MHC DEXTRAMER® CANCER-TESTIS ANTIGENS PANEL

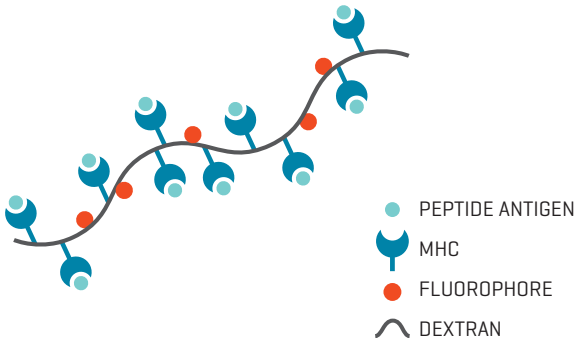
Cancer-Testis (CT) antigens are an extended family of tumor-associated antigens. Expression of CT is restricted to germline cells and is not seen in normal adult somatic tissues.[1]

Under normal conditions CT Antigens are restricted to areas of immunological privilege which prevents exposure to the systemic immune system, thus avoiding central immune tolerance. CT antigens are also expressed by a wide variety of tumors. Because of their high immunogenicity in vivo, coupled with their restricted distribution in normal tissue, CT antigens are particularly attractive targets for tumor immunotherapy, and are considered an important factor in epitope spreading.[2-3] Therapeutic cancer vaccines directed against CT antigens are currently in late-stage clinical trials for Multiple Myeloma and Non-Small Cell Lung Cancer; ClinicalTrials.gov identifiers NCT00090493 and NCT00480025. Dextramer® has proven effective for long term monitoring of Cancer-Testis antigen-specific T cells in humans.[5]

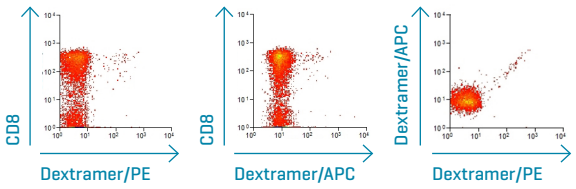
IMPROVED SEPARATION OF POSITIVES FROM NEGATIVES

The MHC Dextramer® Cancer-Testis Antigens Panel comprises 3 different Dextramer®-specificities. Each Dextramer®-specificity is provided both as a PE- and APC conjugate. This allows for so-called 2D-staining, i.e. the use of two Dextramer® reagents with the same specificity but different fluorochromes in the same staining reaction. 2D-staining makes it easier to distinguish Dextramer®-positive cells from Dextramer®-negative cells. The use of dual color staining has been demonstrated to reduce the frequency of false positives 10-fold.[4]

MHC DEXTRAMER®



2D-STAINING



An example 2D-staining is exemplified here for a CMV Dextramer® (A*0201/ NLVPMVATV), labeled with either PE or APC. 2D-staining clearly improves the ability to distinguish CMV-specific T cells from the negative T cells.

CONTENT

The MHC Dextramer® Cancer-Testis Antigens Panel consists of 8 Dextramer® reagents, including 2 negative controls, as follows:

Dextramer®	Antigen	# Tests
HLA-A*0201 / SLLMWITQV/PE	NY-ESO-1	25 tests
HLA-A*0201 / SLLMWITQV/APC	NY-ESO-1	25 tests
HLA-A*0201 / KVAELVHFL/PE	MAGE-A3	25 tests
HLA-A*0201 / KVAELVHFL/APC	MAGE-A3	25 tests
HLA-A*0201 / KVLEYVIKV/PE	MAGE-A1	25 tests
HLA-A*0201 / KVLEYVIKV/APC	MAGE-A1	25 tests
HLA-A*0201 / Negative Control/PE	Nonsense	25 tests
HLA-A*0201 / Negative Control/APC	Nonsense	25 tests

The MHC Dextramer® Cancer-Testis Antigens Panel is for research use only.

POPULAR CANCER DEXTRAMER®

Allele	Peptide	Antigen	Type of cancer
A*0201	ELAGIGILTV	MART-1	Melanoma
A*0201	SLLMWITQC	NY-ESO-1 157-165	Melanoma
H-2Db	Abu Abu L Abu LTVFL	Moloney murine sarcoma virus (MoMSV)	Moloney murine sarcoma virus (MoMSV)
A*0201	RMFPNAPYL	WT-1	Lung, prostate, breast, ovarian cancer
A*0201	VLQELNVTV	Proteinase 3 peptide Pr1 169-177	Cancer
A*0101	EVDPIGHLY	MAGE-A3	Melanoma
H-2Kb	SVYDFFVWL	L-dopachrome tautomerase precursor	Cancer
A*0201	YMDGTMSQV	Tyrosinase	Melanoma
A*2402	SYGVLLWEI	TEK or EGFR	Cancer
A*0201	IMDQVPFSV	gp100	Melanoma
A*0201	LMLGEFLKL	Survivin1 M2 96-104	Cancer
A*0201	KIFGSLAFL	HER2/neu 369-377	Breast cancer
A*2402	RFVPDGNRI	VEGFR2 169-177	Pancreatic cancer
H-2Kd	TYLPTNASL	Her2/neu 63-71	Breast cancer
A*0201	KVAELVHFL	MAGE-A3	Melanoma
A*0201	YMLDLQPETT	HPV-16 E7 11-20	HPV-16
A*0201	CMTWNQMNL	WT1 235-243	Cancer
A*0201	RLQGISPKI	SSX2	Cancer
H-2Db	ASFRNLTHL	Tpbg 258-266	Cancer
H-2Ld	LPYLGWLVF	P815 Mastocytoma 35-43	Cancer

REFERENCES

1. **Simpson, A.J.G., et al., Cancer/testis antigens, gametogenesis and cancer.** Nat Rev Cancer, 2005. 5(8): p. 615-625.

2. **Caballero, O.L. and Y.T. Chen, Cancer/testis (CT) antigens: potential targets for immunotherapy.** Cancer Sci, 2009. 100(11): p. 2014-21.

3. **Blalock, L.T., et al., Human dendritic cells adenovirally-engineered to express three defined tumor antigens promote broad adaptive and innate immunity.** Oncoimmunology, 2012. 1(3): p. 287-357.

4. **Hadrup, S.R., et al., Parallel detection of antigen-specific T-cell responses by multidimensional encoding of MHC multimers.** Nature methods, 2009. 6(7): p. 520-6.

5. **Aruga, A., et al., Long-term Vaccination with Multiple Peptides Derived from Cancer-Testis Antigens Can Maintain a Specific T-cell Response and Achieve Disease Stability in Advanced Biliary Tract Cancer.** Clin Cancer Res, 2013.