

MHC I Restricted Cancer T-Cell Epitopes in Mouse Models

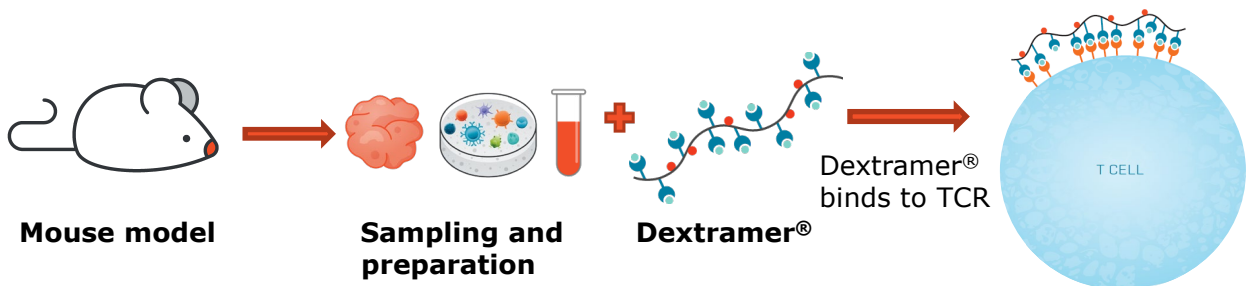
Version 1. November 2021

IMPORTANCE OF MOUSE MODELS IN CANCER RESEARCH

Experimental murine models have been widely used in pre-clinical cancer research for many years since mice share common genetical features with humans and can develop cancer types of similar pathology. They serve as valuable tools in understanding many aspects of the disease, including malignant transformation, invasion, and metastasis, examining antitumor immune responses and therapeutic efficacy in clinical trials.⁶⁸⁻⁷⁰ Although none of these models is ideal, the continued development of more sophisticated mouse models that accurately represent the human malignancies is needed to more effectively assess responsiveness to the treatment when moving from mouse models to clinical studies.

MONITORING T-CELL RESPONSES IN PRECLINICAL MOUSE MODELS

Understanding the role of T-cell responses in mice will guide cancer research from bench to bedside. Immudex Dextramer[®] technology can help you detect, quantify, and isolate cancer-specific CD8+ T cells from mice with confidence.



Immudex is an established expert within immune monitoring in immuno-oncology field. Our Dextramer[®] and dCODE Dextramer[®] technologies can help you characterize cancer immunity across different platforms, allowing you to continue directly from in-situ, to flow cytometry, and move onto NGS or single-cell multi-omics:

- [Discover our product portfolio](#)
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- [Get in touch to discuss your research needs](#)

SELECT T-CELL EPITOPES THAT FITS YOUR MOUSE TUMOR MODEL

To support researchers worldwide in their preclinical modelling, we want to share a curated list of mice T-cell epitopes recognized by cancer-specific CD8+ T cells. This list comprises the information about different mouse strains and cancer cell lines and corresponding HLA allele/epitope combinations based on peer-reviewed publications.

Select the epitopes from the list that best fit your mouse cancer model.

Murine Models and Cancer T-Cell Epitopes

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Mouse Strain	MHC Allele	Peptide	Antigen	Cancer Cell Line / Disease Model	Ref.
Balb/c	H-2Kd	QYIHSANVL	Erk1	4T1-Luc / Breast cancer A20 & A20-Luc / Lymphoma CT26 / Colorectal cancer EMT6 / Breast cancer	1-3
Balb/c	H-2Kd	TYLPTNASL	HER2	4T1-Luc / Breast cancer A20 & A20-Luc / Lymphoma CT26 / Colorectal cancer EMT6 / Breast cancer	1, 2, 4
Balb/c	H-2Kd	AYIDFEMKI	SART3	4T1-Luc / Breast cancer A20 & A20-Luc / Lymphoma CT26 / Colorectal cancer EMT6 / Breast cancer	5, 6
Balb/c	H-2Kd	SYMLQALCI	TNP03	4T1-Luc / Breast cancer A20 & A20-Luc / Lymphoma CT26 / Colorectal cancer EMT6 / Breast cancer	7, 8
Balb/c	H-2Ld	HPQKVTKFM	KLK3	4T1-Luc / Breast cancer A20 & A20-Luc / Lymphoma CT26 / Colorectal cancer EMT6 / Breast cancer	9, 43
Balb/c	H-2Ld	LPYLGWLVF	P1A	4T1-Luc / Breast cancer A20 & A20-Luc / Lymphoma CT26 / Colorectal cancer EMT6 / Breast cancer	10-12
Balb/c	H-2Ld	SPSYVYHQF	AH-1	4T1-Luc / Breast cancer CT26 / Colorectal Cancer	71-73
C57BL/6J	H-2Db	KVPRNQDWL	gp100	B16-F10 / Melanoma C1498-Luc / Leukemia E0771 / Breast cancer	13, 15

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Mouse Strain	MHC Allele	Peptide	Antigen	Cancer Cell Line / Disease Model	Ref.
C57BL/6J	H-2Db	ASFRNLTHL	TPBG	B16-F10 / Melanoma C1498-Luc / Leukemia E0771 / Breast cancer	46
C57BL/6J	H-2Db	CMTWNQMNL	WT1	B16-F10 / Melanoma C1498-Luc / Leukemia E0771 / Breast cancer	45
C57BL/6J	H-2Db	RMFPNAPYL	WT1	B16-F10 / Melanoma C1498-Luc / Leukemia E0771 / Breast cancer	36, 44
C57BL/6J	H-2Kb	SVYDFVWL	TRP2	B16-F10 / Melanoma C1498-Luc / Leukemia E0771 / Breast cancer	25, 27
C57BL/6J	H-2Kb	HNTQYCNL	MAGE-A5	B16-F10 / Melanoma C1498-Luc / Leukemia E0771 / Breast cancer	27
C57BL/6J	H-2Kb	SDYYFSWL	FAP	B16-F10 / Melanoma C1498-Luc / Leukemia E0771 / Breast cancer	37, 38
C57BL/6J	H-2Kb	SIINFEKL	OVA	B16-F10 / Melanoma C1498-Luc / Leukemia E0771 / Breast cancer	13, 25, 34, 40, 42
C57BL/6J	H-2Kb	SIYRYYGL	SIY	B16-F10 / Melanoma C1498-Luc / Leukemia E0771 / Breast cancer	28, 34
C57BL/6	H-2Db	KVPRNQDWL	gp100	MB49 / Urothelial cancer MC38 / Colorectal cancer MMTV-PyMT / Breast cancer Pan02 / Pancreatic ductal adenocarcinoma	14, 15, 31

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Mouse Strain	MHC Allele	Peptide	Antigen	Cancer Cell Line / Disease Model	Ref.
C57BL /6	H-2Db	ASFRNLTHL	TPBG	MB49 / Urothelial cancer MC38 / Colorectal cancer MMTV-PyMT / Breast cancer Pan02 / Pancreatic ductal adenocarcinoma	16, 41
C57BL /6	H-2Db	CMTWNQMNL	WT1	MB49 / Urothelial cancer MC38 / Colorectal cancer MMTV-PyMT / Breast cancer Pan02 / Pancreatic ductal adenocarcinoma	17- 19
C57BL /6 /	H-2Db	RMFPNAPYL	WT1	MB49 / Urothelial cancer MC38 / Colorectal cancer MMTV-PyMT / Breast cancer Pan02 / Pancreatic ductal adenocarcinoma	20- 22, 32
C57BL /6	H-2Db	ASMTNMELM	AM9	MC38 / Colorectal cancer	77- 79
C57BL /6	H-2Kb	SVYDFVWL	TRP2	MB49 / Urothelial cancer MC38 / Colorectal cancer MMTV-PyMT / Breast cancer Pan02 / Pancreatic ductal adenocarcinoma	23, 24, 26
C57BL /6	H-2Kb	KSPWF TTL	p15E	MC38 / Colorectal cancer B16 / Melanoma	74- 76
C57BL /6	H-2Kb	HNTQYCNL	MAGE-A5	MB49 / Urothelial cancer MC38 / Colorectal cancer MMTV-PyMT / Breast cancer Pan02 / Pancreatic ductal adenocarcinoma	26

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Version 1. November 2021

Mouse Strain	MHC Allele	Peptide	Antigen	Cancer Cell Line/ Disease Model	Ref.
C57BL/6	H-2Kb	SDYYFSWL	FAP	MB49 / Urothelial cancer MC38 / Colorectal cancer MMTV-PyMT / Breast cancer Pan02 / Pancreatic ductal adenocarcinoma	37, 39
C57BL/6	H-2Kb	SIINFEKL	OVA	MB49 / Urothelial cancer MC38 / Colorectal cancer MMTV-PyMT / Breast cancer Pan02 / Pancreatic ductal adenocarcinoma	14, 21, 33
C57BL/6	H-2Kb	SIYRYYGL	SIY	MB49 / Urothelial cancer MC38 / Colorectal cancer MMTV-PyMT / Breast cancer Pan02 / Pancreatic ductal adenocarcinoma	29, 30
C57BL/6 Albino	H-2Db	KVPRNQDWL	gp100	GL261-Luc2 / Glioma ID8-Luc / Ovarian cancer	31, 47
C57BL/6 Albino	H-2Db	RMFPNAPYL	WT1	GL261-Luc2 / Glioma ID8-Luc / Ovarian cancer	32
C57BL/6 Albino	H-2Kb	SVYDFFVWL	TRP2	GL261-Luc2 / Glioma ID8-Luc / Ovarian cancer	27, 47
C57BL/6	H-2Kb	HNTQYCNL	MAGE-A5	GL261-Luc2 / Glioma ID8-Luc / Ovarian cancer	27
C57BL/6 Albino	H-2Kb	SIINFEKL	OVA	GL261-Luc2 / Glioma ID8-Luc / Ovarian cancer	34
C57BL/6 Albino	H-2Kb	SIYRYYGL	SIY	GL261-Luc2 / Glioma ID8-Luc / Ovarian cancer	34, 35
C57BL	H-2Db	KVPRNQDWL	gp100	LL2 / Lung carcinoma	48, 49
C57BL	H-2Kb	SVYDFFVWL	TRP2	LL2 / Lung carcinoma	48

Murine Models and Cancer T-Cell Epitopes

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Mouse Strain	MHC Allele	Peptide	Antigen	Cancer Cell Line/ Disease Model	Ref.
C57BL	H-2Kb	SDYYFSWL	FAP	LL2 / Lung carcinoma	50-52
C57BL	H-2Kb	SIINFEKL	OVA	LL2 / Lung carcinoma	52, 53
C57	H-2Kb	SVYDFVWL	TRP2	Hepa1-6 / Hepatocellular carcinoma	54
C57	H-2Kb	SDYYFSWL	FAP	Hepa1-6 / Hepatocellular carcinoma	55, 56
C57	H-2Kb	SIINFEKL	OVA	Hepa1-6 / Hepatocellular carcinoma	57, 58
C57	H-2Db	KVPRNQDWL	gp100	Hepa1-6 / Hepatocellular carcinoma	54
C57BL/ KaLwRij Hsd	H-2Kb	SIINFEKL	OVA	5TGM1-Luc / Myeloma	59
DBA	H-2Kd	QYIHSANVL	Erk1	L1210 / Leukemia	60
DBA	H-2Kd	TYLPTNASL	HER2	L1210 / Leukemia	63
DBA	H-2Ld	LPYLGWLVF	P1A	L1210 / Leukemia	65-67
DBA/2	H-2Kd	QYIHSANVL	Erk1	P388D1 / Lymphoma	62
DBA/2	H-2Kd	TYLPTNASL	HER2	P388D1 / Lymphoma	2, 61, 62
DBA/2	H-2Kd	AYIDFEMKI	SART3	P388D1 / Lymphoma	5
DBA/2	H-2Ld	HPQKVTKFM	KLK3	P388D1 / Lymphoma	64
DBA/2	H-2Ld	LPYLGWLVF	P1A	P388D1 / Lymphoma	65-67
C3H	H-2Dk	FETFEAKI	T3H	RIF-1 / Sarcoma	68

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