
Cancer therapy with antibodies

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Supplementary Tables

Generic name	Brand name	Target	Format	First approval indication	EMA approval	US FDA approval
Rituximab	MabThera, Rituxan	CD20	Chimeric IgG1	Non-Hodgkin lymphoma	1998	1997
Trastuzumab	Herceptin	HER2	Humanized IgG1	Breast cancer	2000	1998
Gemtuzumab ozogamicin	Mylotarg	CD33	Humanized IgG4; ADC	Acute myeloid leukemia	2018	2017; 2000#
Ibritumomab tiuxetan	Zevalin	CD20	Murine IgG1	Non-Hodgkin lymphoma	2004	2002
Tositumomab- I131	Bexxar	CD20	Murine IgG2a	Non-Hodgkin lymphoma	NA	2003
Cetuximab	Erbix	EGFR	Chimeric IgG1	Colorectal cancer	2004	2004
Bevacizumab	Avastin	VEGF	Humanized IgG1	Colorectal cancer	2005	2004
Panitumumab	Vectibix	EGFR	Human IgG2	Colorectal cancer	2007	2006
Catumaxomab	Removab	EPCAM/CD3;	Rat/murine bispecific mAb	Malignant ascites	2009#	NA
Ofatumumab	Arzerra	CD20	Human IgG1	Chronic lymphocytic leukemia	2010#	2009
Ipilimumab	Yervoy	CTLA-4	Human IgG1	Metastatic melanoma	2011	2011
Brentuximab vedotin	Adcetris	CD30	Chimeric IgG1; ADC	Hodgkin lymphoma, systemic anaplastic large cell lymphoma	2012	2011
Pertuzumab	Perjeta	HER2	humanized IgG1	Breast Cancer	2013	2012
Ado-trastuzumab emtansine	Kadcyla	HER2	humanized IgG1; ADC	Breast cancer	2013	2012
Obinutuzumab	Gazyva, Gazyvaro	CD20	Humanized IgG1 Glycoengineered	Chronic lymphocytic leukemia	2014	2013
Ramucirumab	Cyramza	VEGFR2	Human IgG1	Gastric cancer	2014	2014
Nivolumab	Opdivo	PD-1	Human IgG4	Melanoma, non-small cell lung cancer	2015	2014
Pembrolizumab	Keytruda	PD-1	Humanized IgG4	Melanoma	2015	2014
Blinatumomab	Blinicyto	CD19	Murine bispecific tandem scFv	Acute lymphoblastic leukemia	2015	2014
Alemtuzumab	Lemtrada; MabCampath, Campath-1H	CD52	Humanized IgG1	Multiple sclerosis; chronic myeloid leukemia#	2013; 2001#	2014; 2001#
Necitumumab	Portrazza	EGFR	Human IgG1	Non-small cell lung cancer	2015	2015
Dinutuximab	Qarziba; Unituxin	GD2	Chimeric IgG1	Neuroblastoma	2017; 2015#	2015
Daratumumab	Darzalex	CD38	Human IgG1	Multiple myeloma	2016	2015
Elotuzumab	Empliciti	SLAMF7	Humanized IgG1	Multiple myeloma	2016	2015
Atezolizumab	Tecentriq	PD-L1	Humanized IgG1	Bladder cancer	2017	2016
Inotuzumab ozogamicin	BESPOUSA	CD22	Humanized IgG4; ADC	Acute lymphoblastic leukemia	2017	2017
Avelumab	Bavencio	PD-L1	Human IgG1	Merkel cell carcinoma	2017	2017
Durvalumab	IMFINZI	PD-L1	Human IgG1	Bladder cancer	2018	2017
Mogamulizumab, mogamulizumab-kpkc	Poteligeo	CCR4	Humanized IgG1	Mycosis fungoides or Sézary syndrome	2018	2018

Cemiplimab, cemiplimab-rwlc	Libtayo	PD-1	Human mAb IgG4	Cutaneous squamous cell carcinoma	2019	2018
Moxetumomab pasudotox,	Lumoxiti	CD22	Murine IgG1 dsFv immunotoxin	Hairy cell leukemia	2021	2018
Polatuzumab vedotin	Polivy	CD79B	Humanized IgG1 ADC	Diffuse large B-cell lymphoma	2020	2019
Enfortumab vedotin	Padcev	Nectin-4	Human IgG1 ADC	Urothelial cancer	2022	2019
trastuzumab deruxtecan,	Enhertu	HER2	Humanized IgG1 ADC	HER2+ metastatic breast cancer	2021	2019
Isatuximab, isatuximab-irfc	Sarclisa	CD38	Chimeric IgG1	Multiple myeloma	2020	2020
Belantamab mafodotin	BLENREP	BCMA	Humanized IgG1 ADC	Multiple myeloma	2020	2020
Sacituzumab govitecan	TRODELVY	TROP-2	Humanized IgG1 ADC	Triple-neg. breast cancer	2021	2020
Tafasitamab, tafasitamab-cxix	Monjuvi, Minjuvi	CD19	Humanized IgG1	Diffuse large B-cell lymphoma	2021	2020
Dostarlimab, dostarlimab-gxly	Jemperli	PD-1	Humanized IgG4	Endometrial cancer	2021	2021
Amivantamab, amivantamab	Rybrevant	EGFR, cMET	Human bispecific IgG1	NSCLC w/ EGFR exon 20 insertion mutations	2021	2021
Loncastuximab tesirine	Zynlonta	CD19	Humanized IgG1 ADC	Diffuse large B-cell lymphoma	2022	2021
Naxitamab-gqgk	DANYELZA	GD2	Humanized IgG1	High-risk neuroblastoma and refractory osteomedullary disease	NA	2020
Margetuximab-cmkb	MARGENZA	HER2	Chimeric IgG1	HER2+ metastatic breast cancer	NA	2020
Tisotumab vedotin,	TIVDAK	TF	Human IgG1 ADC	Cervical cancer	NA	2021
Tebentafusp, tebentafusp-tebn	KIMMTRAK	GP100	Humanized bispecific immunoconjugate	Metastatic uveal melanoma	2022	2022
Relatlimab	Opdualag (relatlimab + nivolumab combo)	LAG-3	Human IgG4	Melanoma	2022	2022
Mosunetuzumab	Lunsumio	CD20	Humanized IgG1 bispecific	Follicular lymphoma	2022	2022
Teclistamab	TECVAYLI	BCMA	Humanized/human bispecific IgG4	Multiple myeloma	2022	2022
Mirvetuximab soravtansine	Elahere	FR α	Humanized IgG1 ADC	Ovarian cancer	NA	2022
Tremelimumab	Imjudo	CTLA-4	Human IgG2	Antineoplastic; liver cancer	2023	2022
Retifanlimab	Zynyz	PD-1	Humanized IgG4	Merkel cell carcinoma	NA	2023
Tislelizumab	Tevimbra	PD-1	Humanized IgG4	Esophageal squamous cell	2023	NA
Glofitamab	Columvi	CD20	Humanized bispecific 2+1 IgG1	Lymphoma	2023	2023
Epcoritamab	Epkinly	CD20	Humanized bispecific IgG1	Lymphoma	2023	2023
Talquetamab	Talvey	GPRC5D	Humanized IgG4 bispecific	Multiple myeloma	2023	2023

Elrantamab	Elrexio	BCMA	Humanized IgG2 bispecific	Multiple myeloma	Review	2023
Toripalimab	Loqtorzi	PD-1	Humanized IgG4	Nasopharyngeal carcinoma, esophageal squamous cell carcinoma	Review	2023

Supplementary Table 1: Antibody-drugs approved in the US and/or EU arranged by first approval date. ADCs (green), checkpoint blockers (red), immunotoxins (purple), radio-isotope conjugates (yellow) and bispecific antibodies (blue). Edrecolomab, olaratumab had very limited clinical use and were subsequently withdrawn either due to commercial reasons or due to lack of efficacy, and are not shown in the table. Data sourced from the Antibody Society.

Drug Code(s)	INN	Target	Trial Phase	Clinical Study Indications
Monospecific antibodies				
Mab-B43.13	Oregovomab	CA125	Phase 3	Ovarian cancer (NCT04498117)
MIL62		CD20	Phase 3	Follicular lymphoma and marginal zone lymphoma (NCT04834024)
TJ202, MOR202, MOR03087	Felzartamab	CD38	Phase 3	Multiple myeloma (NCT03952091)
ABBV-IMAB-TJC4, TJ011133, TJ133, TJC4	Lemzoparlimab	CD47	Phase 3	Myelodysplastic Syndromes (MDS) (NCT05709093)
ONO-7913, Hu5F9-G4	Magrolimab	CD47	Phase 3	Myelodysplastic syndromes (NCT04313881); Acute myeloid leukemia (NCT04778397, NCT05079230)
MEDI9447	Oleclumab	CD73	Phase 3	Non-small cell lung cancer (NCT05221840)
FG-M108, M108		Claudin-18.2	Phase 3	Gastric or gastroesophageal junction adenocarcinoma (NCT06177041)
IMAB 362	Zolbetuximab	Claudin-18.2	Phase 3	Gastric or gastro-oesophageal junction adenocarcinoma (NCT03504397)
FG-3019	Pamrevlumab	CTGF	Phase 3	Pancreatic cancer (NCT03941093, NCT04229004)
RO5509554, RG7155	Emactuzumab	CSF-1R	Phase 3	Tenosynovial giant cell tumor (NCT05417789)
JCT205, INBRX-109	Ozekibart	DR5	Phase 2	Conventional Chondrosarcoma (NCT04950075)
JMT101	Becostatug	EGFR	Phase 2	Non-small cell lung cancer (CTR20212469)
FPA144	Bemarituzumab	FGFR2b	Phase 3	Gastric cancer/gastroesophageal junction adenocarcinoma (NCT05111626, NCT05052801)
IAH0968		HER2	Phase 2/3	Colorectal Cancer (NCT05673512)
APX003, BD0801, TK001, sevacizumab	Suvemcitug	VEGF	Phase 3	Ovarian cancer (NCT04908787)
Kintuximab, gentuximab, cintuximab		VEGFR2	Phase 3	Advanced gastric or gastroesophageal junction adenocarcinoma (CTR20220815)
Drug Code(s)	INN	Target	Trial Phase	Clinical Study Indications
Checkpoint inhibitors				
JS004, TAB004	Tifcemalimab	BTLA	Phase 3	Small cell lung cancer (NCT06095583)
BNT316, ONC-392	Gotistobart	CTLA-4	Phase 3	Non-small cell lung cancer (NCT05671510)
AGEN1181	Botensilimab	CTLA-4	Phase 2	Colorectal cancer (NCT05608044)
BCD-217 in combo with prolgolimab; BCD-145;	Nurulimab	CTLA-4	Phase 3	Melanoma (NCT05732805, NCT05751928)
MK-1308, AK107	Quavonlimab	CTLA-4	Phase 3	Renal cell carcinoma (NCT04736706, NCT05899049)
NN8765, IPH-2201, NNC141-0100	Monalizumab	NKG2A	Phase 3	Squamous Cell Carcinoma of the Head and Neck (NCT04590963); Non-small Cell Lung Cancer (NCT05221840)
JNJ-63723283	Cetrelimab	PD-1	Phase 3	Bladder cancer (NCT04658862, NCT05714202)
SCT-I10A, SCTI-10A	Finotonlimab	PD-1	Phase 2/3	Hepatocellular carcinoma (NCT04560894); Non-small-cell lung cancer (NCT04171284); Head and neck squamous cell carcinoma (NCT04146402)
GB226	Geptanolimab	PD-1	Phase 2	Cervical cancer (NCT03808857)
CS1003	Nofazinlimab	PD-1	Phase 3	Hepatocellular carcinoma (NCT04194775)
F520	Rulonlimab	PD-1	Phase 2/3	Hepatocellular carcinoma (NCT05408221)
PF-06801591	Sasanlimab	PD-1	Phase 3	Non-muscle invasive bladder cancer (NCT04165317)
BAT1308		PD-1	Phase 2/3	Cervical cancer (NCT06123884 / CTR20232394)
AB154	Domvanalimab	TIGIT	Phase 3	Gastrointestinal tract adenocarcinoma (NCT05568095); Non-small cell lung cancer (NCT05211895, NCT05502237, NCT04736173)
BGB-A1217	Ociperlimab	TIGIT	Phase 3	Non-small cell lung cancer (NCT04746924, NCT04866017)
MTIG7192A, RO7092284, RG6058	Tiragolumab	TIGIT	Phase 3	Non-small cell lung cancer (NCT04294810, NCT04513925, NCT04619797); Esophageal cancer (NCT04543617, NCT04540211)
MK-7684	Vibostolimab	TIGIT	Phase 3	Non-small cell lung cancer (NCT04738487; NCT05298423; NCT05226598); Small cell lung cancer (NCT05224141); Melanoma (NCT05665595)
GSK4069889, TSR-022	Cobolimab	TIM-3	Phase 2/3	Non-small cell lung cancer (NCT04655976)

Drug Code(s)	INN	Target	Trial Phase	Clinical Study Indications
Bispecific antibodies				
ABBV-383		BCMA, CD3	Phase 3	Multiple myeloma (NCT06158841)
REGN5458	Linvoseltamab	BCMA, CD3	Phase 2	Multiple myeloma (NCT03761108, NCT05730036)
REGN1979	Odronektamab	CD20, CD3	Phase 2	Lymphoma (NCT03888105)
AMG 757	Tarlatamab	DLL3, CD3	Phase 3	Small-cell lung cancer (NCT05060016)
CTX-009, ES104, TR009, NOV1501, ABL001		DLL4, VEGF	Phase 2/3	Biliary tract cancers (NCT05506943)
SI-B001	Izalontamab	EGFR, HER3	Phase 2/3	Non-small cell lung cancer (NCT05020769)
ZW25	Zanidatamab	HER2, HER2 (biparatopic)	Phase 2	Biliary tract cancer (NCT04466891)
KN026	Anbenitamab	HER2, HER2 (biparatopic)	Phase 2/3	Gastric (NCT05427383), breast cancer (NCT05838066,)
MCLA-128	Zenocutuzumab	HER2, HER3	Phase 2	Neuregulin 1 fusion (NRG1+) cancer (NCT02912949)
MEDI5752	Volrustomig	PD-1, CTLA-4	Phase 3	Cervical cancer (NCT06079671); Non-small cell lung cancer (NCT05984277)
KN046	Erfonrilimab	PD-L1, CTLA-4	Phase 3	Non-small-cell lung cancer (NCT04474119), Advanced Pancreatic Ductal Adenocarcinoma (NCT05149326)
PM8002		PD-L1, VEGF	Phase 2/3	Non-small Cell Lung Cancer (NCT05756972); Small Cell Lung Cancer (NCT05844150)
SHR-1701	Retlirafusp alfa	PD-L1, TGF- β	Phase 2/3	Cervical cancer (NCT05179239); Colorectal cancer (NCT04856787); Gastric or gastroesophageal junction cancer (NCT04950322)
IMC-F106C		PRAME, CD3	Phase 3	Melanoma (NCT06112314)
AZD2936	Rilvegostomig	TIGIT, PD-1	Phase 3	Biliary tract cancer (NCT06109779)
Conjugated antibodies				
	Mecbotamab vedotin	AXL	Phase 2	Soft tissue and primary bone sarcoma (NCT03425279); Non-small Cell Lung Cancer (NCT04681131)
MGC018	Vobramitamab duocarmazine	B7-H3	Phase 2/3	Prostate cancer (NCT05551117 TAMARACK)
DS-7300a	Ifinatamab deruxtecan	B7-H3	Phase 3	Small cell lung cancer (NCT06203210)
IMGN632	Pivekimab sunirine	CD123	Phase 2	Blastic plasmacytoid dendritic cell neoplasm (NCT03386513 CADENZA)
I-131-BC8, lomab-B	Apamistamab-iodine (131I)	CD45	Phase 3	Acute myeloid leukemia (NCT02665065)
ABBV-399	Telisotuzumab vedotin	cMet	Phase 3	Non-small cell lung cancer (NCT04928846)
MRG003		EGFR	Phase 3	Squamous Cell Carcinoma of the Head and Neck (NCT05751512)
L19TNF, L19(scFv)2-TNF	Onfekafusp alfa	Fibronectin (ED-B)	Phase 3	Soft tissue sarcoma (NCT04650984)
L19-IL2, L19-TNF	Bifikafusp alfa, Onfekafusp alfa	Fibronectin (ED-B)	Phase 3	Melanoma (NCT03567889, NCT02938299)
STRO-002	Luveltamab tazevibulin	FR α	Phase 2/3	Ovarian Cancer, Fallopian Tube Cancer (NCT05870748)
PRO1184	Rinatabart sesutecan	FR α	Phase 2	Ovarian cancer, endometrial cancer, breast cancer, non-small cell lung cancer, and mesothelioma (NCT05579366)
SYD985	Trastuzumab Duocarmazine	HER2	Phase 3	Metastatic breast cancer (NCT03262935)
ARX788	Anvatabart opadotin	HER2	Phase 2/3	Breast cancer (NCT05426486)
IKS014, LCB14-0110, FS-1502, Trastuzumab mafodotin		HER2	Phase 3	Breast cancer (NCT05755048)
SHR-A1811	Trastuzumab rezetecan	HER2	Phase 3	Breast cancer (NCT05424835, NCT05814354)
DP303c		HER2	Phase 3	Breast cancer (NCT05901935)
MRG002		HER2	Phase 2/3	Breast Cancer (NCT04924699)

U3-1402	Patritumab deruxtecan	HER3	Phase 2/3	Lung cancer (NCT04619004, NCT05338970)
9MW2821		Nectin-4	Phase 3	Urothelial carcinoma (CTR20234024)
TLX591, ATL-101, Lu-177-huJ591	Rosopatamab (177Lu-DOTA)	PSMA	Phase 3	Prostate cancer (NCT04876651)
MK-2140	Zilovetamab vedotin	ROR1	Phase 2/3	Diffuse large B-cell lymphoma (NCT05139017)
DS-1062	Datopotamab deruxtecan	TROP-2	Phase 3	Non-small cell lung cancer (NCT05555732, NCT05215340, NCT04656652, NCT05687266); Breast cancer (NCT05374512, NCT05104866, NCT05629585)

Supplementary Table 2: Antibodies in the late stage of clinical development. Data sourced from The Antibody Society. Antibody therapeutics in late-stage clinical studies. date accessed February 2nd, 2024. www.antibodysociety.org/antibodies-in-late-stage-clinical-studies/. International Nonproprietary Names (INN). Fibronectin extra-domain B (ED-B)