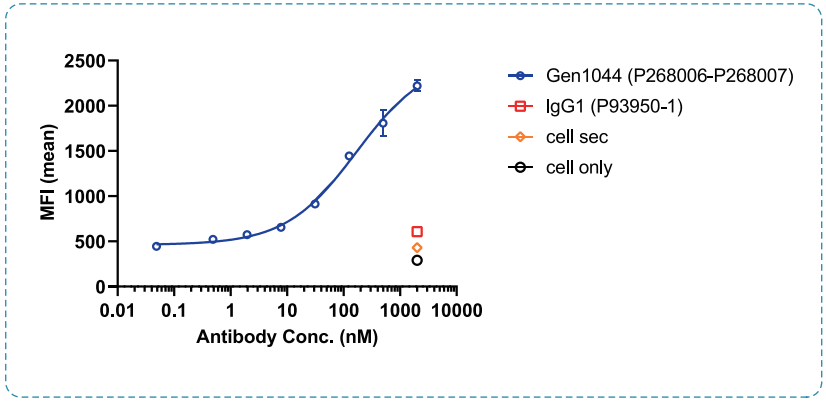


Fig 3. FACSA binding for CD3

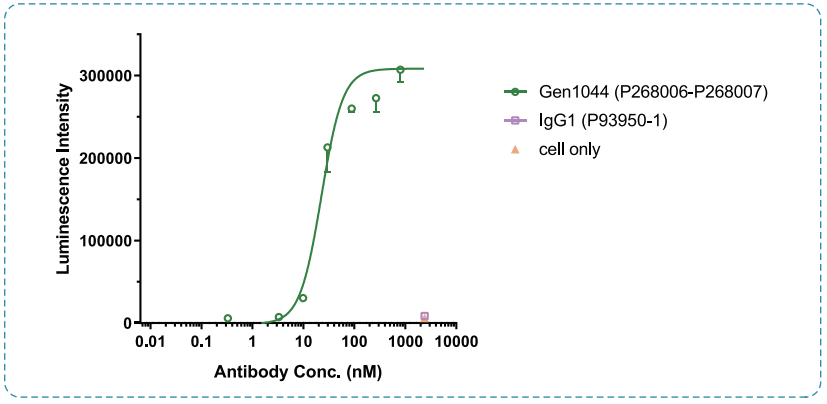
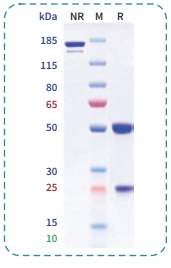


Fig 4. Luciferase reporter for CD3

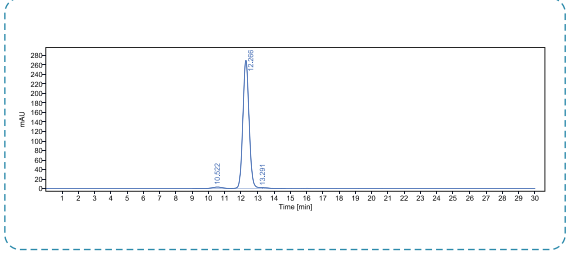
To measure the binding ability of Gen1044 in huCD3ε-Jurkat cells. Gen1044 bound to huCD3ε-Jurkat cells, and then rebounded to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal testedby flow cytometry. As shown in fig 3, Gen1044 bound to huCD3ε-Jurkat cells, and the EC_{50} was 168.700 nM.

To evaluate the activation activity of Gen1044 in NF-AT-Jurkat cells. Gen1044 was coated to plate at 4°C overnight, then with the addition of NF-AT-Jurkat cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 4, Gen1044 was able to activate the NF-AT signaling pathway, and the EC_{50} was 22.560 nM.

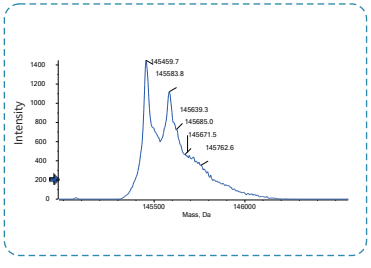
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	97.30%
Calculated MW	145.22 kDa	145.46 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

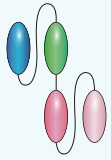


SEC-HPLC



MASS

Anti-CD3 & DLL3 & Serum Albumin Reference Antibody (HPN328)

Configuration


Information	
Name	HPN328
Catalog number	CHBA051
Batch number	P265759C
Inventor	Harpoon Therapeutics
Targets	CD3 & DLL3 & Serum Albumin / SA / HSA
Target Accession	P07766 & Q9NYJ7 & P02768

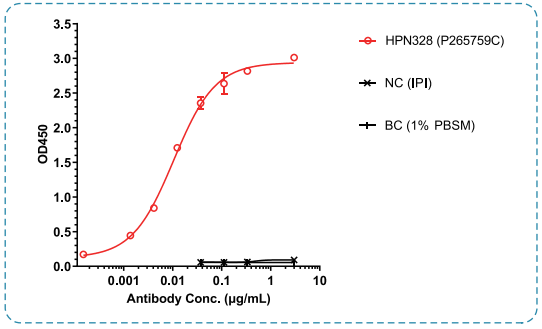


Fig 1. ELISA binding for DLL3

To measure the binding ability of HPN328 to huDLL3-Fc. Coating DLL3-Fc protein on ELISA plate, HPN328 bound to DLL3 protein, then bound to secondary antibodies (anti-human-IgG-His-HRP), OD450 read. As shown in fig 1, HPN328 bound huDLL3-Fc, and the EC_{50} was 0.010 nM.

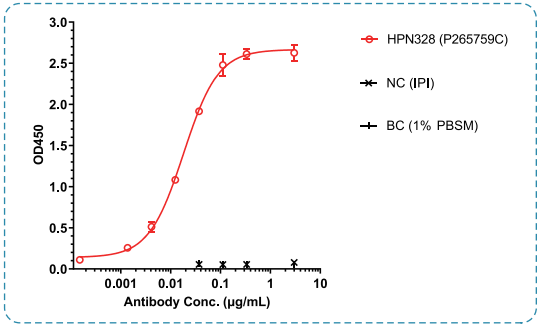


Fig 2. ELISA binding for HSA

To measure the binding ability of HPN328 to HSA-Fc. Coating HSA-Fc protein on ELISA plate, HPN328 bound to HSA protein, then bound to secondary antibodies (anti-human-IgG-His-HRP), OD450 read. As shown in fig 2, HPN328 bound HSA-Fc, and the EC_{50} was 0.018 nM.

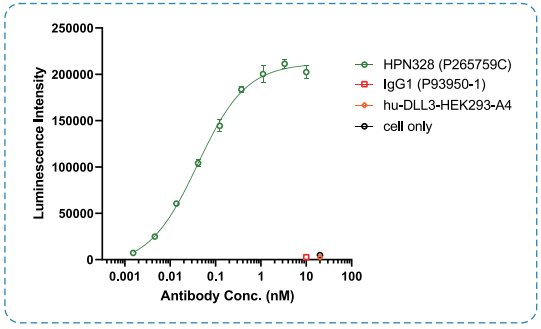
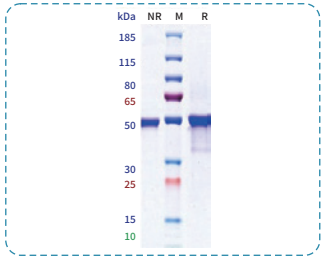


Fig 3. Luciferase reporter for CD3

To evaluate the activation activity of HPN328 in huDLL3-HEK293 and NF-AT-Jurkat cells. Co-incubation of HPN328 with Jurkat cells, then with the addition of huDLL3-HEK293 cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 3, HPN328 was able to activate the NF-AT signaling pathway.

Anti-CD3 & DLL3 & Serum Albumin Reference Antibody (HPN328)

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	100.00%
Calculated MW	53.06 kDa	53.05 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



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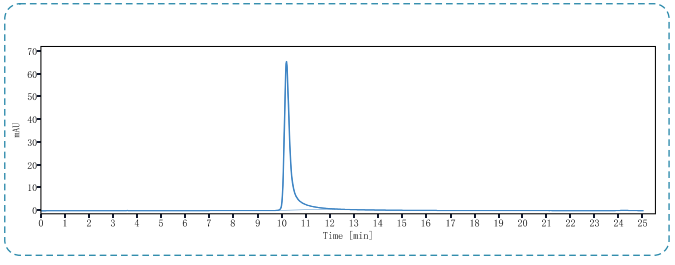
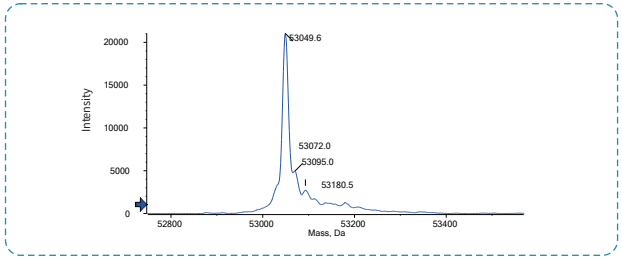
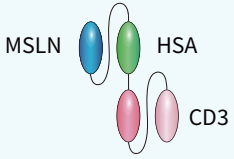


SEC-HPLC



MASS

Anti-CD3 & MSLN & Serum Albumin Reference Antibody (HPN536)

Configuration


Information	
Name	HPN536
Catalog number	CHBA035
Batch number	P268003
Inventor	Harpoon Therapeutics
Targets	CD3 & MSLN & Serum Albumin / SA / HSA
Target Accession	P07766 & Q13421 & P02768

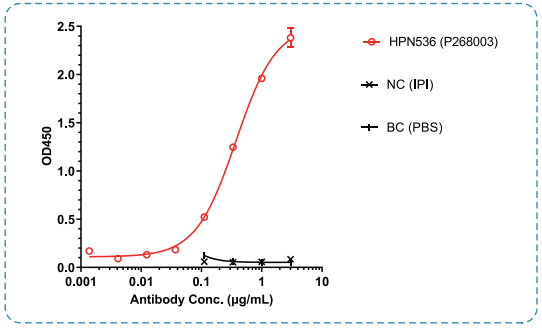


Fig 1. ELISA binding for MSLN

To measure the binding ability of HPN536 to huMSLN-Fc. Coating HPN536-His protein on ELISA plate, PN536 bound to MSLN protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP), OD450 read. As shown in fig 1, HPN536 bound to huMSLN-Fc, and the EC_{50} was 0.374 nM.

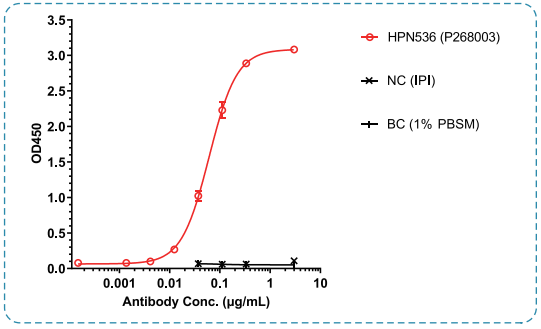


Fig 2. ELISA binding for HSA

To measure the binding ability of HPN536 to HSA-Fc. Coating HSA-Fc protein on ELISA plate, HPN536 bound to MSLN protein, then bound to secondary antibodies (anti-6×His-HRP), OD450 read. As shown in fig 2, HPN536 bound to HSA-Fc, and the EC_{50} was 0.061 nM.

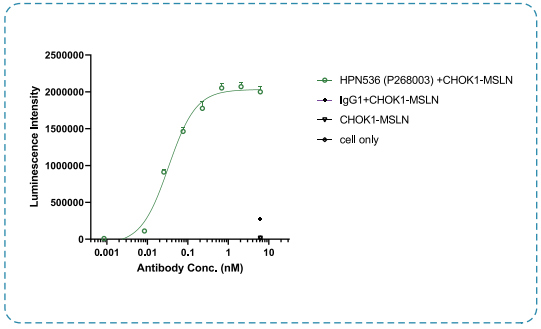
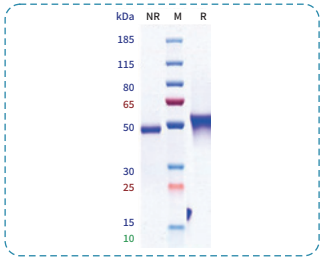


Fig 3. Luciferase reporter for CD3

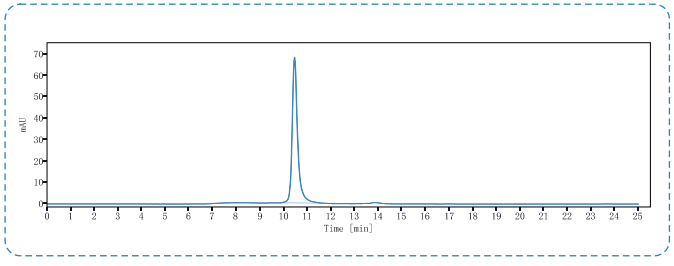
To evaluate the activation activity of HPN536 in CHOK1-MSLN and NF-AT-Jurkat cells. Co-incubation of HPN536 with Jurkat cells, then with the addition of CHOK1-MSLN cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 3, HPN536 was able to activate the NF-AT signaling pathway, and the EC_{50} was 0.033 nM.

Anti-CD3 & MSLN & Serum Albumin Reference Antibody (HPN536)

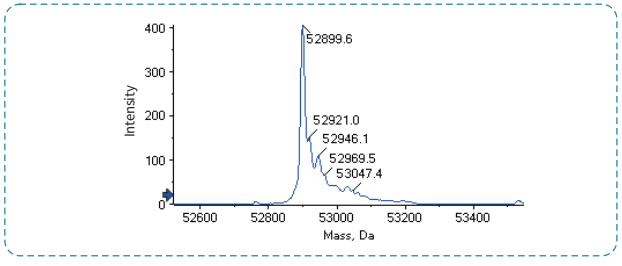
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	>100.00%
Calculated MW	52.92 kDa	52.90 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE



SEC-HPLC



MASS

Anti-CD3 & DLL3 Reference Antibody (Tarlatamab)

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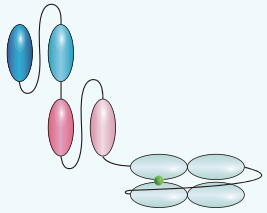

Information	
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Catalog number	CHBA072
Batch number	P263257C
Inventor	Amgen
Targets	CD3 & DLL3
Target Accession	P07766 & Q9NYJ7

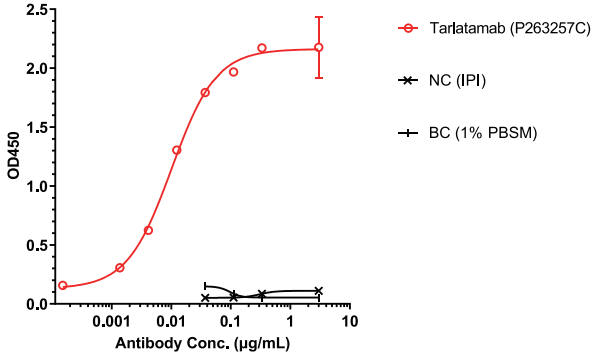


Fig 1. ELISA binding for DLL3

To measure the binding ability of Tarlatamab to hu DLL3-His. Coating DLL3-His protein on ELISA plate, Tarlatamab bound to DLL3 protein, then bounded to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read . As shown in fig 1, Tarlatamab bound to hu DLL3-His, and the EC_{50} was 0.010 nM.

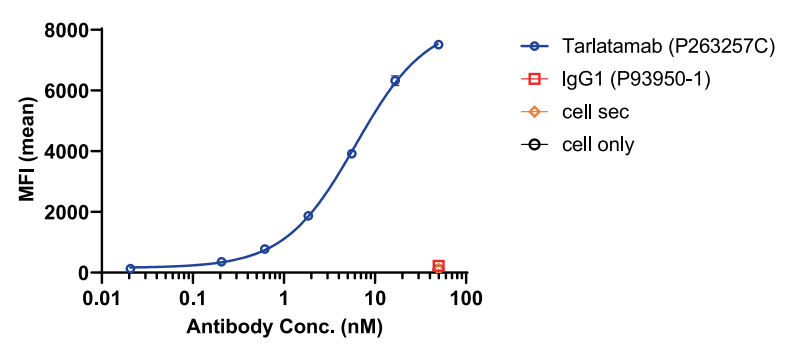


Fig 2. FACS binding for CD3

To measure the binding ability of Tarlatamab in huCD3e-jurkat cells. Tarlatamab bound to huCD3e-jurkat cells, then bounded to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 2, Tarlatamab bound to huCD3e-jurkat cells, and the EC_{50} was 6.141 nM.

Anti-CD3 & DLL3 Reference Antibody (Tarlatamab)

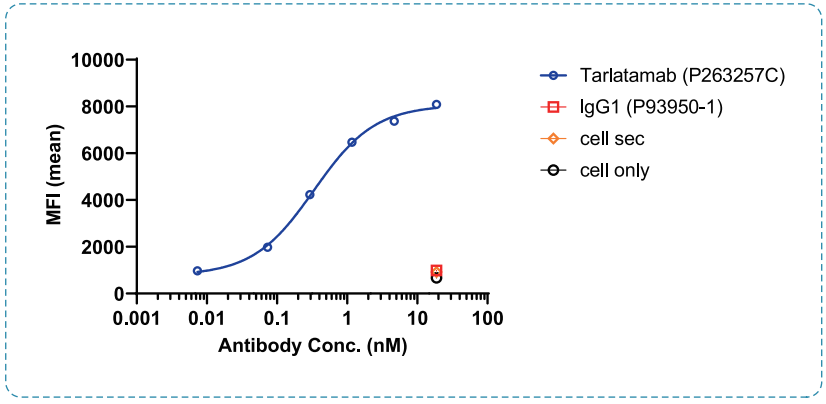


Fig 3. FACS binding for DLL3

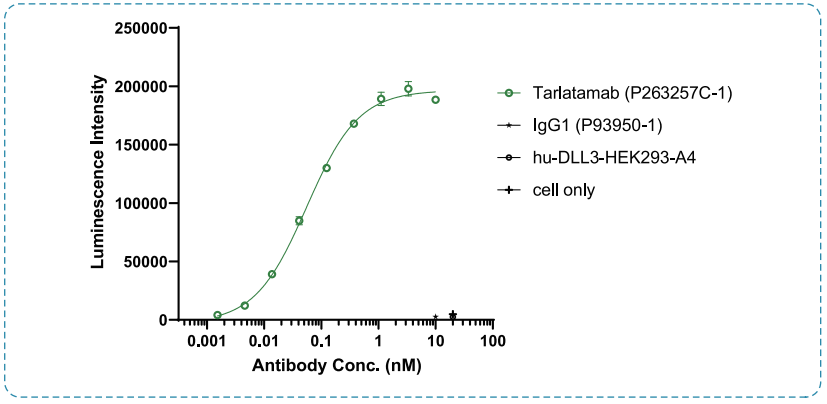


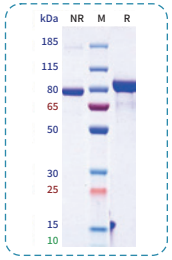
Fig 4. Luciferase reporter for CD3

To measure the binding ability of Tarlatamab in huDLL3-HEK293 cells. Tarlatamab bound to huDLL3-HEK293 cells, then rebounded to fluorescent secondary antibodies (anti-human IgG, Fcγ PE), and tested by flow cytometry. As shown in fig 3, Tarlatamab bound to huDLL3-HEK293 cells, and the EC_{50} was 0.337 nM.

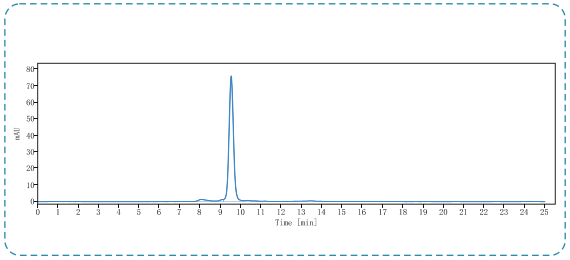
To evaluate the activation activity of Tarlatamab in huDLL3-HEK293 and NF-AT-Jurkat cells. Co-incubation of Tarlatamab with Jurkat cells, then with the addition of huDLL3-HEK293 cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 4, Tarlatamab was able to activate the NF-AT signaling pathway, and the EC_{50} was 0.056 nM.

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	94.53%
Calculated MW	105.2 kDa	91.84 kDa
Endotoxin	<1 EU/mg	<1 EU/mg

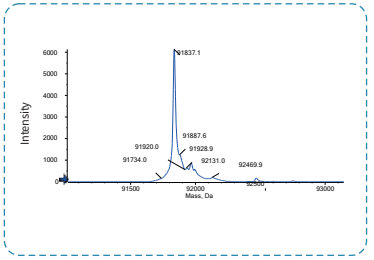
Note: The antibody sequence matches the sequence in patent (WO2017021349). The Mass data suggested a smaller molecular weight of Tarlatamab (91.84 kDa) than the theoretical value (105.2 kDa, from the above patent). Functional assays (Fig 1-4) domenstrated Tarlatamab retains the function of CD3 and DLL3. Caution is advised when considering purchase.



SDS-PAGE

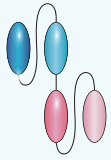


SEC-HPLC



MASS

Anti-CD3 & CD19 Reference Antibody (Blinatumomab)

Configuration


Information	
Name	Blinatumomab
Catalog number	CHBA068
Batch number	P243592C
Inventor	Amgen
Targets	CD3 & CD19
Target Accession	P07766 & P15391

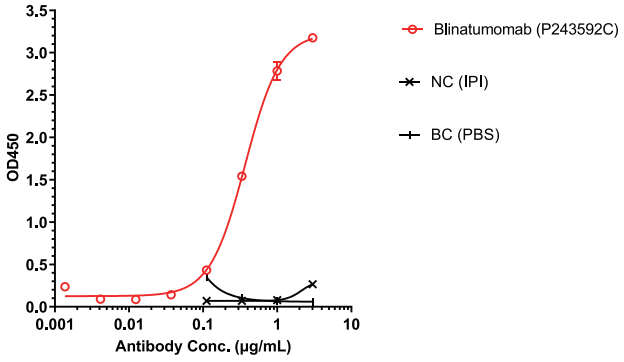


Fig 1. ELISA binding for CD19

To measure the binding ability of Blinatumomab to huCD19-His. Coating Blinatumomab-Fc protein on ELISA plate, Blinatumomab bound to CD19 protein, then bound to secondary antibodies (anti-6xHis-HRP), OD450 read. As shown in fig 1, Blinatumomab bound to huCD19-His, and the EC_{50} was 0.370 nM.

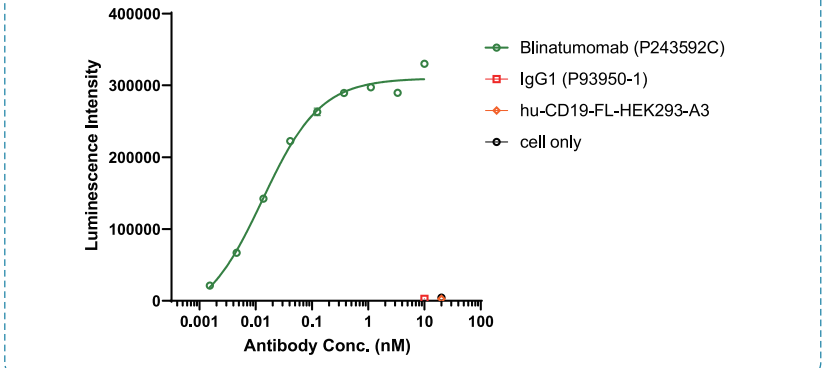
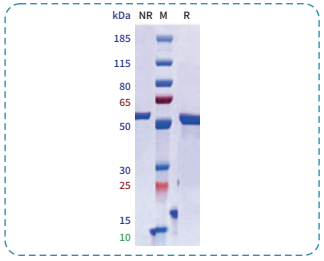


Fig 2. Luciferase reporter for CD3

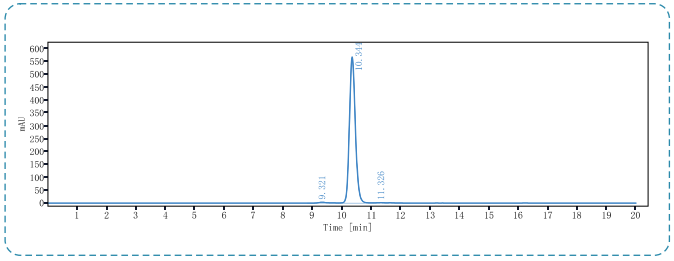
To evaluate the activation activity of Blinatumomab in huCD19-HEK293 and Jurkat cells. Co-incubation of Blinatumomab with Jurkat cells, then with the addition of huCD19-HEK293 cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 2, Blinatumomab was able to activate the NF-AT signaling pathway.

Anti-CD3 & CD19 Reference Antibody (Blinatumomab)

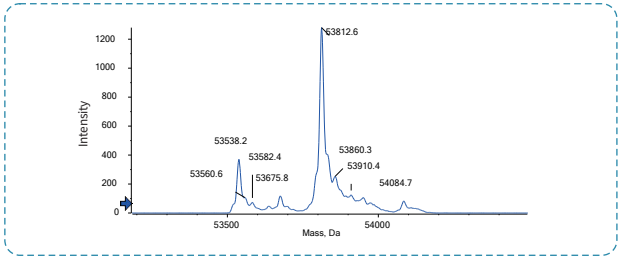
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	98.26%
Calculated MW	54.05 kDa	53.81 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

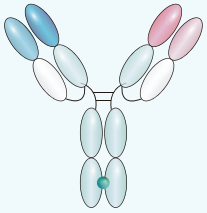


SEC-HPLC



MASS

Anti-CD3 & CD20 Reference Antibody (Epcoritamab)

Configuration


Information	
Name	Epcoritamab
Catalog number	CHBA008
Batch number	P248574C-P248575C-4
Inventor	Genmab
Targets	CD3 & CD20
Target Accession	P07766 & P11836

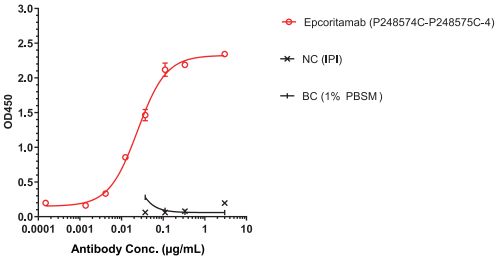


Fig 1. ELISA binding for CD3

To measure the binding ability of Epcoritamab to huCD3ε-Fc. Coating CD3ε-Fc protein on ELISA plate, Epcoritamab bound to CD3ε protein, then bound to secondary antibodies (anti-human-κ+λ-HRP), OD450 read. As shown in fig 1, Epcoritamab bound to huCD3 ε-Fc, and the EC_{50} was 0.024 nM.

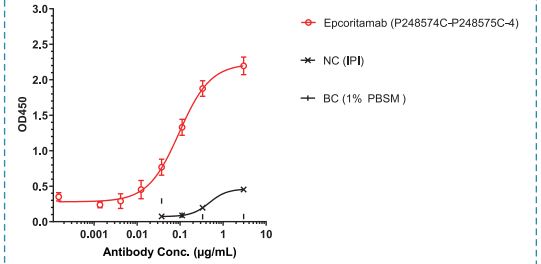


Fig 2. ELISA binding for CD20

To measure the binding ability of Epcoritamab to huCD20-VLP. Coating CD20-VLP protein on ELISA plate, Epcoritamab bound to CD20 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP), OD450 read. As shown in fig 2, Epcoritamab bound to huCD20-VLP, and the EC_{50} was 0.095 nM.

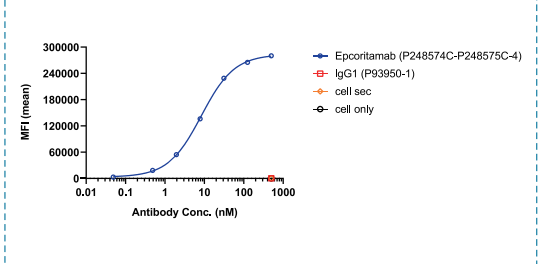


Fig 3. FACS binding for CD20

To measure the binding ability of Epcoritamab in Raji cells. Epcoritamab bound to Raji cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fc γ PE). Signal tested by flow cytometry. As shown in fig 3, Epcoritamab bound to Raji cells, and the EC_{50} was 8.393 nM.

Anti-CD3 & CD20 Reference Antibody (Epcoritamab)

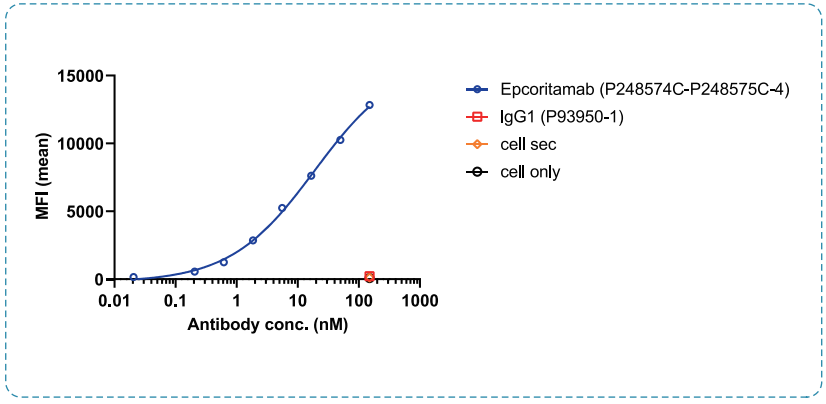


Fig 4. FACS binding for CD3

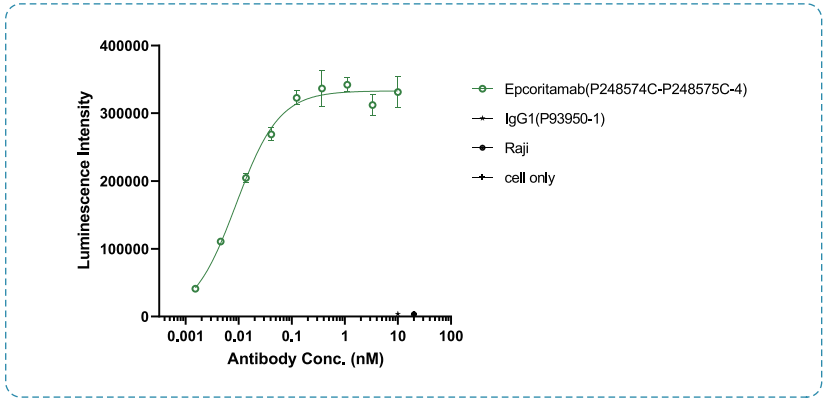
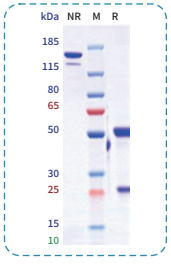


Fig 5. Luciferase reporter for CD3

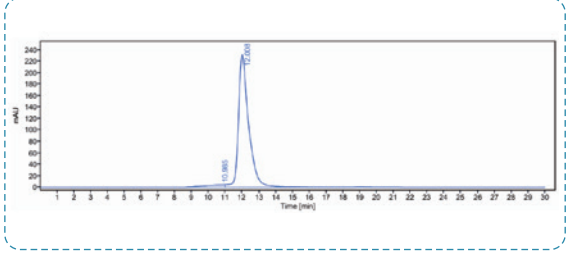
To measure the binding ability of Epcoritamab in huCD3ε-Jurkat cells. Epcoritamab bound to huCD3ε-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Epcoritamab bound to huCD3ε-Jurkat cells, and the EC_{50} was 18.920 nM.

To evaluate the activation activity of Epcoritamab in Raji and NF-AT-Jurkat cells. Co-incubation of Epcoritamab with Jurkat cells, then with the addition of Raji cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Epcoritamab was able to activate the NF-AT signaling pathway, and the EC_{50} was 0.009 nM.

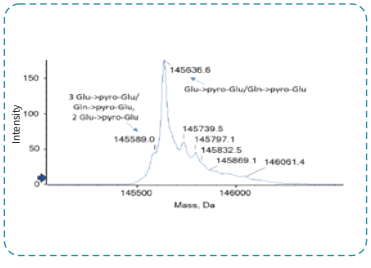
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	99.00%
Calculated MW	145.26 kDa	145.64 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE



SEC-HPLC



MASS

Anti-CD3 & CD20 Reference Antibody (Mosunetuzumab)

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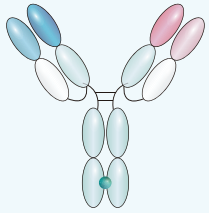


Information	
Name	Mosunetuzumab
Catalog number	CHBA021
Batch number	P265031C
Inventor	Roche
Targets	CD3 & CD20
Target Accession	P07766 & P11836

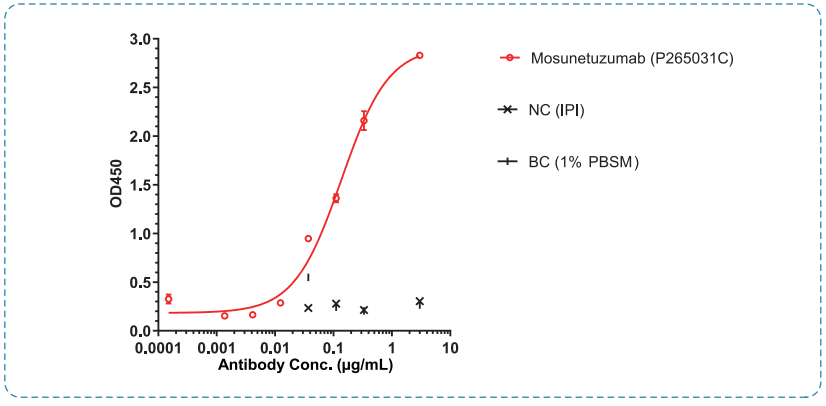


Fig 1. ELISA binding for CD20

To measure the binding ability of Mosunetuzumab to huCD20-VLP. Coating CD20-VLP protein on ELISA plate, Mosunetuzumab bound to CD20 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP), OD450 read. As shown in fig 1, Mosunetuzumab bound to huCD20-VLP, and the EC_{50} was 0.136 nM.

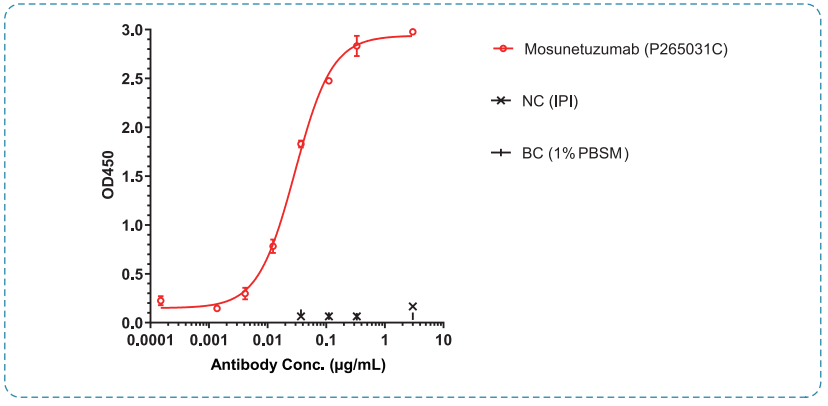


Fig 2. ELISA binding for CD3ε

To measure the binding ability of Mosunetuzumab to huCD3ε-Fc. Coating CD3ε-Fc protein on ELISA plate, Mosunetuzumab bound to CD3ε protein, then bound to secondary antibodies (anti-human-κ+λ-HRP), OD450 read. As shown in fig 2, Mosunetuzumab bound to huCD3ε-Fc, and the EC_{50} was 0.029 nM.

Anti-CD3 & CD20 Reference Antibody (Mosunetuzumab)

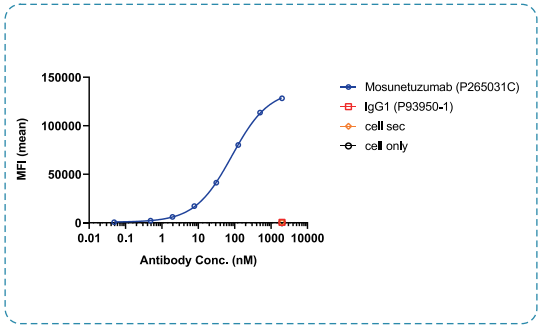


Fig 3. FACS binding for CD20

To measure the binding ability of Mosunetuzumab in Raji cells. Mosunetuzumab bound to Raji cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Mosunetuzumab bound to Raji cells, and the EC_{50} was 84.010 nM.

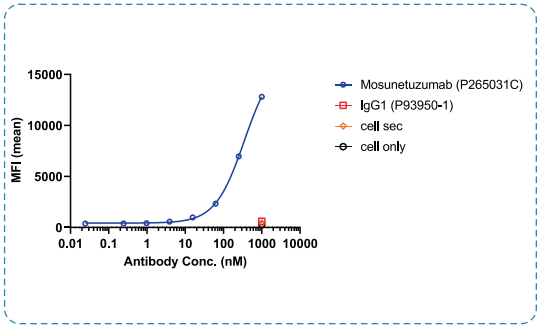


Fig 4. FACS binding for CD3ε

To measure the binding ability of Mosunetuzumab in huCD3ε-Jurkat cells. Mosunetuzumab bound to huCD3ε-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Mosunetuzumab bound to huCD3ε-Jurkat cells, and the EC_{50} was 349.300 nM.

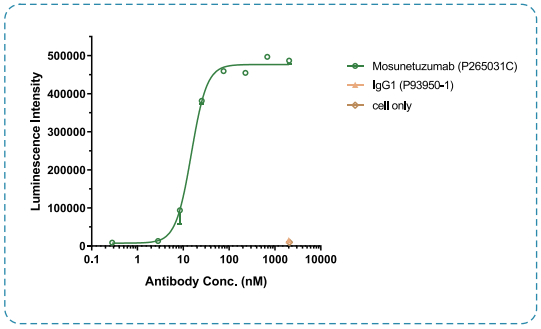
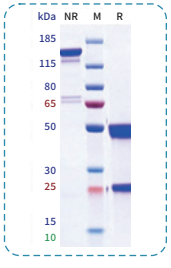


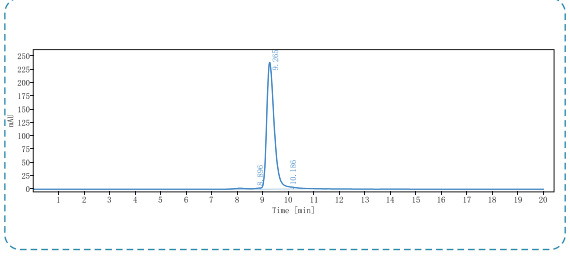
Fig 5. Luciferase reporter for CD3

To evaluate the activation activity of Mosunetuzumab in NF-AT-Jurkat cells. Plated and cultivated Mosunetuzumab at 4°C overnight, then with the addition of NF-AT-Jurkat cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Mosunetuzumab was able to activate the NF-AT signaling pathway, and the EC_{50} was 14.97 nM.

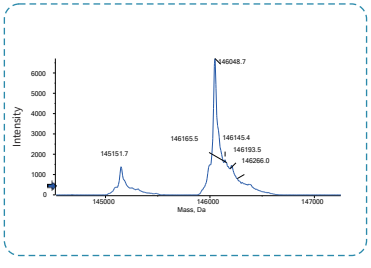
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	96.70%
Calculated MW	146.72 kDa	146.05 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

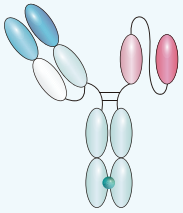


SEC-HPLC



MASS

Anti-CD3 & EpCAM Reference Antibody (M701A)

Configuration


Information	
Name	M701A
Catalog number	CHBA073
Batch number	P284457C
Inventor	Wuhan YZY Biopharma Co., Ltd.
Targets	CD3 & EpCAM
Target Accession	P07766 & P16422

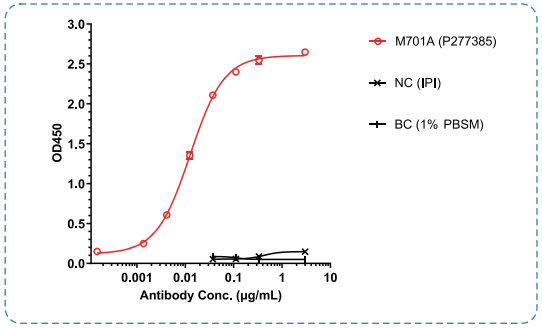


Fig 1. ELISA binding for EpCAM

To measure the binding ability of M701A to huEpCAM-His. Coating EpCAM-His protein on ELISA plate, M701A bound to EpCAM protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP), OD450 read. As shown in fig 1, M701A bound to in hu EpCAM-His, and the EC_{50} was 0.013 nM.

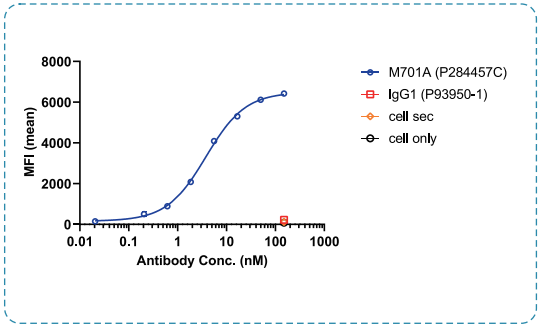


Fig 2. FACS binding for CD3

To measure the binding ability of M701A in huCD3 ε-Jurkat cells. M701A bound to huCD3ε-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 2, M701A bound to huCD3 ε-Jurkat cells, and the EC_{50} was 3.809 nM.

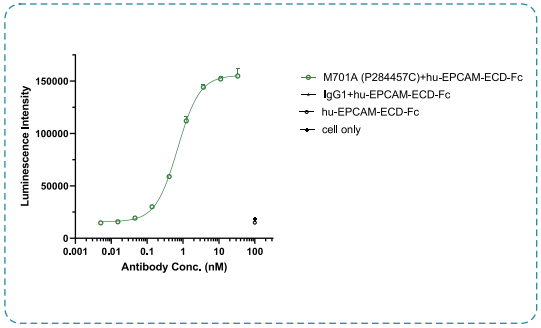
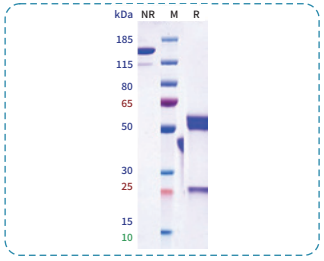


Fig 3. Luciferase reporter for CD3

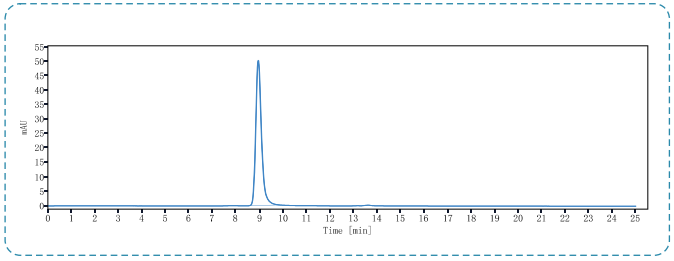
To evaluate the activation activity of M701A in GSV0-huEPCAM-ECD-Fc and NF-AT-Jurkat cells. Co-incubation of M701A with Jurkat cells, then with the addition of GSV0-huEPCAM-ECD-Fc cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 3, M701A was able to activate the NF-AT signaling pathway, and the EC_{50} was 0.707 nM.

Anti-CD3 & EpCAM Reference Antibody (M701A)

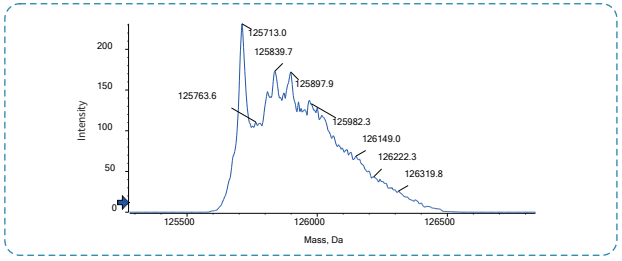
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	100.00%
Calculated MW	125.84 kDa	125.71 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

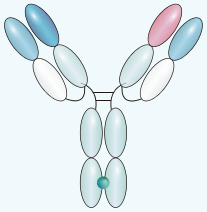


SEC-HPLC



MASS

Anti-CD3 & MUC16 Reference Antibody (Ubamatamab)

Configuration


Information	
Name	Ubamatamab
Catalog number	CHBA066
Batch number	P272383
Inventor	Regeneron Pharmaceuticals
Targets	CD3 & MUC16
Target Accession	P07766 & Q8WXI7

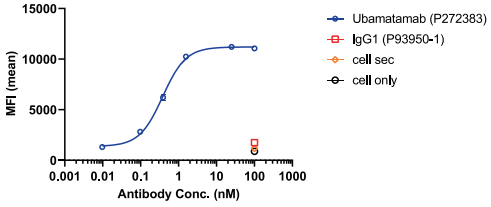


Fig 1. FACS binding for MUC16

To measure the binding ability of Ubamatamab in OVCAR3 cells. Ubamatamab bound to OVCAR3 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 1, Ubamatamab bound to OVCAR3 cells, and the EC_{50} was 0.381 nM.

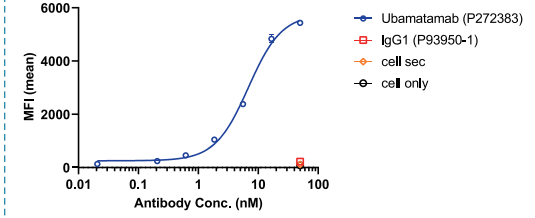


Fig 2. FACS binding for CD3

To measure the binding ability of Ubamatamab in huCD3ε-Jurkat cells. Ubamatamab bound to huCD3 ε-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 2, Ubamatamab bound to huCD3ε-Jurkat cells, and the EC_{50} was 6.845 nM.

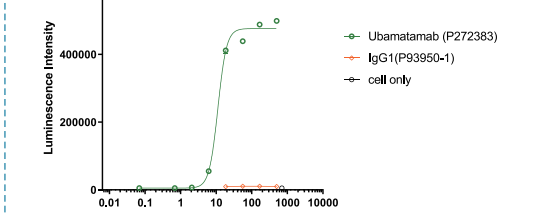
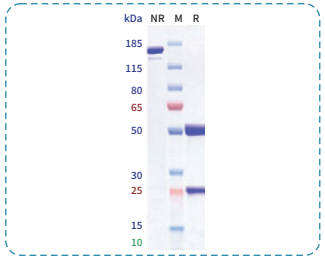


Fig 3. Luciferase reporter for CD3

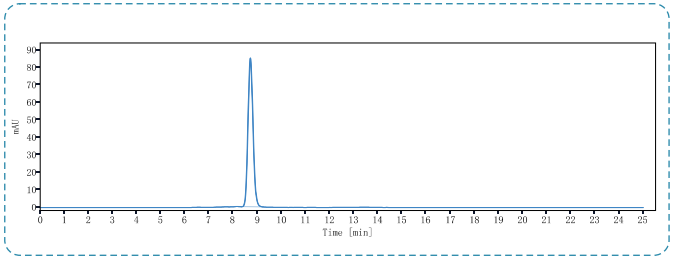
To evaluate the activation activity of Ubamatamab in NF-AT-Jurkat cells. Plated and cultivated Ubamatamab at 4°C overnight, then with the addition of NF-AT-Jurkat cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 3, Ubamatamab was able to activate the NF-AT signaling pathway, and the EC_{50} was 11.15 nM.

Anti-CD3 & MUC16 Reference Antibody (Ubamatamab)

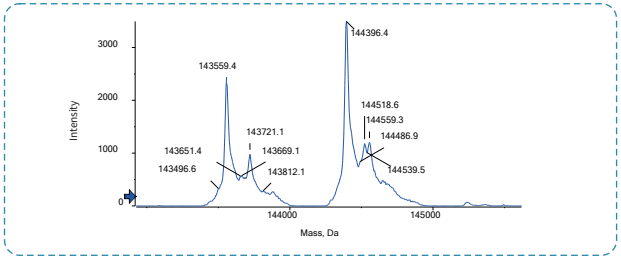
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	100.00%
Calculated MW	144.64 kDa	144.40 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

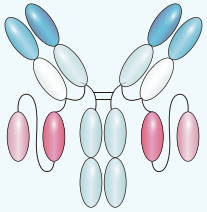


SEC-HPLC



MASS

Anti-CD3 & GD2 Reference Antibody (Nivatrotamab)

Configuration


Information	
Name	Nivatrotamab
Catalog number	CHBA064
Batch number	P264375C
Inventor	Memorial Sloan Kettering Cancer Center
Targets	CD3 & GD2
Target Accession	P07766 & NA

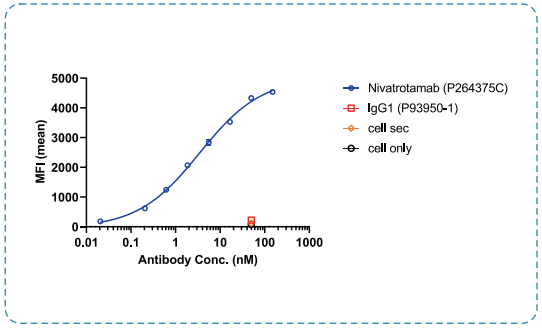


Fig 1. FACS binding for CD3

To measure the binding ability of Nivatrotamab in huCD3ε-Jurkat cells. Nivatrotamab bound to huCD3 ε-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 1, Nivatrotamab bound to huCD3ε-Jurkat cells, and the EC_{50} was 3.481 nM.

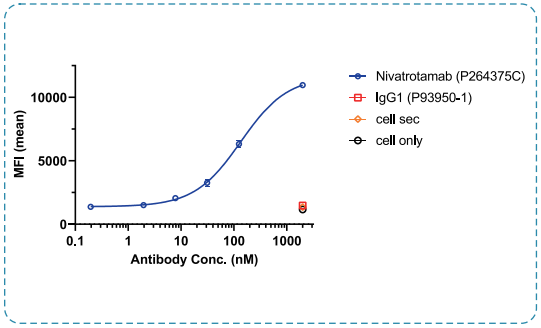


Fig 2. FACS binding for GD2

To measure the binding ability of Nivatrotamab in huGD2-HEK293 cells. Nivatrotamab bound to huGD2-HEK293 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 2, Nivatrotamab bound to huGD2-HEK293 cells, and the EC_{50} was 68.100 nM.

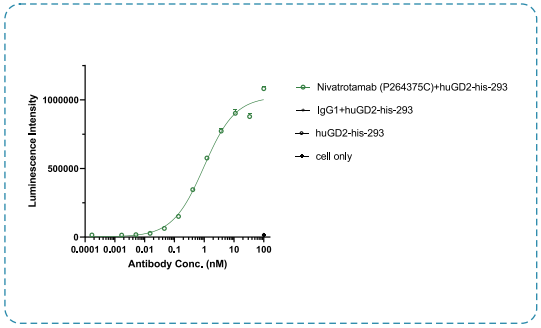
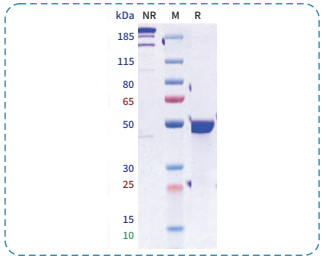


Fig 3. Luciferase reporter for CD3

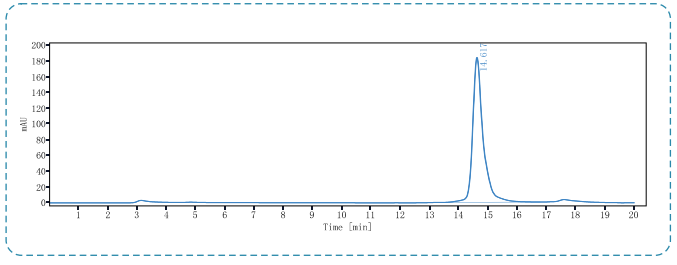
To evaluate the activation activity of Nivatrotamab in huGD2-His-293 and NF-AT-Jurkat cells. Co-incubation of Nivatrotamab with Jurkat cells, then with the addition of huGD2-His-293 cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 3, Nivatrotamab was able to activate the NF-AT signaling pathway, and the EC_{50} was 0.979 nM.

Anti-CD3 & GD2 Reference Antibody (Nivatrotamab)

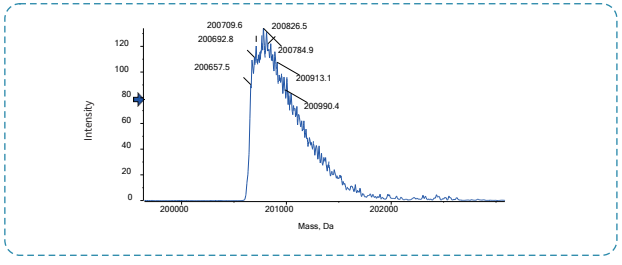
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	100.00%
Calculated MW	200.96 kDa	200.83 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

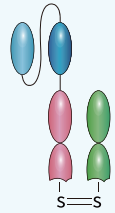


SEC-HPLC

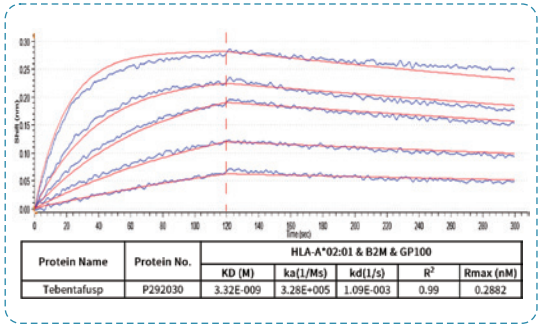


MASS

Anti-CD3 & GP100 Reference Antibody (Tebentafusp)

Configuration


Information	
Name	Tebentafusp
Catalog number	CHBA076
Batch number	P292030
Inventor	Immunocore
Targets	CD3 & GP100
Target Accession	P07766 & Q06885



Protein Name	Protein No.	HLA-A*02:01 & B2M & GP100				
		KD (M)	ka(1/Ms)	kd(1/s)	R^2	Rmax (nM)
Tebentafusp	P292030	3.32E-009	3.28E+005	1.09E-003	0.99	0.2882

Fig 1. Binding ability between Tebentafusp and GP100（BLI）

To analyze the binding affinity of Tebentafusp to GP100, the antigen was diluted to 30nM with Q buffer and immobilized to the probe. After a serial dilution of Tebentafusp with Q buffer, signal was detected at 120s of combination time, 300s of dissociation time, and 30°C of reaction temperature. The KD of Tebentafusp bound to GP100 protein was 3.32 nM.

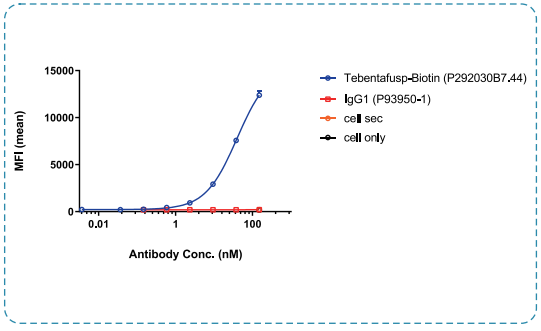


Fig 2. FACS binding for CD3

To measure the binding ability of Tebentafusp in huCD3ε-Jurkat cells. Tebentafusp-Biotin bound to huCD3ε-Jurkat cells, then bound to fluorescent secondary antibodies (PE Streptavidin). Signal tested by flow cytometry. As shown in fig 2, Tebentafusp bound to huCD3ε-Jurkat cells, and the EC_{50} was 39.80 nM.

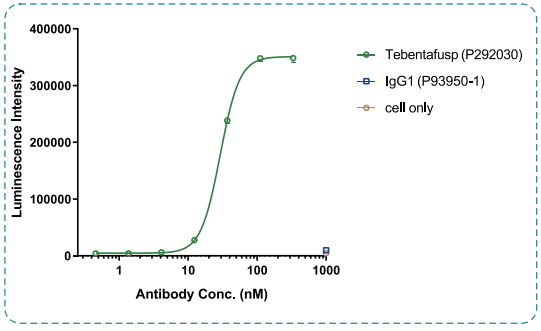
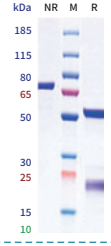


Fig 3. Luciferase reporter for CD3

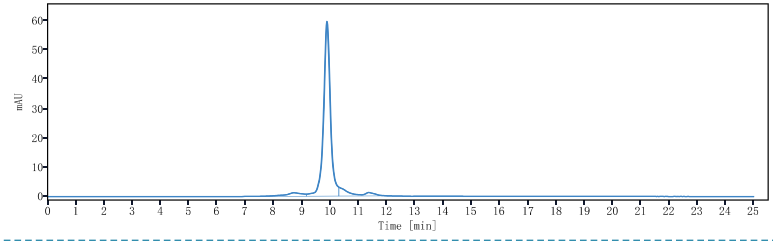
To evaluate the activation activity of Tebentafusp in NF-AT-Jurkat cells. Tebentafusp was coated to plate at 4°C overnight, then with the addition of NF-AT-Jurkat cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 3, Tebentafusp was able to activate the NF-AT signaling pathway, and the EC_{50} was 29.230 nM.

Anti-CD3 & GP100 Reference Antibody (Tebentafusp)

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	91.50%
Calculated MW	76.14 kDa	NA
Endotoxin	<1 EU/mg	<1 EU/mg

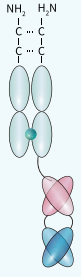


SDS-PAGE



SEC-HPLC

Anti-CD79b & CD32b Reference Antibody (Mgd010)

Configuration


Information	
Name	Mgd010
Catalog number	CHBA028
Batch number	P262517C
Inventor	MacroGenics
Targets	CD79b & CD32b
Target Accession	P40259 & P31994

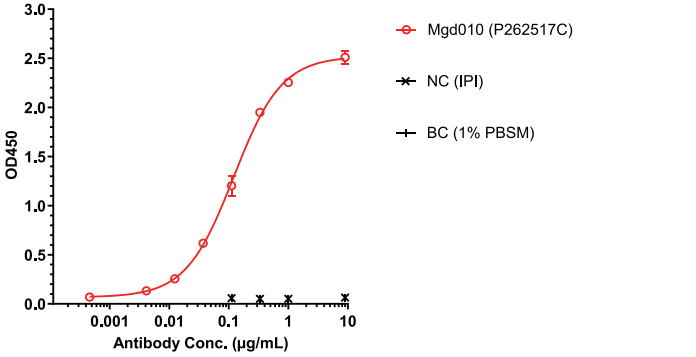


Fig 1. ELISA binding for CD79b

To measure the binding ability of Mgd010 to huCD79b-His. Coating CD79b-His protein on ELISA plate, Mgd010 bound to CD79b protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP), OD450 read. As shown in fig 1, Mgd010 bound to huCD79b-His, and the EC_{50} was 0.121 nM.

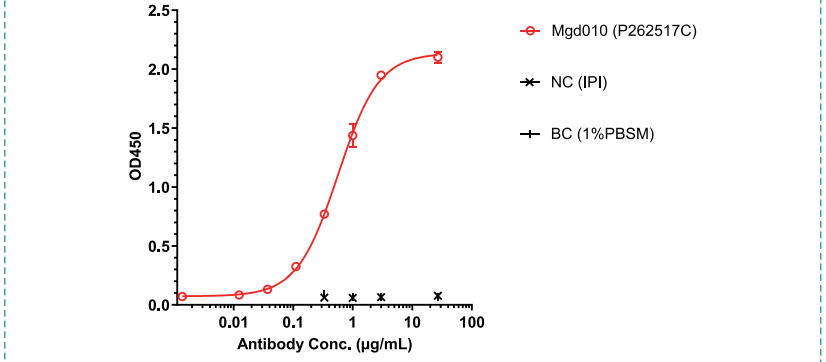


Fig 2. ELISA binding for CD32b

To measure the binding ability of Mgd010 to huCD32b-His. Mgd010 bound to CD32b protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP), OD450 read. As shown in fig 2, Mgd010 bound to huCD32b-His, and the EC_{50} was 0.566 nM.

Anti-CD79b & CD32b Reference Antibody (Mgd010)

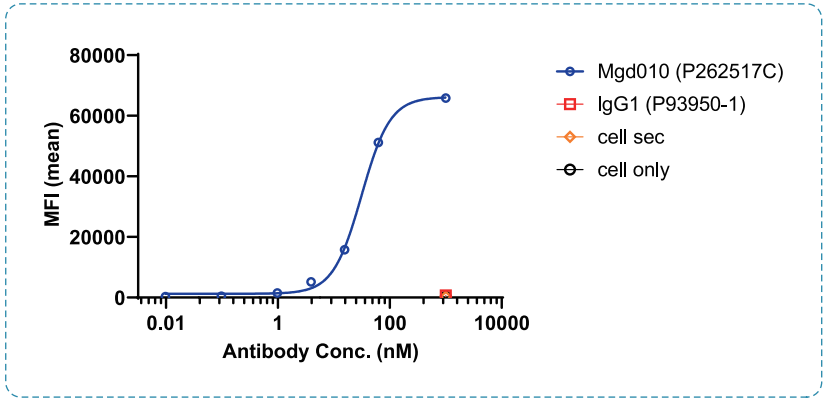


Fig 3. FACS binding for CD79b

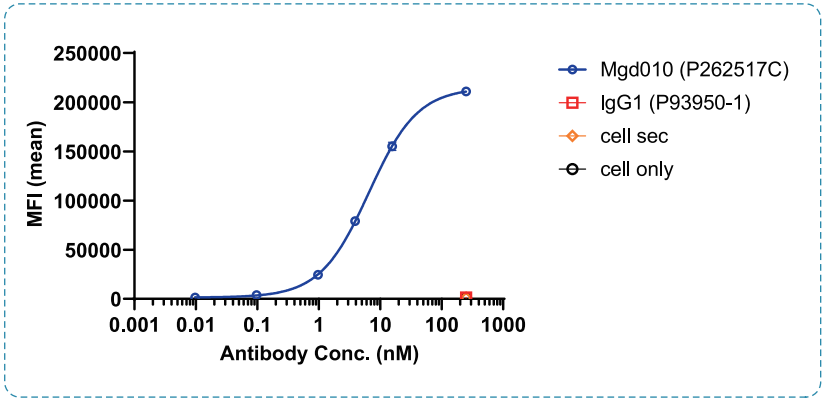
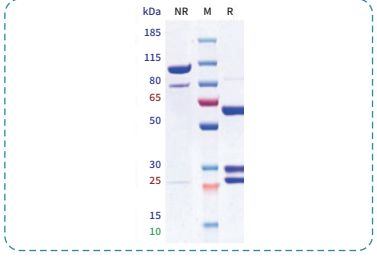


Fig 4. FACS binding for CD32b

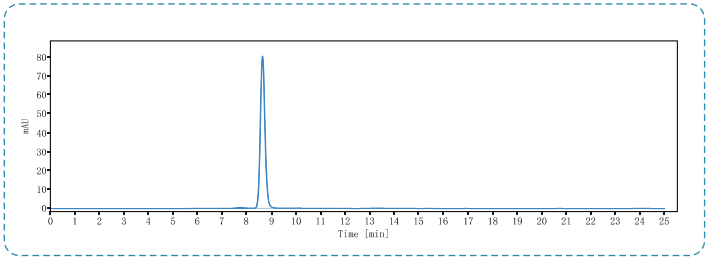
To measure the binding ability of Mgd010 in huCD79B-2FLAG -huCD79A-His-Daudi-A18 cells. Mgd010 bound to huCD79B-2FLAG -huCD79A-His-Daudi-A18 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Mgd010 bound to huCD79B-2FLAG -huCD79A-His-Daudi-A18 cells, and the EC_{50} was 31.340 nM.

To measure the binding ability of Mgd010 in huCD32b-HEK293 cells. Mgd010 bound to huCD32b-HEK293 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Mgd010 bound to huCD32b-HEK293 cells, and the EC_{50} was 6.547 nM.

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	99.28%
Calculated MW	108.77 kDa	NA
Endotoxin	<1 EU/mg	<1 EU/mg

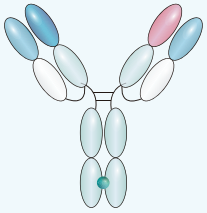


SDS-PAGE



SEC-HPLC

Anti-c-Met Reference Antibody (Davutamig)

Configuration


Information	
Name	Davutamig
Catalog number	CHBA031
Batch number	P267996
Inventor	Regeneron Pharmaceuticals
Targets	c-Met & c-Met
Target Accession	P08581

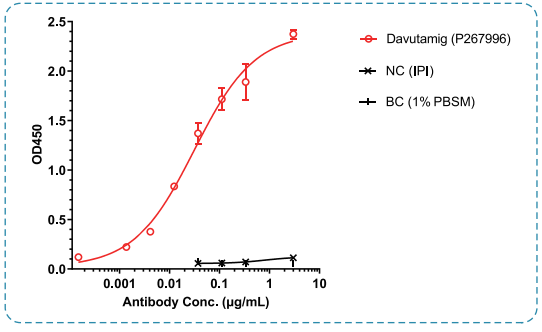


Fig 1. ELISA binding for cMet

To measure the binding ability of Davutamig to huc-Met-His. Coating c-Met-His protein on ELISA plate, Davutamig bound to c-Met protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP), OD450 read. As shown in fig 1, Davutamig bound to huc-Met-His, and the EC_{50} was 0.031 nM.

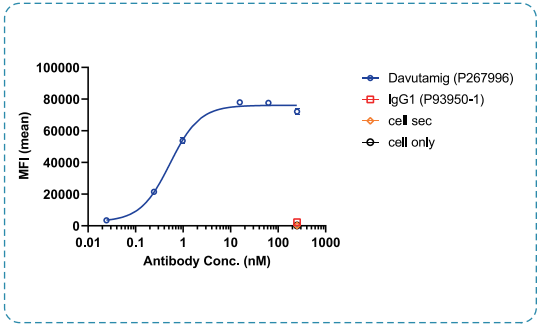


Fig 2. FACS binding for cMet

To measure the binding ability of Davutamig in huc-Met-HEK293 cells. Davutamig bound to huc-Met-HEK293 cells, then bounded to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 2, Davutamig bound to huc-Met-HEK293 cells, and the EC_{50} was 0.532 nM.

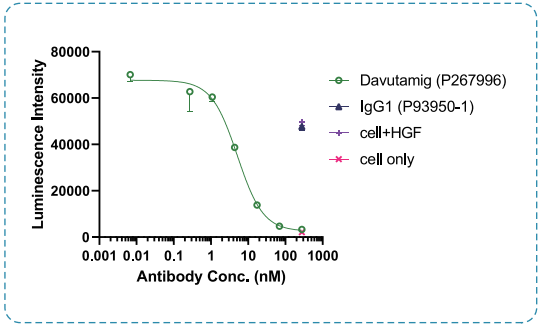
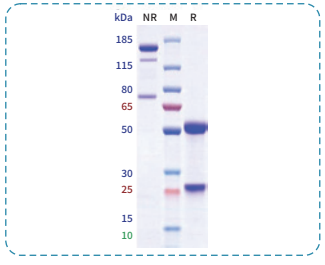


Fig 3. Luciferase reporter for c-Met

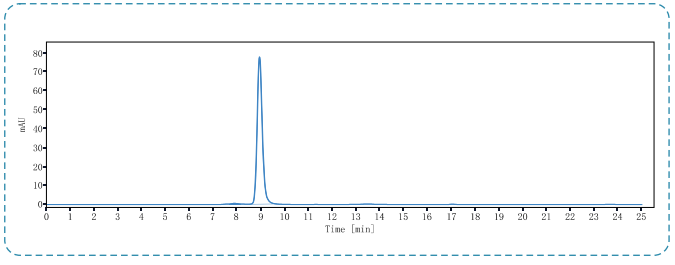
To evaluate the blocking activity of Davutamig in HGF/c-Met signaling pathway. Co-incubation of Davutamig with HGF, then with the addition of huc-MET (Luc) HEK293 Reporter cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 3, Davutamig was able to block HGF/c-Met signaling pathway, and the IC_{50} was 5.112 nM.

Anti-c-Met Reference Antibody (Davutamig)

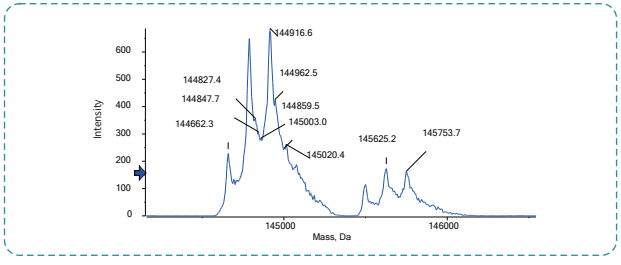
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	99.52%
Calculated MW	144.89 kDa	144.92 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

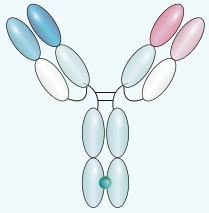


SEC-HPLC



MASS

Anti-CD37 Reference Antibody (Gen3009)

Configuration


Information	
Name	Gen3009
Catalog number	CHBA036
Batch number	P268004-P268005
Inventor	Genmab
Targets	CD37 & CD37
Target Accession	P11049

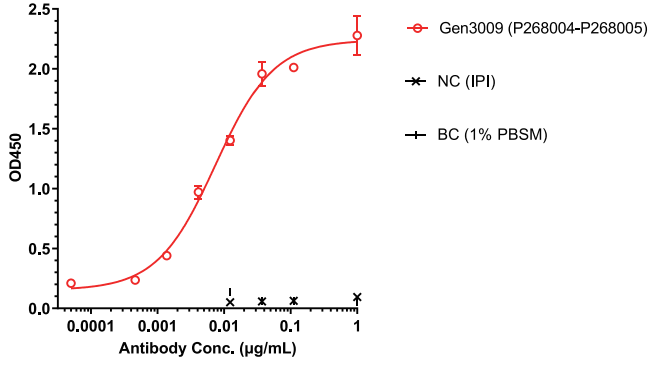


Fig 1. ELISA binding for CD37

To measure the binding ability of Gen3009 to huCD37-VLP. Coating CD37-VLP protein on ELISA plate, Gen3009 bound to CD37 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Gen3009 bound to huCD37-VLP, and the EC_{50} was 0.007 nM.

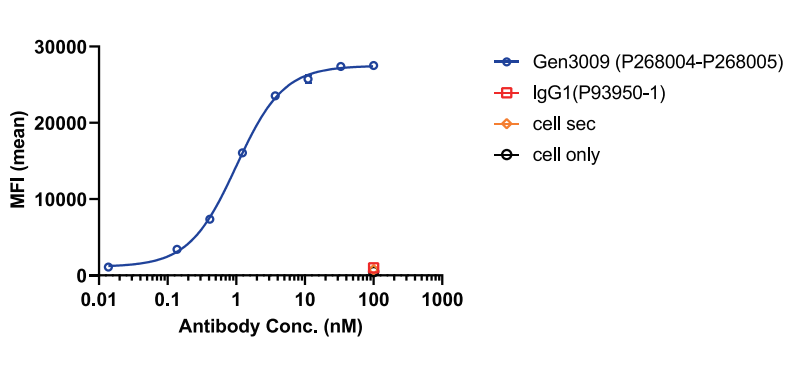
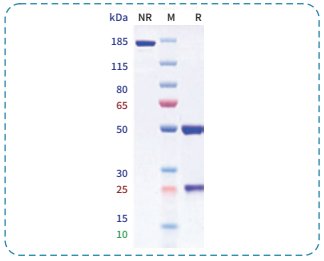


Fig 2. FACS binding for CD37

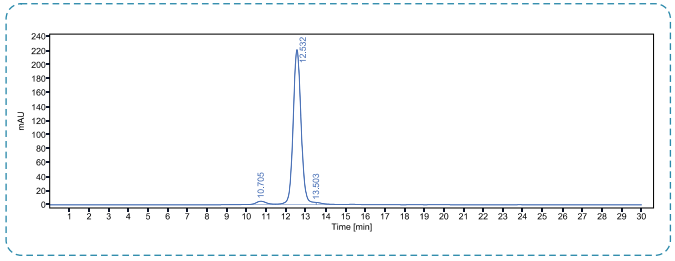
To measure the binding ability of Gen3009 in huCD37-FL-HEK293 cells, Gen3009 bound to huCD37-FL-HEK293 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 2, Gen3009 bound to huCD37-FL-HEK293 cells, and the EC_{50} was 0.999 nM.

Anti-CD37 Reference Antibody (Gen3009)

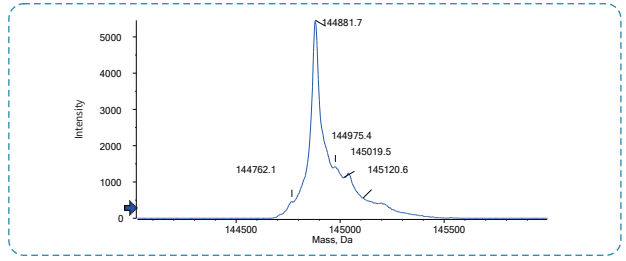
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	96.10%
Calculated MW	144.88 kDa	144.88 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

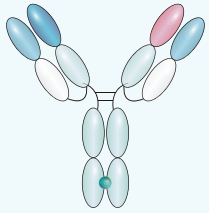


SEC-HPLC



MASS

Anti-CD28 & PSMA Reference Antibody (Nezastomig)

Configuration


Information	
Name	Nezastomig
Catalog number	CHBA074
Batch number	P276330
Inventor	Regeneron Pharmaceuticals
Targets	CD28 & PSMA
Target Accession	P10747 & Q04609

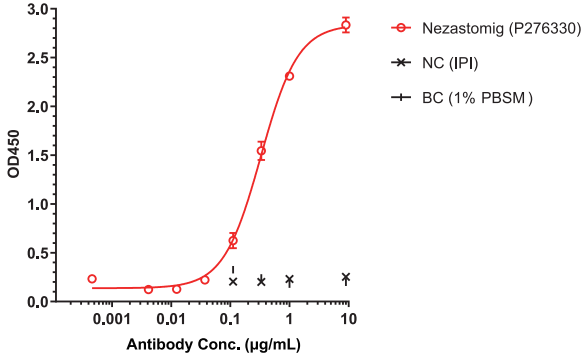


Fig 1. ELISA binding for CD28

To measure the binding ability of Nezastomig to huCD28-His. Coating CD28-His protein on ELISA plate, Nezastomig bound to CD28 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Nezastomig bound to huCD28-His, and the EC_{50} was 0.328 nM.

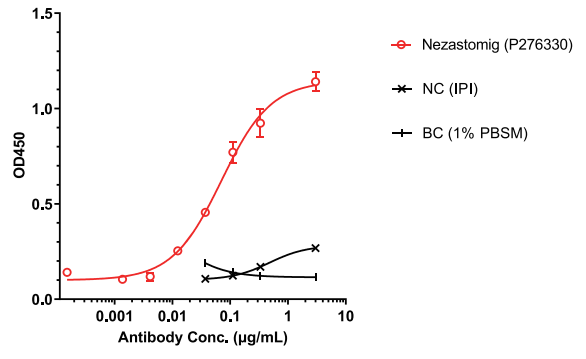


Fig 2. ELISA binding for PSMA

To measure the binding ability of Nezastomig to huPSMA-Fc. Coating PSMA-Fc protein on ELISA plate, Nezastomig bound to PSMA protein, then bound to secondary antibodies (anti-human-κ+λ-HRP). OD450 read. As shown in fig 2, Nezastomig bound to huPSMA-Fc, and the EC_{50} was 0.071 nM.

Anti-CD28 & PSMA Reference Antibody (Nezastomig)

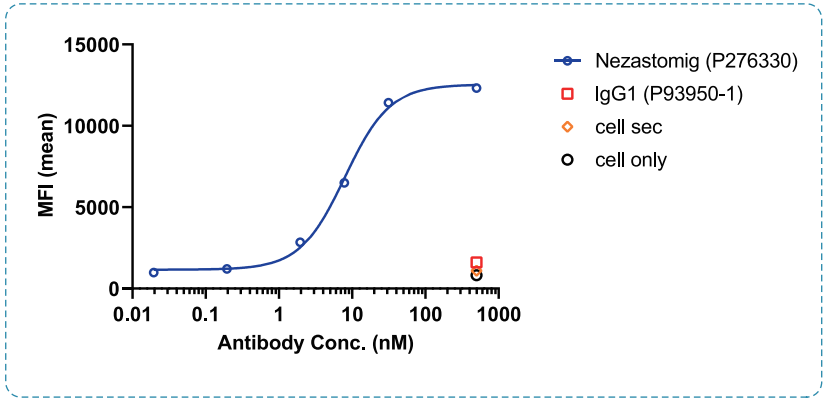


Fig 3. FACS binding for CD28

To measure the binding ability of Nezastomig in huCD28-FL-CHO cells, Nezastomig bound to huCD28-FL-CHO cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Nezastomig bound to huCD28-FL-CHO cells, and the EC_{50} was 7.575 nM.

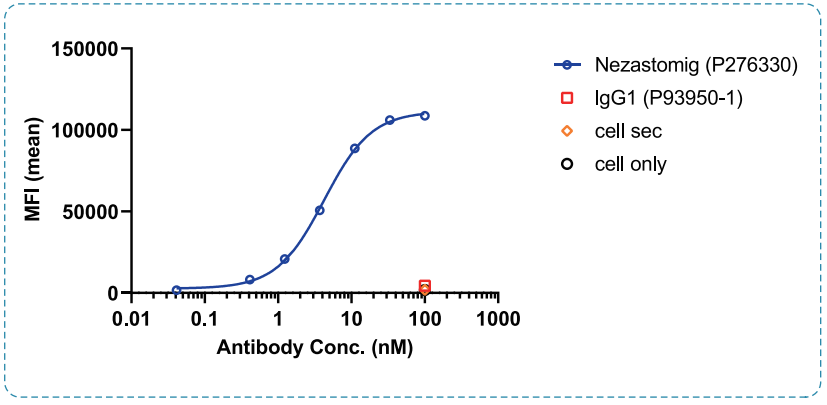
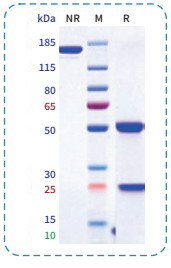


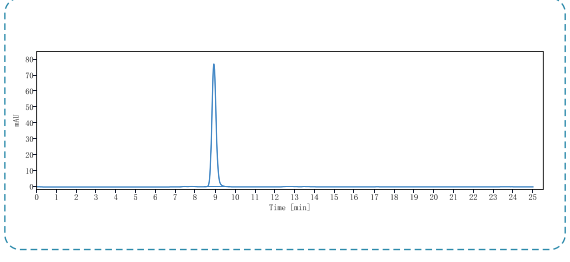
Fig 4. FACS binding for PSMA

To measure the binding ability of Nezastomig in huPSMA-FL-CHO cells. Nezastomig bound to huPSMA-FL-CHO cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Nezastomig bound to huPSMA-FL-CHO cells, and the EC_{50} was 4.252 nM.

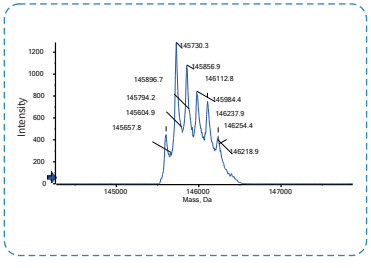
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	99.37%
Calculated MW	145.86 kDa	145.73 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE



SEC-HPLC



MASS

Anti-CD20 & CD47 Reference Antibody (Amulirafusp alfa)

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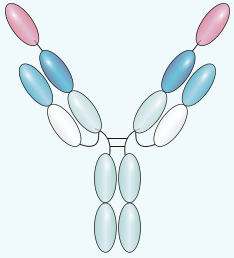
	Name	Amulirafusp alfa
	Catalog number	CHBA052
	Batch number	P267995C
	Inventor	ImmuneOnco Biopharmaceuticals
	Targets	CD20 & CD47
	Target Accession	P11836 & P07766

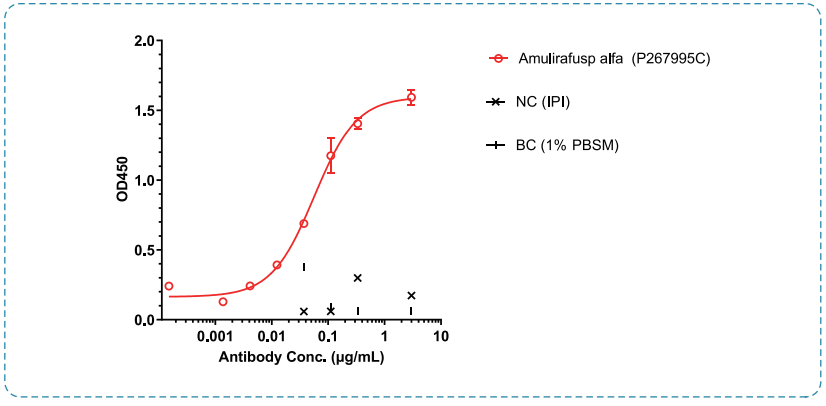


Fig 1. ELISA binding for CD20

To measure the binding ability of Amulirafusp alfa to huCD20-VLP. Coating CD20-VLP protein on ELISA plate, Amulirafusp alfa bound to CD20 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Amulirafusp alfa bound to huCD20-VLP, and the EC_{50} was 0.056 nM.

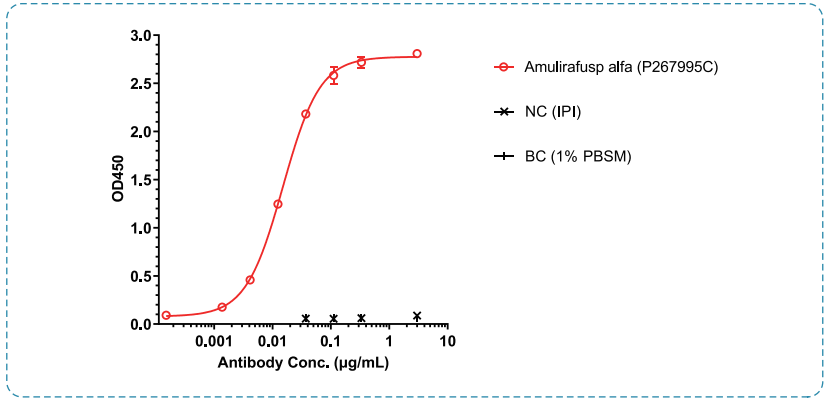


Fig 2. ELISA binding for CD47

To measure the binding ability of Amulirafusp alfa in huCD47-His. Coating CD47-His protein on ELISA plate, Amulirafusp alfa bound to CD47 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Amulirafusp alfa bound to huCD47-His, and the EC_{50} was 0.015 nM.

Anti-CD20 & CD47 Reference Antibody (Amulirafusp alfa)

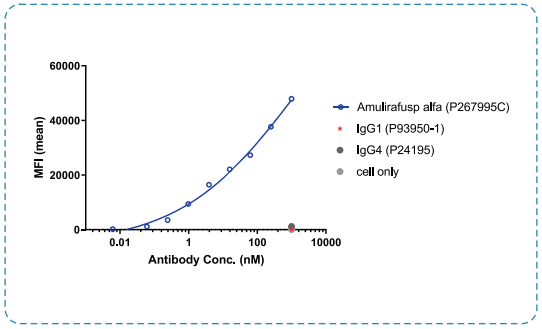


Fig3. FACS binding for CD47

To measure the binding ability of Amulirafusp alfa in CCRF-CEM cells. Amulirafusp alfa bound to CCRF-CEM cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Amulirafusp alfa bound to CCRF-CEM.

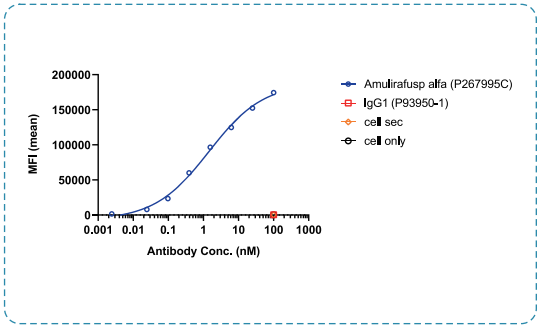


Fig4. FACS binding for CD20

To measure the binding ability of Amulirafusp alfa in Raji cells. Amulirafusp alfa bound to Raji cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Amulirafusp alfa bound to Raji cells, and the EC_{50} was 1.438 nM.

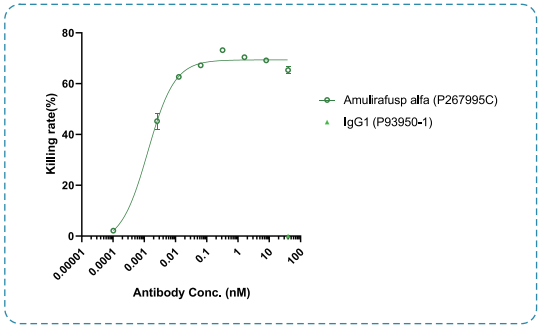
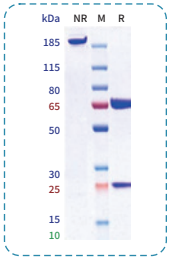


Fig5. PBMC ADCC for CD20

To evaluate the ADCC activity of Amulirafusp alfa. Co-incubation of Amulirafusp alfa with Raji cell and PBMCs for 4 hours, then LDH was detected to evaluate the ADCC activity of Amulirafusp alfa. As shown in fig 5, Amulirafusp alfa has ADCC activity, and the EC_{50} was 0.001 nM.

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	99.17%
Calculated MW	174.12 kDa	173.84 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



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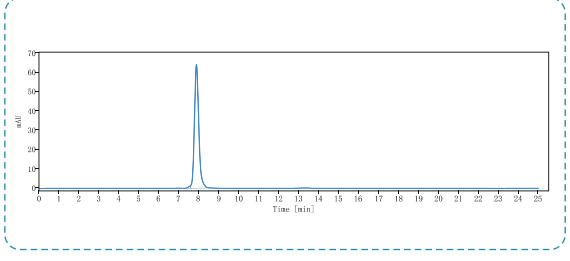
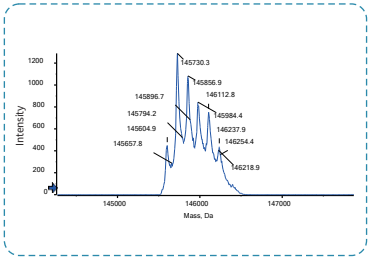
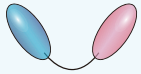


SEC-HPLC



MASS

Anti-C5 & Serum Albumin Reference Antibody (Gefurulimab)

Configuration	Information	
	Name	Gefurulimab
	Catalog number	CHBA022
	Batch number	P247896
	Inventor	AstraZeneca
	Targets	C5 & HSA
	Target Accession	P01031 & P02768

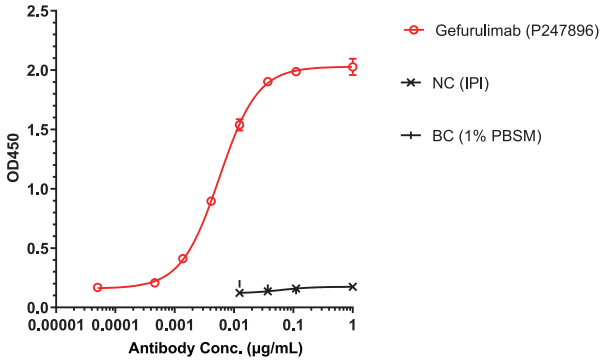


Fig 1. ELISA binding for HSA

To measure the binding ability of Gefurulimab to HSA-Fc. Coating HSA-Fc protein on ELISA plate, Gefurulimab bound to HSA protein, then bound to secondary antibodies (anti-human-κ+λ-HRP). OD450 read. As shown in fig 1, Gefurulimab bound to HSA-Fc, and the EC_{50} was 0.006 nM.

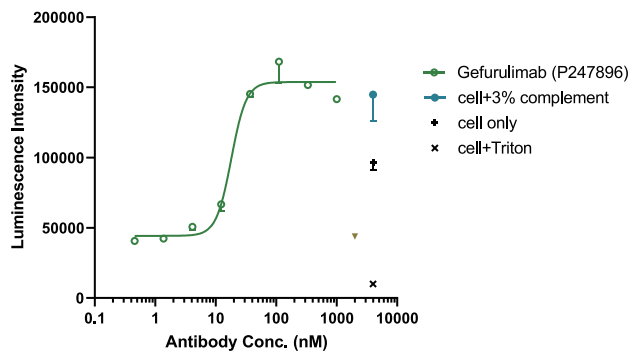
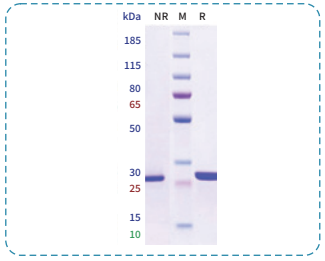


Fig 2. Luciferase reporter for complement CDC

To evaluate the blocking activity of Gefurulimab against rituximab-induced CDC killing. Co-incubation of Gefurulimab with complement protein, then with the addition of Rituximab and Raji cells and incubated for 4 hours. CTG was used to detect the luciferase signal. As shown in fig 2, Gefurulimab can block rituximab-induced CDC killing, and the IC_{50} was 18.090 nM.

Anti-C5 & Serum Albumin Reference Antibody (Gefurulimab)

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	100.00%
Calculated MW	28.99 kDa	28.99 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



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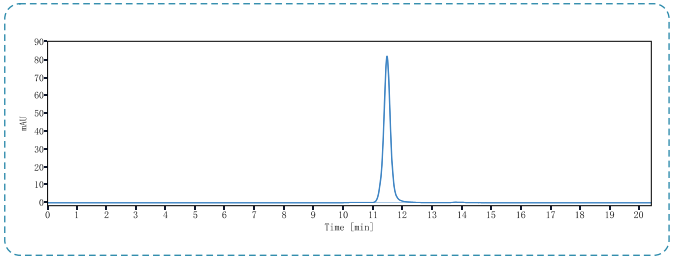
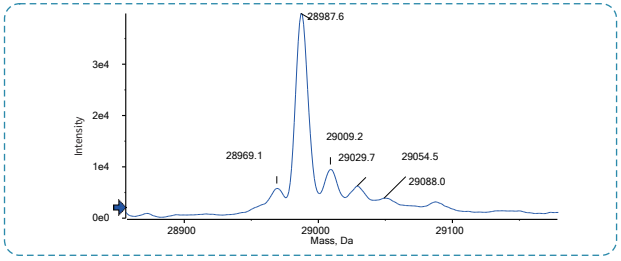


SEC-HPLC



MASS

Anti-EGFR & B7-H3 Reference Antibody (Ibi-334)

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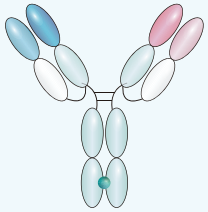


Information	
Name	Ibi-334
Catalog number	CHBA042
Batch number	P268017C
Inventor	Innovent
Targets	EGFR & B7-H3
Target Accession	P00533 & Q5ZPR3

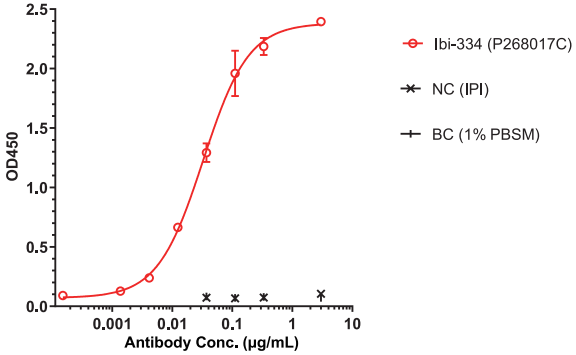


Fig 1. ELISA binding for B7-H3

To measure the binding ability of Ibi-334 to huB7H3-His. Coating B7H3-His protein on ELISA plate, Ibi-334 bound to B7-H3 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Ibi-334 bound to huB7H3-His, and the EC_{50} was 0.033nM.

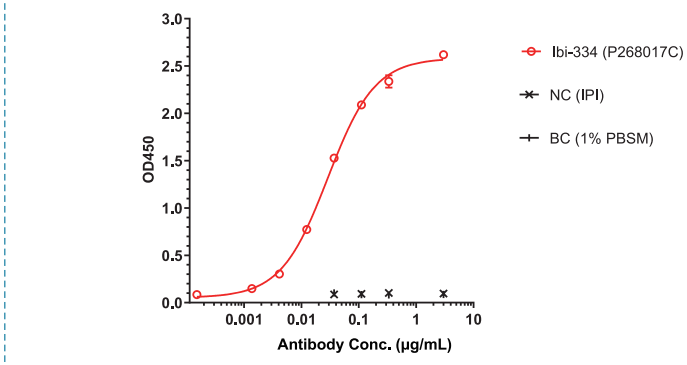


Fig 2. ELISA binding for EGFR

To measure the binding ability of Ibi-334 to huEGFR-His. Coating EGFR-His protein on ELISA plate, Ibi-334 bound to EGFR protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Ibi-334 bound to huEGFR-His, and the EC_{50} was 0.029 nM.

Anti-EGFR & B7-H3 Reference Antibody (Ibi-334)

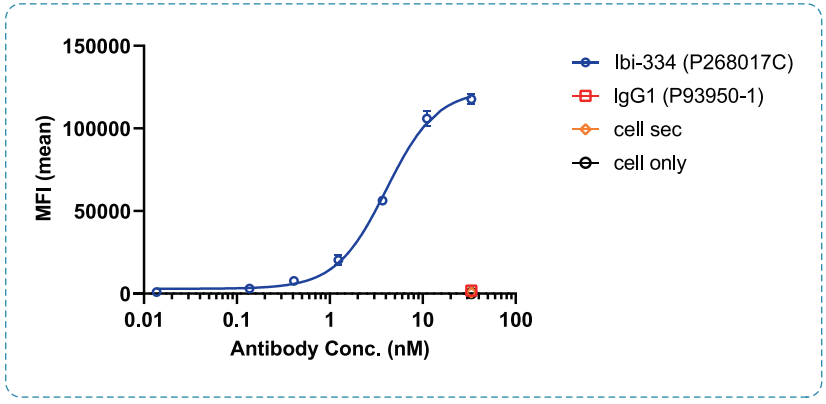


Fig 3. FACS binding for B7-H3

To measure the binding ability of Ibi-334 in huB7-H3 CHO-K cells, Ibi-334 bound to huB7-H3 CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Ibi-334 bound to huB7-H3 CHO-K cells, and the EC_{50} was 4.066 nM.

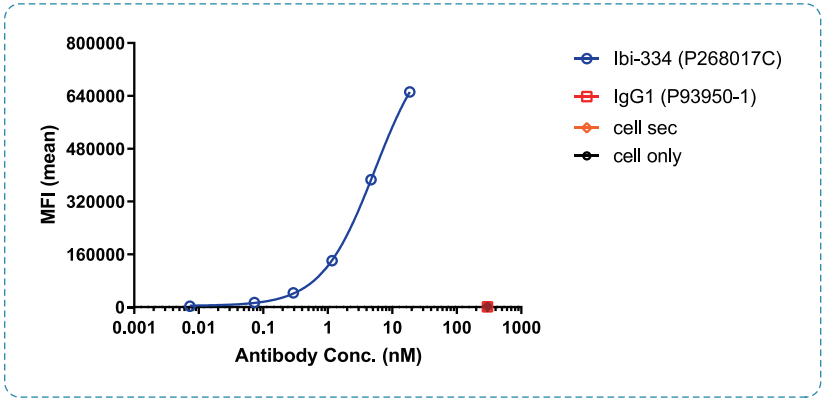
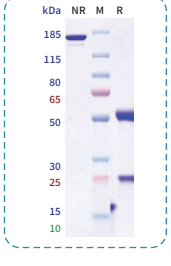


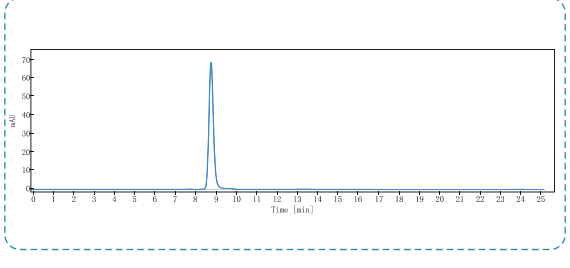
Fig 4. FACS binding for EGFR

To measure the binding ability of Ibi-334 (P268017C) in huEGFR CHO-K cells, Ibi-334 bound to in huEGFR CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Ibi-334 bound to in huEGFR CHO-K cells, and the EC_{50} was 5.398 nM.

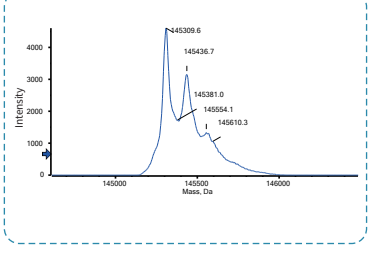
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	99.05%
Calculated MW	145.58 kDa	145.31 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE



SEC-HPLC



MASS

Anti-EGFR & CD28 Reference Antibody (Regn7075)

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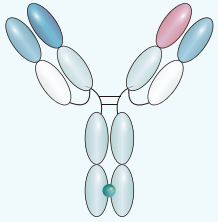


Information	
Name	Regn7075
Catalog number	CHBA038
Batch number	P268010
Inventor	Regeneron Pharmaceuticals
Targets	EGFR & CD28
Target Accession	P00533 & P10747

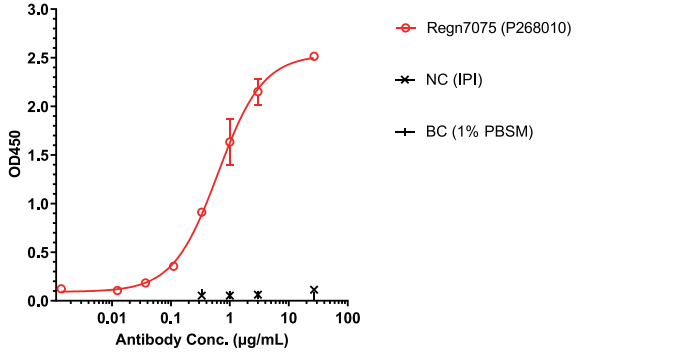


Fig 1. ELISA binding for CD28

To measure the binding ability of Regn7075 to huCD28-His. Coating CD28-His protein on ELISA plate, Regn7075 bound to CD28 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Regn7075 bound to huCD28-His, and the EC_{50} was 0.631 nM.

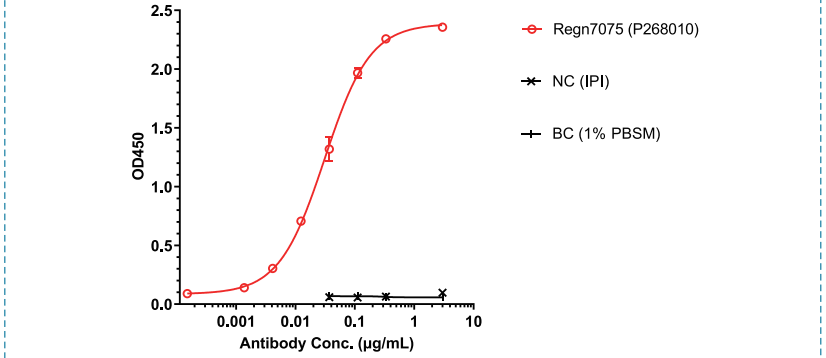


Fig 2. ELISA binding for EGFR

To measure the binding ability of Regn7075 in huEGFR-His. Coating EGFR-His protein on ELISA plate, Regn7075 bound to EGFR protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Regn7075 bound to huEGFR-His, and the EC_{50} was 0.031 nM.

Anti-EGFR & CD28 Reference Antibody (Regn7075)

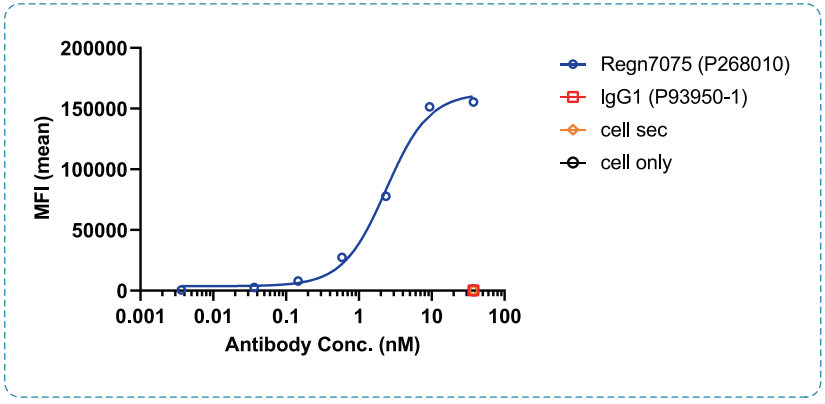


Fig 3. FACS binding for EGFR

To measure the binding ability of Regn7075 in huEGFR-CHO-K cells, Regn7075 bound to huEGFR-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Regn7075 bound to huEGFR-CHO-K cells, and the EC_{50} was 2.363 nM.

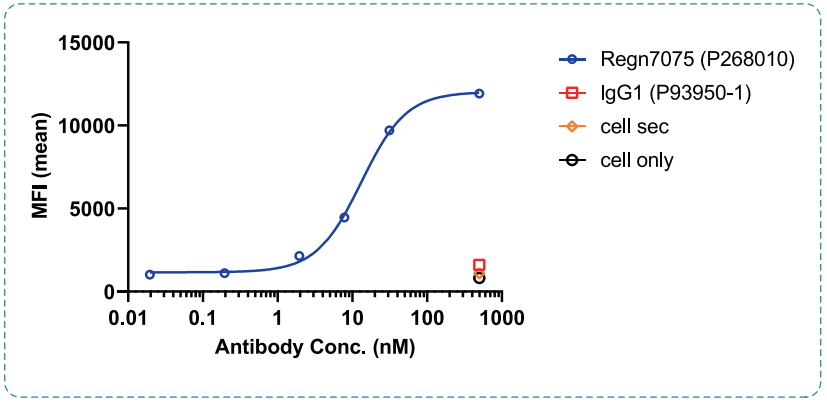
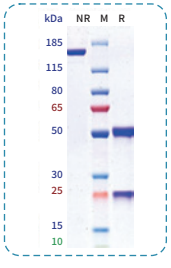


Fig 4. FACS binding for CD28

To measure the binding ability of Regn7075 in huCD28-FL-CHO cells, Regn7075 bound to huCD28-FL-CHO cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Regn7075 bound to huCD28-FL-CHO cells, and the EC_{50} was 13.190 nM.

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	99.31%
Calculated MW	145.24 kDa	144.98 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



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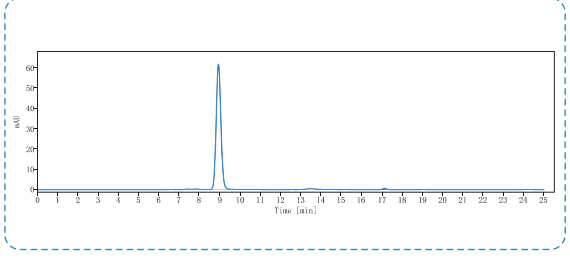
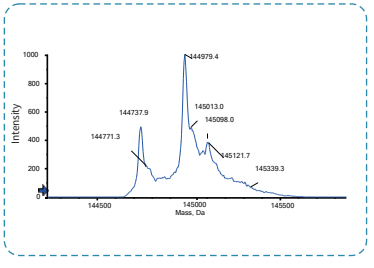
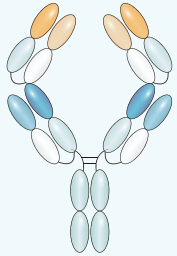


SEC-HPLC



MASS

Anti-EGFR & c-Met Reference Antibody (Emb-01)

Configuration


Information	
Name	Emb-01
Catalog number	CHBA032
Batch number	P267997C
Inventor	Epimab Biotherapeutics
Targets	EGFR & c-Met
Target Accession	P00533 & P08581

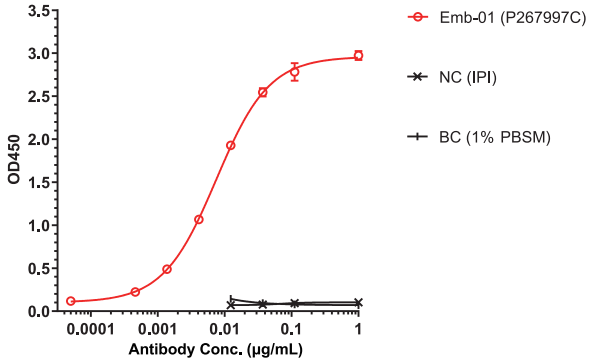


Fig 1. ELISA binding for cMet

To measure the binding ability of Emb-01 to hucMet-His. Coating c-Met-His protein on ELISA plate, Emb-01 bound to cMet protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Emb-01 bound to hucMet-His, and the EC_{50} was 0.007 nM.

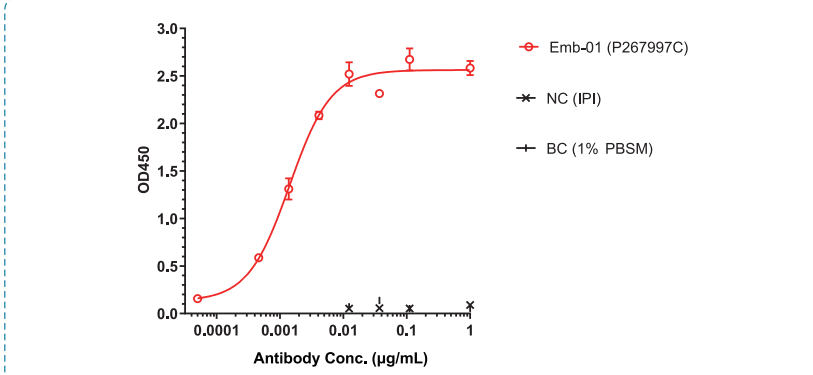


Fig 2. ELISA binding for EGFR

To measure the binding ability of Emb-01 in huEGFR-His. Coating EGFR-His protein on ELISA plate, Emb-01 bound to EGFR protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Emb-01 bound to huEGFR-His, and the EC_{50} was 0.001 nM.

Anti-EGFR & c-Met Reference Antibody (Emb-01)

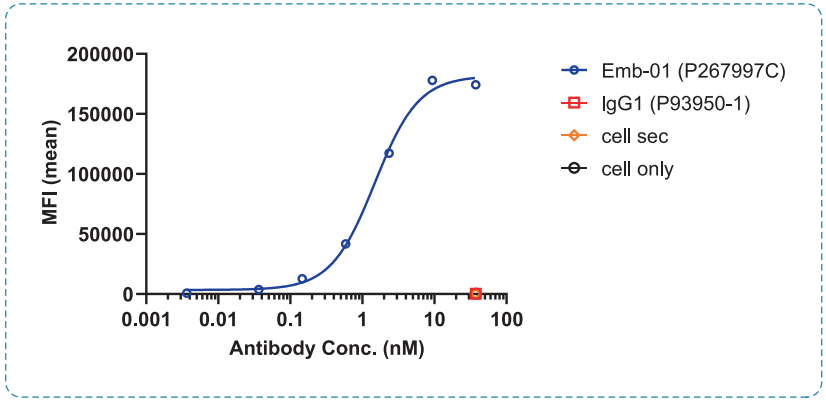


Fig 3. FACS binding for EGFR

To measure the binding ability of Emb-01 in huEGFR-CHO-K cells, Emb-01 bound to huEGFR-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Emb-01 bound to huEGFR-CHO-K cells, and the EC_{50} was 1.489 nM.

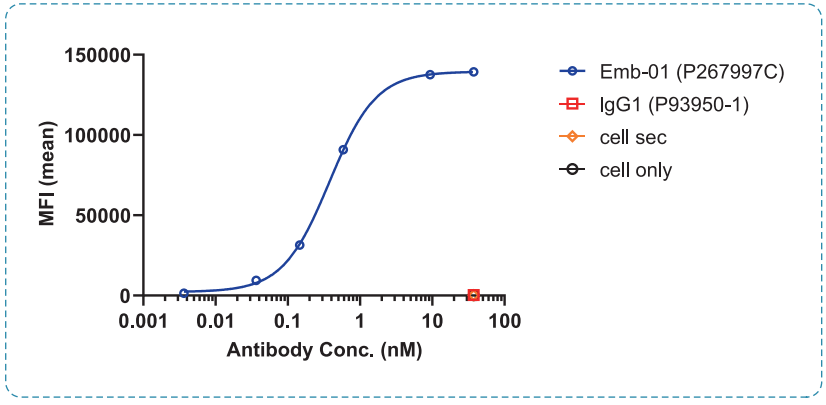
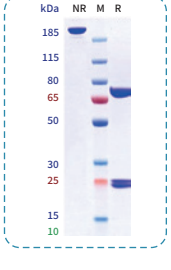


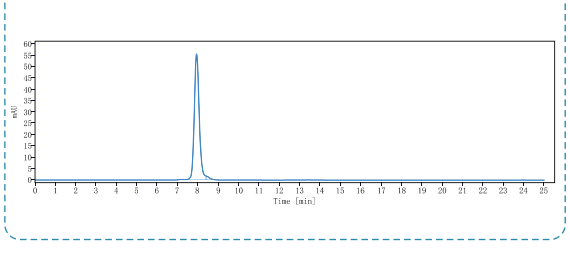
Fig 4. FACS binding for cMet

To measure the binding ability of Emb-01 in hucMet-HEK293 cells, Emb-01 bound to hucMet-HEK293 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Emb-01 bound to hucMet-HEK293 cells, and the EC_{50} was 0.378 nM.

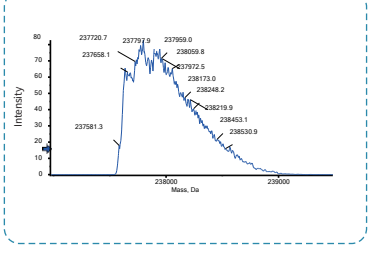
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	97.60%
Calculated MW	237.90 kDa	237.80 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE



SEC-HPLC



MASS

Anti-EGFR & CD16a/Fc-gamma-RIIIA Reference Antibody (Afm24)

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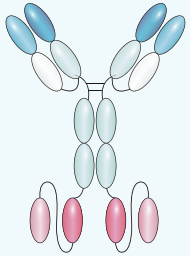


Information	
Name	Afm24
Catalog number	CHBA049
Batch number	P247899
Inventor	Affimed
Targets	EGFR & CD16a
Target Accession	P00533 & P08637

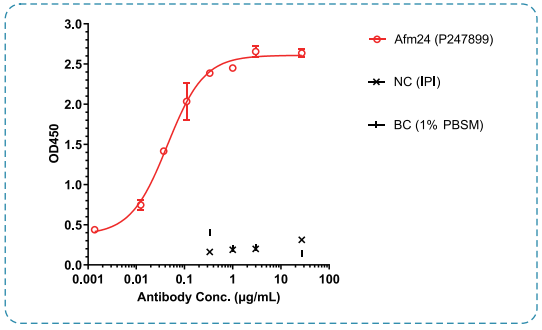


Fig 1. ELISA binding for EGFR

To measure the binding ability of Afm24 to huEGFR-His. Coating EGFR-His protein on ELISA plate, Afm24 bound to EGFR protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Afm24 bound to huEGFR-His, and the EC_{50} was 0.044 nM.

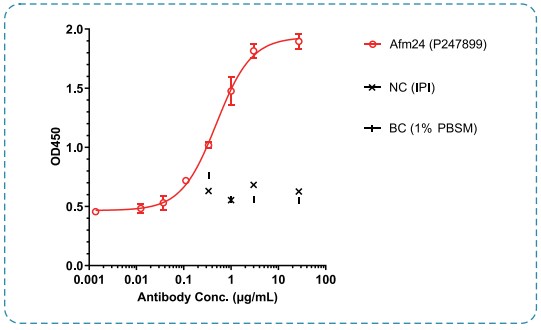


Fig 2. ELISA binding for CD16a

To measure the binding ability of Afm24 to huCD16a-His. Coating CD16a-His protein on ELISA plate, Afm24 bound to CD16a protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Afm24 bound to huCD16a-His, and the EC_{50} was 0.489 nM.

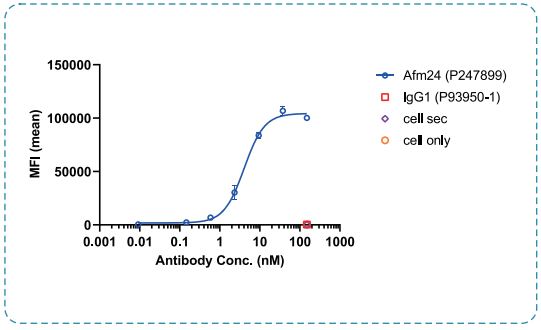
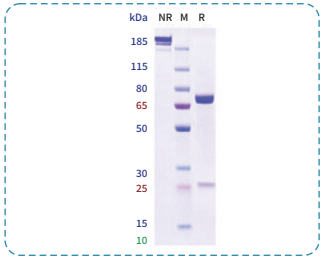


Fig 3. FACS binding for EGFR

To measure the binding ability of Afm24 in EGFR-CHO-K cells. Afm24 bound to EGFR-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Afm24 bound to EGFR-CHO-K cells, and the EC_{50} was 4.075 nM.

Anti-EGFR & CD16a/Fc-gamma-RIIIA Reference Antibody (Afm24)

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	97.37%
Calculated MW	196.34 kDa	196.31 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



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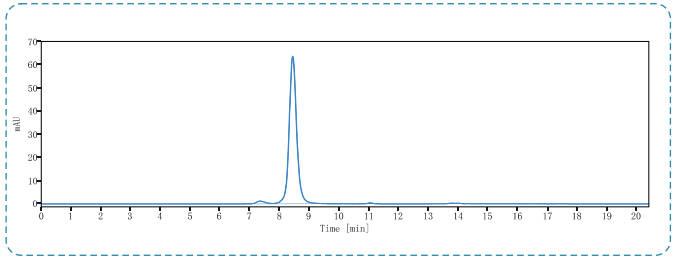
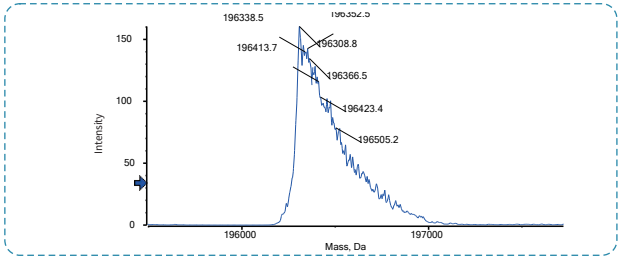


SEC-HPLC



MASS

Anti-EGFR & HER3 Reference Antibody (Duligotuzumab)

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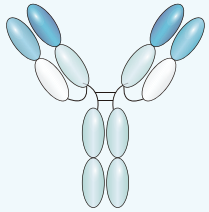


Information	
Name	Duligotuzumab
Catalog number	CHBA007
Batch number	P248572C2
Inventor	Roche
Targets	EGFR & HER3
Target Accession	P00533 & P21860

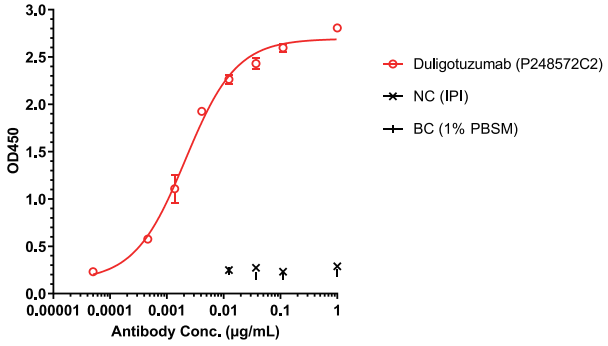


Fig 1. ELISA binding for EGFR

To measure the binding ability of Duligotuzumab to huEGFR-His. Coating EGFR-His protein on ELISA plate, Duligotuzumab bound to EGFR protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Duligotuzumab bound to huEGFR-His, and the EC_{50} was 0.002 nM.

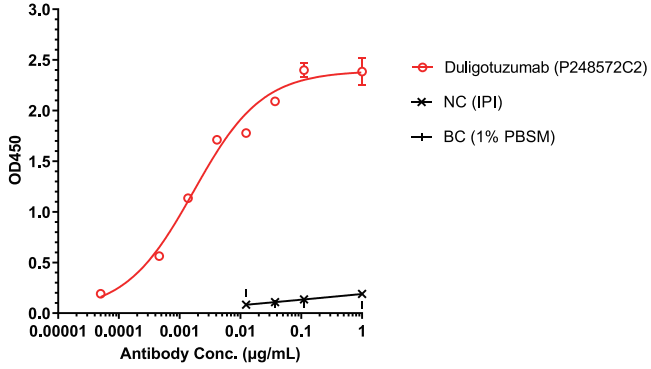


Fig 2. ELISA binding for HER3

To measure the binding ability of Duligotuzumab to huHER3-His. Coating HER3-His protein on ELISA plate, Duligotuzumab bound to HER3 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Duligotuzumab bound to huHER3-His, and the EC_{50} was 0.002 nM.

Anti-EGFR & HER3 Reference Antibody (Duligotuzumab)

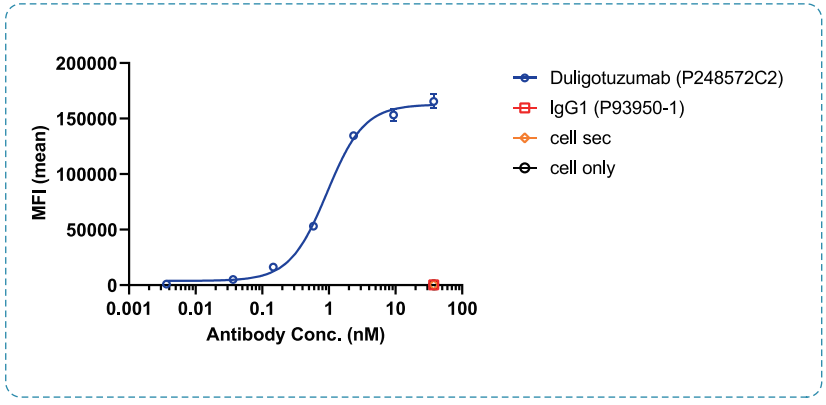


Fig 3. FACS binding for EGFR

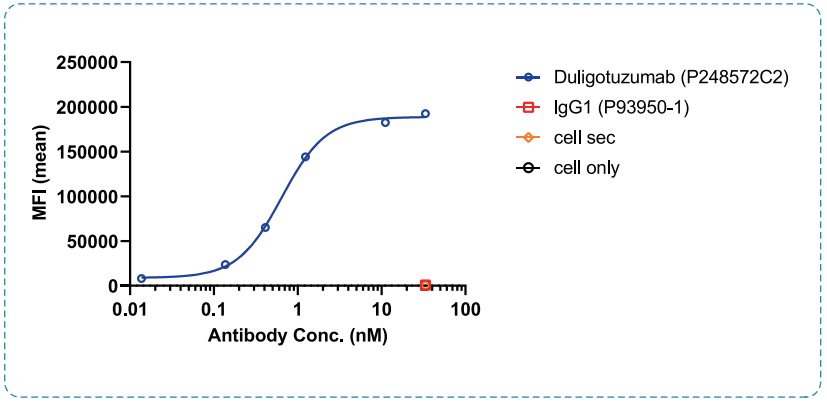
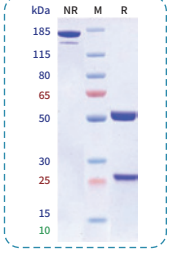


Fig 4. FACS binding for HER3

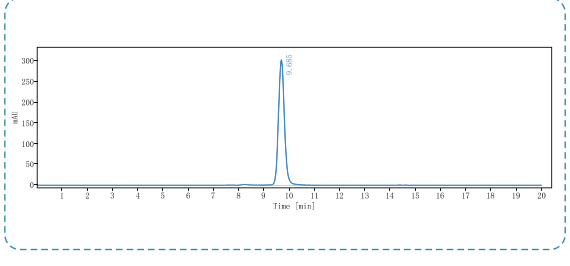
To measure the binding ability of Duligotuzumab in huEGFR-CHO-K cells, Duligotuzumab bound to huEGFR-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Duligotuzumab bound to huEGFR-CHO-K cells, and the EC_{50} was 0.937 nM.

To measure the binding ability of Duligotuzumab in huHER3-FL-HEK293 cells, Duligotuzumab bound to huHER3-FL-HEK293 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Duligotuzumab bound to huHER3-FL-HEK293 cells, and the EC_{50} was 0.645 nM.

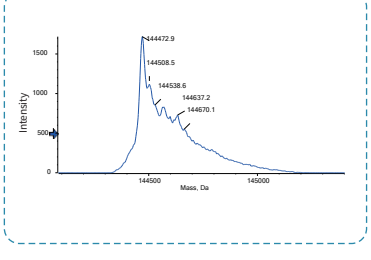
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	100.00%
Calculated MW	144.78 kDa	144.47 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE



SEC-HPLC



MASS

Anti-EGFR & HER3 Reference Antibody (Izalontamab)

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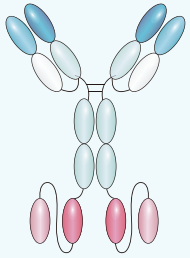


Information	
Name	Izalontamab
Catalog number	CHBA027
Batch number	P262515C
Inventor	Sichuan Biokin Pharmaceutical
Targets	EGFR & HER3
Target Accession	P00533 & P21860

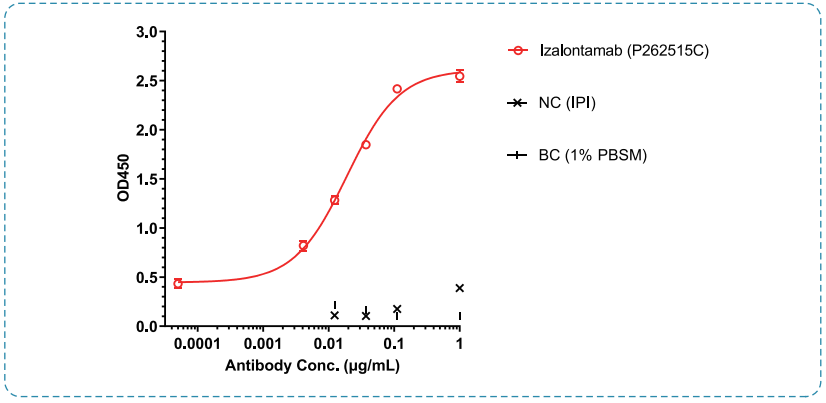


Fig 1. ELISA binding for EGFR

To measure the binding ability of Izalontamab to huEGFR-His. Coating EGFR-His protein on ELISA plate, Izalontamab bound to EGFR protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP), OD450 read. As shown in fig 1, Izalontamab bound to huEGFR-His, and the EC_{50} was 0.019 nM.

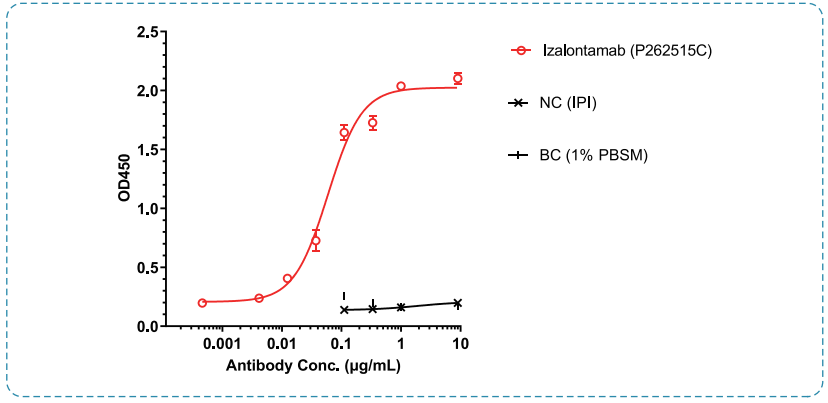


Fig 2. ELISA binding for HER3

To measure the binding ability of Izalontamab to huHER3-His. Coating HER3-His protein on ELISA plate, Izalontamab bound to HER3 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP), OD450 read. As shown in fig 2, Izalontamab bound to huHER3-His, and the EC_{50} was 0.059 nM.

Anti-EGFR & HER3 Reference Antibody (Izalontamab)

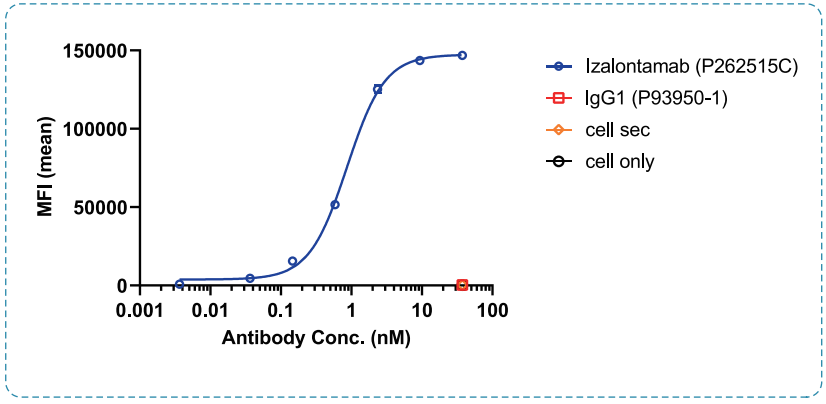


Fig 3. FACS binding for EGFR

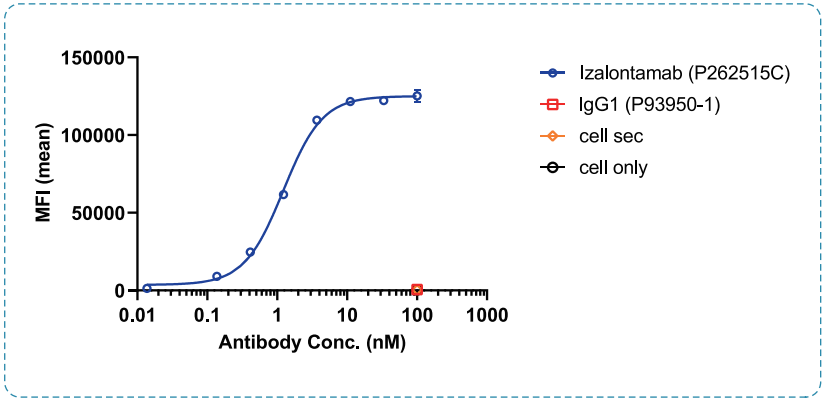
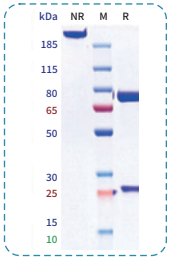


Fig 4. FACS binding for HER3

To measure the binding ability of Izalontamab in huEGFR-CHO-K cells, Izalontamab bound to huEGFR-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Izalontamab bound to huEGFR-CHO-K cells, and the EC_{50} was 0.937 nM.

To measure the binding ability of Izalontamab in huHER3-FL-HEK293 cells, Izalontamab bound to huHER3-FL-HEK293 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Izalontamab bound to huHER3-FL-HEK293 cells, and the EC_{50} was 1.225 nM.

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	99.43%
Calculated MW	197.22 kDa	197.22 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



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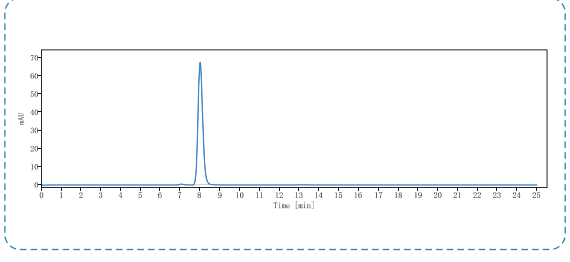
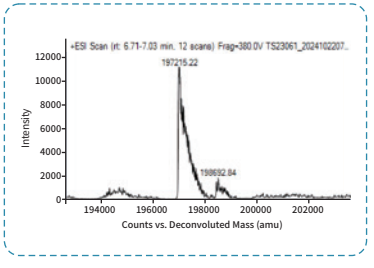


SEC-HPLC



MASS

Anti-EGFR & c-Met Reference Antibody (Amivantamab)

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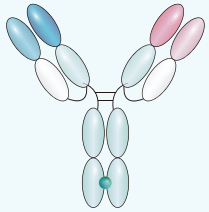


Information	
Name	Amivantamab
Catalog number	CHBA048
Batch number	P268282-P268283-2
Inventor	Genmab, Johnson & Johnson
Targets	EGFR & c-Met
Target Accession	P00533 & P08581

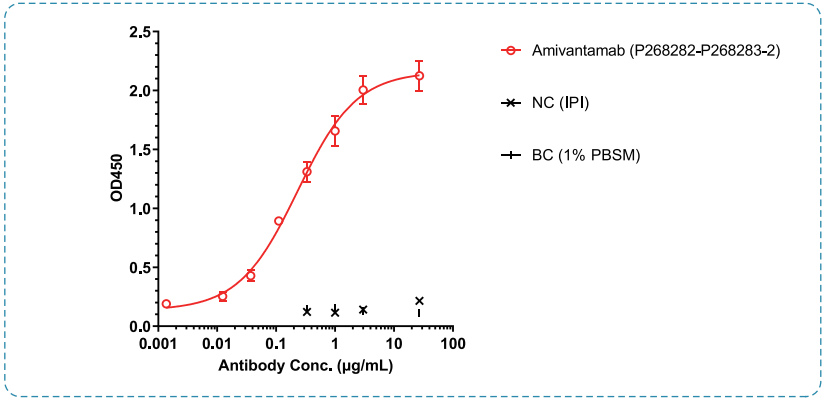


Fig 1. ELISA binding for EGFR

To measure the binding ability of Amivantamab to huEGFR-Fc. Coating EGFR-Fc protein on ELISA plate, Amivantamab bound to EGFR protein, then bound to secondary antibodies (anti-human-κ+λ-HRP). OD450 read. As shown in fig 1, Amivantamab bound huEGFR-Fc, and the EC_{50} was 0.232 nM.

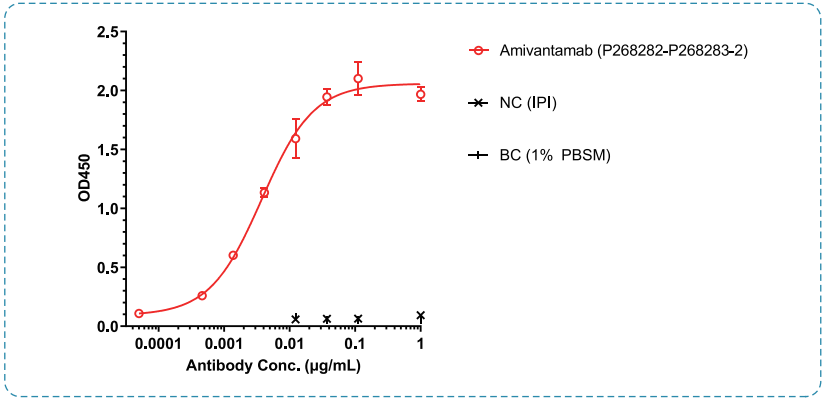


Fig 2. ELISA binding for c-Met

To measure the binding ability of Amivantamab to huc-Met-His. Coating c-Met-His protein on ELISA plate, Amivantamab bound to cMet protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Amivantamab bound huc-Met-His, and the EC_{50} was 0.004 nM.

Anti-EGFR & c-Met Reference Antibody (Amivantamab)

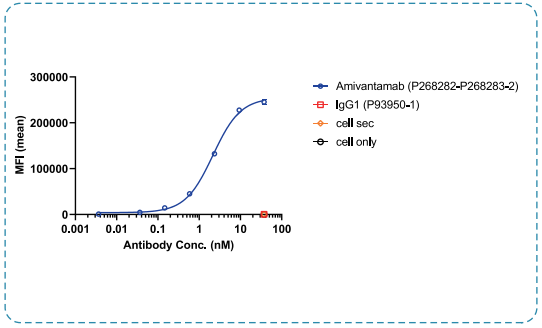


Fig 3. FACS binding for EGFR

To measure the binding ability of Amivantamab in huEGFR-CHO-K cells, Amivantamab bound to huEGFR-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Amivantamab bound to huEGFR-CHO-K cells, and the EC_{50} was 2.161 nM.

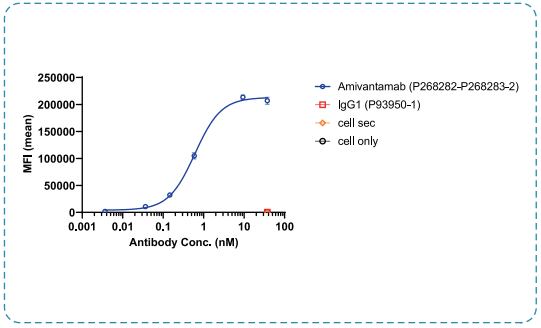


Fig 4. FACS binding for c-Met

To measure the binding ability of Amivantamab in huc-Met-HEK293 cells, Amivantamab bound to huc-Met-HEK293 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Amivantamab bound to huc-Met-HEK293 cells, and the EC_{50} was 0.609 nM.

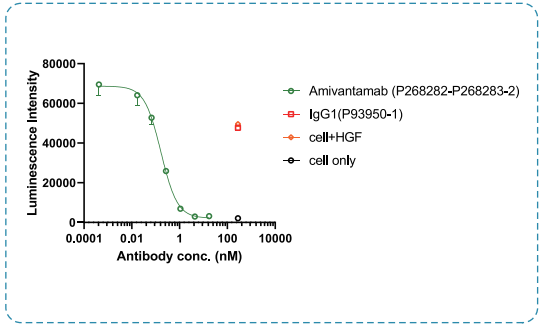
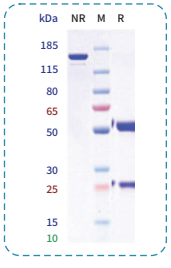


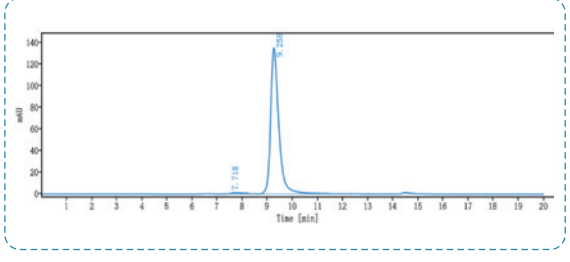
Fig.5 Luciferase reporter for c-Met

To evaluate the blocking activity of Amivantamab in HGF/c-Met signaling pathway, co-incubation of Amivantamab with HGF, then with the addition of human c-MET (Luc) HEK293 reporter cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Amivantamab was able to block HGF/c-Met signaling pathway, and the IC_{50} was 0.17 nM.

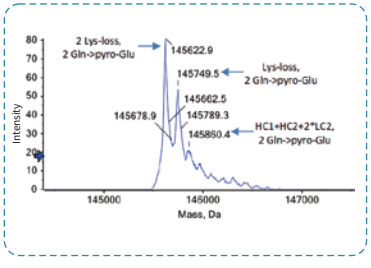
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	98.79%
Calculated MW	145.90 kDa	145.62 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE



SEC-HPLC



MASS

Anti-Factor IX & Factor X Reference Antibody (Emicizumab)

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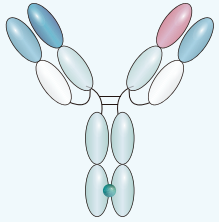


Information	
Name	Emicizumab
Catalog number	CHBA063
Batch number	P246742
Inventor	Roche
Targets	F9 / Factor IX, Factor X / FXa
Target Accession	P00740 & P00742

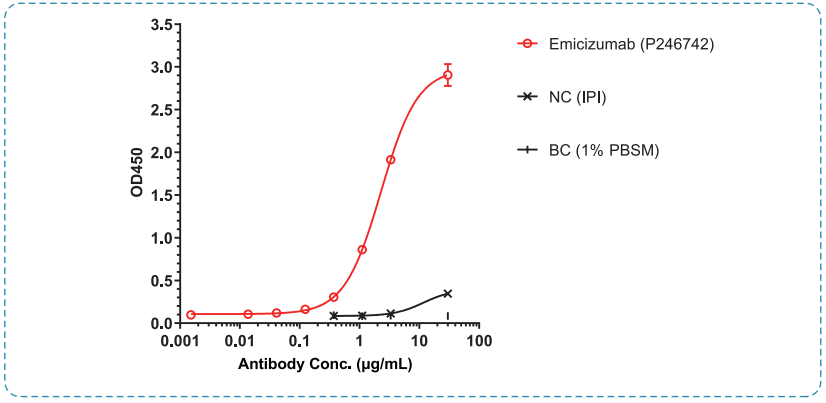


Fig 1. ELISA binding for Factor IX

To measure the binding ability of Emicizumab to huFactor IX-His. Coating Factor IX-His protein on ELISA plate, Emicizumab bound to Factor IX protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Emicizumab bound in huFactor IX -His, and the EC_{50} was 2.296 nM.

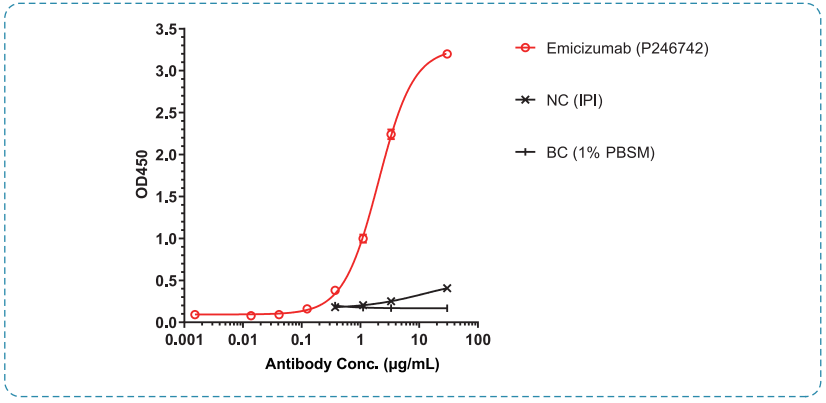
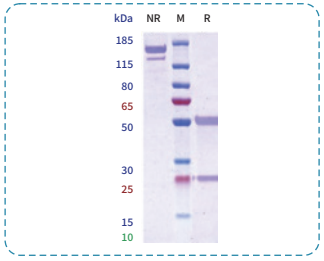


Fig 2. ELISA binding for Factor X

To measure the binding ability of Emicizumab to huFactor X-His. Coating Factor X-His protein on ELISA plate, Emicizumab bound to Factor X protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Emicizumab bound in huFactor X -His, and the EC_{50} was 2.033 nM.

Anti-Factor IX & Factor X Reference Antibody (Emicizumab)

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	100.00%
Calculated MW	145.62 kDa	145.61 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



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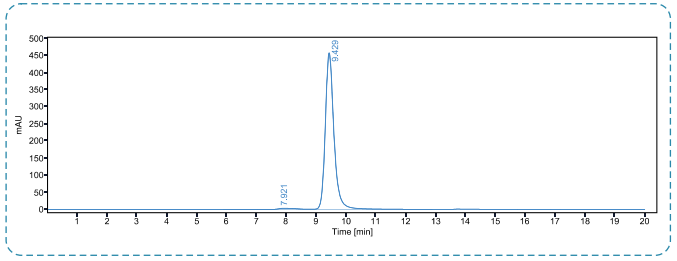
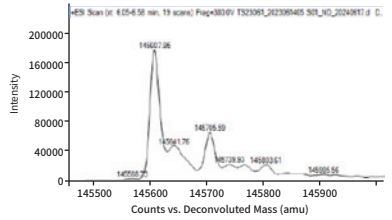


SEC-HPLC



MASS

Anti-HER2/ HER2 Reference Antibody (Anbenitamab)

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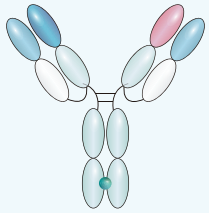


Information	
Name	Anbenitamab
Catalog number	CHBA024
Batch number	P262513
Inventor	Alphamab Oncology
Targets	HER2
Target Accession	P04626

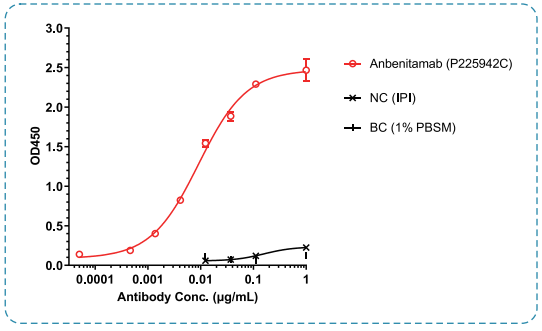


Fig 1. ELISA binding for HER2

To measure the binding ability of Anbenitamab to huHER2-His. Coating HER2-His protein on ELISA plate, Anbenitamab bound to HER2 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Anbenitamab bound to huHER2-His, and the EC_{50} was 0.008 nM.

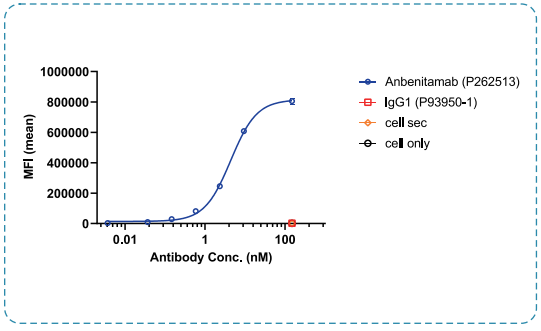


Fig 2. FACS binding for HER2

To measure the binding ability of Anbenitamab in BT474 cells, Anbenitamab bound to BT474 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 2, Anbenitamab bound to BT474 cells, and the EC_{50} was 4.39 nM.

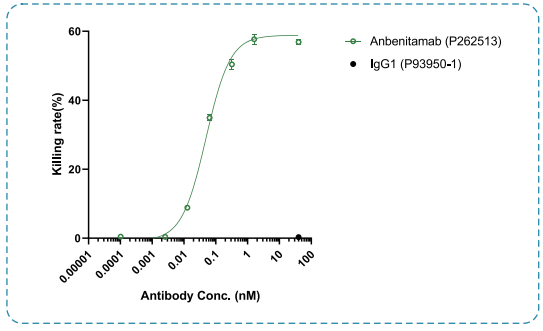
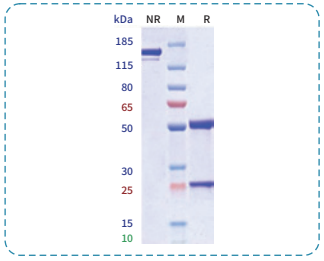


Fig 3. PBMC ADCC for HER2

To evaluate the ADCC activity of Anbenitamab, co-incubation of Anbenitamab with BT474 cell and PBMCs for 4 hours, then LDH was detected to evaluate the ADCC activity of Anbenitamab. As shown in fig 3, Anbenitamab has ADCC activity, and the EC_{50} was 0.049 nM.

Anti-HER2/ HER2 Reference Antibody (Anbenitamab)

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	96.80%
Calculated MW	145.16 kDa	144.93 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



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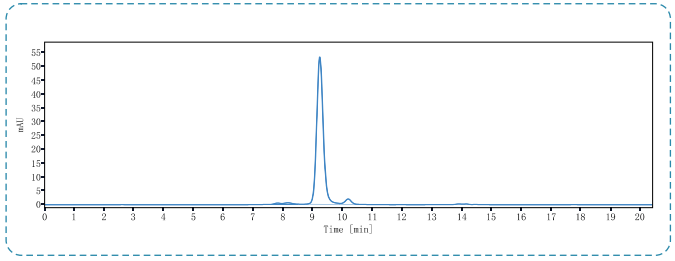

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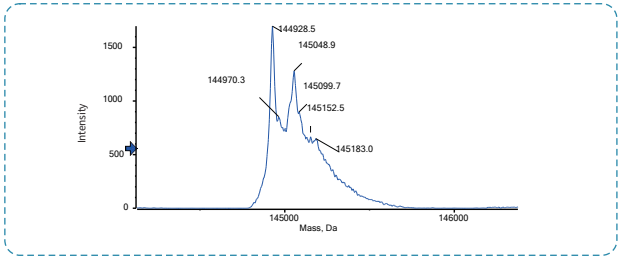

MASS

Anti-HER2/ HER2 Reference Antibody (Zanidatamab)

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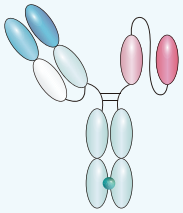


Information	
Name	Zanidatamab
Catalog number	CHBA060
Batch number	P210878-J1
Inventor	Zymeworks
Targets	HER2
Target Accession	P04626

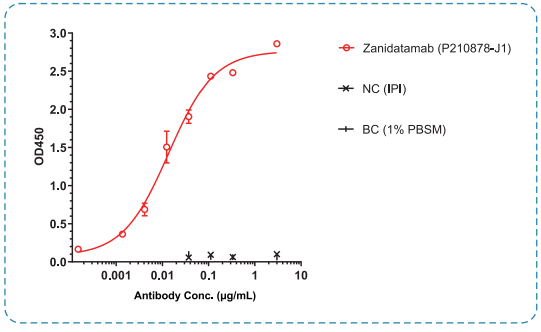


Fig 1. ELISA binding for HER2

To measure the binding ability of Zanidatamab to huHER2-His. Coating HER2-His protein on ELISA plate, Zanidatamab bound to HER2 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Zanidatamab bound to huHER2-His, and the EC_{50} was 0.012 nM.

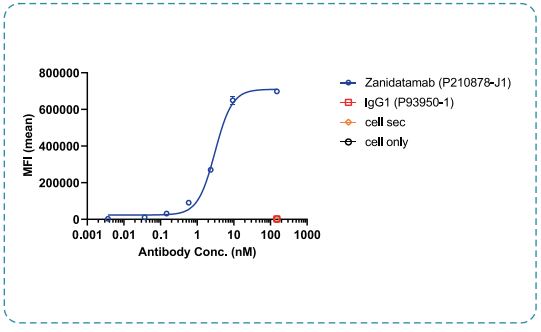


Fig 2. FACS binding for HER2

To measure the binding ability of Zanidatamab in BT474 cells, Zanidatamab bound to BT474 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 2, Zanidatamab bound to BT474 cells, and the EC_{50} was 3.061 nM.

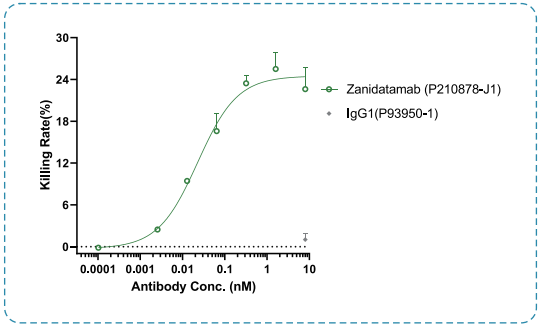
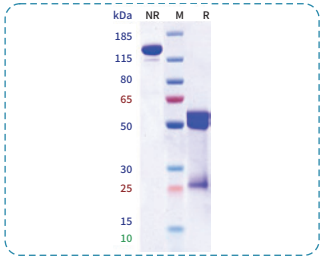


Fig 3. PBMC ADCC for HER2

To evaluate the ADCC activity of Zanidatamab, co-incubation of Zanidatamab with BT474 cell and PBMCs for 4 hours, then LDH was detected to evaluate the ADCC activity of Zanidatamab. As shown in fig 3, Zanidatamab has ADCC activity, and the EC_{50} was 0.023 nM.

Anti-HER2/ HER2 Reference Antibody (Zanidatamab)

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	98.25%
Calculated MW	124.81 kDa	124.82 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



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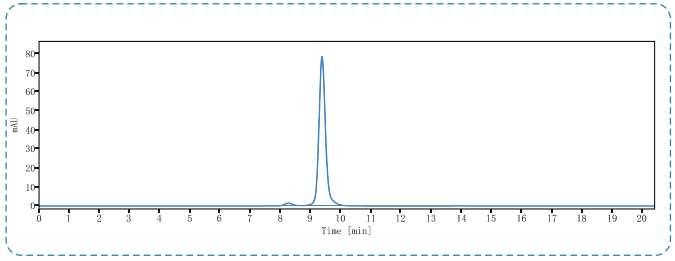

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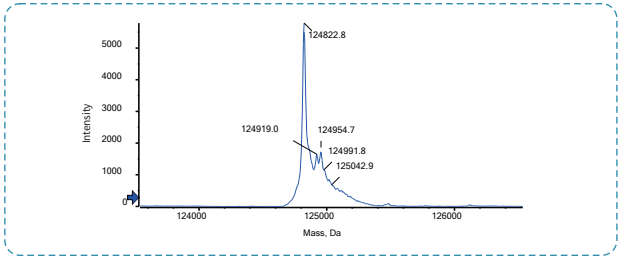

MASS

Anti-HER2 & HER3 Reference Antibody (Zenocutuzumab)

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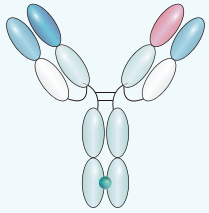


Information	
Name	Zenocutuzumab
Catalog number	CHBA070
Batch number	P264372C1
Inventor	Merus
Targets	HER2 & HER3
Target Accession	P04626 & P21860

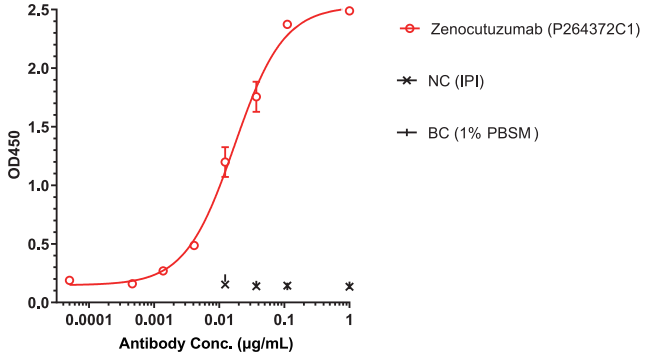


Fig 1. ELISA binding for HER2

To measure the binding ability of Zenocutuzumab to huHER2-His. Coating HER2-His protein on ELISA plate, Zenocutuzumab bound to HER2 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Zenocutuzumab bound to huHER2-His, and the EC_{50} was 0.017 nM.

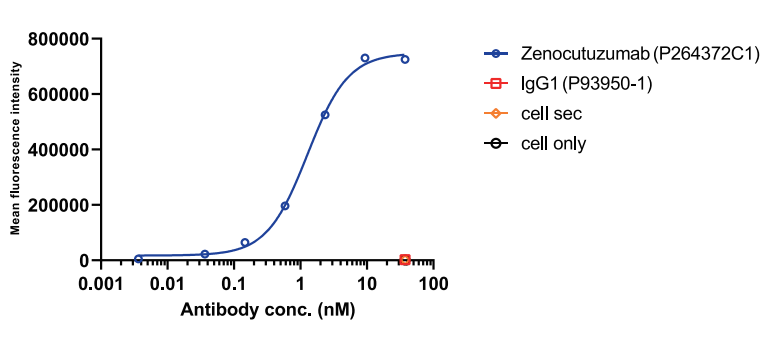


Fig 2. FACS binding for HER2/HER3

To measure the binding ability of Zenocutuzumab in BT474 cells, Zenocutuzumab bound to BT474 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 2, Zenocutuzumab bound to BT474 cells, and the EC_{50} was 1.277 nM.

Anti-HER2 & HER3 Reference Antibody (Zenocutuzumab)

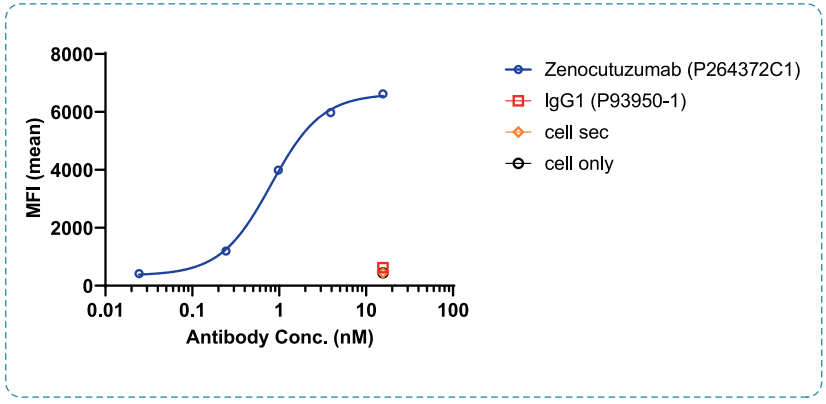


Fig 3. FACS binding for HER3

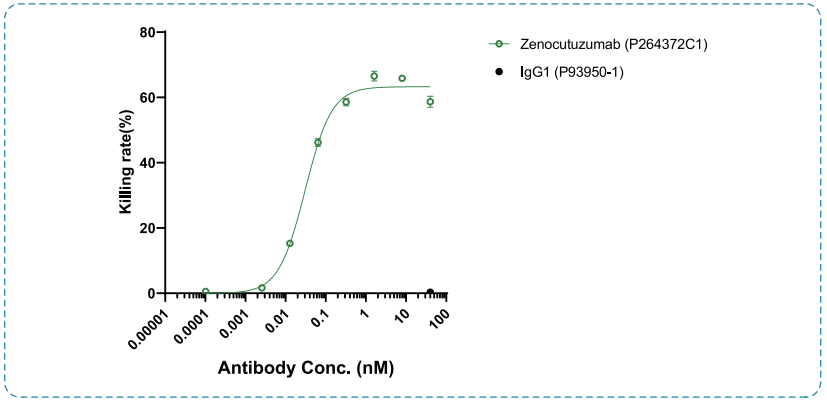
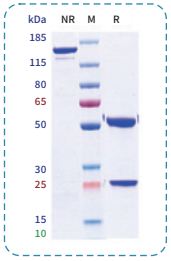


Fig 4. PBMC ADCC for HER2

To measure the binding ability of Zenocutuzumab in huHER3-FL-HEK293 cells, Zenocutuzumab bound to huHER3-FL-HEK293 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Zenocutuzumab bound to huHER3-FL-HEK293 cells, and the EC_{50} was 0.879 nM.

To evaluate the ADCC activity of Zenocutuzumab, co-incubation of Zenocutuzumab with BT474 cell and PBMCs for 4 hours, then LDH was detected to evaluate the ADCC activity of Zenocutuzumab. As shown in fig 4, Zenocutuzumab has ADCC activity, and the EC_{50} was 0.031 nM.

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	100.00%
Calculated MW	145.88 kDa	145.20 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



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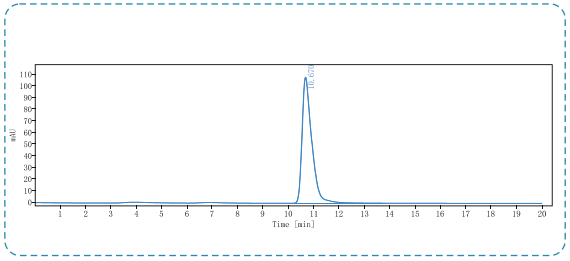
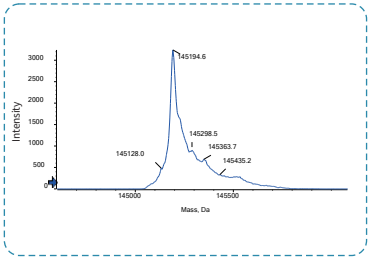


SEC-HPLC



MASS

Anti-HER3 & IGF-1R Reference Antibody (Istiratumab)

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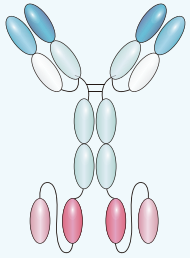


Information	
Name	Istiratumab
Catalog number	CHBA013
Batch number	P262516
Inventor	Merrimack Pharmaceuticals, Inc.
Targets	HER3 & IGF-1R
Target Accession	P21860 & P08069

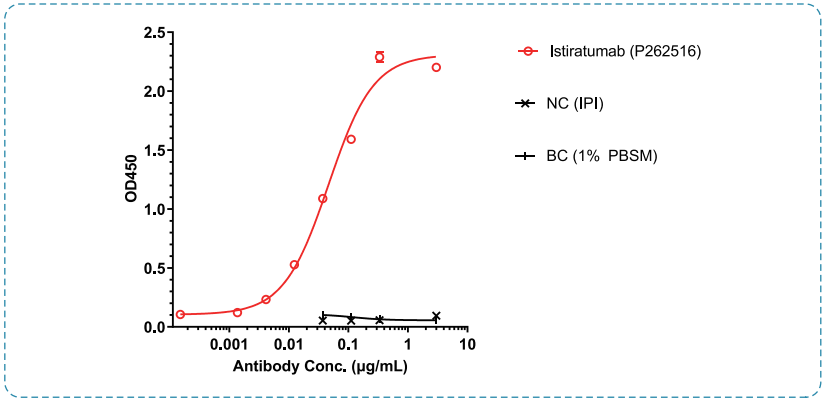


Fig 1. ELISA binding for HER 3

To measure the binding ability of Istiratumab to huHER3-His. Coating HER3-His protein on ELISA plate, Istiratumab bound to HER3 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP), OD450 read. As shown in fig 1, Istiratumab bound to huHER3-His, and the EC_{50} was 0.046 nM.

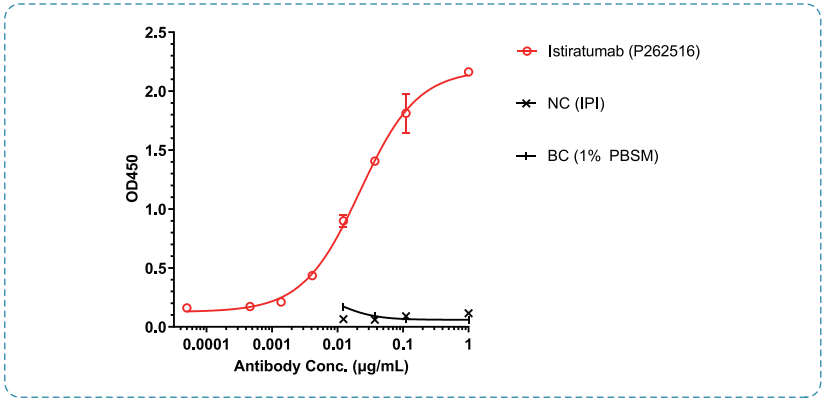


Fig 2. ELISA binding for IGF-1R

To measure the binding ability of Istiratumab in huIGF-1R-His. Coating IGF-1R-His protein on ELISA plate, Istiratumab bound to IGF-1R protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP), OD450 read. As shown in fig 2, Istiratumab bound to huIGF-1R-His, and the EC_{50} was 0.022 nM.

Anti-HER3 & IGF-1R Reference Antibody (Istiratumab)

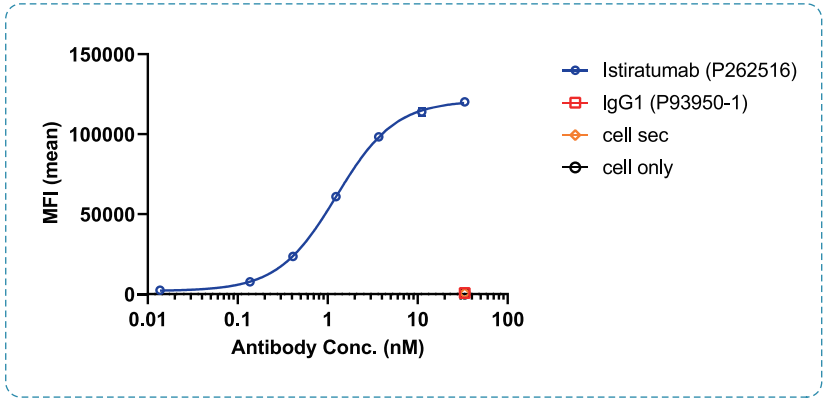


Fig 3. FACS binding for HER 3

To measure the binding ability of Istiratumab in huHER3-FL-HEK293 cells, Istiratumab bound to huHER3-FL-HEK293 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Istiratumab bound to huHER3-FL-HEK293 cells, and the EC_{50} was 1.257 nM.

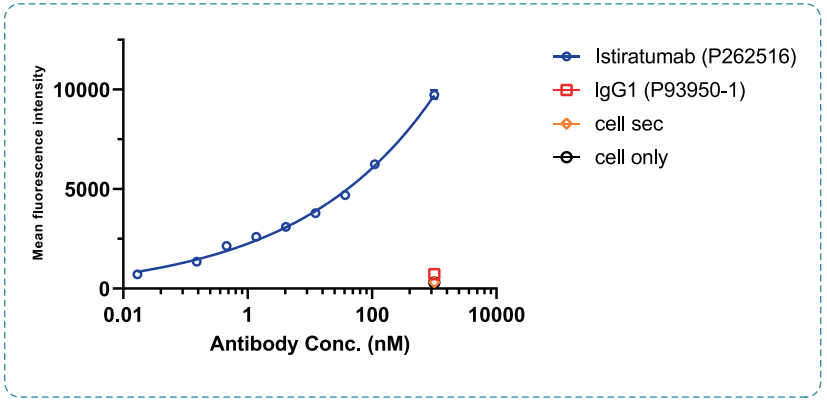
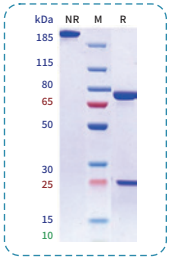


Fig 4. FACS binding for IGF-1R

To measure the binding ability of Istiratumab in MCF-7 cells, Istiratumab bound to MCF-7 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Istiratumab bound to MCF-7 cells.

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	95.55%
Calculated MW	199.64 kDa	199.64 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



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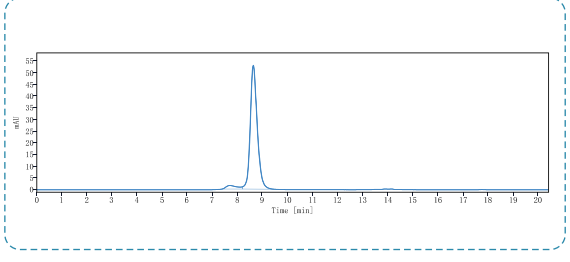

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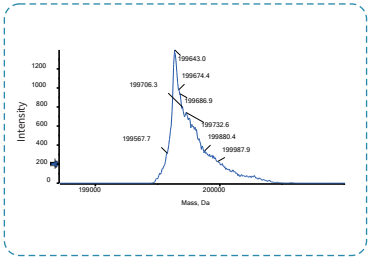

MASS

Anti-BAFF & IL-17A Reference Antibody (Tibulizumab)

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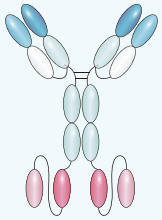


Information	
Name	Tibulizumab
Catalog number	CHBA001
Batch number	P103472
Inventor	Eli Lilly
Targets	BAFF & IL-17A
Target Accession	Q9Y275 & Q16552

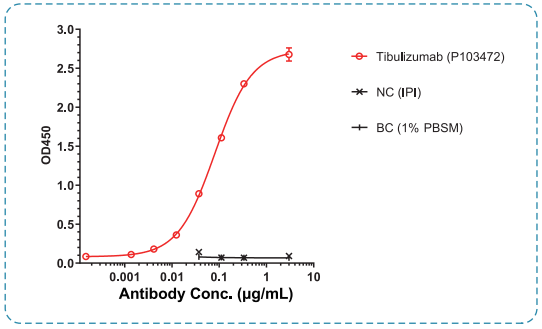


Fig 1. ELISA binding for BAFF

To measure the binding ability of Tibulizumab to huBAFF-Fc. Coating BAFF-Fc protein on ELISA plate, Tibulizumab bound to BAFF protein, then bound to secondary antibodies (anti-human-κ+λ-HRP). OD450 read. As shown in fig 1, Tibulizumab bound huBAFF-Fc, and the EC_{50} was 0.081 nM.

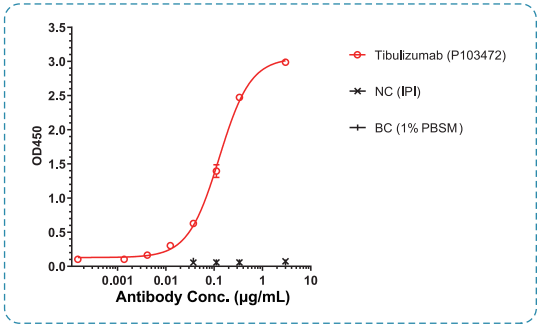


Fig 2. ELISA binding for IL-17A

To measure the binding ability of Tibulizumab to huIL-17a-His. Coating IL-17a-His protein on ELISA plate, Tibulizumab bound to IL-17a protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Tibulizumab bound to in huIL-17a-His, and the EC_{50} was 0.128 nM.

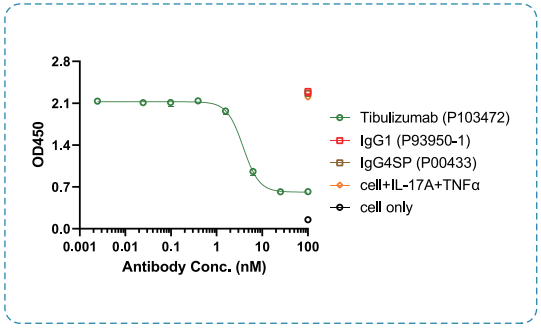
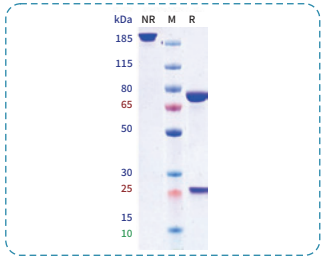


Fig.3 Content of IL-6 in supernatant detected by ELISA

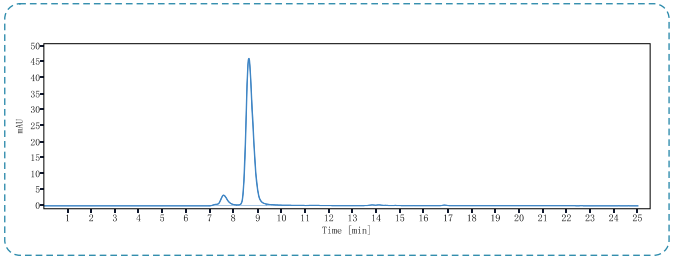
To evaluate the neutralization ability of Tibulizumab on IL-17A. Co-incubation of NHDF cells with TNF-α and IL-17A protein, then with the addition of Tibulizumab and incubated for 24 hours. IL-6 was measured by ELISA. As shown in fig 3, Tibulizumab can neutralize IL17-A-induced IL-6 factor secretion, and the IC_{50} was 3.81 nM.

Anti-BAFF & IL-17A Reference Antibody (Tibulizumab)

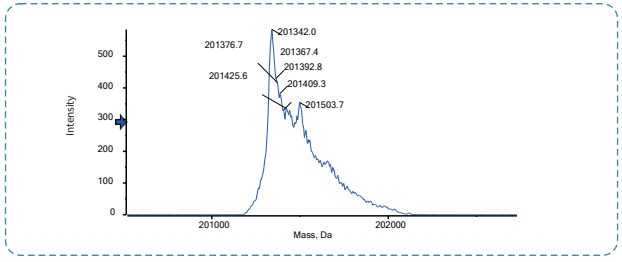
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	92.06%
Calculated MW	201.44 kDa	201.34 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE



SEC-HPLC



MASS

Anti-IL-17 & IL-17F & Serum Albumin Reference Antibody (Sonelokimab)

Configuration	Information	
	Name	Sonelokimab
	Catalog number	CHBA006
	Batch number	P247905
	Inventor	Sanofi
	Targets	IL-17 & IL-17F & Serum Albumin
	Target Accession	Q16552-1 & Q96PD4 & P02768

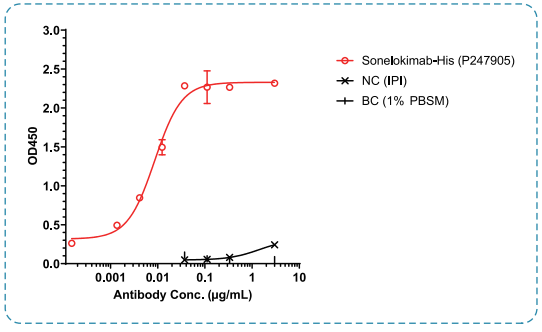


Fig 1. ELISA binding for IL-17F

To measure the binding ability of Sonelokimab to huIL-17F-Fc. Coating IL-17F-Fc protein on ELISA plate, Sonelokimab bound to IL-17F protein, then bound to secondary antibodies (anti-human-IgG-His-HRP). OD450 read. As shown in fig 1, Sonelokimab bound in huIL-17F-Fc, and the EC50 was 0.009 nM.

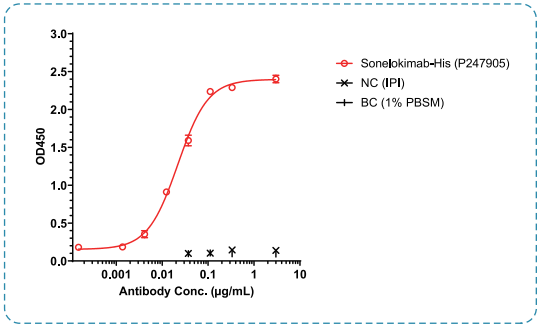


Fig 2. ELISA binding for HSA

To measure the binding ability of Sonelokimab to huHSA-Fc. Coating HSA-Fc protein on ELISA plate, Sonelokimab bound to HSA protein, then bound to secondary antibodies (anti-human-IgG-His-HRP). OD450 read. As shown in fig 2, Sonelokimab bound in huHSA-Fc, and the EC_{50} was 0.022nM.

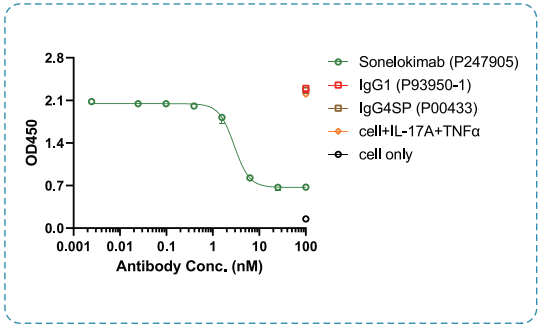
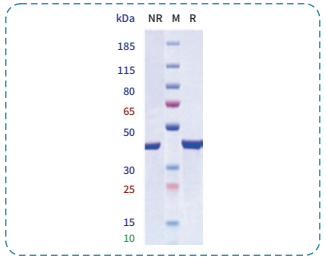


Fig 3. Content of IL-6 in supernatant detected by ELISA

To evaluate the neutralization ability of Sonelokimab on IL-17A, co-incubation of NHDF cells with TNF-α and IL-17A proteins, then with the addition of Sonelokimab and incubated for 24 hours. IL-6 was measured by ELISA. As shown in fig 3, Sonelokimab can neutralize IL17-A-induced IL-6 factor secretion, and the IC_{50} was 2.877 nM.

Anti-IL-17 & IL-17F & Serum Albumin Reference Antibody (Sonelokimab)

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	98.70%
Calculated MW	40.93 kDa	40.93 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



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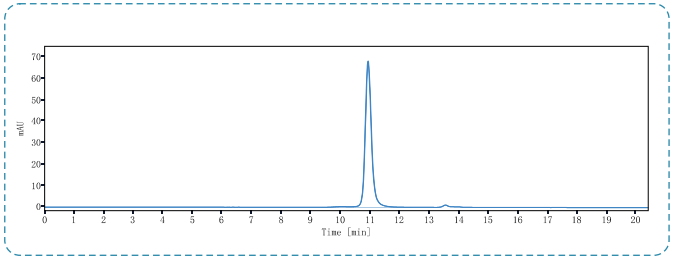
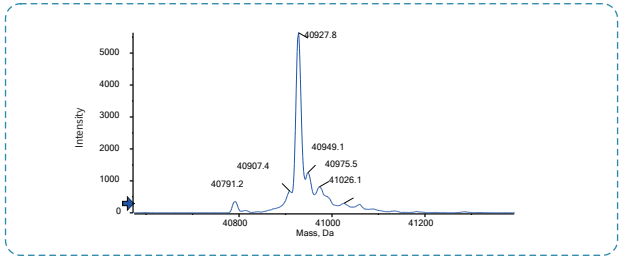
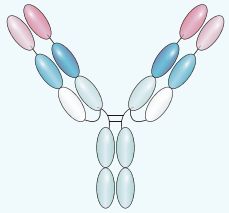


SEC-HPLC



MASS

Anti-IL-17 & TNFα Reference Antibody (Remtolumab)

Configuration


Information	
Name	Remtolumab
Catalog number	CHBA020
Batch number	P277654
Inventor	Abbvie
Targets	IL-17 & TNFα
Target Accession	Q16552-1 & P01375

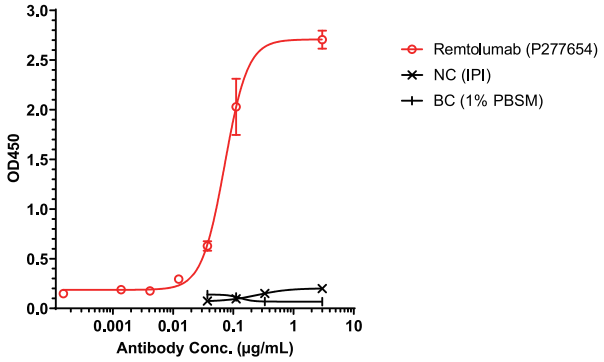


Fig 1. ELISA binding for IL-17a

To measure the binding ability of Remtolumab to huIL-17a-His. Coating IL-17a-His protein on ELISA plate, Remtolumab bound to IL-17a protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Remtolumab bound to huIL-17a-His, and the EC_{50} was 0.072 nM.

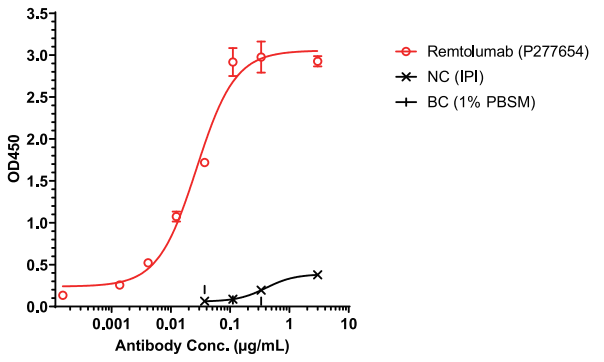


Fig 2. ELISA binding for TNFα

To measure the binding ability of Remtolumab in huTNFα-Fc. Coating TNFα-Fc protein on ELISA plate, Remtolumab bound to TNFα protein, then bound to secondary antibodies (anti-human-κ+λ-HRP). OD450 read. As shown in fig 2, Remtolumab bound to huTNFα-Fc, and the EC_{50} was 0.027 nM.

Anti-IL-17 & TNFα Reference Antibody (Remtolumab)

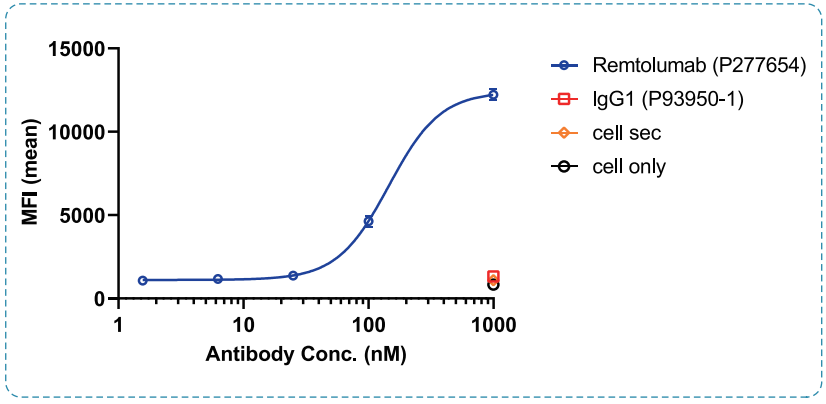


Fig 3. FACS binding for TNFα

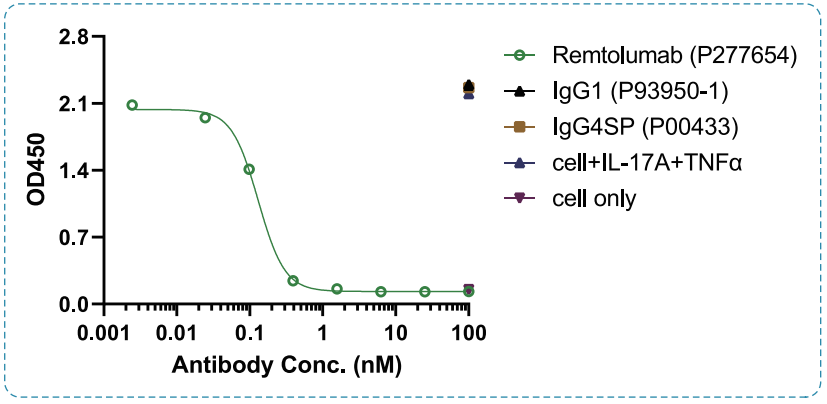
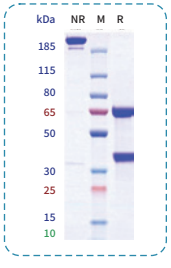


Fig 4. Content of IL-6 in supernatant detected by ELISA

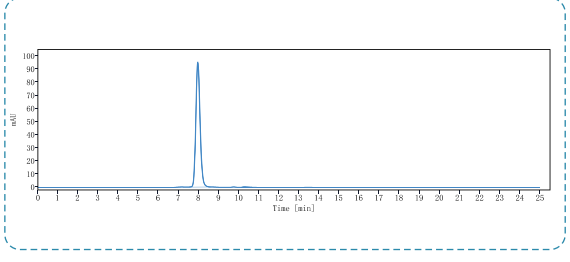
To measure the binding ability of Remtolumab in huTNFα-CHO-K cells, Remtolumab bound to huTNFα-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Remtolumab bound to huTNFα-CHO-K cells, and the EC_{50} was 148.700 nM.

To evaluate the neutralization ability of Remtolumab on IL-17A, co-incubation of NHDF cells with TNFα and IL-17A proteins, then with the addition of Remtolumab and incubated for 24 hours. IL-6 was measured by ELISA. As shown in fig 4, Remtolumab can neutralize IL17-A-induced IL-6 factor secretion, and the IC_{50} was 0.130 nM.

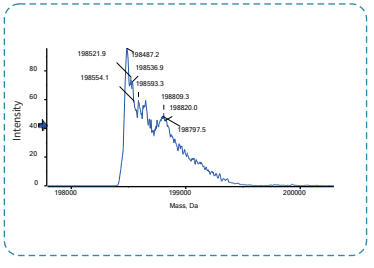
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	100.00%
Calculated MW	198.74 kDa	198.49 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

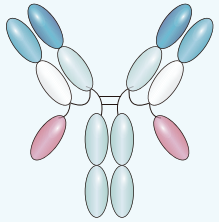


SEC-HPLC



MASS

Anti-IL-17 & TNFα Reference Antibody (Cova322)

Configuration


Information	
Name	Cova322
Catalog number	CHBA043
Batch number	P267998
Inventor	Covagen AG
Targets	IL-17 & TNFα
Target Accession	Q16552-1 & P01375

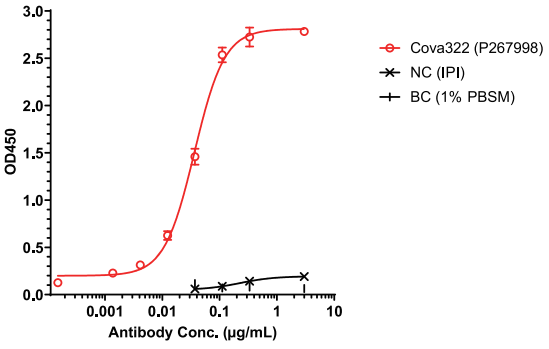


Fig 1. ELISA binding for IL-17

To measure the binding ability of Cova322 to huIL-17a-His. Coating IL-17a-His protein on ELISA plate, Cova322 bound to IL-17a protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Cova322 bound huIL-17a-His, and the EC_{50} was 0.036 nM.

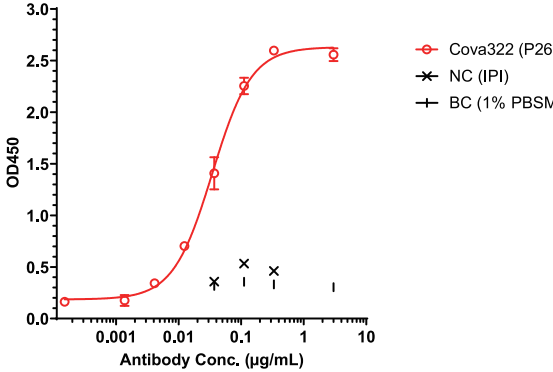


Fig 2. ELISA binding for TNFα

To measure the binding ability of Cova322 to huTNFα-Fc. Coating TNFα-Fc protein on ELISA plate, Cova322 bound to TNFα protein, then bound to secondary antibodies (anti-human-κ+λ-HRP). OD450 read. As shown in fig 2, Cova322 bound huTNFα-Fc, and the EC_{50} was 0.035 nM.

Anti-IL-17 & TNFα Reference Antibody (Cova322)

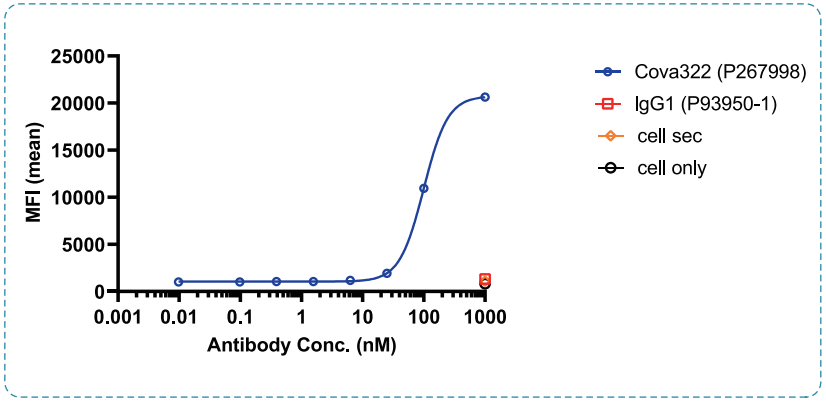


Fig 3. FACS binding for TNF-alpha

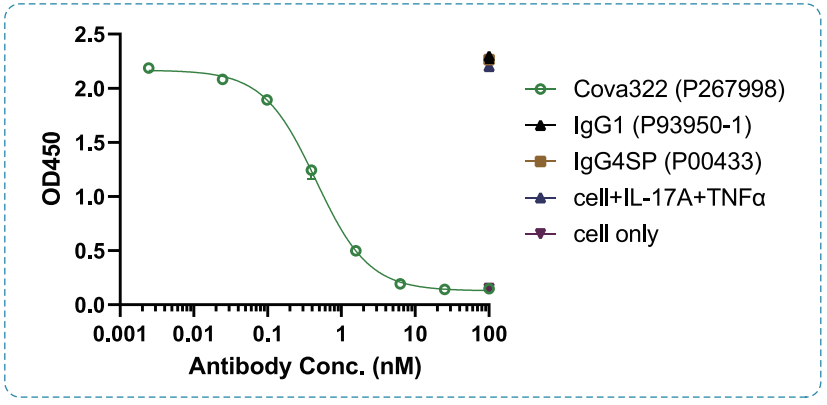
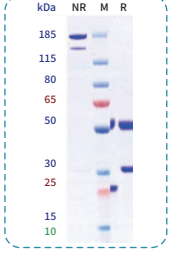


Fig 4. Content of IL-6 in Supernatant Detected by ELISA

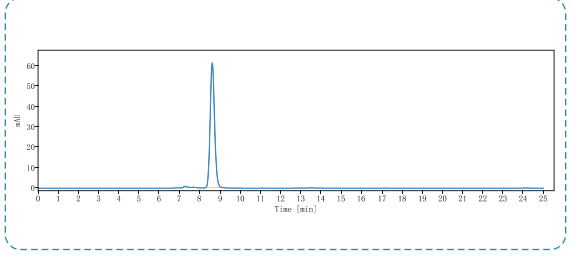
To measure the binding ability of Cova322 in huTNFα-CHO-K cells, Cova322 bound to huTNFα-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Cova322 bound to huTNFα-CHO-K cells, and the EC_{50} was 99.590 nM.

To evaluate the neutralization ability of Cova322 on IL-17A, co-incubation of NHDF cells with TNF-α and IL-17A proteins, then with the addition of Cova322 and incubated for 24 hours. IL-6 was measured by ELISA. As shown in fig 4, Cova322 can neutralize IL17-A-induced IL-6 factor secretion, and the IC_{50} was 0.452 nM.

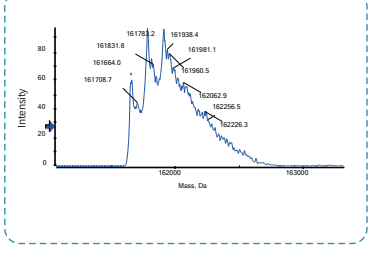
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	98.28%
Calculated MW	161.9 kDa	161.78 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

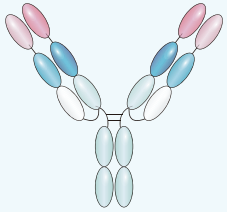


SEC-HPLC



MASS

Anti-IL-1α & IL-1β Reference Antibody (Lutikizumab)

Configuration


Information	
Name	Lutikizumab
Catalog number	CHBA004
Batch number	P247902
Inventor	Abbvie
Targets	IL-1α & IL-1β
Target Accession	P01583 & P01584

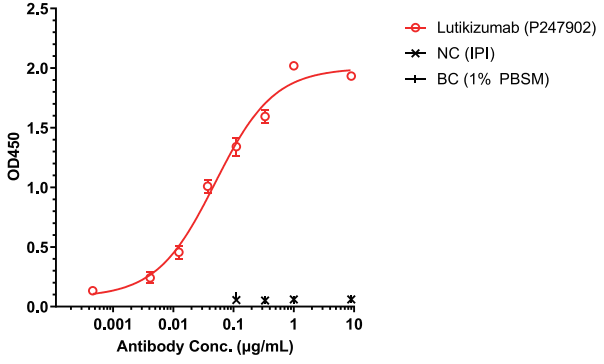


Fig 1. ELISA binding for IL-1α

To measure the binding ability of Lutikizumab to huIL-1α-His. Coating IL-1a-His protein on ELISA plate, Lutikizumab bound to IL-1α protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Lutikizumab bound in huIL-1α-His, and the EC_{50} was 0.050 nM.

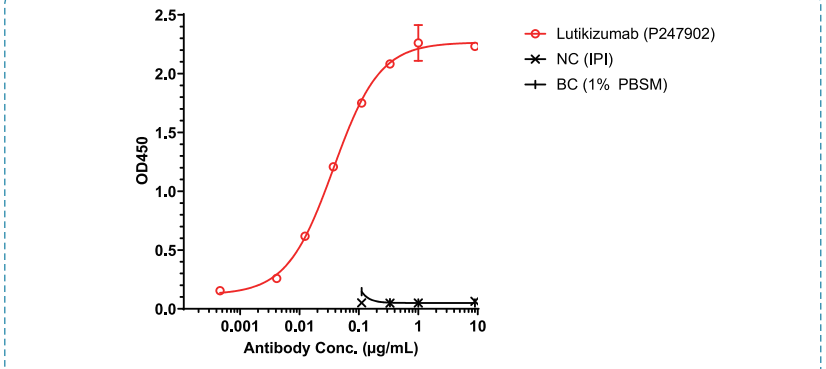
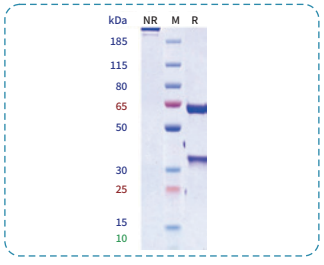


Fig 2. ELISA binding for IL-1β

To measure the binding ability of Lutikizumab to huIL-1β-His. Coating IL-1β-His protein on ELISA plate, Lutikizumab bound to IL-1β protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Lutikizumab bound in huIL-1β-His, and the EC_{50} was 0.037 nM.

Anti-IL-1α & IL-1β Reference Antibody (Lutikizumab)

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	100.00%
Calculated MW	196.82 kDa	196.56 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



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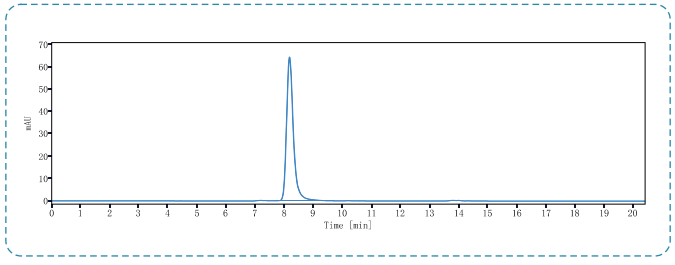

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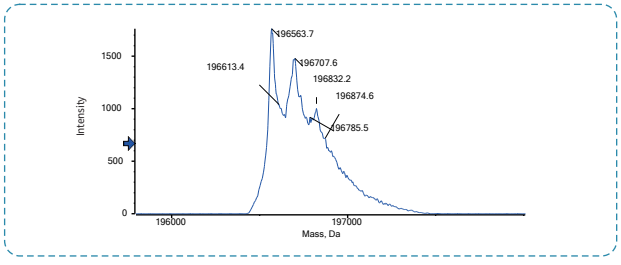
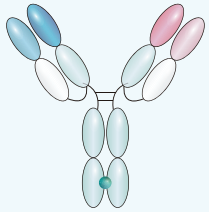


MASS

Anti-IL-18 & IL-1β Reference Antibody (Mas825)

Configuration


Information	
Name	Mas825
Catalog number	CHBA017
Batch number	P267980
Inventor	Novartis
Targets	IL-18 & IL-1β
Target Accession	Q14116 & P01584

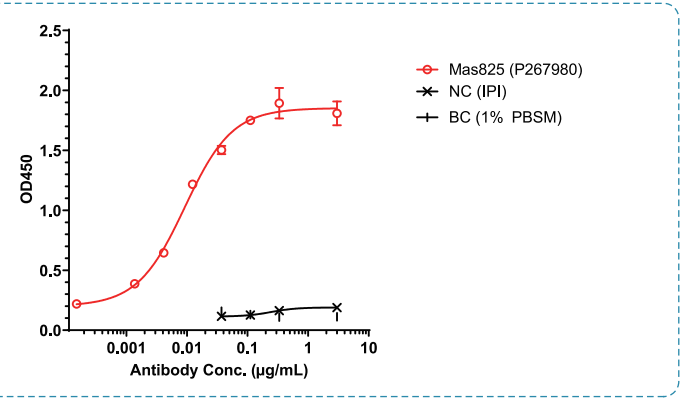


Fig 1. ELISA binding for IL-18

To measure the binding ability of Mas825 to huIL-18-His. Coating IL-18-His protein on ELISA plate, Mas825 bound to IL-18 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Mas825 bound to huIL-18-His, and the EC_{50} was 0.009 nM.

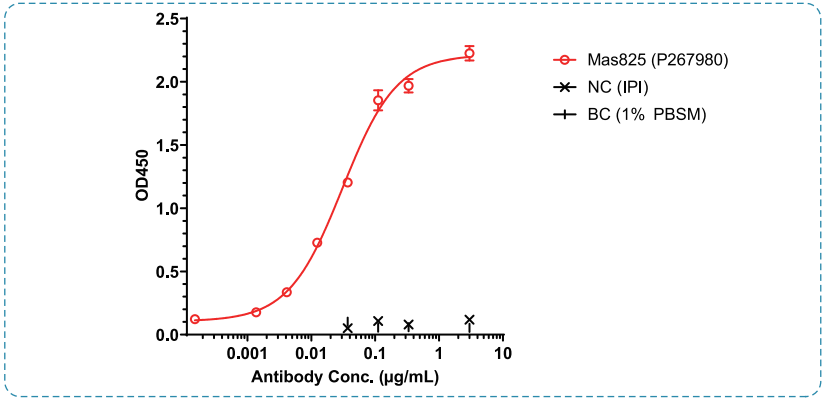
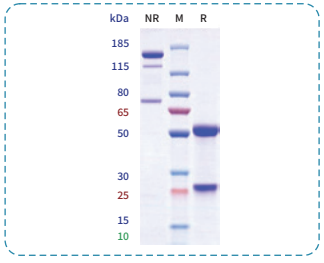


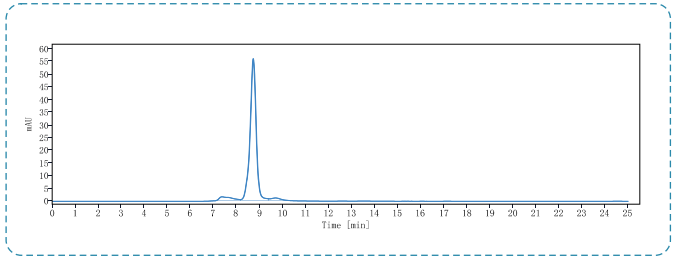
Fig 2. ELISA binding for IL-1β

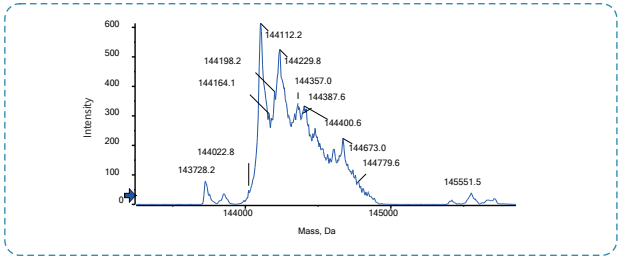
To measure the binding ability of Mas825 to huIL-1β-His. Coating IL-1β-His protein on ELISA plate, Mas825 bound to IL-1β protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Mas825 bound to huIL-1β-His, and the EC_{50} was 0.031 nM.

Anti-IL-18 & IL-1β Reference Antibody (Mas825)

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	92.15%
Calculated MW	144.35 kDa	144.11 kDa
Endotoxin	<1 EU/mg	<1 EU/mg

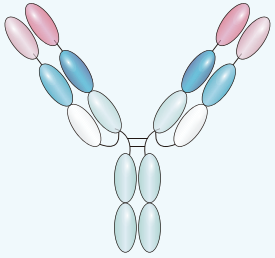






MASS

Anti-IL-13 & IL-4 Reference Antibody (Romilkimab)

Configuration


Information	
Name	Romilkimab
Catalog number	CHBA018
Batch number	P267985
Inventor	Sanofi
Targets	IL-13 & IL-4
Target Accession	P35225 & P05112-1

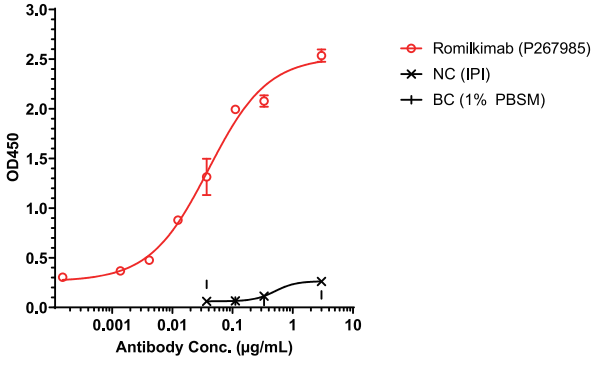


Fig 1. ELISA binding for IL-4

To measure the binding ability of Romilkimab to huIL-4-Fc. Coating IL-4-Fc protein on ELISA plate, Romilkimab bound to IL-4 protein, then bound to secondary antibodies (anti-human-κ+λ-HRP). OD450 read. As shown in fig 1, Romilkimab bound to huIL-4-Fc, and the EC_{50} was 0.040 nM.

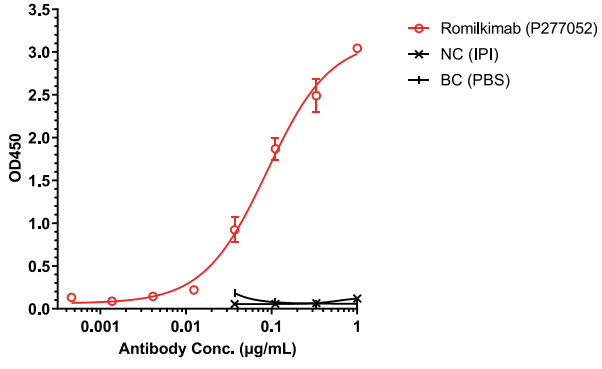


Fig 2. ELISA binding for IL-13

To measure the binding ability of Romilkimab to huIL-13-His. Coating Romilkimab-Fc protein on ELISA plate, Romilkimab bound to IL-13 protein, then bound to secondary antibodies (anti-6xHis-HRP). OD450 read. As shown in fig 2, Romilkimab bound to huIL-13-His, and the EC_{50} was 0.088 nM.

Anti-IL-13 & IL-4 Reference Antibody (Romilkimab)

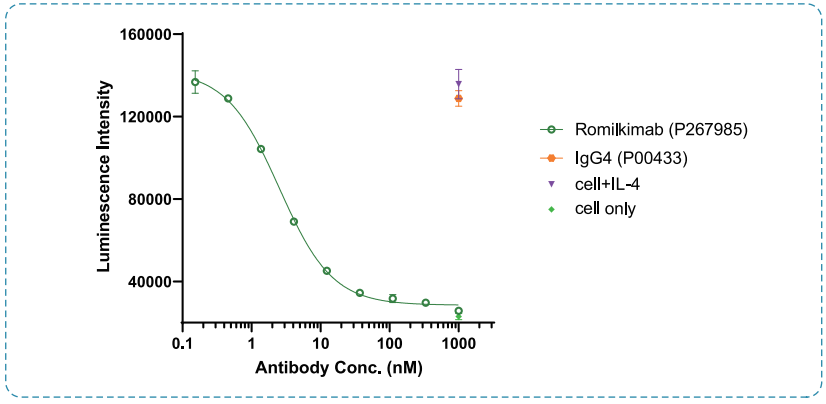


Fig 3. Luciferase reporter for STAT6

To evaluate the blocking activity of Romilkimab in STAT6 phosphorylation, co-incubation of Romilkimab with IL-4 protein, then with the addition of Stat6-luci--HEK293 pLVX-neo-RSPL002-rhuIL-4R-FL cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 3, Romilkimab was able to block IL-4-induced STAT6 phosphorylation, and the IC_{50} was 5.516 nM.

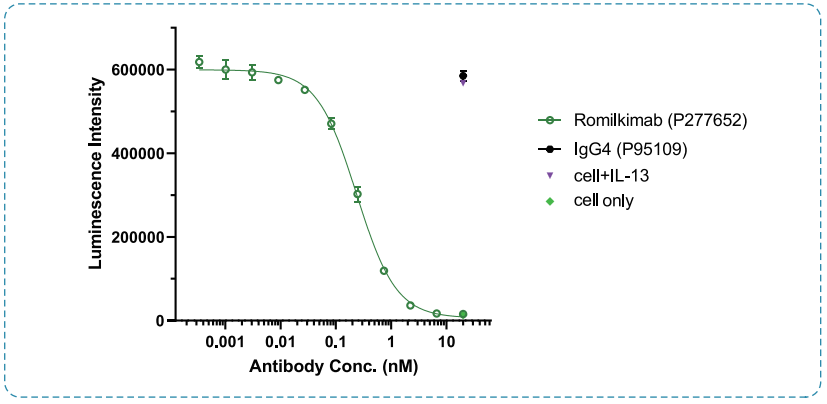
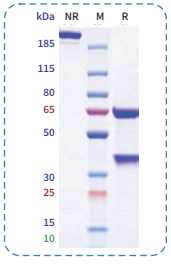


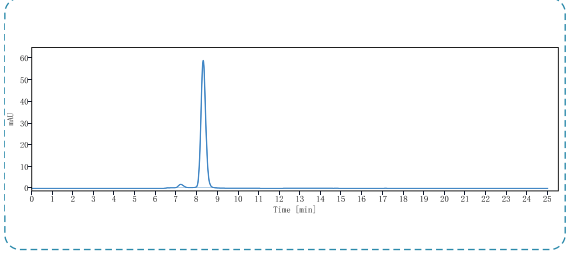
Fig 4. Luciferase reporter for STAT6

To evaluate the blocking activity of Romilkimab in STAT6 phosphorylation, co-incubation of Romilkimab with IL-13 protein, then with the addition of Stat6-luci--HEK293 pLVX-neo-RSPL002-rhuIL-4R-FL cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 4, Romilkimab was able to block IL-4-induced STAT6 phosphorylation, and the IC_{50} was 0.235 nM.

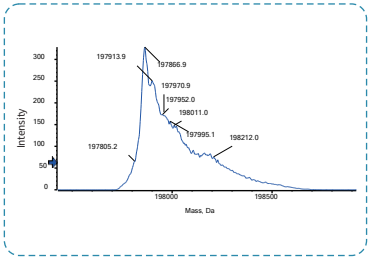
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	97.45%
Calculated MW	198.12 kDa	197.87 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

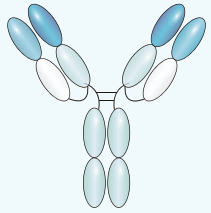


SEC-HPLC



MASS

Anti-LILRB1 & LILRB2 Reference Antibody (Ngm707)

Configuration


Information	
Name	Ngm707
Catalog number	CHBA041
Batch number	P268014
Inventor	NGM Biopharmaceuticals
Targets	LILRB1 & LILRB2
Target Accession	Q8NHL6 & Q8N423

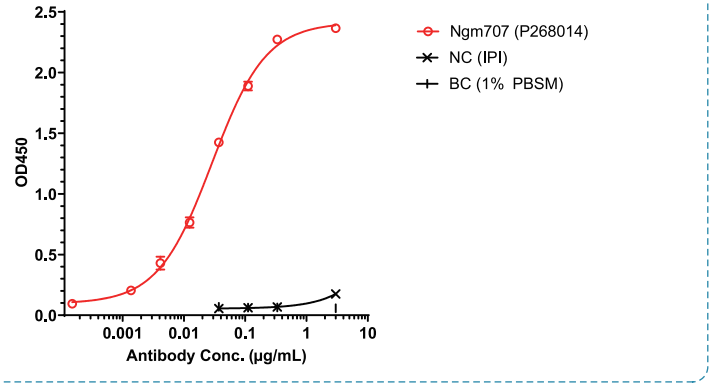


Fig 1. ELISA binding for LILRB1

To measure the binding ability of Ngm707 to huLILRB1-His. Coating LILRB1-His protein on ELISA plate, Ngm707 bound to LILRB1 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Ngm707 bound to huLILRB1-His, and the EC_{50} was 0.029 nM.

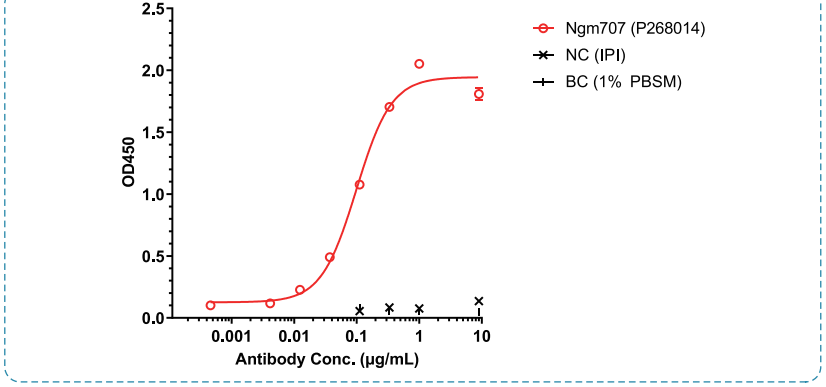


Fig 2. ELISA binding for LILRB2

To measure the binding ability of Ngm707 to huLILRB2-His. Coating LILRB2-His protein on ELISA plate, Ngm707 bound to LILRB2 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Ngm707 bound to huLILRB2-His, and the EC_{50} was 0.099 nM.

Anti-LILRB1 & LILRB2 Reference Antibody (Ngm707)

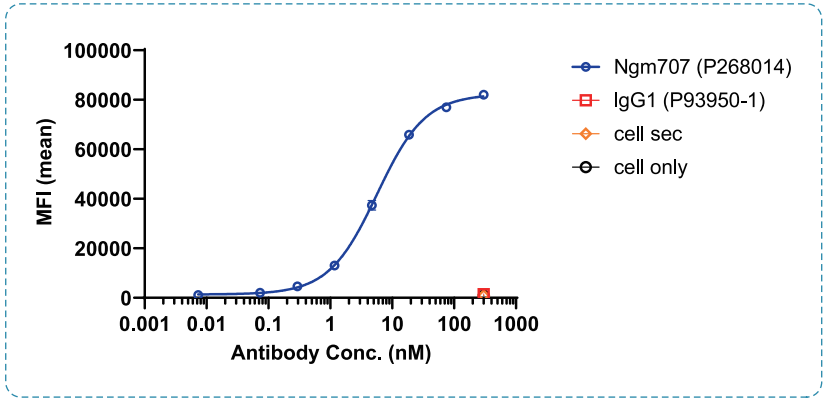


Fig 3. FACS binding for LILRB1

To measure the binding ability of Ngm707 in huLILRB1-CHO cells, Ngm707 bound to huLILRB1-CHO cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Ngm707 bound to huLILRB1-CHO cells, and the EC_{50} was 5.679 nM.

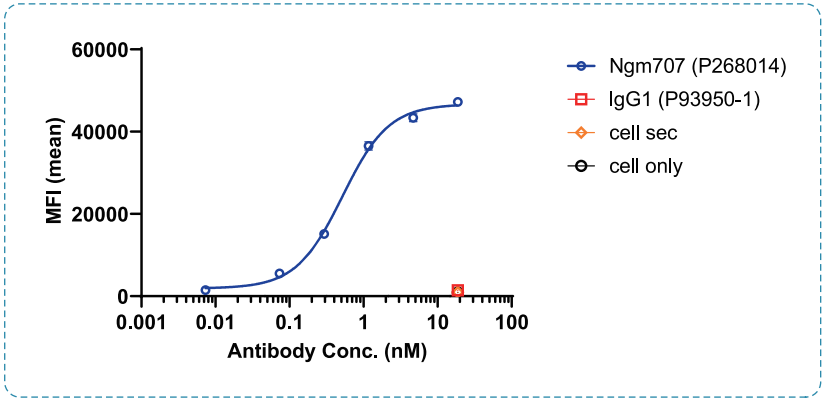
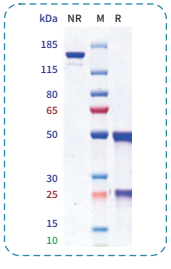


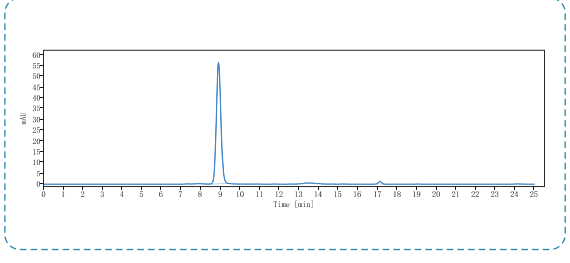
Fig 4. FACS binding for LILRB2

To measure the binding ability of Ngm707 in huLILRB2-HEK293 cells, Ngm707 bound to huLILRB2-HEK293 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Ngm707 bound to huLILRB2-HEK293 cells, and the EC_{50} was 0.519 nM.

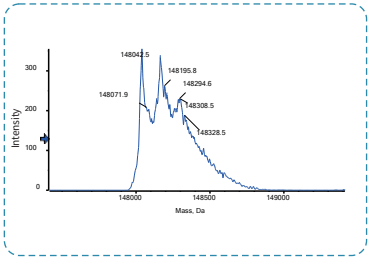
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	98.61%
Calculated MW	148.32 kDa	148.04 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE



SEC-HPLC



MASS

Anti-PD-1 & CD47 Reference Antibody (Hx009)

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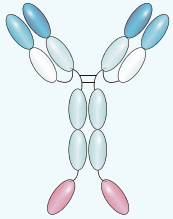


Information	
Name	Hx009
Catalog number	CHBA014
Batch number	P262519
Inventor	Hangzhou Hanx Biopharmaceutical
Targets	PD-1 & CD47
Target Accession	Q15116 & Q08722

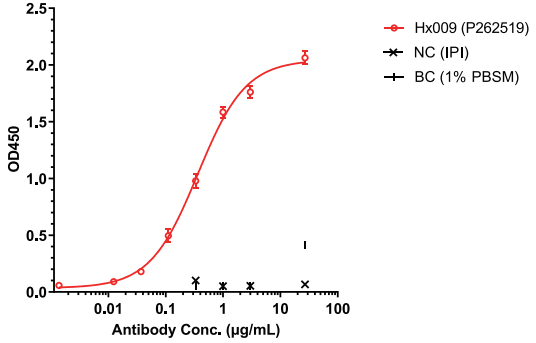


Fig 1. ELISA binding for CD47

To measure the binding ability of Hx009 to huCD47-His. Coating CD47-His protein on ELISA plate, Hx009 bound to CD47 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Hx009 bound to huCD47-His, and the EC_{50} was 0.364 nM.

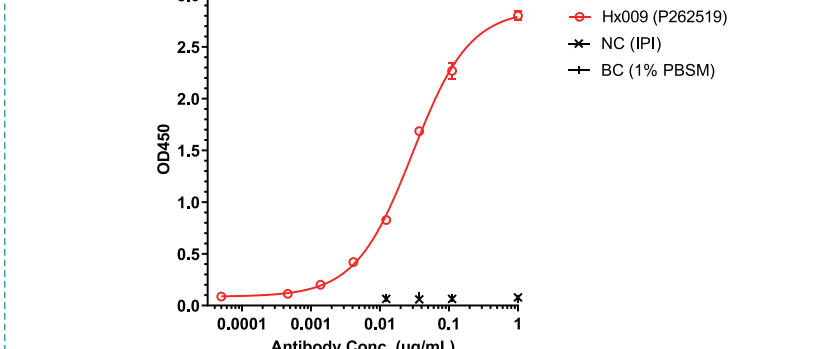


Fig 2. ELISA binding for PD-1

To measure the binding ability of Hx009 to huPD-1-FC. Coating PD-1-Fc protein on ELISA plate, Hx009 bound to PD-1 protein, then bound to secondary antibodies (anti-human-κ+λ-HRP). OD450 read. As shown in fig 2, Hx009 bound to huPD-1-FC, and the EC_{50} was 0.030 nM.

Anti-PD-1 & CD47 Reference Antibody (Hx009)

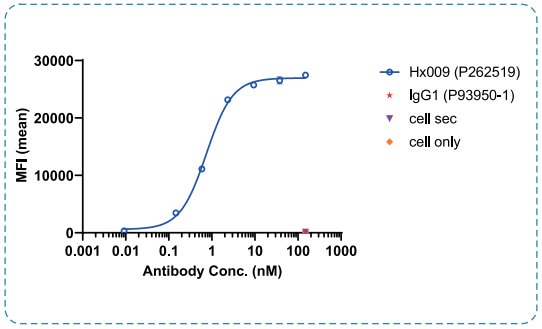


Fig 3. FACS binding for PD-1

To measure the binding ability of Hx009 in huPD-1-Jurkat cells, Hx009 bound to huPD-1-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Hx009 bound to huPD-1-Jurkat cells, and the EC_{50} was 0.747 nM.

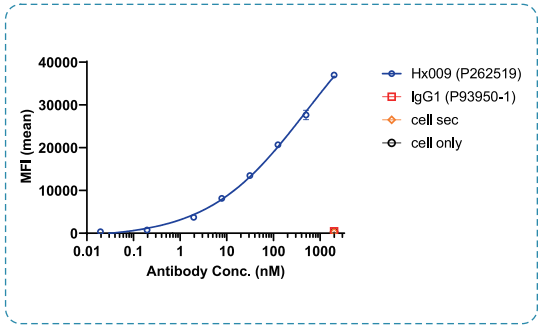


Fig 4. FACS binding for CD47

To measure the binding ability of Hx009 in CCRF-CEM cells, Hx009 bound to CCRF-CEM cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Hx009 bound to CCRF-CEM cells, and the EC_{50} was 503.200 nM.

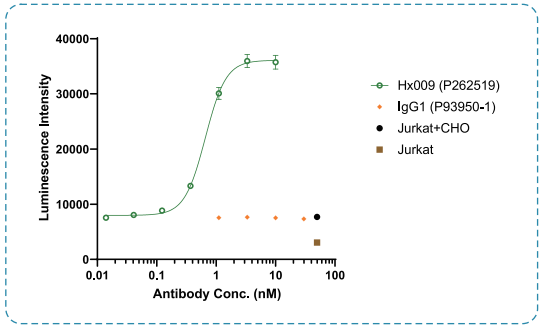
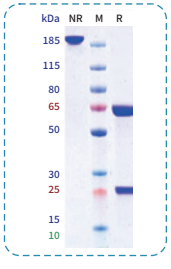


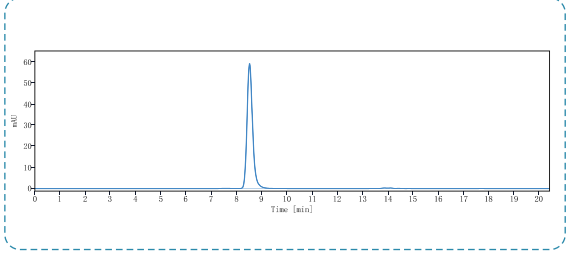
Fig 5. Luciferase reporter for PD-1

To evaluate the blocking activity of Hx009 in PD-1/PD-L1 signaling pathway, co-incubation of Hx009 with PD-1-NF-AT-Jurkat and CD3L-huPD-L1-CHO-K cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Hx009 was able to block the PD-1/PD-L1 signaling pathway, and the EC_{50} was 0.61 nM.

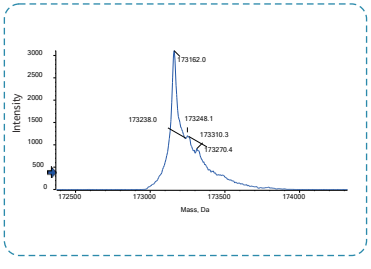
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	100.00%
Calculated MW	173.16 kDa	173.16 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

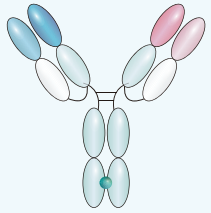


SEC-HPLC



MASS

Anti-PD-1 & CTLA4 Reference Antibody (Volrustomig)

Configuration


Information	
Name	Volrustomig
Catalog number	CHBA053
Batch number	P262502C
Inventor	AstraZeneca
Targets	PD-1 & CTLA4
Target Accession	Q15116 & P16410

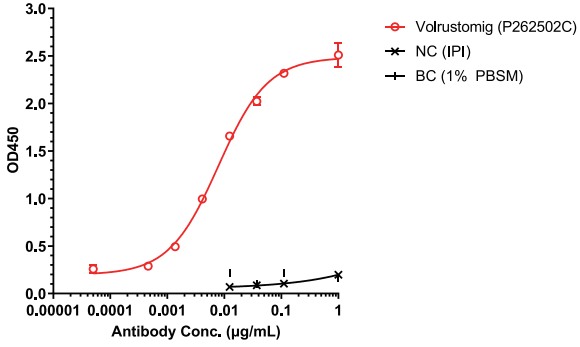


Fig 1. ELISA binding for CTLA4

To measure the binding ability of Volrustomig to huCTLA4-His. Coating CTLA-4-His protein on ELISA plate, Volrustomig bound to CTLA4 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Volrustomig bound to huCTLA4-His, and the EC_{50} was 0.008 nM.

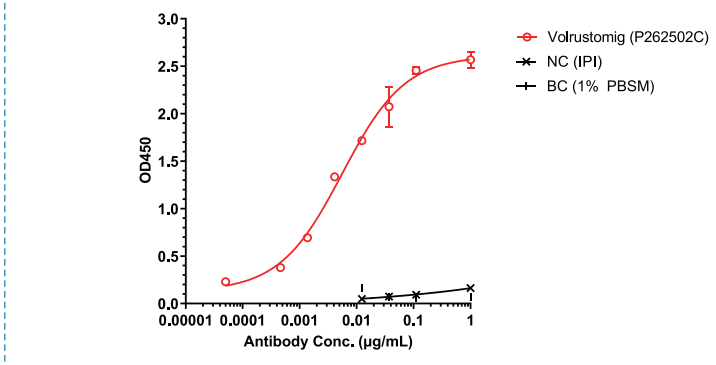


Fig 2. ELISA binding for PD-1

To measure the binding ability of Volrustomig to huPD-1-His. Coating PD-1-His protein on ELISA plate, Volrustomig bound to PD-1 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Volrustomig bound to huPD-1-His, and the EC_{50} was 0.006 nM.

Anti-PD-1 & CTLA4 Reference Antibody (Volrustomig)

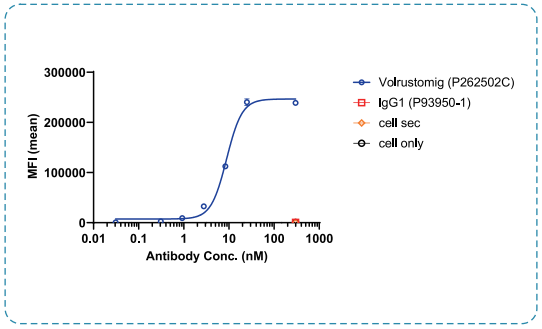


Fig 3. FACS binding for CTLA4

To measure the binding ability of Volrustomig in huCTLA4-CHO-K cells, Volrustomig bound to huCTLA4-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcy PE). Signal tested by flow cytometry. As shown in fig 3, Volrustomig bound to huCTLA4-CHO-K cells, and the EC_{50} was 8.874 nM.

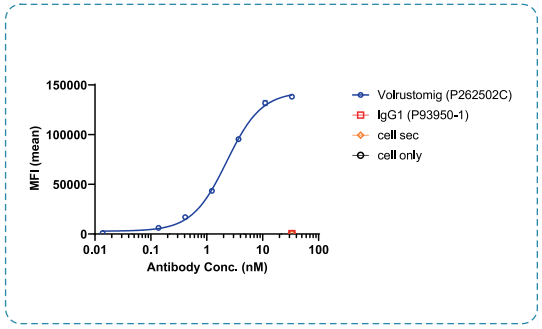


Fig 4. FACS binding for PD-1

To measure the binding ability of Volrustomig in huPD-1-Jurkat cells, Volrustomig bound to huPD-1-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG.Fcy PE). Signal tested by flow cytometry. As shown in fig 4, Volrustomig bound to huPD-1-Jurkat cells, and the EC_{50} was 2.279 nM.

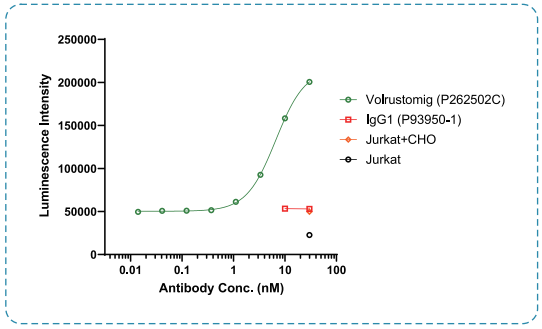
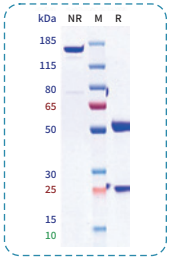


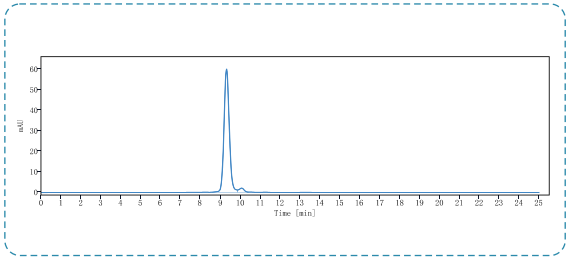
Fig 5. Luciferase reporter for PD-1

To evaluate the blocking activity of Volrustomig in PD-1/PD-L1 signaling pathway, co-incubation of Volrustomig with PD-1-NF-AT-Jurkat and CD3L-huPD-L1-CHO-K cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Volrustomig was able to block the PD-1/PD-L1 signaling pathway, and the EC_{50} was 6.643 nM.

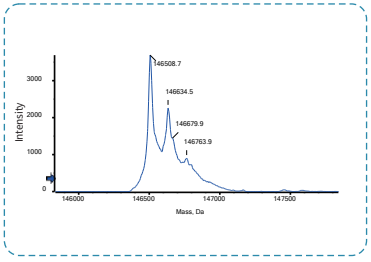
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	96.99%
Calculated MW	146.77 kDa	146.51 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

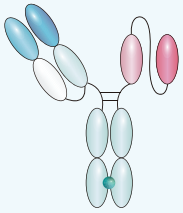


SEC-HPLC



MASS

Anti-PD-1 & CTLA4 Reference Antibody (Vudalimab)

Configuration


Information	
Name	Vudalimab
Catalog number	CHBA069
Batch number	P267988C
Inventor	Xencor
Targets	PD-1 & CTLA4
Target Accession	Q15116 & P16410

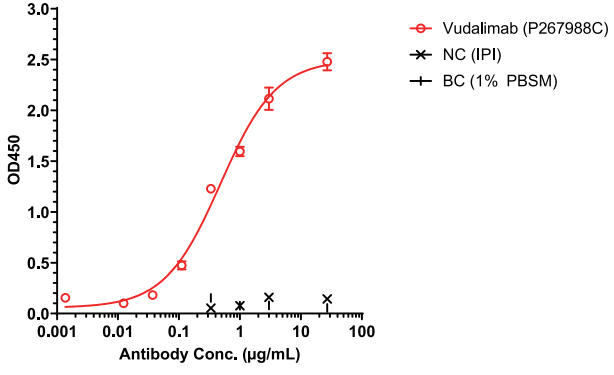


Fig 1. ELISA binding for CTLA4

To measure the binding ability of Vudalimab to huCTLA4-His. Coating CTLA-4-His protein on ELISA plate, Vudalimab bound to CTLA4 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Vudalimab bound to huCTLA4-His, and the EC_{50} was 0.480 nM.

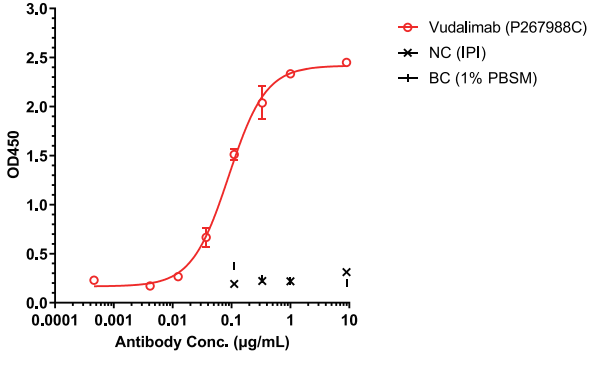


Fig 2. ELISA binding for PD-1

To measure the binding ability of Vudalimab to huPD-1-His. Coating PD-1-His protein on ELISA plate, Vudalimab bound to PD-1 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Vudalimab bound to huPD-1-His, and the EC_{50} was 0.090 nM.

Anti-PD-1 & CTLA4 Reference Antibody (Vudalimab)

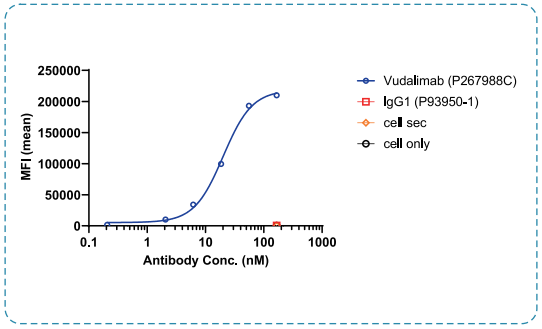


Fig 3. FACS binding for CTLA4

To measure the binding ability of Vudalimab in huCTLA4-CHO cells, Vudalimab bound to huCTLA4-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Vudalimab bound to huCTLA4-CHO-K cells, and the EC_{50} was 20.150 nM

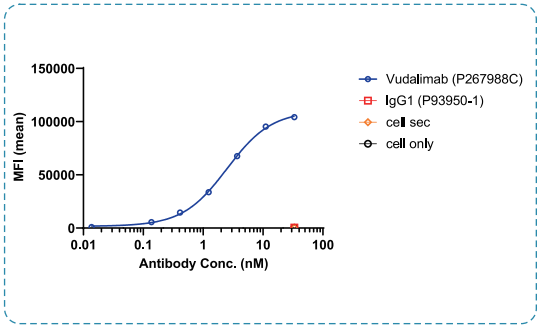


Fig 4. FACS binding for PD-1

To measure the binding ability of Vudalimab in huPD-1-Jurkat cells, Vudalimab bound to huPD-1-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Vudalimab bound to huPD-1-Jurkat cells, and the EC_{50} was 2.508 nM.

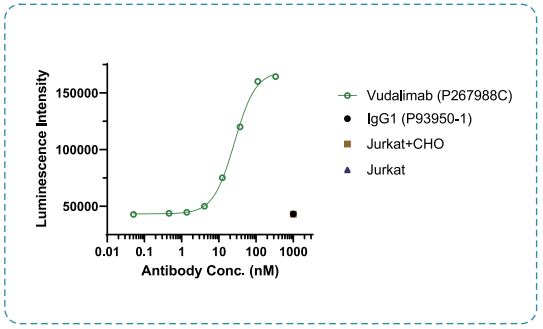
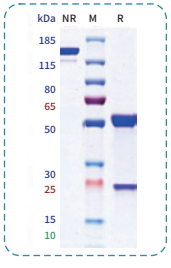


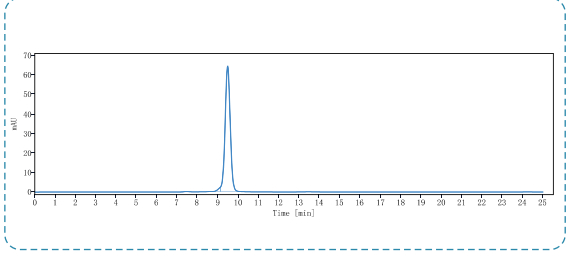
Fig 5. Luciferase reporter for PD-1

To evaluate the blocking activity of Vudalimab in PD-1/PD-L1 signaling pathway, co-incubation of Vudalimab with PD-1-NF-AT-Jurkat and CD3L-huPD-L1-CHO-K cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Vudalimab was able to block the PD-1/PD-L1 signaling pathway.

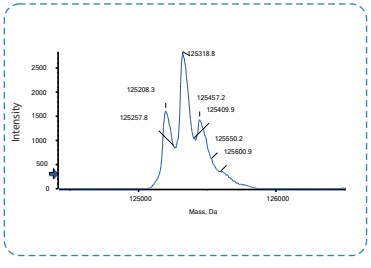
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	98.25%
Calculated MW	125.43 kDa	125.32 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE



SEC-HPLC



MASS

Anti-PD-1 & CTLA4 Reference Antibody (Cadonilimab)

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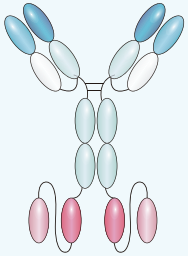


Information	
Name	Cadonilimab
Catalog number	CHBA002
Batch number	P247890
Inventor	Akeso
Targets	PD-1 & CTLA4
Target Accession	Q15116 & P16410

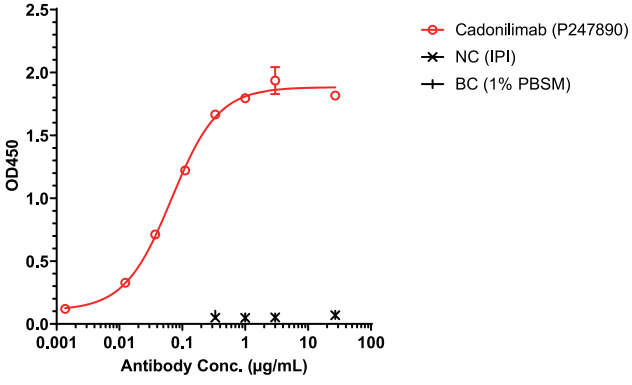


Fig 1. ELISA binding for CTLA4

To measure the binding ability of Cadonilimab to huCTLA4-His. Coating CTLA-4-His protein on ELISA plate, Cadonilimab bound to CTLA4 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Cadonilimab bound to in huCTLA4 -His, and the EC_{50} was 0.068 nM.

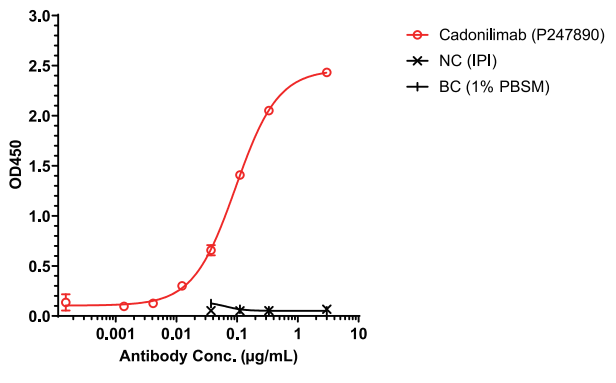


Fig 2. ELISA binding for PD-1

To measure the binding ability of Cadonilimab to huPD-1-His. Coating PD-1-His protein on ELISA plate, Cadonilimab bound to PD-1 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Cadonilimab bound to in huPD-1-His, and the EC_{50} was 0.094 nM.

Anti-PD-1 & CTLA4 Reference Antibody (Cadonilimab)

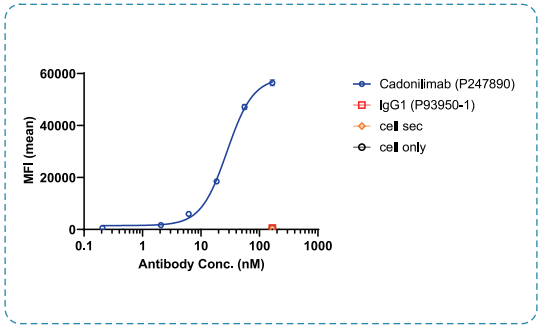


Fig 3. FACS binding for CTLA-4

To measure the binding ability of Cadonilimab in huCTLA4-CHO cells, Cadonilimab bound to huCTLA4-CHO cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Cadonilimab bound to huCTLA4-CHO cells, and the EC_{50} was 27.870 nM.

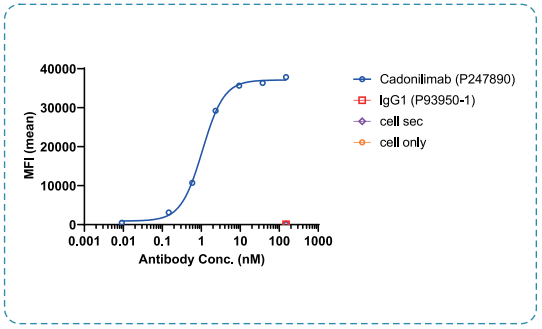


Fig 4. FACS binding for PD-1

To measure the binding ability of Cadonilimab in PD-1-Jukat cells, Cadonilimab bound to huPD-1-Jukat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ). Signal tested by flow cytometry. As shown in fig 4, Cadonilimab bound to huPD-1-Jukat cells, and the EC_{50} was 1.071 nM.

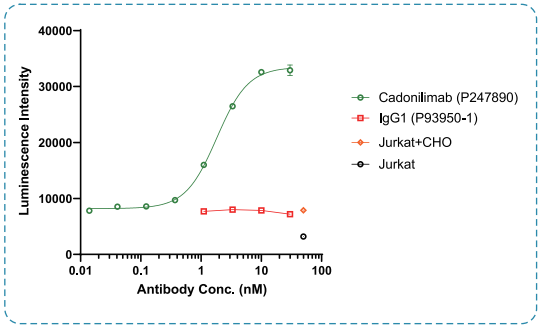
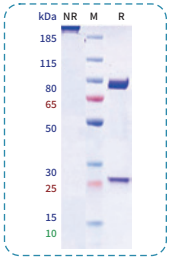


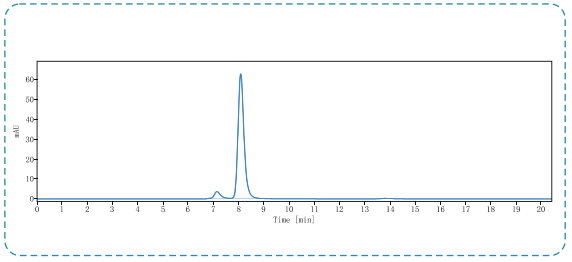
Fig 5. Luciferase reporter for PD-1

To evaluate the blocking activity of Cadonilimab in PD-1/PD-L1 signaling pathway, co-incubation of Cadonilimab with PD-1-NF-AT-Jurkat and CD3L-huPD-L1-CHO-K cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Cadonilimab was able to block the PD-1/PD-L1 signaling pathway, and the EC_{50} was 1.827 nM.

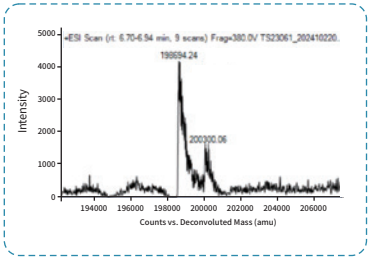
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	93.65%
Calculated MW	198.64 kDa	198.69 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE



SEC-HPLC



MASS

Anti-PD-1 & LAG-3 Reference Antibody (Emb-02)

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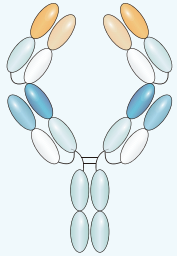


Information	
Name	Emb-02
Catalog number	CHBA062
Batch number	P268008C
Inventor	Epimab Biotherapeutics
Targets	PD-1 & LAG-3
Target Accession	Q15116 & P18627

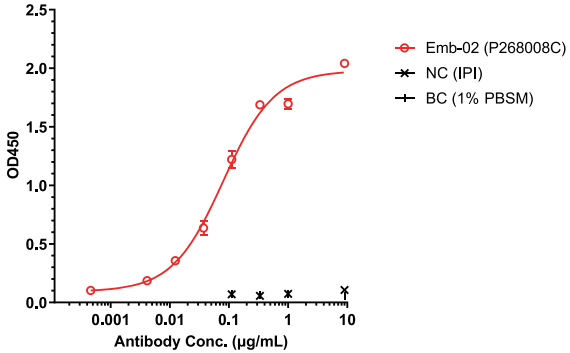


Fig 1. ELISA binding for LAG-3

To measure the binding ability of Emb-02 to huLAG-3-His. Coating LAG-3-His protein on ELISA plate, Emb-02 bound to LAG-3 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Emb-02 bound huLAG-3-His, and the EC_{50} was 0.080 nM.

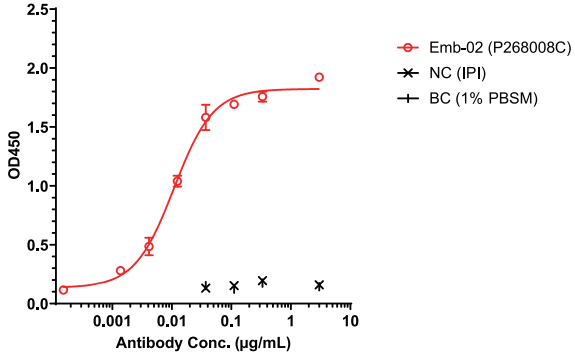


Fig 2. ELISA binding for PD-1

To measure the binding ability of Emb-02 to huPD-1-His. Coating PD-1-His protein on ELISA plate, Emb-02 bound to PD-1 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Emb-02 bound huPD-1-His, and the EC_{50} was 0.011 nM.

Anti-PD-1 & LAG-3 Reference Antibody (Emb-02)

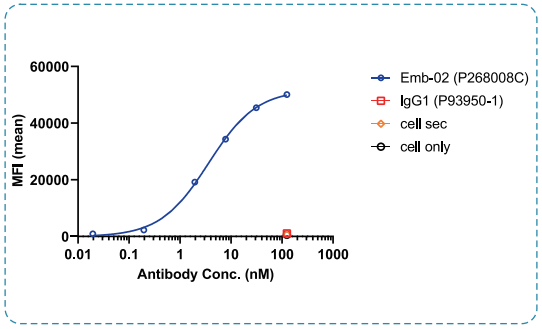


Fig 3. FACS binding for LAG-3

To measure the binding ability of Emb-02 in huLAG-3-CHO-K cells, Emb-02 bound to huLAG-3-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Emb-02 bound to huLAG-3-CHO-K cells, and the EC_{50} was 3.630 nM.

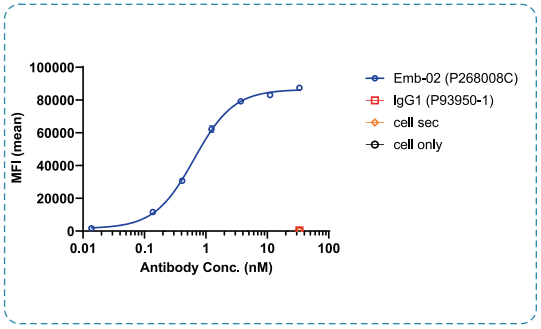


Fig 4. FACS binding for PD-1

To measure the binding ability of Emb-02 in huPD-1-Jurkat cells, Emb-02 bound to huPD-1-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Emb-02 bound to huPD-1-Jurkat cells, and the EC_{50} was 0.645 nM.

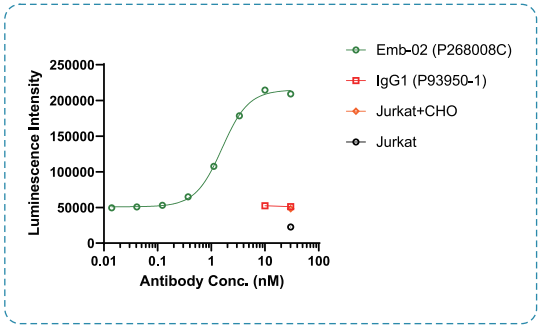
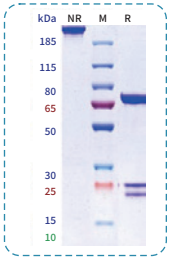


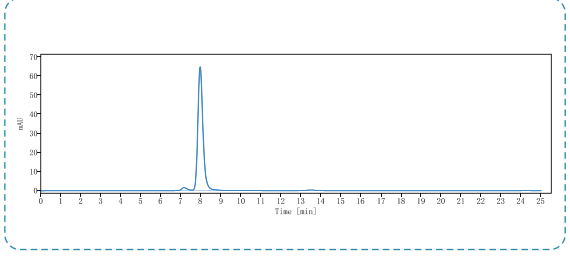
Fig 5. Luciferase reporter for PD-1

To evaluate the blocking activity of Emb-02 in PD-1/PD-L1 signaling pathway, co-incubation of Emb-02 with PD-1-NF-AT-Jurkat and CD3L-huPD-L1-CHO-K cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Emb-02 was able to block the PD-1/PD-L1 signaling pathway, and the EC_{50} was 1.585 nM.

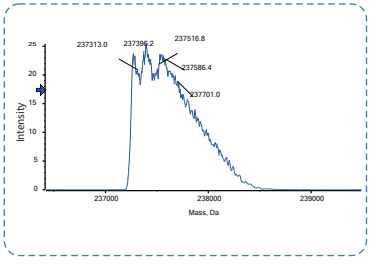
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	97.15%
Calculated MW	237.5 kDa	237.40 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

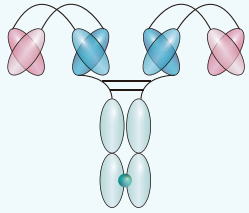


SEC-HPLC



MASS

Anti-PD-1 & LAG-3 Reference Antibody (Tebotelimab)

Configuration


Information	
Name	Tebotelimab
Catalog number	CHBA061
Batch number	P275192
Inventor	MacroGenics
Targets	PD-1 & LAG-3
Target Accession	Q15116 & P18627

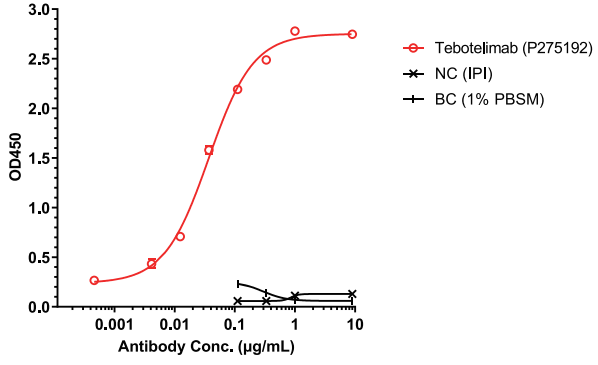


Fig 1. ELISA binding for LAG-3

To measure the binding ability of Tebotelimab to huLAG-3-His. Coating LAG-3-His protein on ELISA plate, Tebotelimab bound to LAG-3 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Tebotelimab bound huLAG-3-His, and the EC_{50} was 0.037 nM.

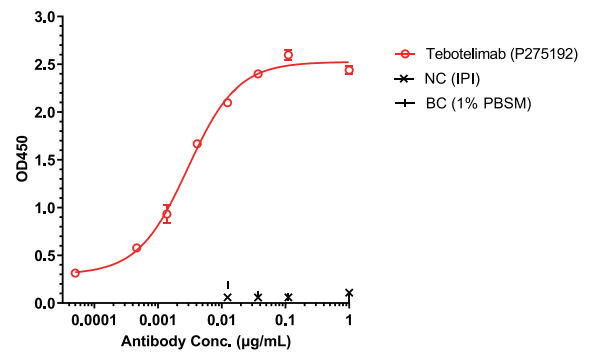


Fig 2. ELISA binding for PD-1

To measure the binding ability of Tebotelimab to huPD-1-His. Coating PD-1-His protein on ELISA plate, Tebotelimab bound to PD-1 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Tebotelimab bound huPD-1-His, and the EC_{50} was 0.003 nM.

Anti-PD-1 & LAG-3 Reference Antibody (Tebotelimab)

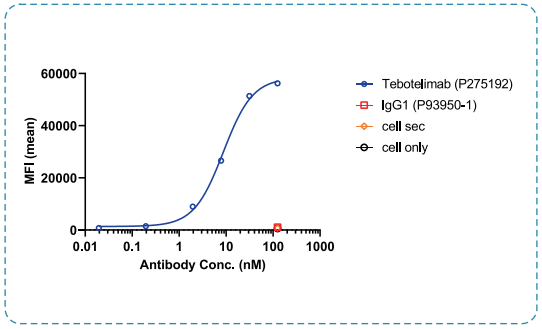


Fig 3. FACS binding for LAG-3

To measure the binding ability of Tebotelimab in huLAG-3-CHO-K cells, Tebotelimab bound to huLAG-3-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Tebotelimab bound to huLAG-3-CHO-K cells, and the EC_{50} was 8.727 nM.

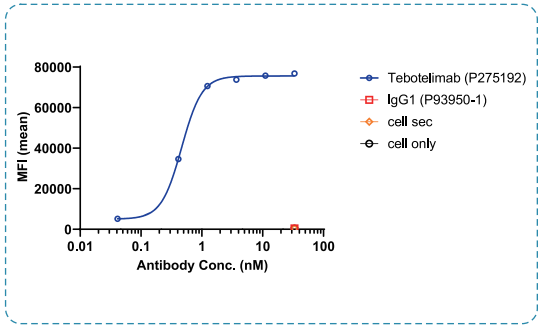


Fig 4. FACS binding for PD-1

To measure the binding ability of Tebotelimab in huPD-1-Jurkat cells, Tebotelimab bound to huPD-1-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Tebotelimab bound to huPD-1-Jurkat cells, and the EC_{50} was 0.47 nM.

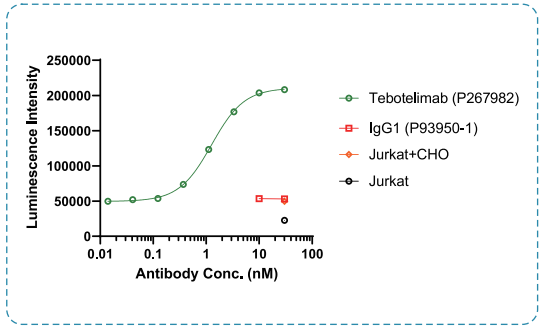
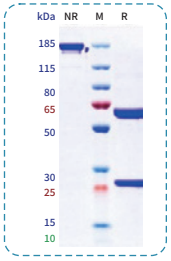


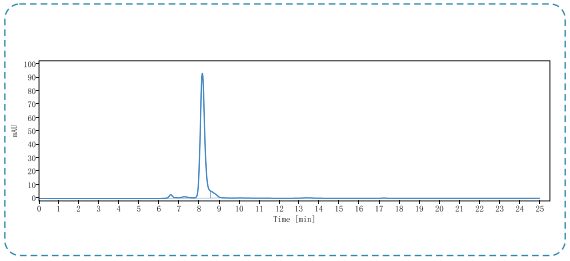
Fig 5. Luciferase reporter for PD-1

To evaluate the blocking activity of Tebotelimab in PD-1/PD-L1 signaling pathway, co-incubation of Tebotelimab with PD-1-NF-AT-Jurkat and CD3L-huPD-L1-CHO-K cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Tebotelimab was able to block the PD-1/PD-L1 signaling pathway, and the EC_{50} was 1.266 nM.

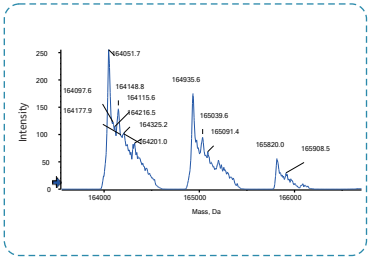
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	90.76%
Calculated MW	165.68 kDa	164.05 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

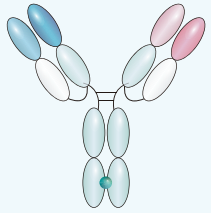


SEC-HPLC



MASS

Anti-PD-1 & LAG-3 Reference Antibody (Tobemstomig)

Configuration


Information	
Name	Tobemstomig
Catalog number	CHBA044
Batch number	P262518
Inventor	Roche
Targets	PD-1 & LAG-3
Target Accession	Q15116 & P18627

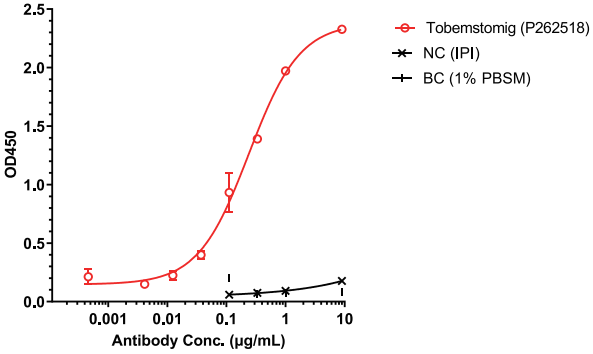


Fig 1. ELISA binding for LAG-3

To measure the binding ability of Tobemstomig to huLAG-3-His. Coating LAG-3-His protein on ELISA plate, Tobemstomig bound to LAG-3 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Tobemstomig bound huLAG-3-His, and the EC_{50} was 0.240 nM.

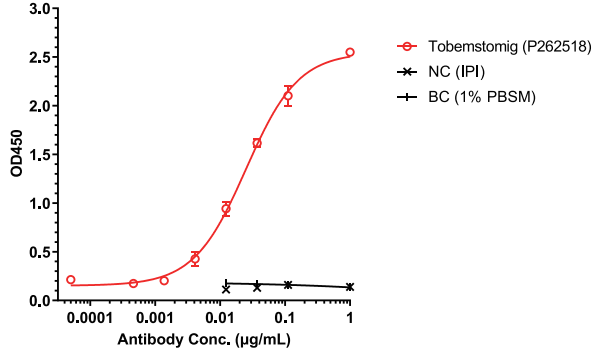


Fig 2. ELISA binding for PD-1

To measure the binding ability of Tobemstomig in huPD-1-His. Coating PD-1-His protein on ELISA plate, Tobemstomig bound to PD-1 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Tobemstomig bound huPD-1-His, and the EC_{50} was 0.025 nM.

Anti-PD-1 & LAG-3 Reference Antibody (Tobemstomig)

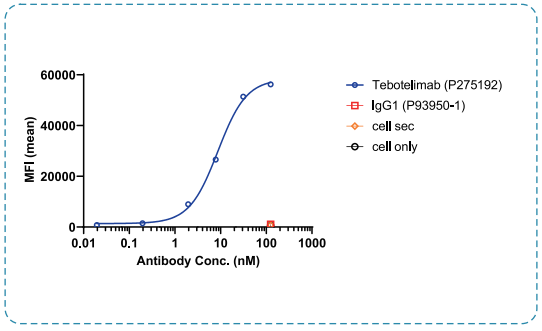


Fig 3. FACS binding for LAG-3

To measure the binding ability of Tebotelimab in huLAG-3-CHO-K cells, Tebotelimab bound to huLAG-3-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Tebotelimab bound to huLAG-3-CHO-K cells, and the EC_{50} was 8.727 nM.

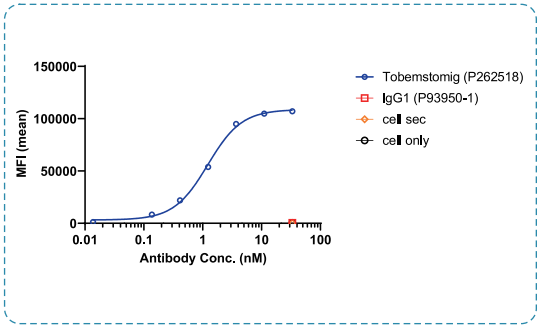


Fig 4. FACS binding for PD-1

To measure the binding ability of Tobemstomig in huPD-1-Jurkat cells, Tobemstomig bound to huPD-1-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Tobemstomig bound to huPD-1-Jurkat cells, and the EC_{50} was 1.222 nM.

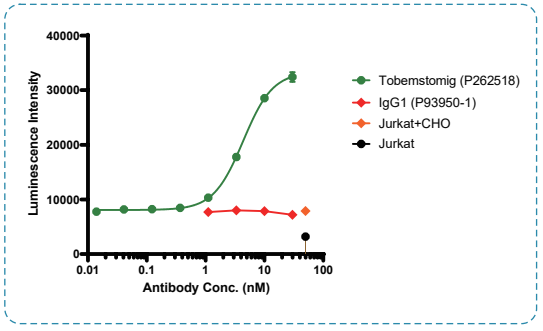
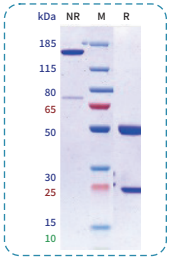


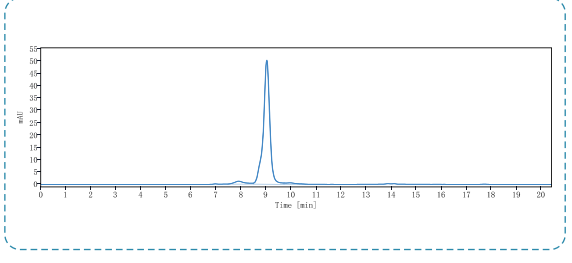
Fig 5. Luciferase reporter for PD-1

To evaluate the blocking activity of Tobemstomig in PD-1/PD-L1 signaling pathway, co-incubation of Tobemstomig with PD-1-NF-AT-Jurkat and CD3L-huPD-L1-CHO-K cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Tobemstomig was able to block the PD-1/PD-L1 signaling pathway, and the EC_{50} was 4.350 nM.

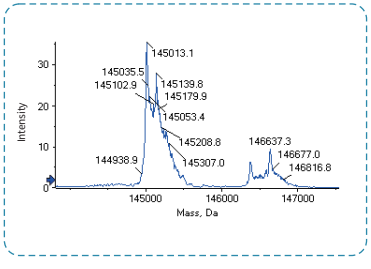
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	94.61%
Calculated MW	145.24 kDa	145.01 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

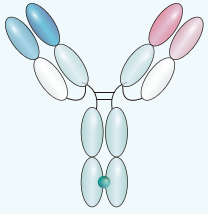


SEC-HPLC



MASS

Anti-PD-1 & PD-L1 Reference Antibody (Reozalimab)

Configuration	Information	
	Name	Reozalimab
	Catalog number	CHBA055
	Batch number	P267990C
	Inventor	Innovent
	Targets	PD-1 & PD-L1
	Target Accession	Q15116 & Q9NZQ7

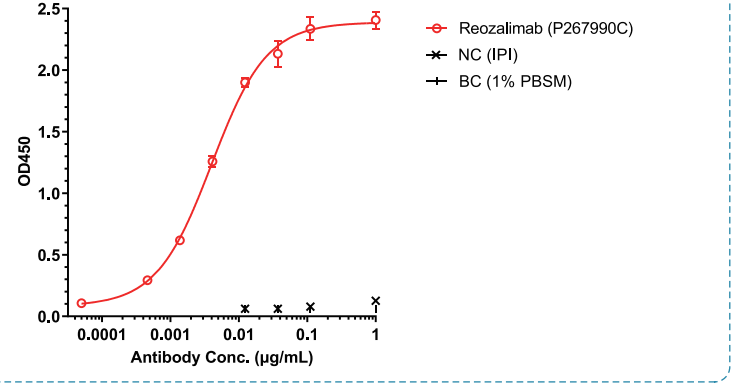


Fig 1. ELISA binding for PD-1

To measure the binding ability of Reozalimab to huPD-1-His. Coating PD-1-His protein on ELISA plate, Reozalimab bound to PD-1 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Reozalimab bound to huPD-1-His, and the EC_{50} was 0.004 nM.

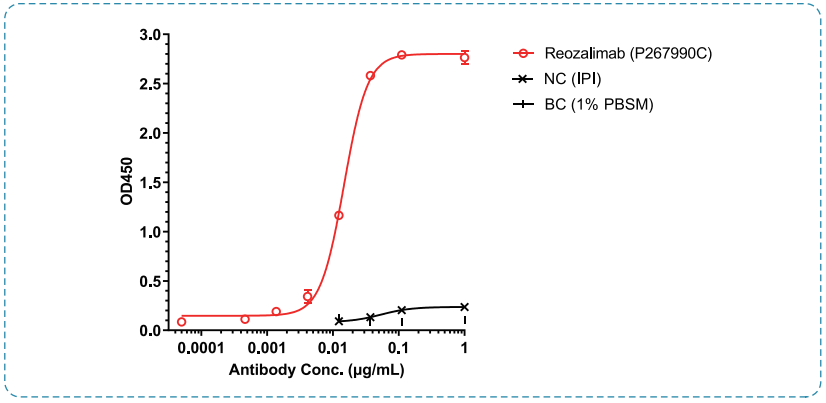


Fig 2. ELISA binding for PD-L1

To measure the binding ability of Reozalimab to huPD-L1-Fc. Coating PD-L1-Fc protein on ELISA plate, Reozalimab bound to PD-L1 protein, then bound to secondary antibodies (anti-human-κ+λ-HRP). OD450 read. As shown in fig 2, Reozalimab bound to huPD-L1-Fc, and the EC_{50} was 0.015 nM.

Anti-PD-1 & PD-L1 Reference Antibody (Reozalimab)

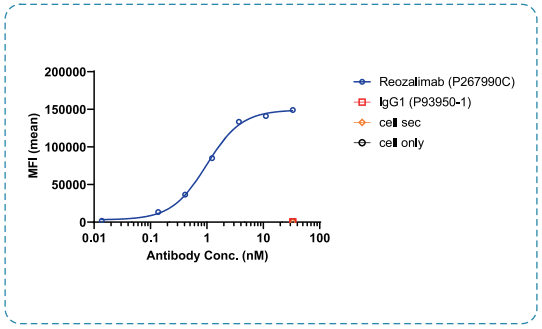


Fig 3. FACS binding for PD-1

To measure the binding ability of Reozalimab in huPD-1-Jurkat cells, Reozalimab bound to huPD-1-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Reozalimab bound to huPD-1-Jurkat cells, and the EC_{50} was 0.990 nM.

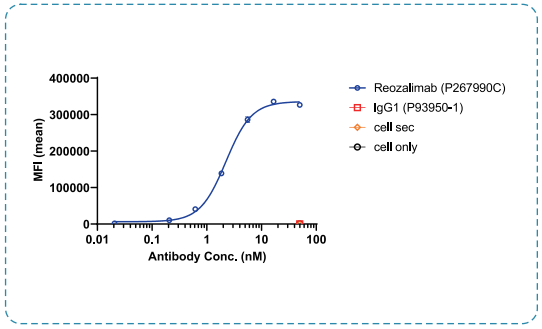


Fig 4. FACS binding for PD-L1

To measure the binding ability of Reozalimab in huPD-L1-CHO-K cells, Reozalimab bound to huPD-L1-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Reozalimab bound to huPD-L1-CHO-K cells, and the EC_{50} was 2.237 nM.

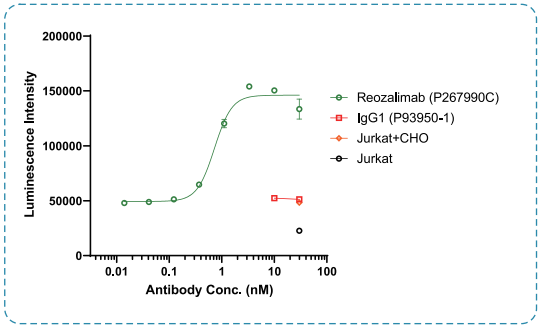
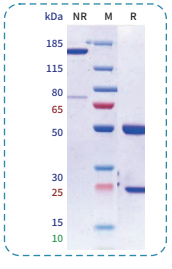


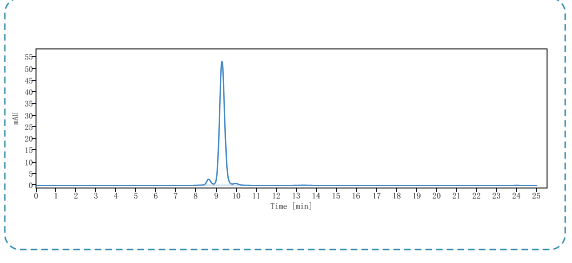
Fig 5. Luciferase reporter for PD-1

To evaluate the blocking activity of Reozalimab in PD-1/PD-L1 signaling pathway, co-incubation of Reozalimab with PD-1-NF-AT-Jurkat and CD3L-huPD-L1-CHO-K cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Reozalimab was able to block the PD-1/PD-L1 signaling pathway, and the EC_{50} was 0.728 nM.

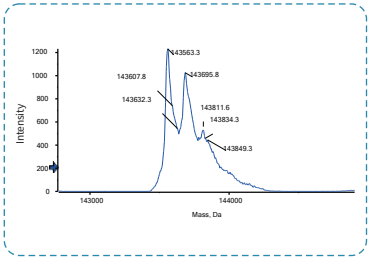
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	95.07%
Calculated MW	143.84 kDa	143.56 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

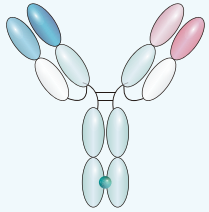


SEC-HPLC



MASS

Anti-PD-1 & TIM-3 Reference Antibody (Lomvastomig)

Configuration


Information	
Name	Lomvastomig
Catalog number	CHBA071
Batch number	P262503C
Inventor	Roche
Targets	PD-1 & TIM-3
Target Accession	Q15116 & Q8TDQ0

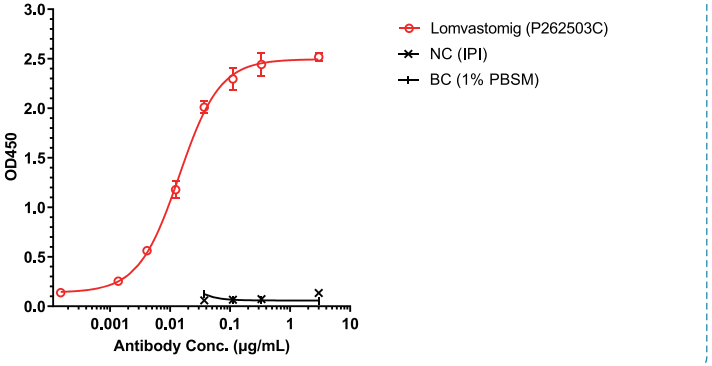


Fig 1. ELISA binding for PD-1

To measure the binding ability of Lomvastomig to huPD-1-His. Coating PD-1-His protein on ELISA plate, Lomvastomig bound to PD-1 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Lomvastomig bound to huPD-1-His, and the EC_{50} was 0.014 nM.

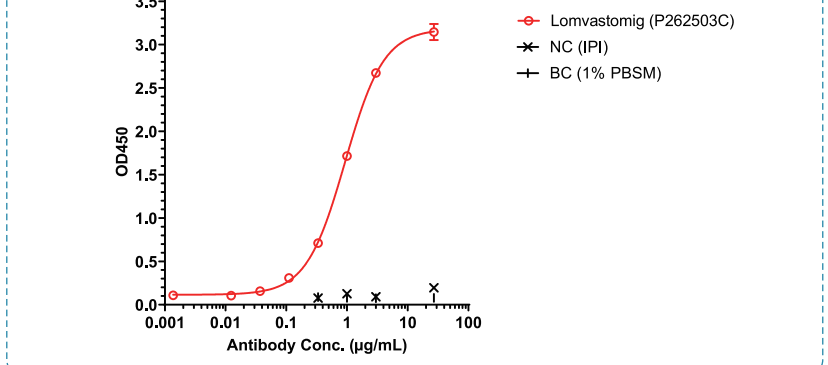


Fig 2. ELISA binding for TIM3

To measure the binding ability of Lomvastomig to huTIM-3-His. Coating TIM-3-His protein on ELISA plate, Lomvastomig bound to TIM-3 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Lomvastomig bound to huTIM-3-His, and the EC_{50} was 0.933 nM.

Anti-PD-1 & TIM-3 Reference Antibody (Lomvastomig)

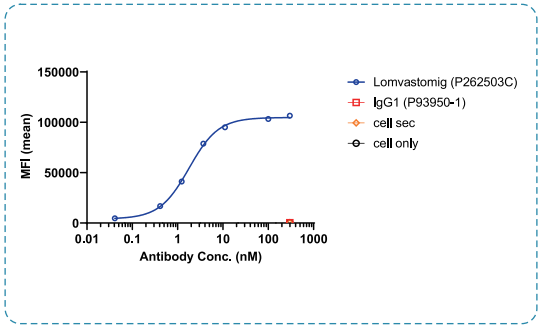


Fig 3. FACS binding for PD-1

To measure the binding ability of Lomvastomig in huPD-1-Jurkat cells, Lomvastomig bound to huPD-1-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Lomvastomig bound to huPD-1-Jurkat cells, and the EC_{50} was 1.788 nM.

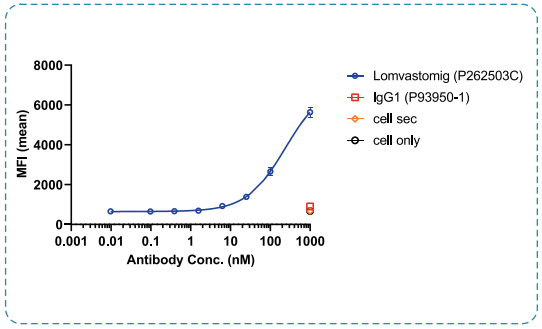


Fig 4. FACS binding for TIM3

To measure the binding ability of Lomvastomig in huTIM3-FL-HEK293 cells, Lomvastomig bound to huTIM3-FL-HEK293 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Lomvastomig bound to huTIM3-FL-HEK293 cells, and the EC_{50} was 239.100 nM.

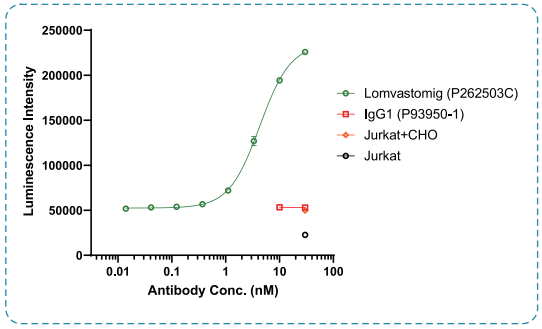
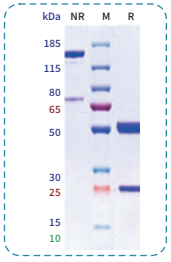


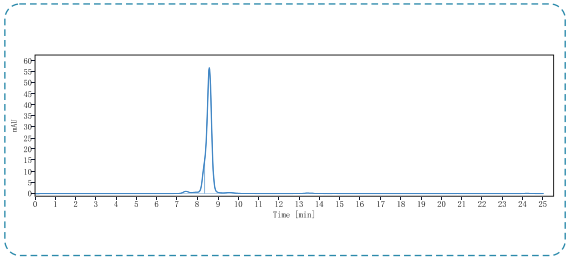
Fig 5. Luciferase reporter for PD-1

To evaluate the blocking activity of Lomvastomig in PD-1/PD-L1 signaling pathway, co-incubation of Lomvastomig with PD-1-NF-AT-Jurkat and CD3L-huPD-L1-CHO-K cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Lomvastomig was able to block the PD-1/PD-L1 signaling pathway, and the EC_{50} was 4.300 nM.

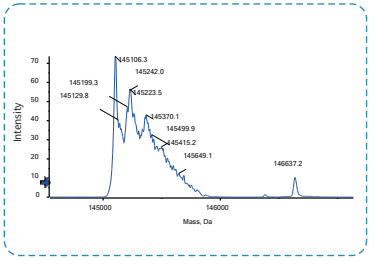
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	99.15%
Calculated MW	145.34 kDa	145.11 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

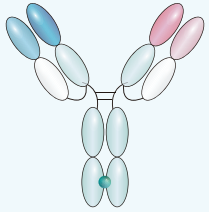


SEC-HPLC



MASS

Anti-PD-1 & TIGIT Reference Antibody (Rilvegostomig)

Configuration


Information	
Name	Rilvegostomig
Catalog number	CHBA009
Batch number	P262495
Inventor	AstraZeneca
Targets	PD-1 & TIGIT
Target Accession	Q15116 & Q495A1

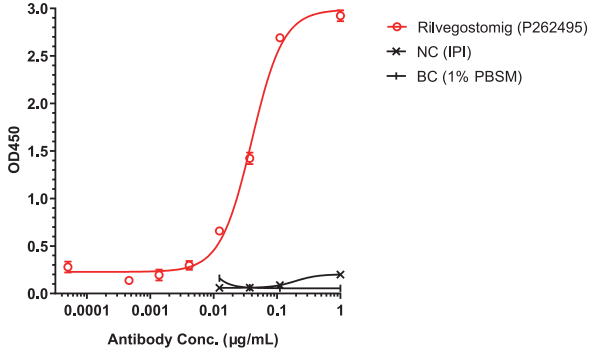


Fig 1. ELISA binding for TIGIT

To measure the binding ability of Rilvegostomig to huTIGIT-His. Coating TIGIT-His protein on ELISA plate, Rilvegostomig bound to TIGIT protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Rilvegostomig bound to huTIGIT-His, and the EC_{50} was 0.040 nM.

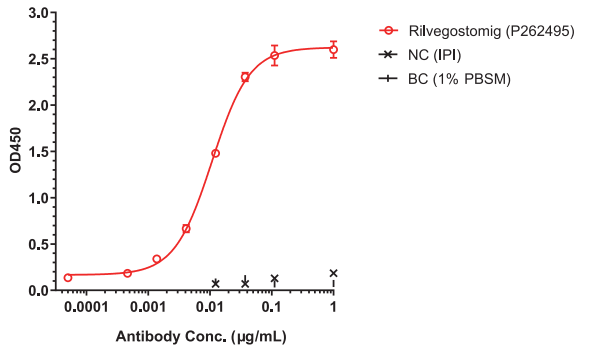


Fig 2. ELISA binding for PD1

To measure the binding ability of Rilvegostomig to huPD1-His. Coating PD-1-His protein on ELISA plate, Rilvegostomig bound to PD-1 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Rilvegostomig bound to huPD1-His, and the EC_{50} was 0.011 nM.

Anti-PD-1 & TIGIT Reference Antibody (Rilvegostomig)

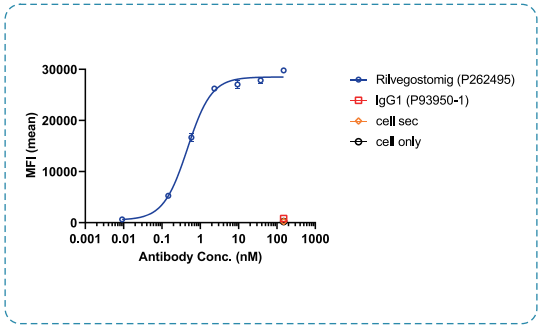


Fig 3. FACS binding for TIGIT1

To measure the binding ability of Rilvegostomig in huTIGIT-HEK293 cells, Rilvegostomig bound to huTIGIT-HEK293 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Rilvegostomig bound to huTIGIT-HEK293 cells, and the EC_{50} was 0.463 nM.

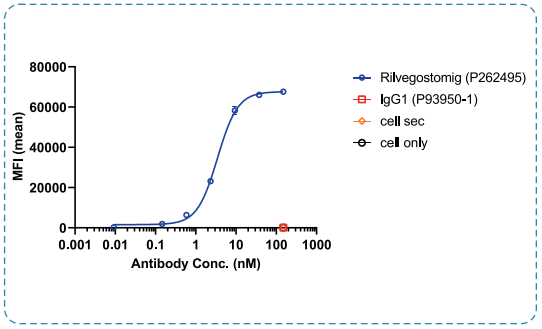


Fig 4. FACS binding for PD-1

To measure the binding ability of Rilvegostomig in huPD-1-Jurkat cells, Rilvegostomig bound to huPD-1-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Rilvegostomig bound to huPD-1-Jurkat cells, and the EC_{50} was 3.462 nM.

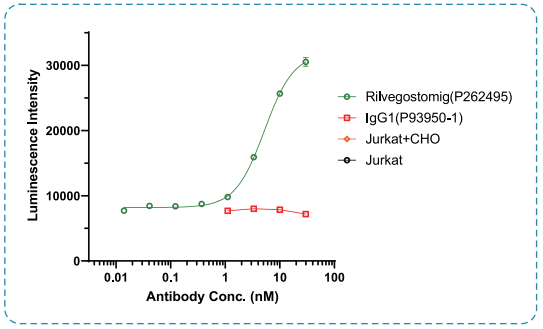
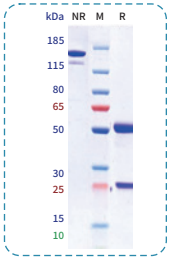


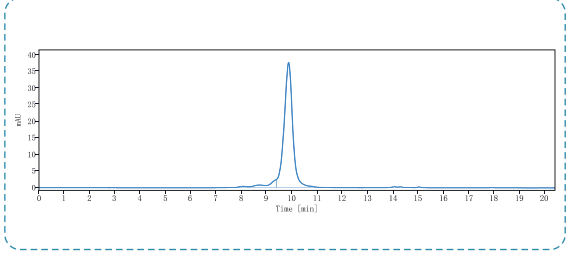
Fig 5. Luciferase reporter for PD-1

To evaluate the blocking activity of Rilvegostomig in PD-1/PD-L1 signaling pathway, co-incubation of Rilvegostomig with PD-1-NF-AT-Jurkat and CD3L-huPD-L1-CHO-K cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Rilvegostomig was able to block the PD-1/PD-L1 signaling pathway, and the EC_{50} was 5.240 nM.

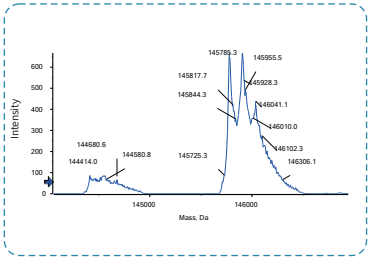
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	95.78%
Calculated MW	146.06 kDa	145.78 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

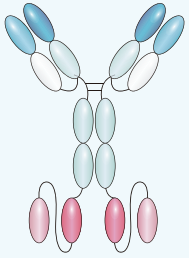


SEC-HPLC



MASS

Anti-PD-1 & VEGF Reference Antibody (Ivonescimab)

Configuration


Information	
Name	Ivonescimab
Catalog number	CHBA056
Batch number	P263328C
Inventor	Akeso
Targets	PD-1 & VEGF
Target Accession	Q15116 & P15692

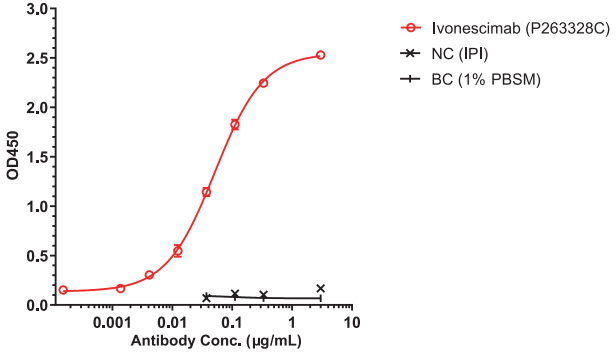


Fig 1. ELISA binding for PD-1

To measure the binding ability of Ivonescimab to huPD-1-His. Coating PD-1-His protein on ELISA plate, Ivonescimab bound to PD-1 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Ivonescimab bound to huPD-1-His, and the EC_{50} was 0.051 nM.

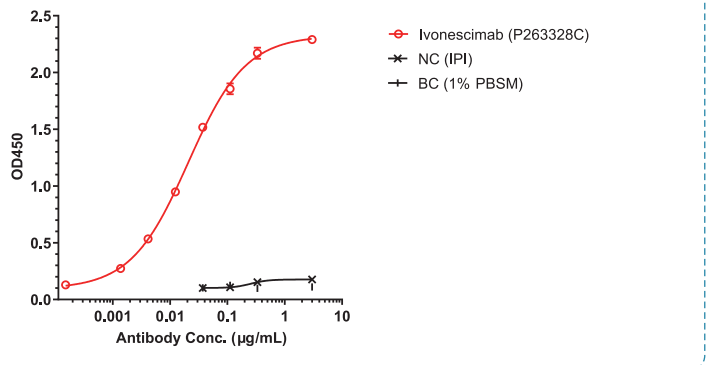


Fig 2. ELISA binding for VEGF

To measure the binding ability of Ivonescimab to huVEGFA-His. Coating VEGFA-His protein on ELISA plate, Ivonescimab bound to VEGFA protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Ivonescimab bound to huVEGFA-His, and the EC_{50} was 0.021 nM.

Anti-PD-1 & VEGF Reference Antibody (Ivonescimab)

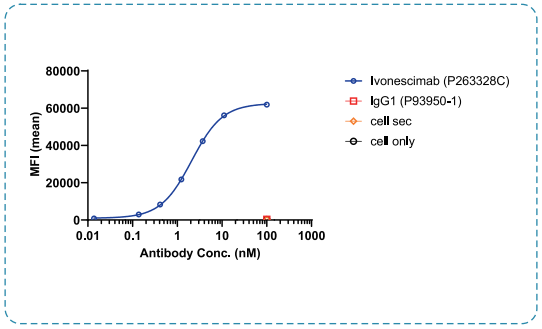


Fig 3. FACS binding for PD-1

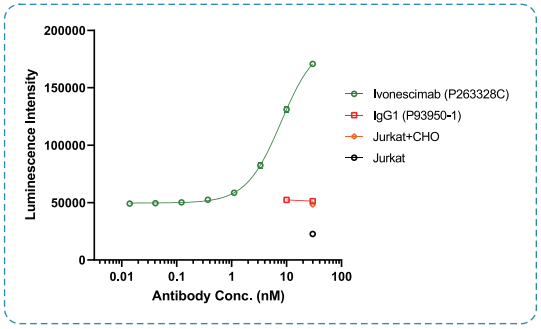


Fig 4. Luciferase reporter for PD-1

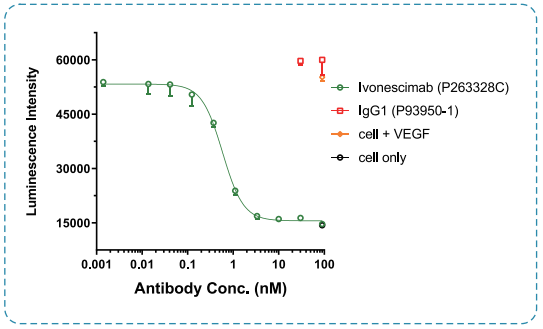


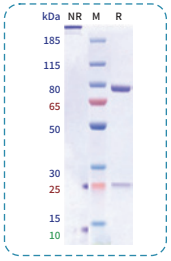
Fig 5. Luciferase reporter for VEGF-VEGFR2

To measure the binding ability of Ivonescimab in huPD-1-Jurkat cells, Ivonescimab bound to huPD-1-Jurkat cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Ivonescimab bound to huPD-1-Jurkat cells, and the EC_{50} was 6.274 nM.

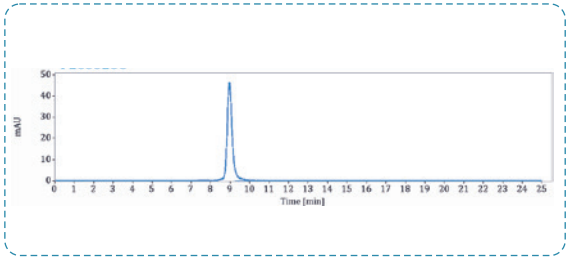
To evaluate the blocking activity of Ivonescimab in PD-1/PD-L1 signaling pathway. Co-incubation of Ivonescimab with PD-1-NF-AT-Jurkat and CD3L-huPD-L1-CHO-K cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 4, Ivonescimab was able to block the PD-1/PD-L1 signaling pathway, and the EC_{50} was 7.957 nM.

To evaluate the neutralization activity of Ivonescimab against VEGF, co-incubation of Ivonescimab with VEGF protein, then with the addition of VEGF-NF-AT-HEK293 cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Ivonescimab can neutralize VEGF-165, and the IC_{50} was 0.584 nM.

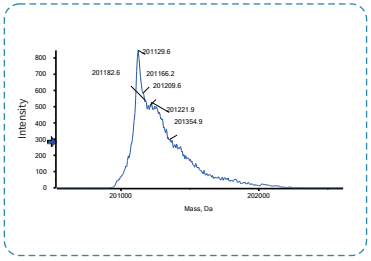
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	98.33%
Calculated MW	201.12 kDa	201.13 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

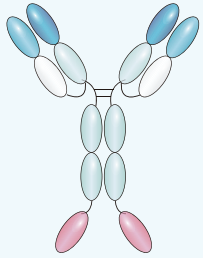


SEC-HPLC



MASS

Anti-PD-L1 & VEGF Reference Antibody (Pm8002)

Configuration


Information	
Name	Pm8002
Catalog number	CHBA003
Batch number	P247894
Inventor	BioNTech
Targets	PD-L1 & VEGF
Target Accession	Q9NZQ7 & P15692

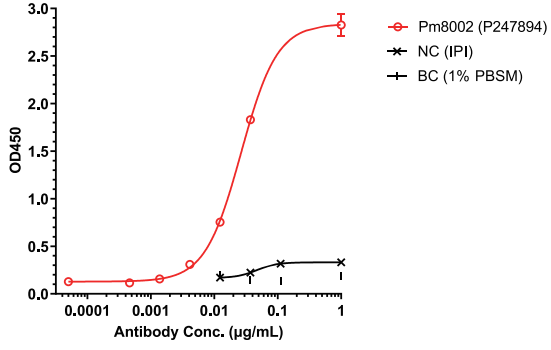


Fig 1. ELISA binding for PD-L1

To measure the binding ability of Pm8002 to huPD-L1-His. Coating PD-L1-His protein on ELISA plate, Pm8002 bound to PD-L1 protein, then bound to secondary antibodies (anti-human-κ+λ-HRP). OD450 read. As shown in fig 1, Pm8002 bound to in huPD-L1-His, and the EC_{50} was 0.026 nM.

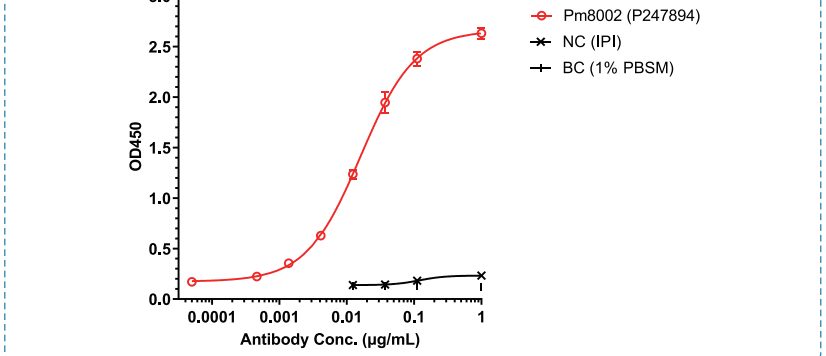


Fig 2. ELISA binding for VEGF

To measure the binding ability of Pm8002 to huVEGFA-His. Coating VEGFA-His protein on ELISA plate, Pm8002 bound to VEGFA protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Pm8002 bound to in huVEGFA-His, and the EC_{50} was 0.016 nM.

Anti-PD-L1 & VEGF Reference Antibody (Pm8002)

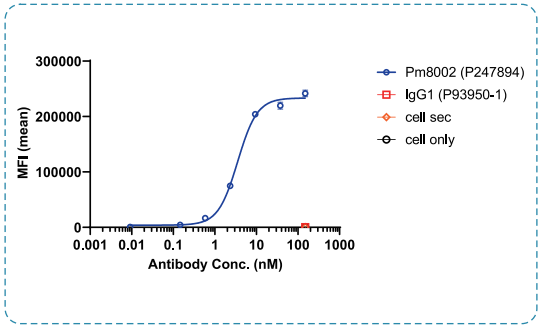


Fig 3. FACS binding for PD-L1

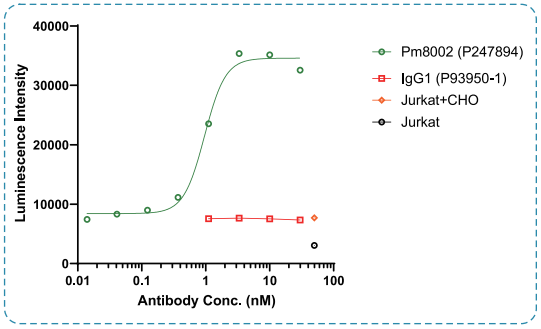


Fig 4. Luciferase reporter for PD-L1

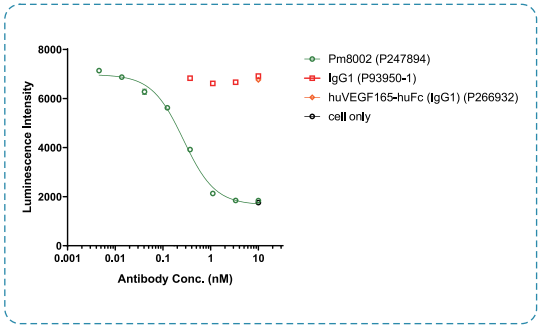


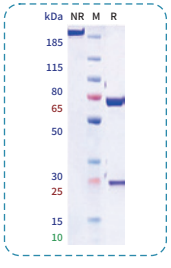
Fig 5. Luciferase reporter for VEGF-VEGFR2

To measure the binding ability of Pm8002 in huPD-L1-CHO-K cells, Pm8002 bound to huPD-L1-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ). Signal tested by flow cytometry. As shown in fig 3, Pm8002 bound to huPD-L1-CHO-K cells, and the EC_{50} was 3.545 nM.

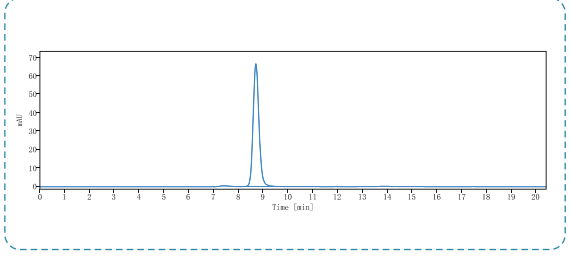
To evaluate the blocking activity of Pm8002 in PD-1/PD-L1 signaling pathway, co-incubation of Pm8002 with PD-1-NF-AT-Jurkat and CD3L-huPD-L1-CHO-K cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 4, Pm8002 was able to block the PD-1/PD-L1 signaling pathway, and the EC_{50} was 0.960 nM.

To evaluate the neutralization activity of Pm8002 against VEGF, co-incubation of Pm8002 with VEGF protein, then with the addition of VEGF2-NF-AT-HEK293 cells and incubated for 6 hous. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Pm8002 can neutralize VEGF-165, and the IC_{50} was 0.269 nM.

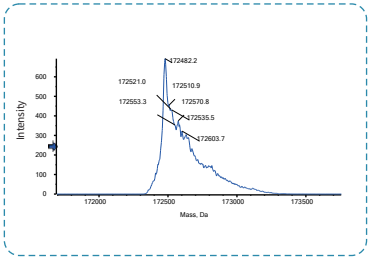
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	98.79%
Calculated MW	172.48 kDa	172.48 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

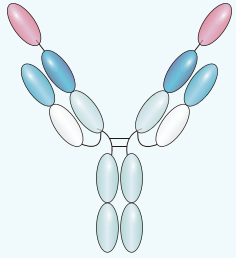


SEC-HPLC



MASS

Anti-PD-L1 & VEGF Reference Antibody (Sotiburafusp alfa)

Configuration	Information	
	Name	Sotiburafusp alfa
	Catalog number	CHBA011
	Batch number	P262504
	Inventor	Huabo Biopharm
	Targets	PD-L1 & VEGF
	Target Accession	Q9NZQ7 & P15692

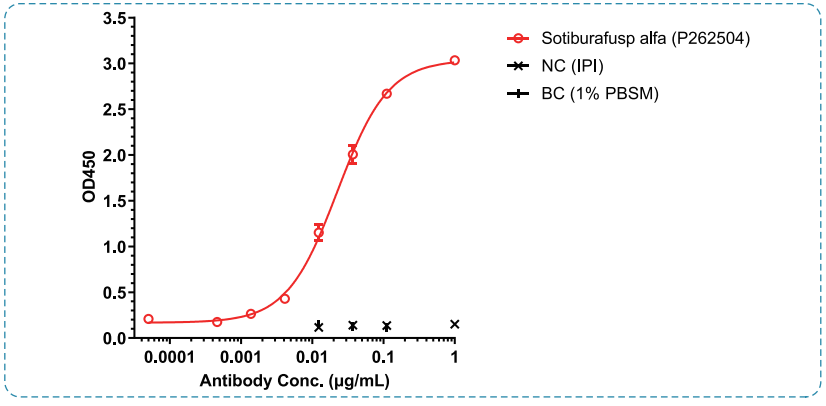


Fig 1. ELISA binding for VEGF

To measure the binding ability of Sotiburafusp alfa to huVEGFA-His. Coating VEGFA-His protein on ELISA plate, Sotiburafusp alfa bound to VEGFA protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Sotiburafusp alfa bound to huVEGFA-His, and the EC_{50} was 0.022 nM.

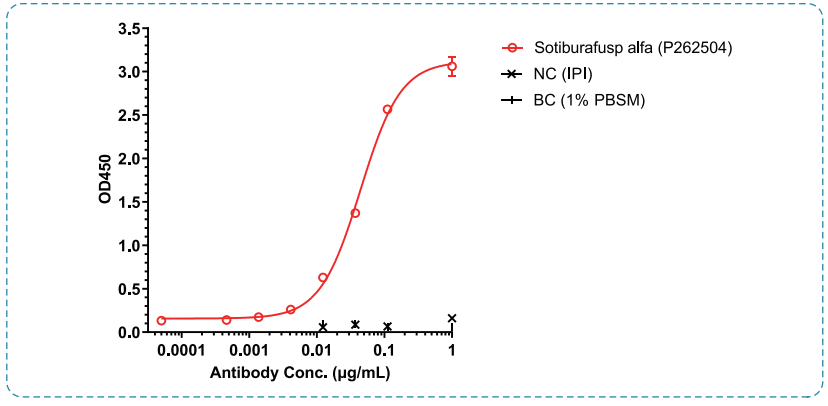


Fig 2. ELISA binding for PD-L1

To measure the binding ability of Sotiburafusp alfa to huPD-L1-Fc. Coating PD-L1-Fc protein on ELISA plate, Sotiburafusp alfa bound to PD-L1 protein, then bound to secondary antibodies (anti-human-κ+λ-HRP). OD450 read. As shown in fig 2, Sotiburafusp alfa bound to huPD-L1-Fc, and the EC_{50} was 0.044 nM.

Anti-PD-L1 & VEGF Reference Antibody (Sotiburafusp alfa)

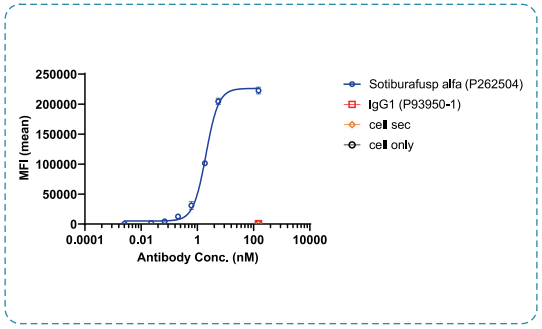


Fig 3. FACS binding for PD-L1

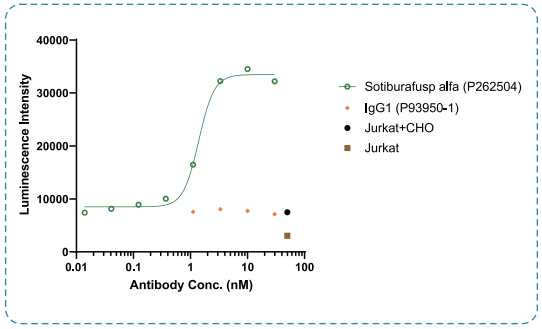


Fig 4. Luciferase reporter for PD-L1

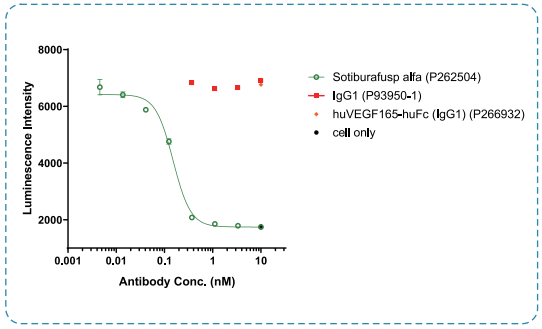


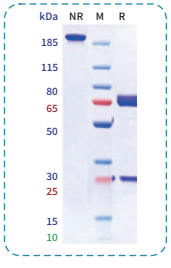
Fig 5. Luciferase reporter for VEGF-VEGFR2

To measure the binding ability of Sotiburafusp alfa in huPD-L1-CHO-K cells, Sotiburafusp alfa bound to huPD-L1-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Sotiburafusp alfa bound to huPD-L1-CHO-K cells, and the EC_{50} was 2.025 nM.

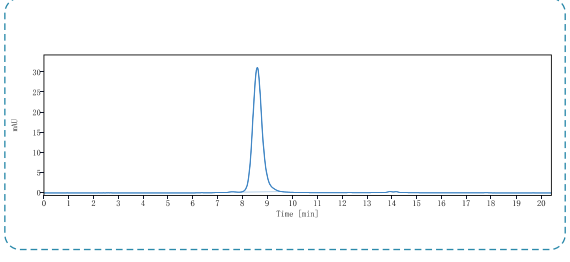
To evaluate the blocking activity of Sotiburafusp alfa in PD-1/PD-L1 signaling pathway, co-incubation of Sotiburafusp alfa with PD-1-NF-AT-Jurkat and CD3L-huPD-L1-CHO-K cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 4, Sotiburafusp alfa was able to block the PD-1/PD-L1 signaling pathway, and the EC_{50} was 1.140 nM.

To evaluate the neutralization activity of Sotiburafusp alfa against VEGF, co-incubation of Sotiburafusp alfa with VEGF protein, then with the addition of VEGF2-NF-AT-HEK293 cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Sotiburafusp alfa can neutralize VEGF-165, and the IC_{50} was 0.158 nM.

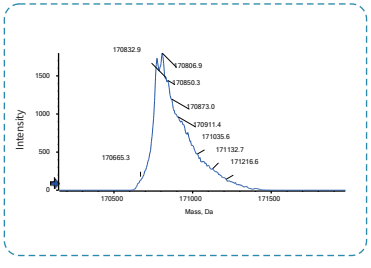
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	100.00%
Calculated MW	170.80 kDa	170.83 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

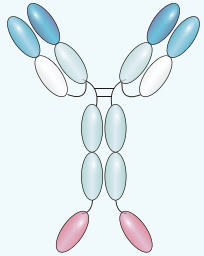


SEC-HPLC



MASS

Anti-PD-L1 & TGF-β Reference Antibody (Tqb2858)

Configuration


Information	
Name	Tqb2858
Catalog number	CHBA012
Batch number	P262510
Inventor	Chia Tai-Tianqing Pharmaceutical
Targets	PD-L1 & TGF-β, (TGF-β1)
Target Accession	Q9NZQ7 & P01137

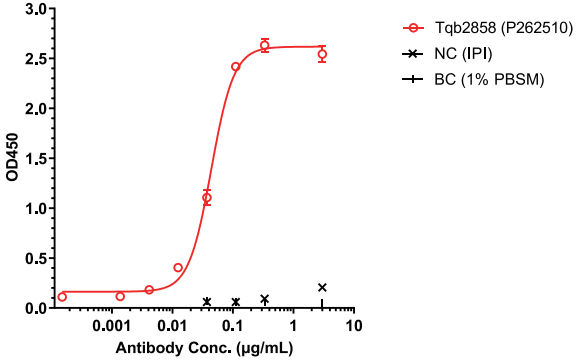


Fig 1. ELISA binding for PD-L1

To measure the binding ability of Tqb2858 to huPD-L1-Fc. Coating PD-L1-Fc protein on ELISA plate, Tqb2858 bound to PD-L1 protein, then bound to secondary antibodies (anti-human-κ+λ-HRP). OD450 read. As shown in fig 1, Tqb2858 bound to huPD-L1-Fc, and the EC_{50} was 0.044 nM.

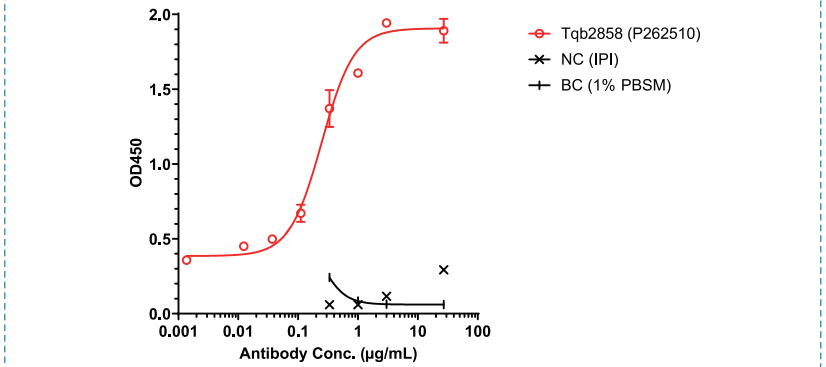


Fig 2. ELISA binding for TGFβ1

To measure the binding ability of Tqb2858 to huTGFβ1-His. Coating TGFβ1-His protein on ELISA plate, Tqb2858 bound to TGFb1 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Tqb2858 bound to huTGFb1-His, and the EC_{50} was 0.248 nM.

Anti-PD-L1 & TGF-β Reference Antibody (Tqb2858)

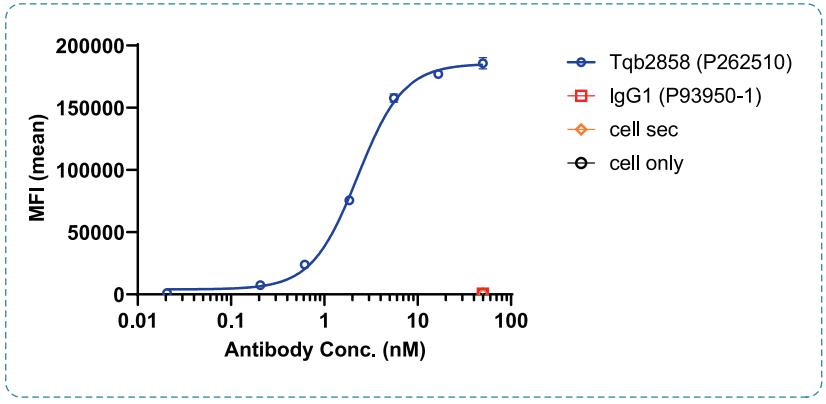


Fig 3. FACS binding for PD-L1

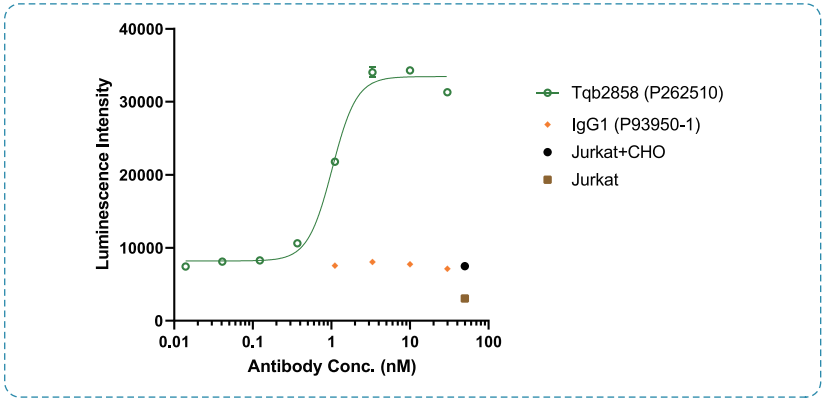
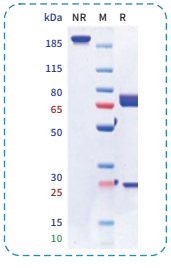


Fig 4. Luciferase reporter for PD-1

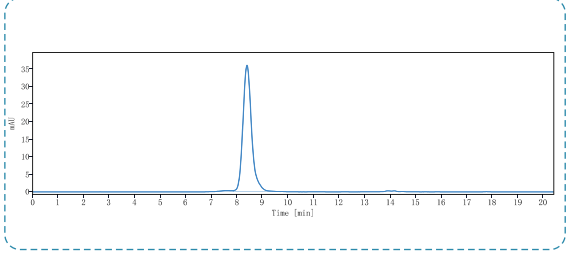
To measure the binding ability of Tqb2858 in huPD-L1-CHO-K cells, Tqb2858 bound to huPD-L1-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Tqb2858 bound to huPD-L1-CHO-K cells, and the EC_{50} was 2.273 nM.

To evaluate the blocking activity of Tqb2858 in PD-1/PD-L1 signaling pathway, co-incubation of Tqb2858 with PD-1-NF-AT-Jurkat and CD3L-huPD-L1-CHO-K cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 4, Tqb2858 was able to block the PD-1/PD-L1 signaling pathway, and the EC_{50} was 1.030 nM.

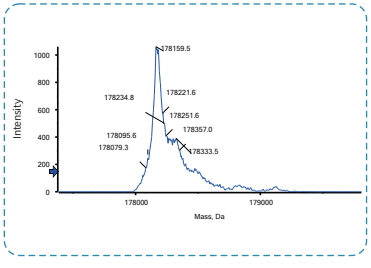
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	99.12%
Calculated MW	178.22 kDa	178.16 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE



SEC-HPLC



MASS

Anti-PD-L1 & CTLA4 Reference Antibody (Erfonrilimab)

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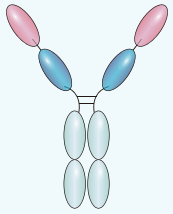


Information	
Name	Erfonrilimab
Catalog number	CHBA005
Batch number	P247904
Inventor	Alphamab Oncology
Targets	PD-L1 & CTLA4
Target Accession	Q9NZQ7 & P16410

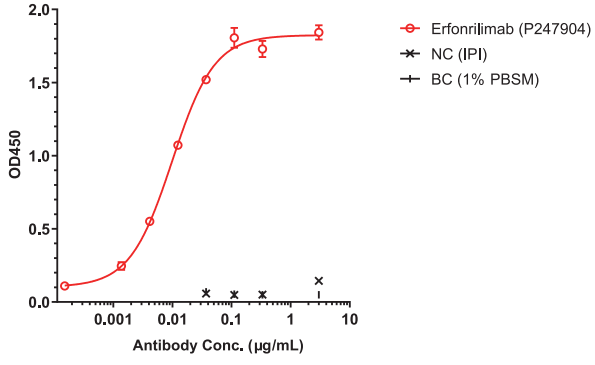


Fig 1. ELISA binding for CTLA4

To measure the binding ability of Erfonrilimab to huCTLA4 protein-His. Coating CTLA-4-His protein on ELISA plate, Erfonrilimab bound to CTLA4 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Erfonrilimab bound to huCTLA4 protein-His, and the EC_{50} was 0.010 nM.

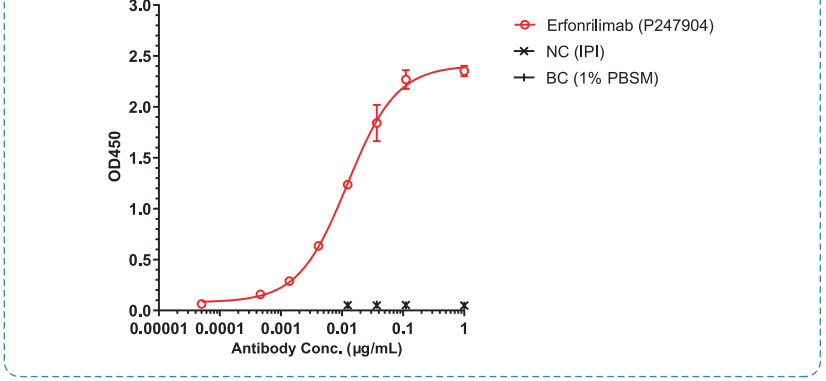


Fig 2. ELISA binding for PD-L1

To measure the binding ability of Erfonrilimab to huPD-L1 protein-His. Coating PD-L1-His protein on ELISA plate, Erfonrilimab bound to PD-L1 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Erfonrilimab bound to huPD-L1 protein-His, and the EC_{50} was 0.012 nM.

Anti-PD-L1 & CTLA4 Reference Antibody (Erfonrilimab)

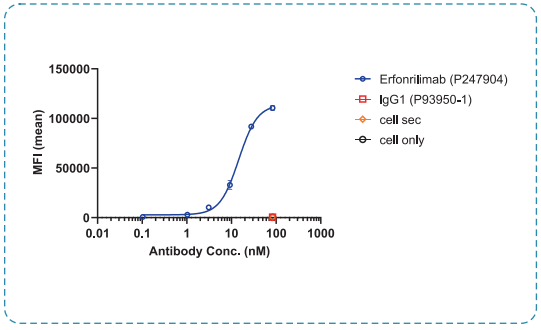


Fig 3. FACS binding for CTLA4

To measure the binding ability of Erfonrilimab in huCTLA4-CHO-K cells, Erfonrilimab bound to huCTLA4-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Erfonrilimab bound to huCTLA4-CHO-K cells, and the EC_{50} was 14.510 nM.

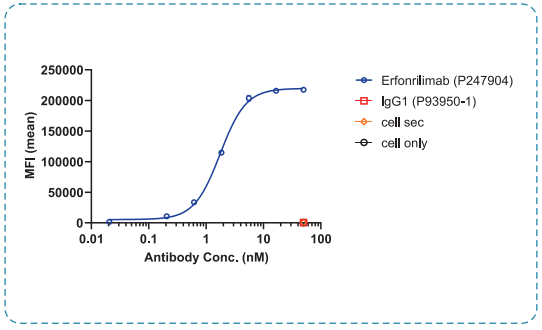


Fig 4. FACS binding for PD-L1

To measure the binding ability of Erfonrilimab in huPD-L1-CHO-K cells, Erfonrilimab bound to huPD-L1-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Erfonrilimab bound to huPD-L1-CHO-K cells, and the EC_{50} was 1.759 nM.

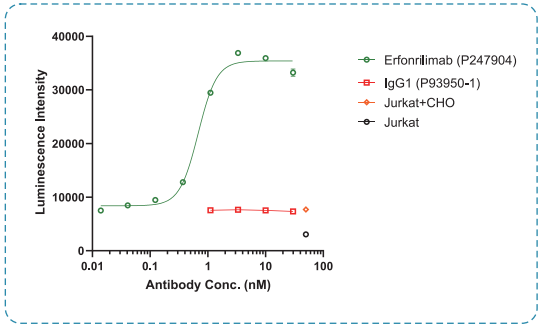
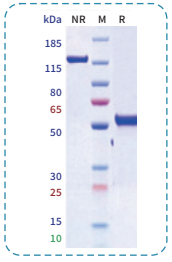


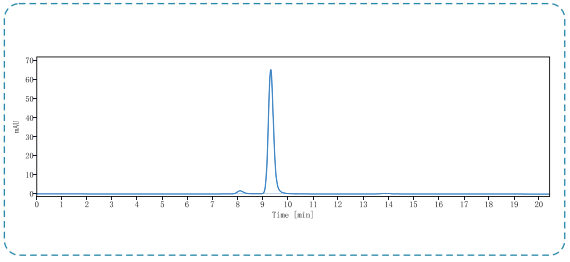
Fig 5. Luciferase reporter for PD-L1

To evaluate the blocking activity of Erfonrilimab in PD-1/PD-L1 signaling pathway, co-incubation of Erfonrilimab with PD-1-NF-AT-Jurkat and CD3L-huPD-L1-CHO-K cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Erfonrilimab was able to block the PD-1/PD-L1 signaling pathway, and the EC_{50} was 0.681 nM.

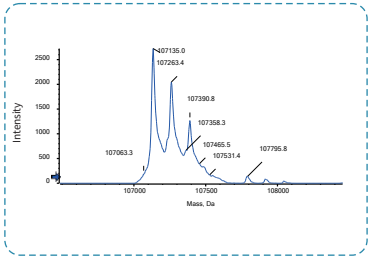
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	97.11%
Calculated MW	107.44 kDa	107.14 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

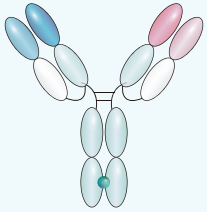


SEC-HPLC



MASS

Anti-PD-L1 & 4-1BB Reference Antibody (Acasunlimab)

Configuration


Information	
Name	Acasunlimab
Catalog number	CHBA057
Batch number	P266216-P266217-2
Inventor	BioNTech, Genmab BioPharma
Targets	PD-L1 & 4-1BB
Target Accession	Q9NZQ7 & Q07011

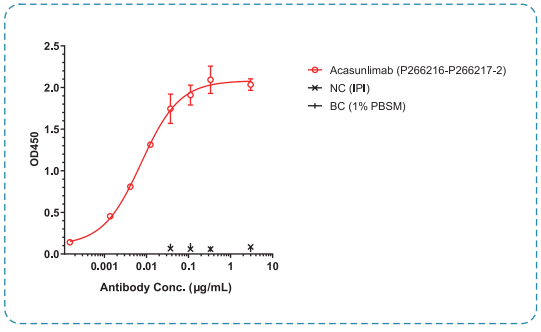


Fig 1. ELISA binding for 4-1BB

To measure the binding ability of Acasunlimab to hu4-1BB-His. Coating 4-1BB-His protein on ELISA plate, Acasunlimab bound to 4-1BB protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Acasunlimab bound to hu4-1BB-His, and the EC_{50} was 0.007 nM.

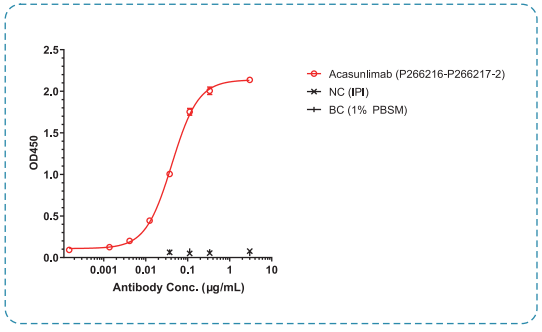


Fig 2. ELISA binding for PD-L1

To measure the binding ability of Acasunlimab to huPD-L1-His. Coating PD-L1-His protein on ELISA plate, Acasunlimab bound to PD-L1 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Acasunlimab bound to huPD-L1-His, and the EC_{50} was 0.042 nM.

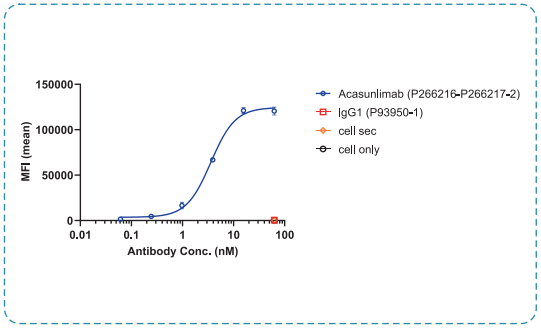


Fig 3. FACS binding for 4-1BB

To measure the binding ability of Acasunlimab in hu4-1BB-CHO-K cells, Acasunlimab bound to hu4-1BB-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Acasunlimab bound to hu4-1BB-CHO-K cells, and the EC_{50} was 3.592 nM.

Anti-PD-L1 & 4-1BB Reference Antibody (Acasunlimab)

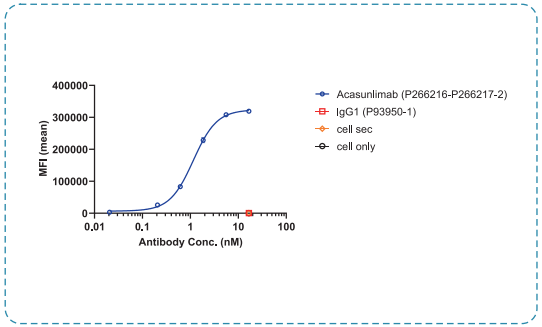


Fig 4. FACS binding for PD-L1

To measure the binding ability of Acasunlimab in huPD-L1-CHO-K cells, Acasunlimab bound to huPD-L1-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Acasunlimab bound to huPD-L1-CHO-K cells, and the EC_{50} was 1.153 nM.

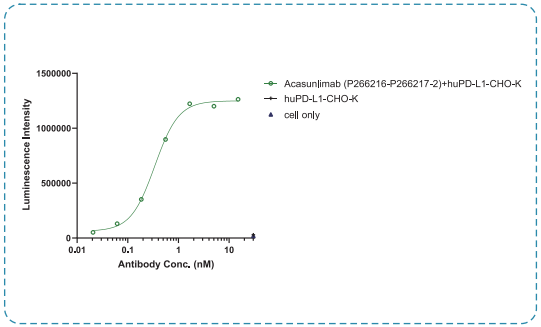


Fig 5. Luciferase reporter for 4-1BB

To evaluate the activation activity of Acasunlimab in huPD-L1-CHO-K and 4-1BB-NF-κB-Jurkat cells, co-incubation of Acasunlimab with 4-1BB-NF-κB-Jurkat cells, then with the addition of huPD-L1-CHO-K cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Acasunlimab was able to activate the NF-κB signaling pathway, and the EC_{50} was 0.341 nM.

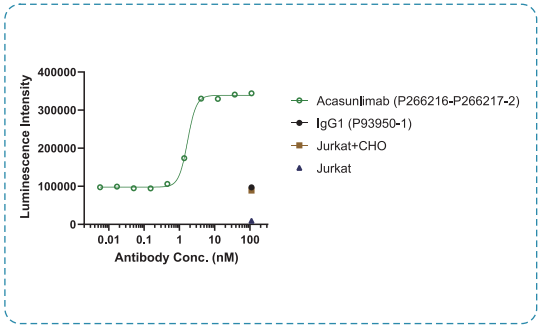
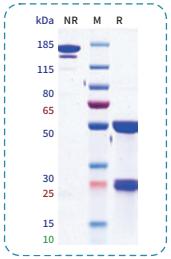
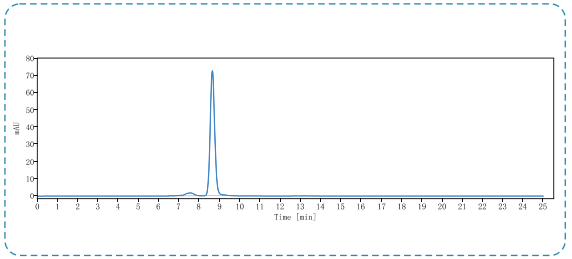


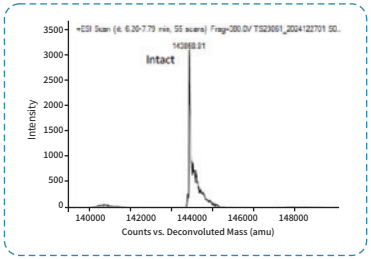
Fig 6. Luciferase reporter for PD-1

To evaluate the blocking activity of Acasunlimab in PD-1/PD-L1 signaling pathway, co-incubation of Acasunlimab with PD-1-NF-AT-Jurkat and CD3L-huPD-L1-CHO-K cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 6, Acasunlimab was able to block the PD-1/PD-L1 signaling pathway, and the EC_{50} was 1.875 nM.

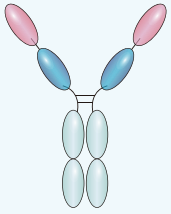
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	94.41%
Calculated MW	144.08 kDa	143.86 kDa
Endotoxin	<1 EU/mg	<1 EU/mg







Anti-4-1BB & PD-L1 Reference Antibody (Enristomig)

Configuration


Information	
Name	Enristomig
Catalog number	CHBA023
Batch number	P267993
Inventor	Inhibrx
Targets	PD-L1 & 4-1BB
Target Accession	Q9NZQ7 & Q07011

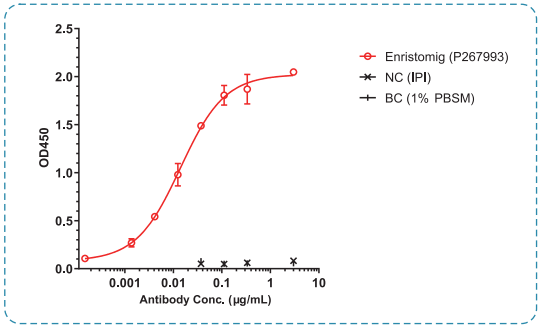


Fig 1. ELISA binding for 4-1BB

To measure the binding ability of Enristomig to hu4-1BB-His. Coating 4-1BB-His protein on ELISA plate, Enristomig bound to 4-1BB protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Enristomig bound to hu4-1BB-His, and the EC_{50} was 0.014 nM.

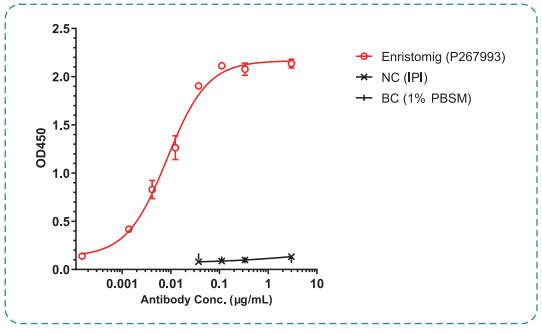


Fig 2. ELISA binding for PD-L1

To measure the binding ability of Enristomig to huPD-L1-His. Coating PD-L1-His protein on ELISA plate, Enristomig bound to PD-L1 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Enristomig bound to huPD-L1-His, and the EC_{50} was 0.008 nM.

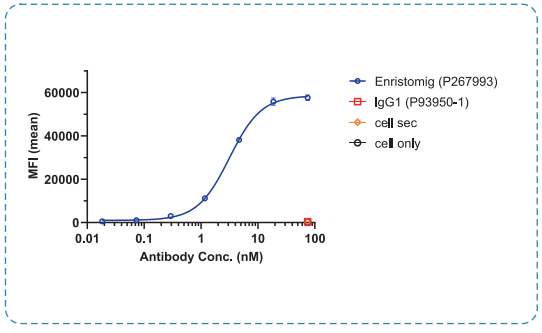


Fig 3. FACS binding for 4-1BB

To measure the binding ability of Enristomig in hu4-1BB-CHO-K cells, Enristomig bound to hu4-1BB-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Enristomig bound to hu4-1BB-CHO-K cells, and the EC_{50} was 3.156 nM.

Anti-4-1BB & PD-L1 Reference Antibody (Enristomig)

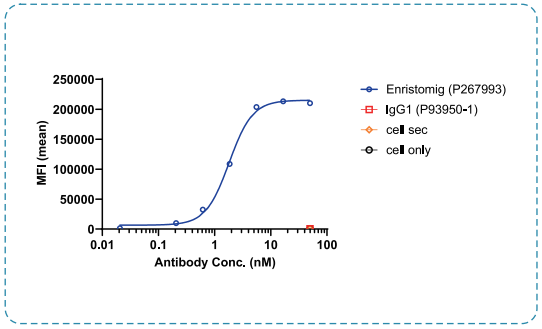


Fig 4. FACS binding for PD-L1

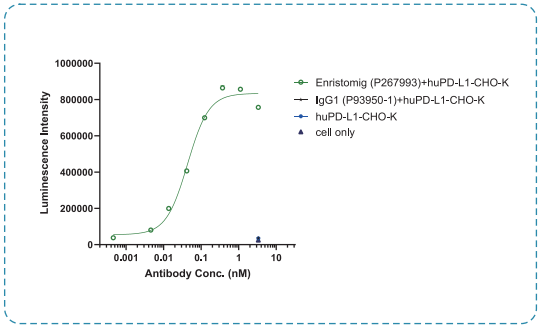


Fig 5. Luciferase reporter for 4-1BB

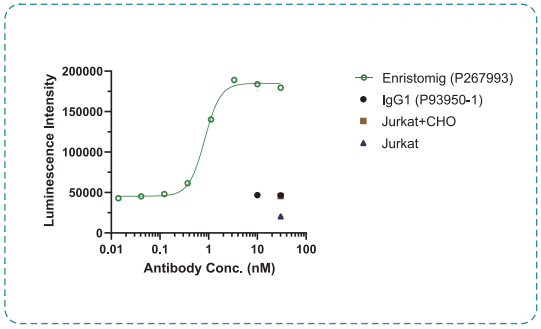


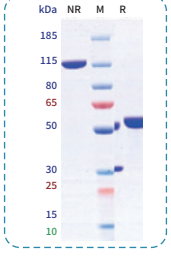
Fig 6. Luciferase reporter for PD-1

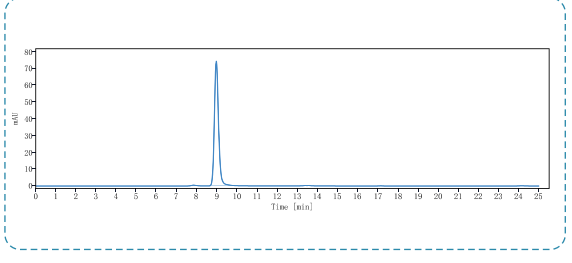
To measure the binding ability of Enristomig in huPD-L1-CHO-K cells, Enristomig bound to huPD-L1-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Enristomig bound to huPD-L1-CHO-K cells, and the EC_{50} was 1.186 nM.

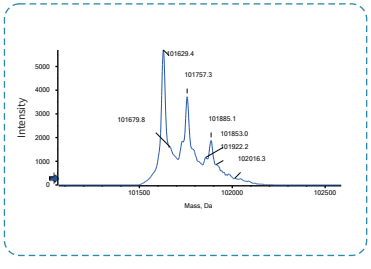
To evaluate the activation activity of Enristomig in huPD-L1-CHO-K and 4-1BB-NF-κB-Jurkat cells, co-incubation of Enristomig with 4-1BB-NF-κB-Jurkat cells, then with the addition of huPD-L1-CHO-K cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Enristomig was able to activate the NF-κB signaling pathway, and the EC_{50} was 0.043 nM.

To evaluate the blocking activity of Enristomig in PD-1/PD-L1 signaling pathway, co-incubation of Enristomig with PD-1-NF-AT-Jurkat and CD3L-huPD-L1-CHO-K cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 6, Enristomig was able to block the PD-1/PD-L1 signaling pathway, and the EC_{50} was 0.826 nM.

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	99.51%
Calculated MW	101.90 kDa	101.63 kDa
Endotoxin	<1 EU/mg	<1 EU/mg







Anti-TNF-α & HSA Reference Antibody (Ozoralizumab)

Configuration


Information	
Name	Ozoralizumab
Catalog number	CHBA046
Batch number	P245243C
Inventor	Ablynx
Targets	TNF-α & HSA
Target Accession	P01375 & P02768

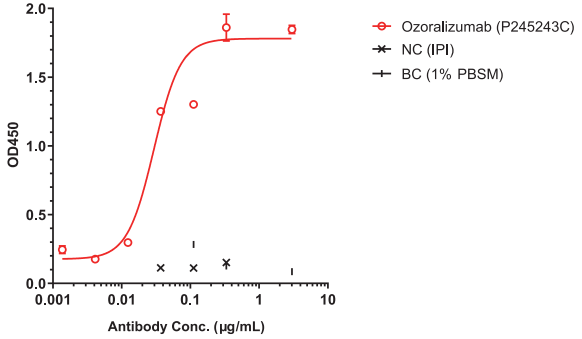


Fig 1. ELISA binding for TNF-α

To measure the binding ability of Ozoralizumab to huTNF-α-Fc. Coating TNFα-Fc protein on ELISA plate, Ozoralizumab bound to TNF-α protein, then bound to secondary antibodies (anti-Cameild-VHH1+VHH2-HRP). OD450 read. As shown in fig 1, Ozoralizumab bound huTNF-α -Fc, and the EC_{50} was 0.029 nM.

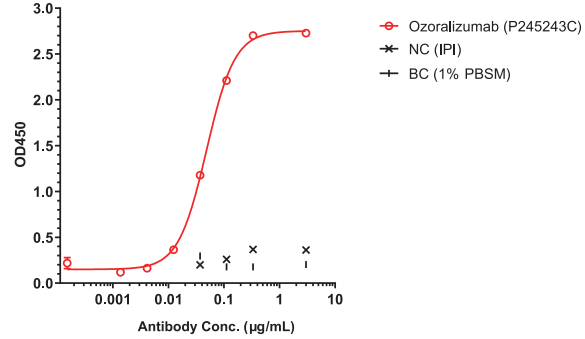
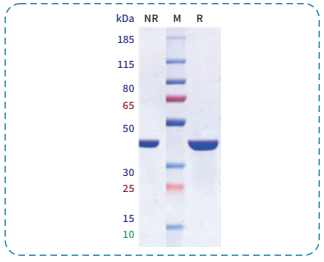


Fig 2. ELISA binding for HSA

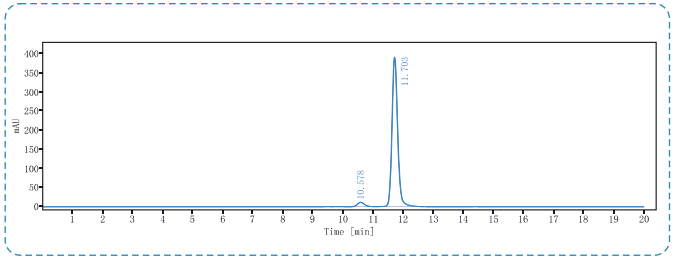
To measure the binding ability of Ozoralizumab to huHSA-Fc. Coating HSA-Fc protein on ELISA plate, Ozoralizumab bound to HSA protein, then bound to secondary antibodies (anti-Cameild-VHH1+VHH2-HRP). OD450 read. As shown in fig 2, Ozoralizumab bound huHSA-Fc, and the EC_{50} was 0.048 nM.

Anti-TNF-α & HSA Reference Antibody (Ozoralizumab)

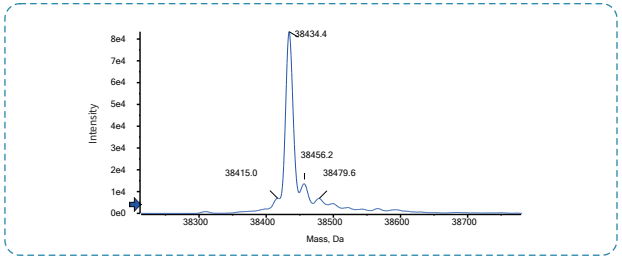
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	96.30%
Calculated MW	38.44 kDa	38.43 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

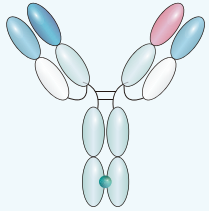


SEC-HPLC



MASS

Anti-VEGF & DLL4 Reference Antibody (Navicixizumab)

Configuration


Information	
Name	Navicixizumab
Catalog number	CHBA058
Batch number	P224239
Inventor	OncoMed Pharmaceuticals
Targets	VEGF & DLL4
Target Accession	P15692 & Q9NR61

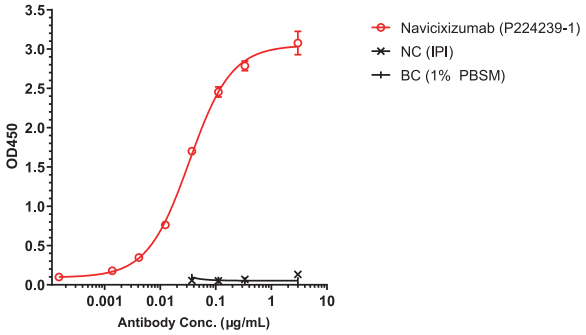


Fig 1. ELISA binding for DLL4

To measure the binding ability of Navicixizumab to huDLL4-His. Coating DLL4-His protein on ELISA plate, Navicixizumab bound to DLL4 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Navicixizumab bound to huDLL4-His, and the EC_{50} was 0.033 nM.

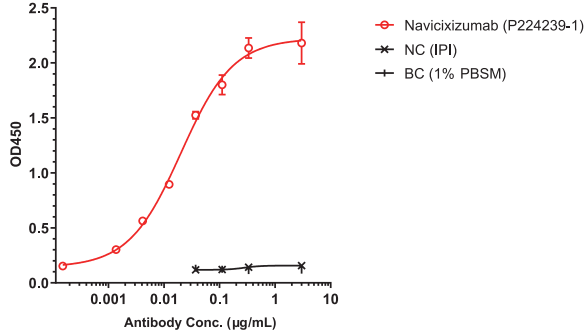


Fig 2. ELISA binding for VEGF

To measure the binding ability of Navicixizumab to huVEGFA-His. Coating VEGFA-His protein on ELISA plate, Navicixizumab bound to VEGFA protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Navicixizumab bound to huVEGFA-His, and the EC_{50} was 0.020 nM.

Anti-VEGF & DLL4 Reference Antibody (Navicixizumab)

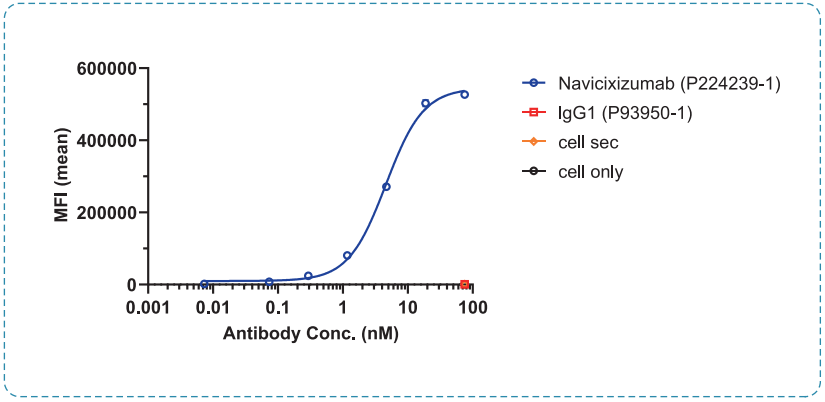


Fig 3. FACS binding for DLL4

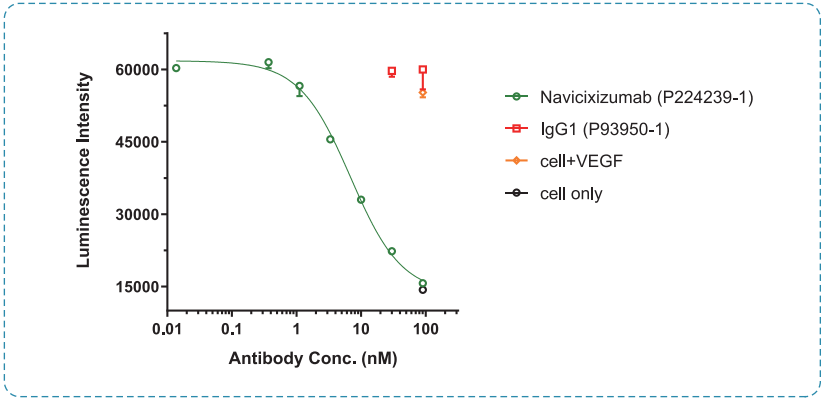
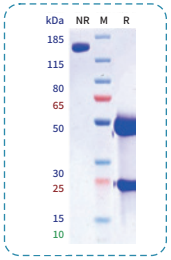


Fig 4. Luciferase reporter for VEGF-VEGFR2

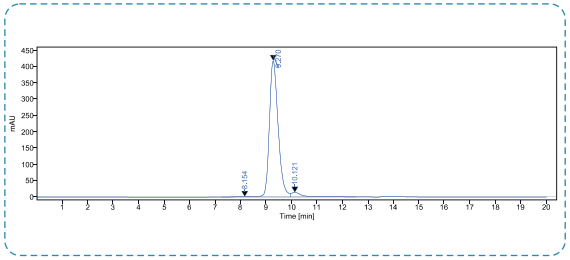
To measure the binding ability of Navicixizumab in huDLL4-FL-HEK293 cells, Navicixizumab bound to huDLL4-FL-HEK293 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Navicixizumab bound to huDLL4-FL-HEK293 cells, and the EC_{50} was 4.603 nM.

To evaluate the neutralization activity of Navicixizumab against VEGF, co-incubation of Navicixizumab with VEGF protein, then with the addition of VEGF2-NF-AT-HEK293 cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Navicixizumab can neutralize VEGF-165, and the IC_{50} was 7.957 nM.

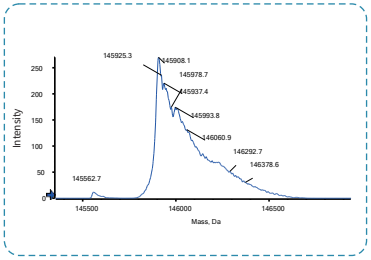
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	97.99%
Calculated MW	146.17 kDa	145.91 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

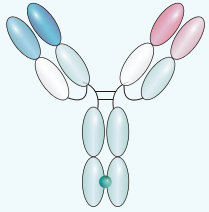


SEC-HPLC



MASS

Anti-VEGF & ANG2 Reference Antibody (Vanucizumab)

Configuration


Information	
Name	Vanucizumab
Catalog number	CHBA067
Batch number	P99849C2
Inventor	Roche
Targets	VEGF & ANG2
Target Accession	P15692 & Q9UID3

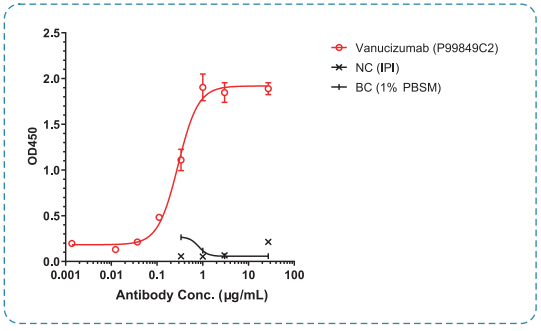


Fig 1. ELISA binding for ANG2

To measure the binding ability of Vanucizumab to huANG2-His. Coating ANG2-His protein on ELISA plate, Vanucizumab bound to ANG2 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Vanucizumab bound to in huANG2-His, and the EC_{50} was 0.288 nM.

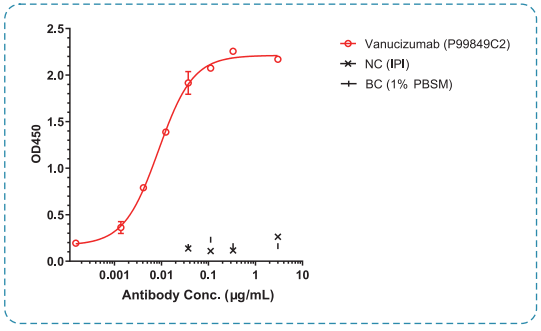


Fig 2. ELISA binding for VEGF

To measure the binding ability of Vanucizumab to huVEGFA-His. Coating VEGFA-His protein on ELISA plate, Vanucizumab bound to VEGFA protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Vanucizumab bound to in huVEGFA-His, and the EC_{50} was 0.009 nM.

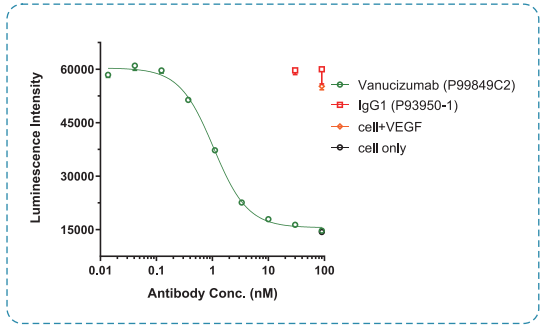
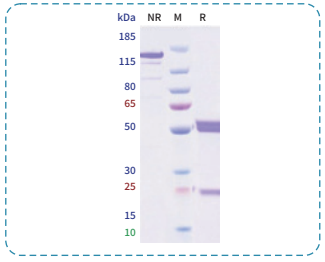


Fig 3. Luciferase reporter for VEGF-VEGFR2

To evaluate the neutralization activity of Vanucizumab against VEGF, co-incubation of Vanucizumab with VEGF protein, then with the addition of VEGF2-NF-AT-HEK293 cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 3, Vanucizumab can neutralize VEGF-165, and the IC_{50} was 1.075 nM.

Anti-VEGF & ANG2 Reference Antibody (Vanucizumab)

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	95.00%
Calculated MW	146.89 kDa	146.62 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



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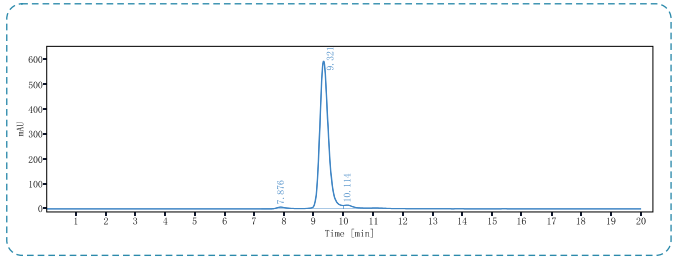
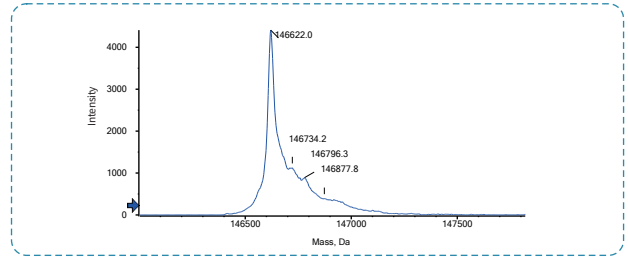


SEC-HPLC



MASS

Anti-VEGF & ANG2 Reference Antibody (Faricimab)

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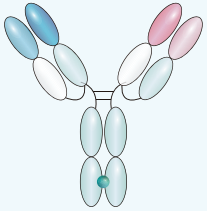


Information	
Name	Faricimab
Catalog number	CHBA054
Batch number	P222517C
Inventor	Roche
Targets	VEGF & ANG2
Target Accession	P15692 & Q9UID3

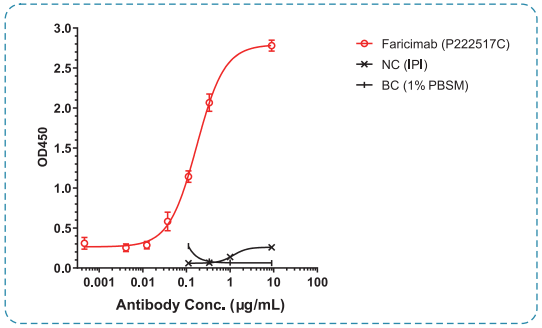


Fig 1. ELISA binding for ANG2

To measure the binding ability of Faricimab to huANG2-His. Coating ANG2-His protein on ELISA plate, Faricimab bound to ANG2 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Faricimab bound to huANG2-His, and the EC_{50} was 0.172 nM.

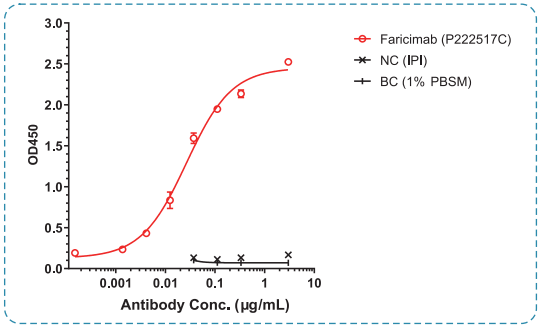


Fig 2. ELISA binding for VEGF

To measure the binding ability of Faricimab to huVEGF165-His. Coating VEGF165-His protein on ELISA plate, Faricimab bound to VEGF165 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Faricimab bound to huVEGF165-His, and the EC_{50} was 0.027 nM.

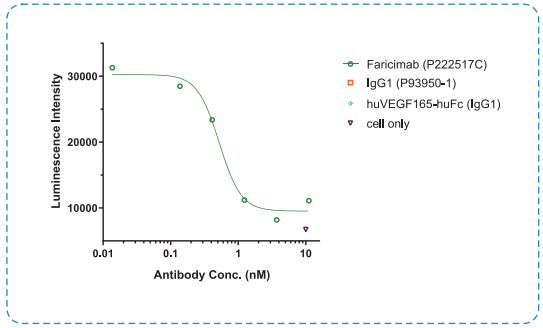
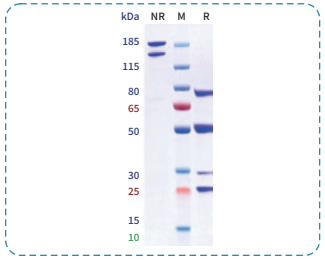


Fig 3. Luciferase reporter for VEGF-VEGFR2

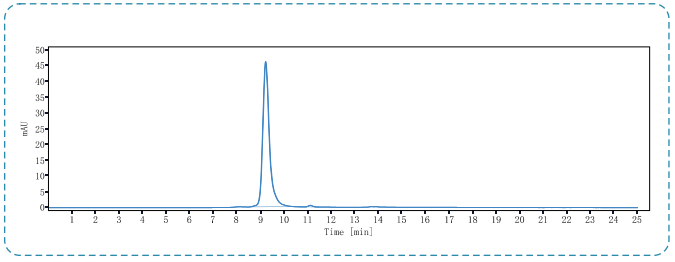
To evaluate the neutralization activity of Faricimab against VEGF, co-incubation of Faricimab with VEGF protein, then with the addition of VEGF2-NF-AT-HEK293 cells and incubated for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 3, Faricimab can neutralize VEGF-165, and the IC_{50} was 0.5238 nM.

Anti-VEGF & ANG2 Reference Antibody (Faricimab)

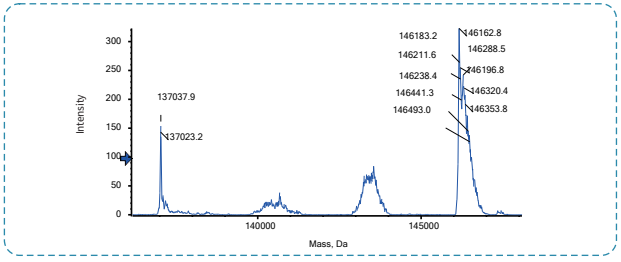
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	99.44%
Calculated MW	146.41 kDa	146.16 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

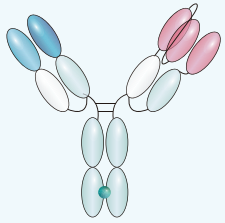


SEC-HPLC



MASS

Anti-4-1BB & FAP Reference Antibody (RO7122290)

Configuration


Information	
Name	RO7122290
Catalog number	CHBA033
Batch number	P268000C
Inventor	Roche
Targets	4-1BB & FAP
Target Accession	Q07011 & Q12884

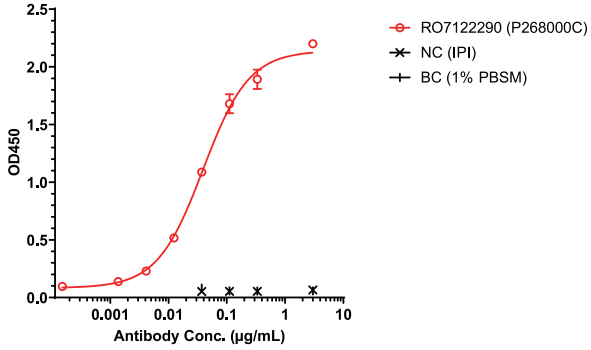


Fig 1. ELISA binding for 4-1BB

To measure the binding ability of RO7122290 to hu4-1BB-His. Coating 4-1BB-His protein on ELISA plate, RO7122290 bound to 4-1BB protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, RO7122290 bound to hu4-1BB-His, and the EC_{50} was 0.039 nM.

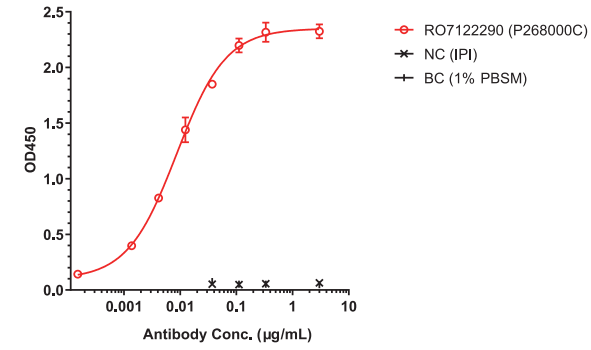


Fig 2. ELISA binding for FAP

To measure the binding ability of RO7122290 to huFAP-His. Coating FAP-His protein on ELISA plate, RO7122290 bound to FAP protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, RO7122290 bound to huFAP-His, and the EC_{50} was 0.009 nM.

Anti-4-1BB & FAP Reference Antibody (RO7122290)

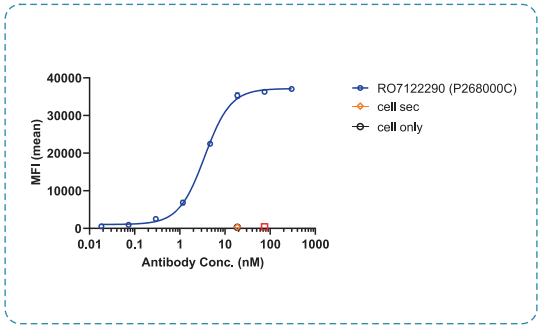


Fig 3. FACS binding for 4-1BB

To measure the binding ability of RO7122290 in hu4-1BB-CHO-K cells, RO7122290 bound to hu4-1BB-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, RO7122290 bound to hu4-1BB-CHO-K cells, and the EC_{50} was 3.552 nM.

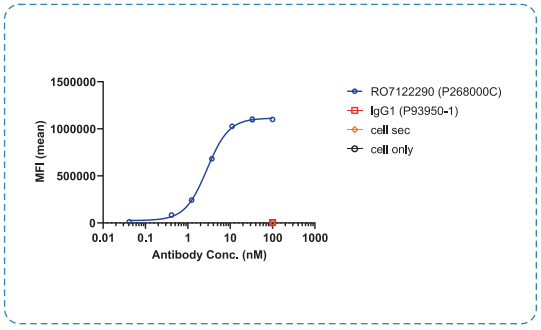


Fig 4. FACS binding for FAP

To measure the binding ability of RO7122290 in huFAP-FL-HEK29-A11 cells, RO7122290 bound to huFAP-FL-HEK29-A11 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, RO7122290 bound to huFAP-FL-HEK29-A11 cells, and the EC_{50} was 2.833 nM.

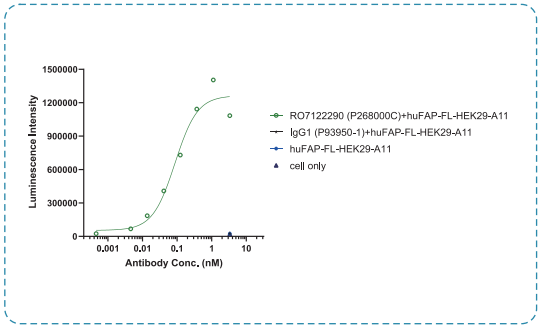
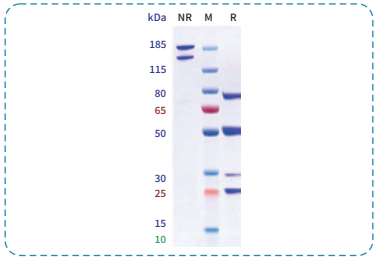


Fig 5. Luciferase reporter for 4-1BB

To evaluate the activation activity of RO7122290 in hu-FAP-FL-HEK293 and 4-1BB-NF-κB-Jurkat cells, co-incubation of RO7122290 with 4-1BB-NF-κB-Jurkat cells, then with the addition of huFAP-FL-HEK293 cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, RO7122290 was able to activate the NF-κB signaling pathway, and the EC_{50} was 0.0871 nM.

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	86.19%
Calculated MW	177.78 kDa	NA
Endotoxin	<1 EU/mg	<1 EU/mg



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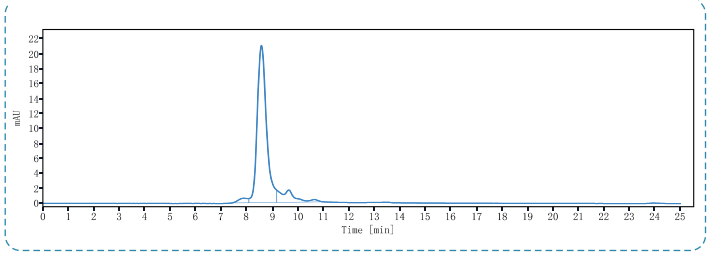
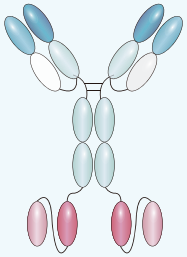


SEC-HPLC

Anti-4-1BB & HER2 Reference Antibody (Yh32367)

Configuration


Information	
Name	Yh32367
Catalog number	CHBA039
Batch number	P268011C
Inventor	ABLBio, Yuhan Corporation
Targets	4-1BB & HER2
Target Accession	Q07011 & P04626

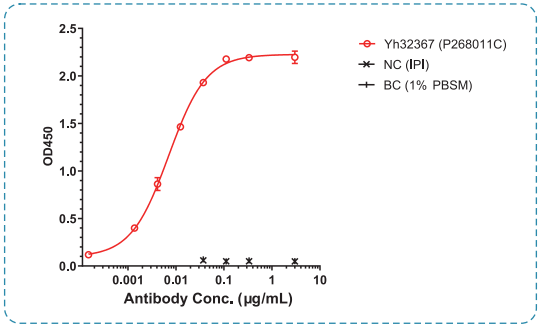


Fig 1. ELISA binding for 4-1BB

To measure the binding ability of Yh32367 to hu4-1BB-His. Coating 4-1BB-His protein on ELISA plate, Yh32367 bound to 4-1BB protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Yh32367 bound to hu4-1BB-His, and the EC_{50} was 0.007 nM.

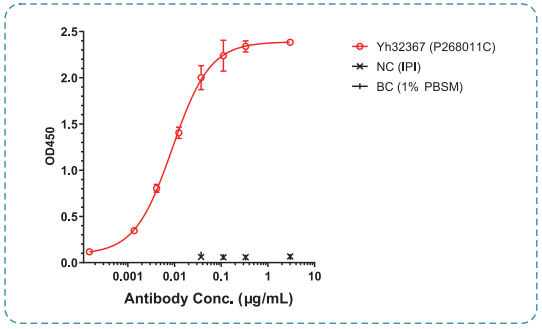


Fig 2. ELISA binding for Her2

To measure the binding ability of Yh32367 to huHer2-His. Coating Her2-His protein on ELISA plate, Yh32367 bound to Her2 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Yh32367 bound to huHer2-His, and the EC_{50} was 0.009 nM.

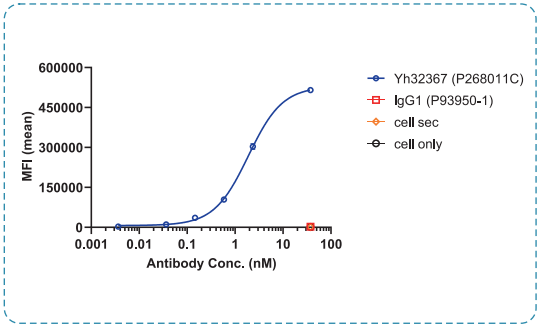


Fig 3. FACS binding for Her2

To measure the binding ability of Yh32367 in BT474 cells, Yh32367 bound to BT474 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fc γ PE). Signal tested by flow cytometry. As shown in fig 3, Yh32367 bound to BT474 cells, and the EC_{50} was 1.889 nM.

Anti-4-1BB & HER2 Reference Antibody (Yh32367)

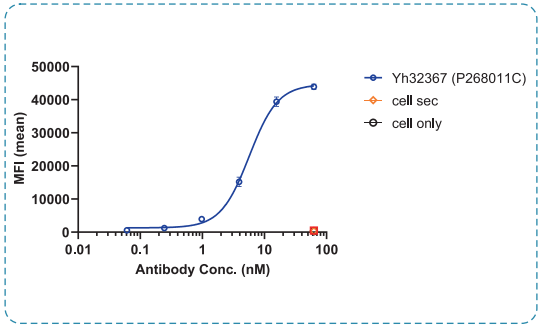


Fig 4. FACS binding for 4-1BB

To measure the binding ability of Yh32367 in hu4-1BB-CHO-K cells, Yh32367 bound to hu4-1BB-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Yh32367 bound to hu4-1BB-CHO-K cells, and the EC50 was 5.701 nM.

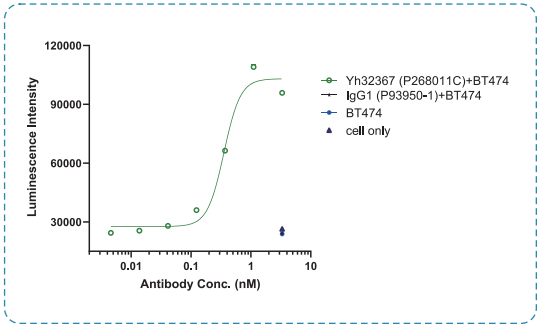


Fig 5. Luciferase reporter for 4-1BB

To evaluate the activation activity of Yh32367 in BT474 and 4-1BB-NF-κB-Jurkat cells, co-incubation of Yh32367 with 4-1BB-NF-κB-Jurkat cells, then with the addition of BT474 cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Yh32367 was able to activate the NF-κB signaling pathway, and the EC_{50} was 0.355 nM.

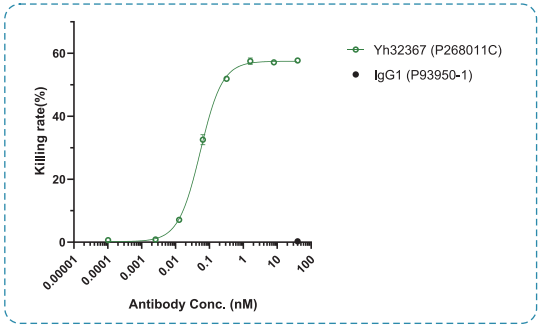
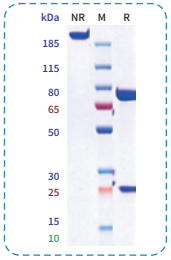


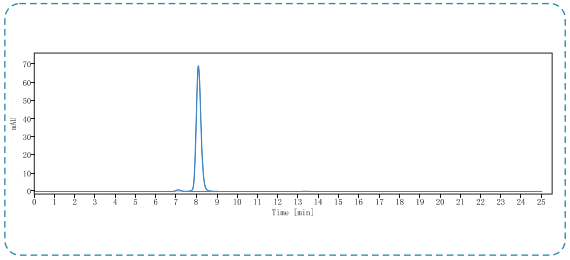
Fig 6. PBMC ADCC for Her2

To evaluate the ADCC activity of Yh32367, co-incubation of Yh32367 with BT474 cells and PBMCs for 4 hours, then LDH was detected to evaluate the ADCC activity of Yh32367. As shown in fig 6, Yh32367 has ADCC activity, and the EC50 was 0.054 nM.

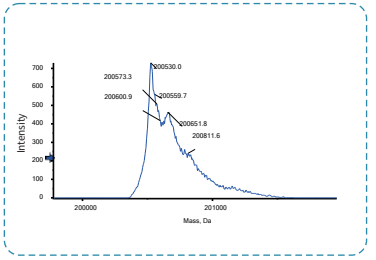
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	98.99%
Calculated MW	200.52 kDa	200.53 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE

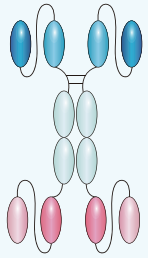


SEC-HPLC



MASS

Anti-4-1BB & TPBG/5T4 Reference Antibody (Apv-527)

Configuration


Information	
Name	Apv-527
Catalog number	CHBA059
Batch number	P267999C
Inventor	Alligator Bioscience, Aptevo Therapeutics
Targets	4-1BB & TPBG
Target Accession	Q07011 & Q13641

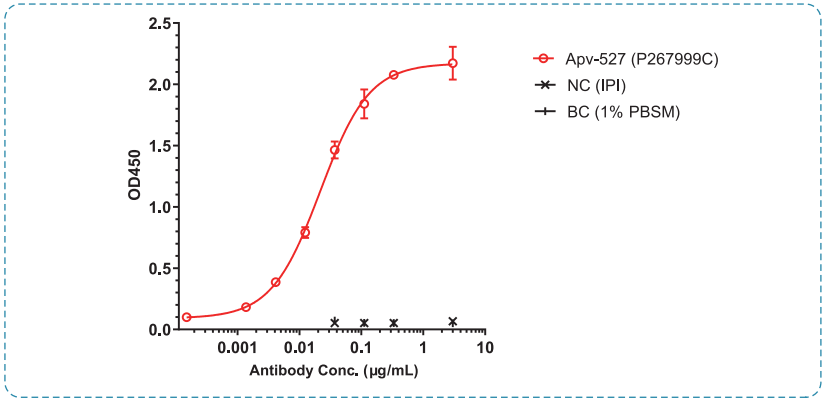


Fig 1. ELISA binding for 4-1BB

To measure the binding ability of Apv-527 to hu4-1BB-His. Coating 4-1BB-His protein on ELISA plate, Apv-527 bound to 4-1BB protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Apv-527 bound to hu4-1BB-His, and the EC_{50} was 0.022 nM.

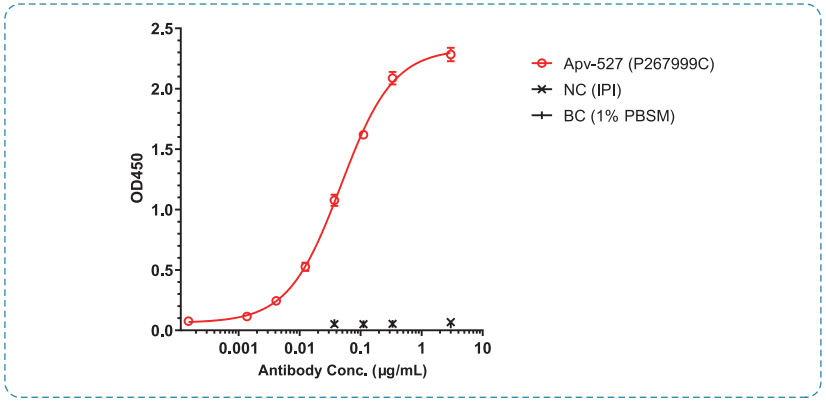


Fig 2. ELISA binding for TPBG

To measure the binding ability of Apv-527 to huTPBG-His. Coating TPBG-His protein on ELISA plate, Apv-527 bound to TPBG protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Apv-527 bound to huTPBG-His, and the EC_{50} was 0.047 nM.

Anti-4-1BB & TPBG/5T4 Reference Antibody (Apv-527)

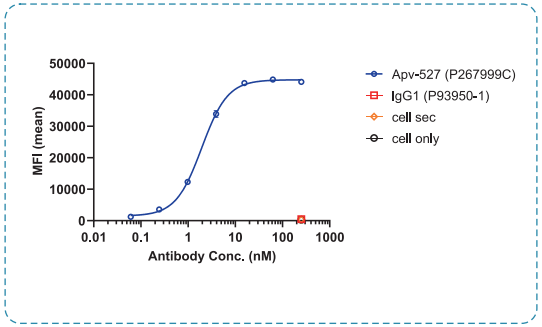


Fig 3. FACS binding for 4-1BB

To measure the binding ability of Apv-527 in hu4-1BB-CHO-K cells, Apv-527 bound to hu4-1BB-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Apv-527 bound to hu4-1BB-CHO-K cells, and the EC_{50} was 1.943 nM.

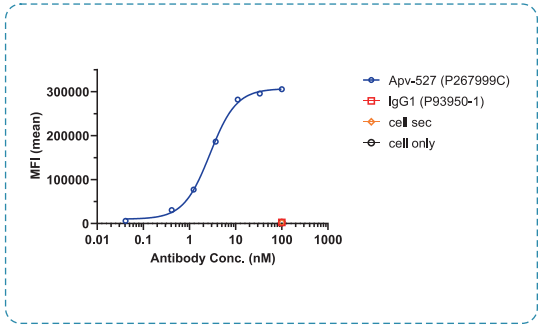


Fig 4. FACS binding for TPBG

To measure the binding ability of Apv-527 in hu5T4-FL-HEK293 cells, Apv-527 bound to hu5T4-FL-HEK293 cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Apv-527 bound to hu5T4-FL-HEK293 cells, and the EC_{50} was 2.784 nM.

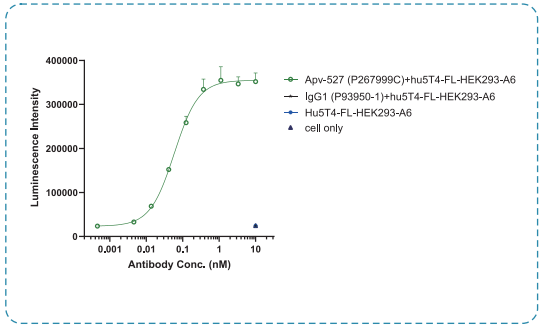
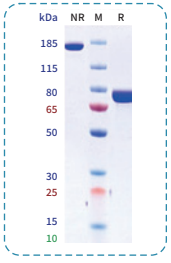


Fig 5. Luciferase reporter for 4-1BB

To evaluate the activation activity of Apv-527 in hu5T4-FL-HEK293 and 4-1BB-NF-κB-Jurkat cells, co-incubation of Apv-527 with 4-1BB-NF-κB-Jurkat cells, then with the addition of hu5T4-FL-HEK293 cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Apv-527 was able to activate the NF-κB signaling pathway, and the EC_{50} was 0.059 nM.

QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	99.52%
Calculated MW	157.94 kDa	157.91 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



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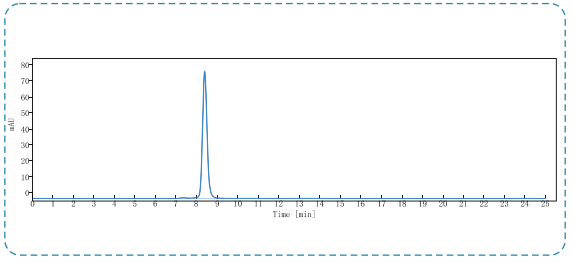
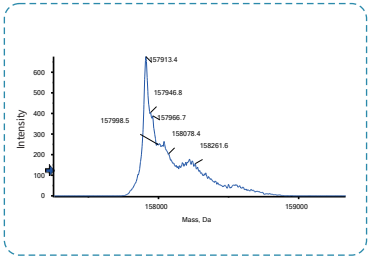


SEC-HPLC



MASS

Anti-4-1BB & CD40 Reference Antibody (Gen1042)

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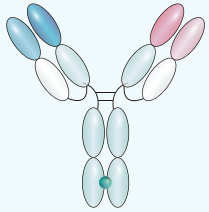


Information	
Name	Gen1042
Catalog number	CHBA034
Batch number	P268001-P268002
Inventor	BioNTech, Genmab
Targets	4-1BB & CD40
Target Accession	Q07011 & P25942

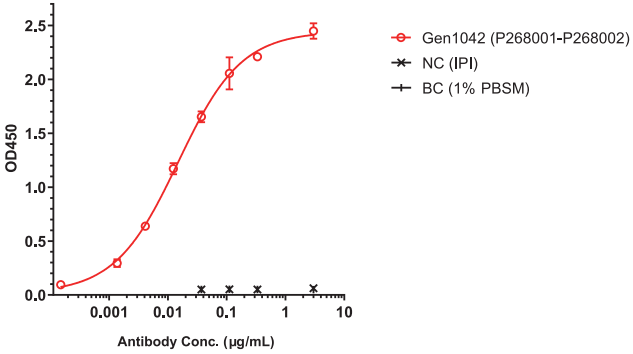


Fig 1. ELISA binding for 4-1BB

To measure the binding ability of Gen1042 to hu4-1BB-His. Coating 4-1BB-His protein on ELISA plate, Gen1042 bound to 4-1BB protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 1, Gen1042 bound to hu4-1BB-His, and the EC_{50} was 0.015 nM.

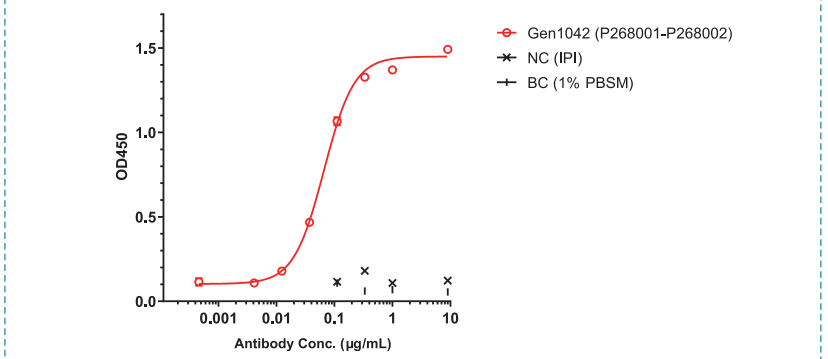


Fig 2. ELISA binding for CD40

To measure the binding ability of Gen1042 to huCD40-His. Coating CD40-His protein on ELISA plate, Gen1042 bound to CD40 protein, then bound to secondary antibodies (anti-human-IgG-Fc-HRP). OD450 read. As shown in fig 2, Gen1042 bound to huCD40-His, and the EC_{50} was 0.066 nM.

Anti-4-1BB & CD40 Reference Antibody (Gen1042)

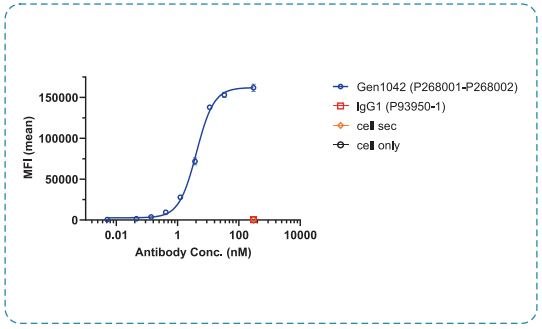


Fig 3. FACS binding for 4-1BB

To measure the binding ability of Gen1042 in hu4-1BB-CHO-K cells, Gen1042 bound to hu4-1BB-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 3, Gen1042 bound to hu4-1BB-CHO-K cells, and the EC_{50} was 4.119 nM.

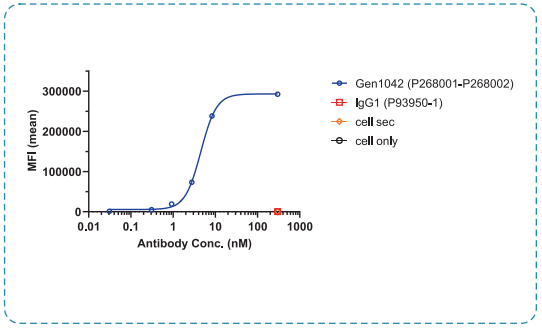


Fig 4. FACS binding for CD40

To measure the binding ability of Gen1042 in huCD40-CHO-K cells, Gen1042 bound to huCD40-CHO-K cells, then bound to fluorescent secondary antibodies (anti-human IgG, Fcγ PE). Signal tested by flow cytometry. As shown in fig 4, Gen1042 bound to huCD40-CHO-K cells, and the EC_{50} was 4.535 nM.

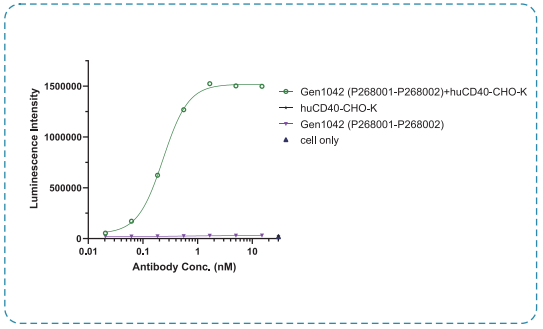
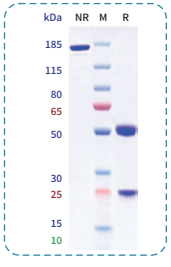


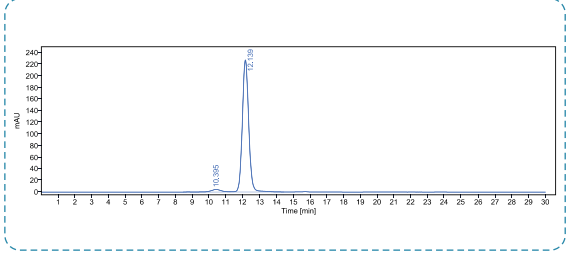
Fig 5. Luciferase reporter for 4-1BB

To evaluate the activation activity of Gen1042 in huCD40-CHO-K and 4-1BB-NF-κB-Jurkat cells, co-incubation of Gen1042 with 4-1BB-NF-κB-Jurkat cells, then with the addition of huCD40-CHO-K cells for 6 hours. Bright-Lite was used to detect the fluorescent signal. As shown in fig 5, Gen1042 was able to activate the NF-κB signaling pathway, and the EC_{50} was 0.234 nM.

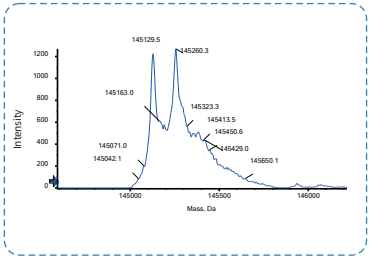
QC Method	Standard	Detection
SDS	>95.00%	>95.00%
SEC	>90.00%	96.80%
Calculated MW	145.37 kDa	145.26 kDa
Endotoxin	<1 EU/mg	<1 EU/mg



SDS-PAGE



SEC-HPLC



MASS

Sanyou Bio Service Overview

CRO Integrated

Series I	Target-to-PCC (Preclinical Candidate) Antibody Drug R&D
Series II	ADC (Antibody Drug Conjugate) R&D
Series III	CAR-T Cell Therapy R&D
Series IV	Bispecific Antibody R&D
Series V	GMP Cell Line and Process Development

CRO Stage

Series I	Protein and Cell Line Material Preparation Comprehensive Solution
Series II	Molecule Discovery Comprehensive Solution
Series III	Molecule Optimization Comprehensive Solution
Series IV	In Vitro Efficacy Comprehensive Solution
Series V	In Vivo Efficacy Comprehensive Solution
Series VI	Analytical Testing Comprehensive Solution

CDO Integrated

End-to-End Biologics Development:
From PCC to IND Submission

CPO Integrated

Cooperative R&D for Innovative Drugs

CRS

Core Reagent Solution
Catalog Representative-Bispecific Reference Antibody

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