

T-Select PEPTIDE

# H-2D<sup>b</sup> Influenza NP

## Peptide ASNENMETM

<b>Code No.</b>	<b>Quantity</b>	<b>Concentration</b>
TS-M508-P	100 µL	10 mg/mL

For Research Use Only. Not for administration to humans, and not for diagnostic or therapeutic use.

**Peptide Sequence:** ASNENMETM (9 aa)

**Origin:** Influenza A/Puerto Rico/8/34 (PR8, H1N1)  
Nucleoprotein (NP), 366-374 aa

**MHC Restriction:** H-2D<sup>b</sup>

**Molecular Weight:** 1,026 Da

**Purity:** ≥98%

**Formulation:** 10 mg/mL peptide solution in DMSO  
Handle using aseptic techniques to avoid contamination.

### Storage Conditions

Store at -20°C. Repeated freeze-thaw cycles should be avoided.

### Background

T lymphocytes play a central role in the immune system. Major histocompatibility complex (MHC) is important for T cell recognition of surface antigen. In humans, MHC is also called human leukocyte antigen (HLA). MHCs present epitope peptides derived from both self and non-self protein, and these MHC/peptide complexes are recognized by T cells via their T-cell receptors (TCRs). In general, CD8<sup>+</sup> cytotoxic T cells (CTLs) recognize the MHC class I/peptide complex and CD4<sup>+</sup> helper T cells recognize MHC class II/peptide complex. Epitope peptides binding to class I molecules typically consist of approximately 8 to 10 consecutive amino acid residues. Meanwhile, epitope peptides binding to class II molecules are not constrained in size and can vary from 11 to 30 amino acids long.

T-Select PEPTIDE is a ready-to-use epitope peptide in liquid form and this peptide is used to produce MHC Tetramer reagent. Epitope peptides enable to stimulate CTLs in an antigen-specific manner, and also to induce T-helper immunity. Therefore, T-Select PEPTIDE series are available for T cell stimulation and expansion to examine T cell functions such as cytokine production, expression of cell surface marker, cytotoxic activity, etc.

Please refer to the data sheet of MHC Tetramer reagent which comprises this epitope peptide and H-2D<sup>b</sup> (MBL, PN TS-M508-1) for more details.

### H-2D<sup>b</sup> Influenza NP Tetramers

TS-M502-1 H-2D<sup>b</sup> Influenza NP Tetramer-ASNENMDTM-PE  
TS-M502-2 H-2D<sup>b</sup> Influenza NP Tetramer-ASNENMDTM-APC  
TS-M508-1 H-2D<sup>b</sup> Influenza NP Tetramer-ASNENMETM-PE  
TS-M508-2 H-2D<sup>b</sup> Influenza NP Tetramer-ASNENMETM-APC  
TS-M527-1 H-2D<sup>b</sup> Influenza NP Tetramer-ASNENMDAM-PE  
TS-M527-2 H-2D<sup>b</sup> Influenza NP Tetramer-ASNENMDAM-APC

### Mouse Strain H-2D Haplotypes

H-2D allele	H-2D <sup>b</sup>	H-2D <sup>d</sup>	H-2D <sup>k</sup>
Mouse strains	C57BL/-, BXSB/Mp, 129/-,NOD	BALB/c, DBA/2, B10.D2	C3H/He, AKR/J, CBA/-

### References for This Epitope

- 1) Townsend AR, *et al. Cell* **44**: 959-968 (1986)
- 2) Rotzschke O, *et al. Nature* **348**: 252-254 (1990)
- 3) Deckhut AM, *et al. J Immunol* **151**: 2658-2666 (1993)
- 4) Vitiello A, *et al. J Immunol* **157**: 5555-5562 (1996)
- 5) Belz GT, *et al. J Virol* **74**: 3486-3493 (2000)
- 6) Turner SJ, *et al. J Immunol* **167**: 2753-2758 (2001)
- 7) Topham DJ, *et al. J Immunol* **167**: 6983-6990 (2001)
- 8) Stambas J, *et al. J Immunol* **178**: 1285-1292 (2007)
- 9) Seo S-U, *et al. J Virol* **84**: 12713-12722 (2010)
- 10) Morimoto J, *et al. J Immunol* **187**: 5671-5683 (2011)
- 11) Ishikawa H, *et al. J Clin Immunol* **32**: 256-267 (2012)
- 12) Katsura H, *et al. Vaccine* **30**: 6027-6033 (2012)
- 13) Uematsu T, *et al. Sci Rep* **5**: 17577 (2015)
- 14) Dhanwani R, *et al. J Virol* **90**: 2551-2560 (2016)

### Related Products

#### MHC Class I Influenza Tetramers for Human

TS-M045-1 HLA-A\*01:01 Influenza NP Tetramer-CTELKLSDY-PE  
TS-0012-1C HLA-A\*02:01 Influenza M1 Tetramer-GILGFVFTL-PE  
TS-M162-1 HLA-A\*02:01 Influenza M1<sub>59-68</sub> Tetramer-ILGFVFTLTV-PE  
TS-M163-1 HLA-A\*02:01 Influenza NS1<sub>122-130</sub> Tetramer-AIMDKNIIL-PE  
TB-0103-1 HLA-A\*03:01 Influenza NP Tetramer-ILRGSVAHK-PE

TS-M144-1 HLA-A\*24:02 Influenza PA<sub>130-138</sub> Tetramer-YYLEKANKI-PE  
TS-M145-1 HLA-A\*24:02 Influenza PB1<sub>216-224</sub> Tetramer-SYLIRALTL-PE  
TS-M146-1 HLA-A\*24:02 Influenza PB1<sub>430-438</sub> Tetramer-RYTKTTYWW-PE  
TS-M147-1 HLA-A\*24:02 Influenza PB1<sub>482-490</sub> Tetramer-SYINRTGTF-PE  
TS-M148-1 HLA-A\*24:02 Influenza PB1<sub>488-505</sub> Tetramer-RYGFVANF-PE  
TS-M149-1 HLA-A\*24:02 Influenza PB2<sub>549-557</sub> Tetramer-TYQWIIRNW-PE  
TB-0111-1 HLA-B\*27:05 Influenza NP Tetramer-SRYWAIRTR-PE  
TB-M046-1 HLA-B\*35:01 Influenza NP Tetramer-LPFEKSTVM-PE

#### **MHC Class I Influenza Tetramers for Mouse**

TS-M502-1 H-2D<sup>b</sup> Influenza NP Tetramer-ASNENMDTM-PE  
TS-M508-1 H-2D<sup>b</sup> Influenza NP Tetramer-ASNENMETM-PE  
TS-M527-1 H-2D<sup>b</sup> Influenza NP Tetramer-ASNENMDAM-PE  
TS-M528-1 H-2D<sup>b</sup> Influenza PA Tetramer-SSLENFRAYV-PE  
TS-M533-1 H-2K<sup>b</sup> Influenza PB1 Tetramer-SSYRRPVGI-PE  
TS-M566-1 H-2K<sup>b</sup> Influenza NS2 Tetramer-RTFSFQLI-PE  
TS-M520-1 H-2K<sup>d</sup> Influenza HA Tetramer-IYSTVASSL-PE  
TS-M535-1 H-2K<sup>d</sup> Influenza HA Tetramer-LYQNVGTYV-PE  
TB-M534-1 H-2K<sup>d</sup> Influenza NP Tetramer-TYQRTRALV-PE

#### **MHC Class I Control Tetramers**

TS-0029-1C HLA-A\*02:01 Negative Tetramer-PE  
TS-M151-1 HLA-A\*02:01 Control Tetramer-ALAAAAAAV-PE  
TS-M152-1 HLA-A\*11:01 Control Tetramer-ATAAAAAAK-PE  
TS-M153-1 HLA-A\*24:02 Control Tetramer-AYAAAAAAL-PE  
TS-M007-1 HLA-A\*24:02 Negative Tetramer-RYLDRQQLL-PE  
TS-M008-1 H-2K<sup>b</sup> Negative (SIY) Tetramer-SIYRYYGL-PE  
TS-M501-1 H-2K<sup>b</sup>  $\beta$ -galactosidase Tetramer-DAPIYTNV-PE  
TS-M511-1 H-2L<sup>d</sup>  $\beta$ -galactosidase Tetramer-TPHPARIGL-PE  
TS-M525-1 H-2K<sup>d</sup> EGFP Tetramer-HYLSTQSAL-PE

#### **MHC Class II Influenza Tetramers for Human**

TS-M804-1 HLA-DRB1\*01:01 Influenza HA<sub>306-318</sub> Tetramer-PE  
TS-M810-1 HLA-DRB1\*04:01 Influenza HA<sub>306-318</sub> Tetramer-PE  
TS-M806-1 HLA-DRB1\*04:05 Influenza HA<sub>306-318</sub> Tetramer-PE  
TS-M808-1 HLA-DRB1\*11:01 Influenza HA<sub>306-318</sub> Tetramer-PE

#### **MHC Class II Tetramers for Human**

TS-M803-1 HLA-DRB1\*01:01 EBV EBNA1<sub>515-527</sub> Tetramer-PE  
TS-M813-1 HLA-DRB1\*01:01 Fel d 1<sub>49-66</sub> Tetramer-PE  
TS-M802-1 HLA-DRB1\*01:01 HIV gag<sub>295-307</sub> Tetramer-PE  
TS-M815-1 HLA-DRB1\*01:01 HTLV-1 Tax<sub>155-167</sub> Tetramer-PE  
TS-M811-1 HLA-DRB1\*04:01 GAD65<sub>555-567</sub> Tetramer-PE  
TS-M814-1 HLA-DRB1\*04:01 Lol p 1<sub>105-117</sub> Tetramer-PE  
TS-M812-1 HLA-DRB1\*11:01 TT p2<sub>829-844</sub> Tetramer-PE  
TS-M818-1 HLA-DRB1\*15:01 Bet v 1<sub>142-156</sub> Tetramer-PE

#### **MHC Class II Control Tetramers for Human**

TS-M801-1 HLA-DRB1\*01:01 human CLIP<sub>103-117</sub> Tetramer-PE  
TS-M809-1 HLA-DRB1\*04:01 human CLIP<sub>103-117</sub> Tetramer-PE  
TS-M805-1 HLA-DRB1\*04:05 human CLIP<sub>103-117</sub> Tetramer-PE  
TS-M807-1 HLA-DRB1\*11:01 human CLIP<sub>103-117</sub> Tetramer-PE  
TS-M816-1 HLA-DRB1\*15:01 human CLIP<sub>103-117</sub> Tetramer-PE  
TS-M817-1 HLA-DRB1\*15:02 human CLIP<sub>103-117</sub> Tetramer-PE

#### **MHC Class II Influenza and Control Tetramers for Mouse**

TS-M716-1 I-A<sup>b</sup> Influenza A NP<sub>311-325</sub> Tetramer-PE  
TS-M715-1 I-A<sup>b</sup> human CLIP<sub>103-117</sub> Tetramer-PE

#### **T-Select PEPTIDES**

TS-0012-P HLA-A\*02:01 Influenza M1 peptide, GILGFVFTL  
TS-M502-P H-2D<sup>b</sup> Influenza NP peptide, ASNENMDTM  
TS-M508-P H-2D<sup>b</sup> Influenza NP peptide, ASNENMETM  
TS-M527-P H-2D<sup>b</sup> Influenza NP peptide, ASNENMDAM  
TS-M534-P H-2K<sup>d</sup> Influenza NP peptide, TYQRTRALV  
TS-M520-P H-2K<sup>d</sup> Influenza HA peptide, IYSTVASSL  
TS-M528-P H-2D<sup>b</sup> Influenza PA peptide, SSLENFRAYV  
TS-M804-P Influenza HA<sub>306-318</sub> peptide  
TS-M716-P I-A<sup>b</sup> Influenza NP<sub>311-325</sub> peptide  
TS-M151-P HLA-A\*02:01 Control peptide, ALAAAAAAV  
TS-M152-P HLA-A\*11:01 Control peptide, ATAAAAAAK  
TS-M153-P HLA-A\*24:02 Control peptide, AYAAAAAAL  
TS-M525-P H-2K<sup>d</sup> EGFP peptide, HYLSTQSAL  
TS-M501-P H-2K<sup>b</sup>  $\beta$ -galactosidase peptide, DAPIYTNV  
TS-M511-P H-2L<sup>d</sup>  $\beta$ -galactosidase peptide, TPHPARIGL  
TS-M008-P H-2K<sup>b</sup> SIY peptide, SIYRYYGL  
TS-M801-P Human CLIP<sub>103-117</sub> peptide

#### **Kits**

AM-1005M IMMUNOCYTO Cytotoxicity Detection Kit  
TB-7400-K1 QuickSwitch™ Quant H-2K<sup>b</sup> Tetramer Kit-PE  
TB-7400-K2 QuickSwitch™ Quant H-2K<sup>b</sup> Tetramer Kit-APC  
TB-7400-K4 QuickSwitch™ Quant H-2K<sup>b</sup> Tetramer Kit-BV421  
TB-7401-K1 QuickSwitch™ H-2K<sup>b</sup> Tetramer Kit-PE  
TB-7401-K2 QuickSwitch™ H-2K<sup>b</sup> Tetramer Kit-APC  
TB-7401-K4 QuickSwitch™ H-2K<sup>b</sup> Tetramer Kit-BV421

#### **Others**

D341-4 mouse CD4-FITC (GK1.5)  
D271-4 mouse CD8-FITC (KT15)  
D271-5 mouse CD8-PE (KT15)  
D271-A64 mouse CD8-Alexa Fluor® 647 (KT15)  
K0221-3 anti-mouse TCR DO11.10 (KJ1.26)  
K0222-3 anti-mouse TCR 3DT-52.5 (KJ12.98)  
A07704 7-AAD Viability Dye  
MTG-001 Clear Back (Human FcR blocking reagent)

Please check our web site (<http://ruo.mbl.co.jp>) for up-to-date information on products and custom MHC Tetramers.