

Purified *in vivo* Grade Antibodies

Meeting your *in vivo* and *in vitro* low endotoxin needs

***In vivo* GOLD™ and PLATINUM™ functional-grade antibodies and isotype controls**

In vivo grade antibodies have a variety of uses in biological research, from discovery of cell signaling pathways to manipulation of biological systems in animal models for pre-clinical studies. *In vivo* functional grade antibodies from Leinco Technologies have the highest purity standards in the industry, with low endotoxin levels, and screening to ensure low aggregates. These antibodies are produced in our cGMP and ISO 9001:2015 / ISO 13485:2016 certified facility and are available in custom concentrations and package sizes. *In vivo* PLATINUM antibodies are also suitable for animal injection as they are pathogen free as determined by the IDEXX Impact I PCR mouse pathogen profile (see table below).

Specifications	<i>in vivo</i> GOLD™ Mabs	<i>in vivo</i> PLATINUM™ Mabs
Binding validation determined by WB, FC or ELISA	Yes	Yes
Endotoxin level determined by the LAL method	≤ 1.0 EU/mg	≤ 0.5 EU/mg
Antibody aggregation screening by analytical SEC	≥ 95% monomer	≥ 98% monomer
Purity by SDS Page	≥ 95%	≥ 98%
Formulation for <i>in vivo</i> use	No preservatives No stabilizers No carrier proteins Sterile PBS pH 7.2 - No K ⁺ or CA ²⁺ Concentration: > 5mg/mL	No preservatives No stabilizers No carrier proteins Sterile PBS pH 7.2 - No K ⁺ or CA ²⁺ Concentration: > 5mg/mL
Murine pathogen screening	Not applicable, see PLATINUM functional grade antibodies	Pathogen tested (IMPACT1) (see table)
Applications	<i>In vivo</i> functional studies and may be used for studies, as well as WB, FC, IF or IHC	
Product preparation	Functional grade preclinical antibodies are manufactured in an animal free facility using only <i>in vitro</i> protein free cell culture techniques and are purified by a multi-step process including the use of protein A or G to assure extremely low levels of endotoxins, leachable protein A or aggregates.	
Storage and handling	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> • 1 month, 2 to 8 °C under sterile conditions, as supplied. • 12 months, -70 °C under sterile conditions. 	

IDEXX IMPACT I (PCR-based) Mouse Pathogen Profile

Mycoplasma sp.	Mouse adenovirus 1 (MAV1)	Lactate dehydrogenase-elevating virus (LDEV)
Mycoplasma pulmonis	Mouse adenovirus 2 (MAV2)	Lymphocytic choriomeningitis virus (LCMV)
Sendai virus	Murine norovirus (MNV)	Hantaan Virus
Mouse hepatitis virus (MHV)	Reovirus 3 (REO3)	Mouse cytomegalovirus (mCMV)
Pneumonia virus of mice (PVM)	Mouse rotavirus (EDIM)	K virus
Minute virus of mice (MVM)	Ectromelia virus	Mouse thymic virus (MTV)
Mouse parvovirus (MPV)	Polyomavirus	Corynebacterium bovis
Theiler's murine encephalomyelitis (TMEV)	Mouse kidney parvovirus (MKPV)	Corynebacterium sp.

Lot-to-lot reproducibility of *in vivo* antibodies: RMP1-14

Figure A: Non-reducing

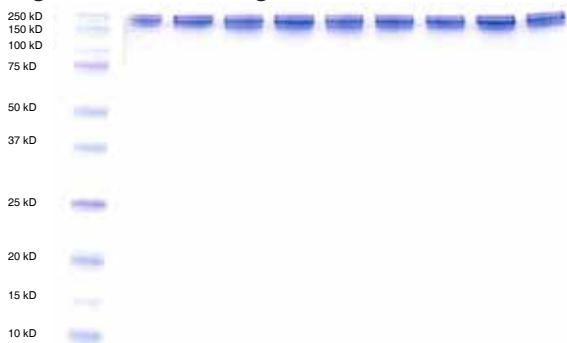


Figure B: Reducing

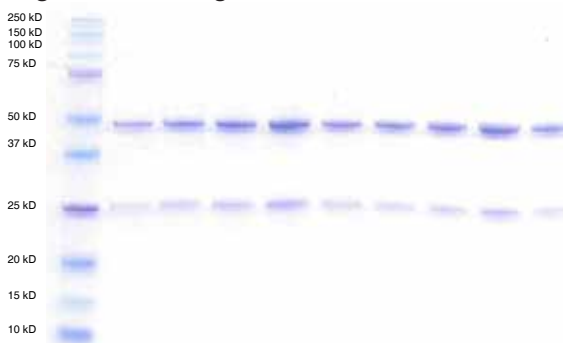
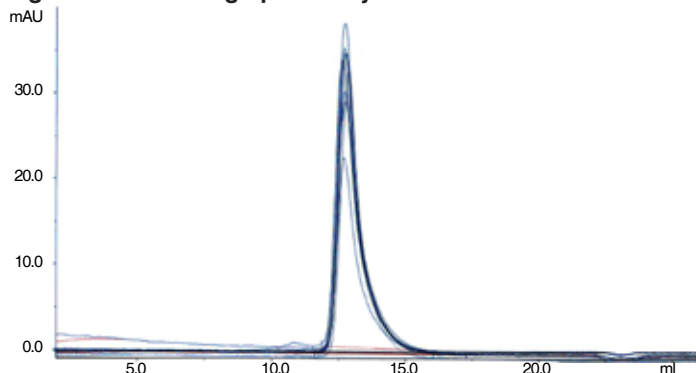


Figure C: Endotoxin analysis

Lot	EU/mg
03211205	<0.24
04211225	<0.24
04211255	<0.24
05211275	<0.06
01221245	<0.24
03221250	<0.24
04221285	<0.12
06221340	<0.3

Figure D: Chromatographic analysis



In vivo antibodies from Leinco Technologies are subjected to extensive QC to ensure high reproducibility between lots. These examples show the results for different lots of RMP1-14 antibody, directed against PD-1. The lots have consistently high purity as indicated by non-reducing and reducing SDS-PAGE (Fig. A and B, resp.). Endotoxin data for eight lots indicated that all lots were below the specification of ≤ 0.5 EU/mg as determined by the limulus amoebocyte lysate (LAL) method (Fig. C). Analysis by size exclusion chromatography gave superimposing chromatograms for all nine lots, with overlapping retention times and minimal baseline noise (Fig. D).

Purified Bulk *in vivo* Grade Antibodies

Isotype Controls

Mouse IgG1	Human IgG1 k	Rat IgG1	Syrian Hamster IgG
Mouse IgG2a k	Human IgG2 k	Rat IgG2a	Armenian Hamster IgG
Mouse IgG2b	Human IgG3 k	Rat IgG2b	
Mouse IgG3	Human IgG4 k		
Mouse IgM			

Antigen	Reactivity	Clone	Applications
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	4-1BB (CD137)	Mouse	3H3	ELISA, FA, <i>in vivo</i> , WB
	B220 (CD45R)	Mouse/Human	RA3-6B2	Act, CyTOF®, Depletion, FA, FC, IHC FF, <i>in vivo</i> , IP, PhenoCycler®
New!	CD105 (Endoglin)	Mouse	MJ7/18	Agonist, Cell Sep - Pos, ELISA, FC, IF, IF Microscopy, IHC, IHC FF, <i>in vivo</i> , IP, LCI, WB
	CD11a	Human	38	Costim, FC, <i>in vivo</i> , WB
	CD11a (LFA-1a)	Mouse	FD441.8	FA, FC, N, WB
	CD11a (LFA-1a)	Mouse	I21/7	FA, FC, <i>in vivo</i>
	CD11b	Mouse/Human	M1/70	CytoF, FA, FC, ICC, IHC FF, <i>in vivo</i> , PhenoCycler
	CD11c	Human	3.9	B, CyTOF, FA, FC, IHC FF, <i>in vivo</i> , WB
	CD120a (TNFR1)	Mouse	55R-170	B, FC, <i>in vivo</i> , IP, WB, ELISA
	CD120a (TNFR1)	Mouse	55R-593	B, FC, <i>in vivo</i> , IP, WB
	CD122	Mouse	TM-B1	B, Depletion, FC, <i>in vivo</i> , IP, WB
	CD126	Mouse	D7715A7(15A7)	FA, FC, <i>in vivo</i> , N, WB
	CD127	Mouse	A7R34	B, CyTOF, FA, FC, IF Staining, IHC FF, <i>in vivo</i> , IP, WB
	CD134	Mouse	OX-86	Act, FC, IHC, <i>in vivo</i> , WB
	CD151	Human	50-6	B, CyTOF, FC, ICC, <i>in vivo</i> , WB
	CD154	Mouse	MR1	B, FC, IHC FF, <i>in vivo</i> , WB
	CD16	Human	3G8	B, CyTOF, FC, IHC FF, <i>in vivo</i> , IP
	CD16.2 / FcγRIV	Mouse	9E9	B, FC, <i>in vivo</i>
	CD16/32	Mouse	2.4G2	B, FA, FC, IHC FF, <i>in vivo</i> , IP, PhenoCycler, WB
	CD172a	Mouse	P84	B, CyTOF, FC, IHC FF, <i>in vivo</i> , IP
	CD178 (FasL)	Mouse	MFL3	B, FC, IF, <i>in vivo</i>
	CD18	Mouse	C71/16	FA, <i>in vivo</i> , IP, WB
New!	CD18 (ITGB2)	Human	IB4	FA, FC, IF
	CD19	Mouse	1D3	B, Depletion, FC, IHC FF, <i>in vivo</i> , IP, PhenoCycler, WB
	CD2	Human	G11	Costim, FC, IHC, <i>in vivo</i> , WB
New!	CD2	Human	LO-CD2a	ELISA, FA, FC, <i>in vivo</i>
	CD209b (SIGN-R1)	Mouse	22D1	B, FC, IHC FF, <i>in vivo</i> , WB
New!	CD22	Mouse	MB22-11	ELISA, FA

Antigen	Reactivity	Clone	Applications
CD22	Mouse	Cy34.1	Depletion, FC, in vivo
CD25 (IL-2Ra)	Mouse	PC-61.5.3	B, Depletion, FA, FC, IHC FF, in vivo, IP, PhenoCycler, WB
CD252	Mouse	RM134L	B, FC, IHC FF, in vivo, WB
CD275	Mouse	HK5.3	B, FC, in vivo
CD276	Mouse	MJ18	B, FC, in vivo
CD28	Mouse	37.51	B, Costim, CyTOF, FC, IHC FF, in vivo, IP, WB
CD28	Human/Monkey	CD28.2	Costim, FC, IHC FF, in vivo, IP, PhenoCycler
CD3	Mouse	17A2	Costim, FC, IHC FF, in vivo, PhenoCycler
CD3	Human	UCHT-1 (Leu-4) (T3)	Act, CyTOF, FC, IF Staining, IHC FF, in vivo, IP, PhenoCycler, WB, Depletion, ICC
CD307e	Human	509F6	B, FC, in vivo, IP
CD309 (VEGFR2)	Mouse	DC101	FA, WB
CD317	Mouse	927	Depletion, FA, FC, ICC, IF Microscopy, in vivo
CD3e	Mouse	145-2C11	Act, B, CyTOF, Depletion, FA, FC, ICC, IF, IHC FF, in vivo, PhenoCycler, WB
CD3e	Mouse	500A2	B, FC, IHC FF, in vivo
CD4	Mouse	GK1.5	B, Costim, CyTOF, Depletion, FA, FC, IHC, in vivo, IP
CD4	Human	OKT-4	ELISA, FC, ICC, IF Staining, IHC FF, IHC FFPE, in vivo, IP, N, PhenoCycler, WB
CD4	Mouse	YTS 191	Depletion, FC, IHC FF, in vivo, WB
New! CD40	Human	HB-14	FA, FC, IHC
CD40	Mouse	FGK4.5/FGK45	Act, Agonist, FA, in vivo, WB, FC
CD40	Human	G28.5	FA, FC, in vivo
CD45	Human	BC8	FA, in vivo
CD47	Human	B6H12	FA, FC, in vivo, N
New! CD48	Mouse	HM48-1	FA, FC, in vivo
CD49d	Mouse/Human	PS/2	FA, FC, IHC, in vivo, IP
CD49d	Mouse	R1-2	FA, FC, IHC, IP
CD5	Human	UCHT-2	FA, FC, IHC FF, in vivo, PhenoCycler
CD54 (ICAM-1)	Mouse	BE29G1	B, in vivo, IP, WB
CD54 (ICAM-1)	Mouse	YN1/1.7.4	CyTOF, FA, FC, IHC FF, in vivo, IP, PhenoCycler, WB
CD62L	Human	DREG56	B, FC, IF, IHC FF, in vivo, PhenoCycler, WB
CD62L	Mouse	Mel-14	B, CyTOF, FA, FC, IHC FF, in vivo, IP, WB, Depletion
CD64	Human	10.1	B, FA, FC, IHC FF, in vivo
CD70	Mouse	FR70	FA, FC, in vivo, WB
CD70	Mouse	TAN 1-7	B, ELISA, FA, FC, IF, in vivo
CD8	Human	UCHT-4	FA, FC, in vivo, WB
CD80 (B7-1)	Mouse	16-10A1	B, CyTOF, in vivo, IP, WB
CD86 (B7-2)	Mouse	GL-1	B, in vivo, WB, ELISA, FC, IHC FF, IP
CD8a	Mouse	2.43	Depletion, FA, FC, ICC, IF Staining, IHC FFPE, in vivo, IP
CD8a	Mouse	53-6.7	B, CyTOF, Depletion, FC, IHC FF, in vivo, IP, PhenoCycler, WB
CD8a	Mouse	YTS-169	Depletion, FC, IHC FF, in vivo, WB
CD8b (Lyt 3.2)	Mouse	53-5.8	Depletion, FA, FC, ICC, in vivo, WB
CD96	Mouse	3.3.1 or 3.3	B, in vivo, FC
CHIKV E1	Mouse	CHK-166	ELISA, FC, in vivo, N
CHIKV E2	Mouse	CHK152	ELISA, IHC, in vivo, N
CSF1R (CD115)	Mouse	AFS98	B, CyTOF, Depletion, FA, FC, in vivo
CTLA-4 (CD152)	Mouse	9D9	FA, in vivo, WB
CTLA-4 (CD152)	Mouse	9H10	B, in vivo, WB
CTLA-4 (CD152)	Mouse	UC10-4F10-11	FA, FC, in vivo, IP, WB
CXCL9	Mouse	MIG-2F5-5	FC, IF, in vivo, N
CXCR3 (CD183)	Mouse	CXCR3-173	FC, in vivo, N
CXCR4 (CD184) (sino target)	Human	12G5	B, FC, ICC, IF Microscopy, IHC, in vivo, N, WB
Galectin-9	Mouse	RG9-1	B, in vivo
GM-CSF	Mouse	MP1-22E9	in vivo, N, WB
H-2b	Mouse	B8-24-3	FA, in vivo, WB
New! H-2Db	Mouse	B22/249	Cytotoxicity Assay, In vitro depletion, IP, IF, FC, FA, ELISA
HD5 (Alpha Defensin-5)	Human	8C8	Dot, ELISA, IHC FFPE, in vivo, WB
ICOS	Mouse	7E.17G9	B, FA, FC, in vivo, WB
IFNa	Mouse	TIF-3C5	B, FA, in vivo, N, WB
IFNAR-1	Mouse	MAR1-5A3	B, ELISA, FC, in vivo, IP, WB
IFNb	Mouse	HDb-4A7	B, FA, in vivo, N, WB
IFNb	Mouse	MIB-5E9.1	in vivo, N, WB
IFNy	Mouse	H22	ELISA, IF, in vivo, IP, N, WB
IFNy	Mouse	XMG1.2	CyTOF, ELISA Cap, ELISPOT, ICFC, IHC FF, in vivo, N, WB
IFNyRa Chain (CD119)	Human	GIR-208	FA, FC, in vivo
IL-10	Mouse	JES5-2A5	CyTOF, in vivo, N, WB
IL-12	Mouse	C17.8	ELISA, ICFC, in vivo, IP, N, WB

Antigen	Reactivity	Clone	Applications
IL-1a	Mouse	ALF-161	in vivo, N, WB
IL-1b	Mouse	B122	in vivo, IP, N, WB
IL-1R (CD121a)	Mouse	JAMA-147	B, in vivo, IP, WB
IL-2	Mouse	JES6-1A12	in vivo, IP, N, WB
IL-21R	Mouse	4A9	FA, FC, in vivo, IP
IL-4	Mouse	11B11	CytoTOF, ELISA Cap, ELISPOT, FA, ICC, IHC, in vivo, IP, N
IL-4	Human	MP4-25D2	CytoTOF, IHC, in vivo, N, WB
IL-5	Mouse	TRFK5	CytoTOF, Depletion, ELISA Cap, ELISPOT, FA, FC, IHC FFPE, in vivo, N, WB
Integrin β 7	Human/Mouse	FIB21	B, FC, in vivo
Integrin β 7	Human/Mouse	FIB504	B, CyTOF, FC, in vivo, IP
Kappa Light Chain	Rat	MAR 18.5	ELISA, ELISPOT, FC, IF, IHC, in vivo, IP, WB, Depletion, FA
LAG-3 (CD223)	Mouse	C9B7W	B, FA, FC, in vivo, IP, WB
LCMV nucleoprotein	LCMV	VL-4	ELISA, FA, FC, IF
LPAM-1 (Integrin α 4 β 7)	Mouse	DATK32	B, FC, IHC FF, in vivo, IP
Ly49C	Mouse	4LO3311	Depletion, FC, in vivo, IP
Ly6C	Mouse	7B10	B, FC, in vivo
Ly6G	Mouse	1A8	CytoTOF, Depletion, FC, IHC FF, in vivo, PhenoCycler, WB
Ly6G/Ly6C (Gr-1)	Mouse	RB6-8C5	CytoTOF, Depletion, FC, IHC FF, IHC FFPE, in vivo, IP, WB, PhenoCycler
New! MAdCAM-1	Mouse	MECA-367	FA, FC, IF, IHC, IP, WB
New! MAdCAM-1	Mouse	MECA-89	B, FA, FC, IF, IHC, IP, WB
MHC Class I (H-2Kb)	Mouse	AF6-88.5	FA, FC, IHC FF, in vivo, IP
MHC Class I (H-2Kb)	Mouse	Y-3	FA, ICC, in vivo, IP, WB
MHC Class I (HLA-A, HLA-B, HLA-C)	Human	W6/32	B, FC, IHC FF, in vivo, IP, PhenoCycler, WB
MHC Class II (HLA-DR)	Human/Monkey	L243	B, CyTOF, Depletion, FC, IHC FF, in vivo, IP, PhenoCycler, WB
MHC Class II (I-A/I-E)	Mouse	M5/114.15.2	B, FC, IHC FF, in vivo, IP, PhenoCycler
New! MHC Class II (I-EK/RT1-D)	Mouse/Rat	14-4-4S (HB32)	B, in vivo, FC
NK1.1	Mouse	PK136	B, CyTOF, Depletion, FC, in vivo, IP, WB
NKG2A/C/E	Mouse	20D5	B, FC, IHC, in vivo
New! PD-1 (CD279)	Mouse	384-35	B, FA, in vivo
PD-1 (CD279)	Mouse	29F.1A12	B, CyTOF, FC, IHC FF, in vivo, PhenoCycler, WB
PD-1 (CD279)	Mouse	RMP1-14	B, FA, FC, IHC, in vivo, WB
PD-L1 (B7-H1)	Mouse	10F.9G2	B, FA, IHC FF, in vivo, PhenoCycler, WB
New! PD-L1 (CD274)	Human	29E.2A3	B, FA, FC, IHC
New! PD-L2 (CD273)	Mouse/Human	3.2.B8	B, FC, in vivo, WB
RANKL (CD254)	Mouse	IK22/5	B, FC, in vivo, IP, WB
TCR γ /d	Mouse	UC7-13D5	Depletion, FC, in vivo, IP
TCR β chain	Mouse	H57-597	Costim, Depletion, FC, IHC FF, IHC FFPE, in vivo, IP, PhenoCycler
Ter-119	Mouse	Ter-119	FA, FC
TGF-b	Mouse/Human/Rat/Monkey/ Hamster/Canine/Bovine	1D11.16.8	IHC, in vivo, N, WB
Thy1 (CD90)	Mouse	HK2.1	FA, in vivo, WB
Thy1 (CD90)	Mouse	T24/31	Depletion, FA, FC, in vivo, WB
Thy1.2 (CD90.2)	Mouse	30H12	Costim, CyTOF, Depletion, FC, IHC FF, in vivo, PhenoCycler, WB
TIGIT	Human	4E1.2	B, FC, in vivo
TIM-3 (CD366)	Mouse	RMT3-23	B, FC, IF Staining, IHC, IHC FF, in vivo, PhenoCycler
TNF α	Mouse/Rat/Rabbit	TN3-19.12	in vivo, IP, N, WB
TNFR2 (CD120b)	Mouse	TR75-54.7	B, ELISA Cap, FC, in vivo, IP, WB
New! TREM2	Mouse	178.5 (LALA-PG)	B, ELISA, FA, FC, in vivo
Vy2 TCR	Mouse	UC3-10A6	Depletion, FC, in vivo, IP
ZIKV E	Mouse	ZV67	ELISA, in vivo, N, WB

Leinco Technologies offers a broad range of purified *in vivo* functional-grade antibodies that can be utilized in flow cytometry, immunohistochemistry, spatial biology studies, and more.

Antibodies are available in 1 mg, 5 mg, 25 mg, 50 mg and 100 mg sizes. Bulk sizes, custom concentrations, custom packaging and custom conjugation services are available on request.

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