

Peptide Arrays, HLA Supertype A and B, Epitopes of Vaccinia Virus Proteins

Catalog No. NR-4057

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Product Description:

NR-4057 contains six peptide arrays. The first peptide array (NRC-415; 12 peptides) consists of HLA supertype A1 epitopes of the vaccinia virus proteins: C19L, C10L, C10L, C12L, VWR050, D1R, D12L, B8R, B8R, B8R variant, B8R, and C19L. The second peptide array (NRC-416; 34 peptides) consists of HLA supertype A2 epitopes of the vaccinia virus proteins: C7L, N2L, F12L, F12L, VACWR082, E2L, E9L, O1L, I4L, A6L, D3R, A26L, A36R, A36R variant, A55R, A14L, I1L, A46R, A17L, H3L, B14R, B14R variant, A6L, D12L, G7L, VACWR050, M1L, A17L, B6R, VETFsm, A26L, A26L variant, B22R & C16L, and B22R & C16L variant. The third peptide array (NRC-417; 17 peptides) consists of HLA supertype A3 epitopes of the vaccinia virus proteins: C12L, C9L, C7L, C5L, I3L, G8R, J6R, D1R, D5R, D5R variant, A8R, A31R, A31R variant, A31R variant, B5R, B14R, and B14R variant. The fourth peptide array (NRC-418; 5 peptides) consists of HLA supertype A24 epitopes of the vaccinia virus proteins: D5R, D5R, D5R variant, C6L, and C6L variant. The fifth peptide array (NRC-419; 8 peptides) consists of HLA supertype B7 epitopes of the vaccinia virus proteins: C1L, C1L variant, F4L, F4L variant, O1L, J6R, D1R, and D1R variant. The sixth peptide array (NRC-420; 6 peptides) consists of HLA supertype B44 epitopes of the vaccinia virus proteins: C3L, C3L variant, G2R, G2R variant, and B8R. Peptides are 9- to 10-mers. Please see Table 1 for length and sequence of individual peptides.

Material Provided:

Peptides are provided lyophilized at 1 mg per vial.

Packaging/Storage:

Lyophilized peptides should be placed in a closed dry environment with desiccants and stored at -20°C or colder immediately upon arrival. A frost-free freezer should be avoided, since changes in moisture and temperature may affect peptide stability.

Solubility:

Solubility may vary based on the amino acid content of the individual peptide (see Table 2).

Reconstitution:

Lyophilized peptides should be warmed to room temperature for 1 hour prior to reconstitution. They should be dissolved at the highest possible concentration, and then diluted with water or buffer to the working concentration. Buffer should be added only after the peptide is completely in solution because salts may cause aggregation.

The most common dissolution process is 1 mg of peptide in 1 mL of sterile, distilled water. Peptides that are not soluble in water can almost always be dissolved in DMSO. Once a peptide is in solution, the DMSO can be slowly diluted with aqueous medium. Care must be taken to ensure that the peptide does not begin to precipitate out of solution. For cell-based assays, 0.5% DMSO in medium is usually well-tolerated.

Sonication and/or the addition of small amounts of dilute (10%) aqueous acetic acid for basic peptides, aqueous ammonia for acidic peptides or acetonitrile may also help dissolution (see Table 2). These solvents may not be appropriate for certain applications, including cell-based assays.

Storage of Reconstituted Peptides:

The shelf life of peptides in solution is very limited, especially for sequences containing cysteine, methionine, tryptophan, asparagine, glutamine, and N-terminal glutamic acid. In general, peptides may be aliquoted and stored in solution for a few days at -20°C or colder. For long-term storage, peptides should be re-lyophilized and stored at -20°C or colder. If long-term storage in solution is unavoidable, peptide solutions should be buffered to pH 5–6, aliquoted and stored at -20°C or colder. Freeze-thaw cycles should be avoided.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through the NIH Biodefense and Emerging Infections Research Resources Repository, NIAID, NIH: Peptide Arrays, HLA Supertype A and B Epitopes of Vaccinia Virus Proteins, NR-4057."

Biosafety Level: 1

Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the following publication: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health. Biosafety in Microbiological and Biomedical Laboratories. 4th ed. Washington, DC: U.S. Government Printing Office, 1999. HHS Publication No. (CDC) 93-8395. This text is available online at www.cdc.gov/od/ohs/biosfty/bmbl4/bmbl4toc.htm.

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References:

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3. Paschetto, V., et al. "HLA-A*0201, HLA-A*1101, and HLA-B*0702 Transgenic Mice Recognize Numerous Poxvirus Determinants from a Wide Variety of Viral Gene Products." *J. Immunol.* 175 (2005): 5504–5515. PubMed: 16210659.
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5. Terajima, M., et al. "Quantitation of CD8+ T Cell Responses to Newly Identified HLA-A*0201-restricted T Cell Epitopes Conserved Among Vaccinia and Variola (Smallpox) Viruses." *J. Exp. Med.* 197 (2003): 927–932. PubMed: 12668642.

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Table 1		
Protein	Length	Sequence
NRC-415: Vaccinia HLA Supertype A1 Epitopes		
C19L	10	29-VSVNNVCHMY-38
C10L	9	297-SQSDTVFDY-305
C10L	9	298-QSDTVFDYY-306
C12L	10	97-VTDTNKFDNY-106
VWR050	9	259-CMLTEFLHY-267
D1R	9	156-FTIDFKLKY-164
D12L	9	11-GTHVLLPFY-19
B8R	9	139-DMCDIYLLY-147
B8R	10	153-FGDSKEPVPY-162
B8R; Variant	10	153-FGDSEEPVTY-162
B8R	10	262-FLSMLNLT KY-271
C19L	9	104-QSITRSLIY-112

Table 1		
Protein	Length	Sequence
NRC-416: Vaccinia HLA Supertype A2 Epitopes		
C7L	9	74-KVDDTFYYV-82
N2L	9	93-YVNAILYQI-101
F12L	10	286-NLFDIPLLTV-295
F12L	9	404-FLTSVINRV-412
VACWR082	9	18-ILDDNLYKV-26
E2L	9	249-KIDYYIPYV-257
E9L	9	107-FLNISWFYI-115
O1L	9	247-GLNDYLHSV-255
I4L	9	720-SMHFYGWSL-728
A6L	9	172-ILSDENYLL-180
D3R	9	342-FLVIAINAM-350
A26L	10	177-YLYTEYFLFI-186
A36R	9	1-MMLVPLITV-9
A36R; Variant	9	1-MILVPLITV-9
A55R	9	78-YIYGIPLSL-86
A14L	9	51-FILGIIITV-59
I1L	9	211-RLYDYFTRV-219
A46R	9	142-GLFDFVNFV-150
A17L	10	61-RTLLGLILFV-70
H3L	9	184-SLSAYIIRV-192
B14R	9	327-HVDGKILFV-335
B14R; Variant	10	354-HDITGFILFM-363
A6L	9	6-VLYDEFVTI-14
D12L	9	251-RVYEALYYV-259
G7L	9	250-YLPEVISTI-258
VACWR050	9	196-FLIVSLCPT-204
M1L	10	374-IIIPFIAYFV-383
A17L	10	81-ILMIFISSFL-90
B6R	9	108-LMYDIINSV-116
VETFsm	9	498-VLPFDIKKL-506
A26L	9	6-NLWNGIVPT-14
A26L; Variant	9	6-NLWNGIVPM-14
B22R , C16L	9	60-CLTEYILWV-68
B22R , C16L;	9	60-CLTEIYIWS-68
NRC-417: Vaccinia HLA Supertype A3 Epitopes		
C12L	10	93-KVLHVTDTNK-102
C9L	9	193-ATSLDVINY-201
C7L	10	31-KLKIISNDYK-40
C5L	9	158-KVMFVIRFK-166
I3L	9	116-AVYGNIKHK-124
G8R	9	65-IVFNLPVSK-73
J6R	9	332-NQVKFYFNK-340

Table 1		
Protein	Length	Sequence
NRC-417: Vaccinia HLA Supertype A3 Epitopes		
D1R	10	152-KTKNFTIDFK-161
D5R	9	670-YLLVKWYRK-678
D5R; Variant	9	670-YLLVKWYKK-678
A8R	10	79-AVKDVTITKK-88
A31R	9	86-VTSSGAIYK-94
A31R; Variant	9	86-VTSSGVIYK-94
A31R; Variant	9	86-VTSSGTIYK-94
B5R	10	154-GTIAGGVCYY-163
B14R	10	74-AVFKDSFLRK-83
B14R; Variant	10	74-AVFKNSFLGK-83
NRC-418: Vaccinia HLA Supertype A24 Epitopes		
D5R	9	349-VWINNSWKF-357
D5R	10	663-RYRFAFLYLI-672
D5R; Variant	10	663-RYRFAFLYLL-672
C6L	9	54-RYYDGNIYE-63
C6L; Variant	9	54-RYYDGNIYD-63
NRC-419: Vaccinia HLA Supertype B7 Epitopes		
C1L	10	102-KPKPAVRFAI-111
C1L; Variant	10	102-KPKPAVRYAI-111
F4L	9	6-APNPNRFVI-14
F4L; Variant	9	6-AKNPNRFVI-14
O1L	10	335-RPMSLRSTII-344
J6R	9	303-MPAYIRNTL-311
D1R	9	686-HPRHYATVM-694
D1R; Variant	9	686-HPRHYATIM-694
NRC-420: Vaccinia HLA Supertype B44 Epitopes		
C3L	9	120-GESKSYCEL-128
C3L; Variant	9	120-GEYKSYCKL-128
C3L; Variant	9	120-GETKYFRCE-128
G2R	9	181-DELVDPINY-189
G2R; Variant	9	181-DKLVDPINY-189
B8R	9	110-TEYDDHINL-118

Table 2		
Protein	Solubility	Solvent
NRC-415: Vaccinia HLA Supertype A1 Epitopes		
C19L	1 mg/mL	50% acetonitrile in water
C10L	1 mg/mL	50% acetonitrile in water
C10L	1 mg/mL	50% acetonitrile in water
C12L	1 mg/mL	Water
VWR050	1 mg/mL	Water

Table 2		
Protein	Solubility	Solvent
NRC-415: Vaccinia HLA Supertype A1 Epitopes		
D1R	1 mg/mL	Acetonitrile
D12L	1 mg/mL	50% acetonitrile in water
B8R	1 mg/mL	Acetonitrile
B8R	1 mg/mL	50% acetonitrile in water
B8R; Variant	1 mg/mL	50% acetonitrile in water
B8R	1 mg/mL	50% acetonitrile in water
C19L	1 mg/mL	50% acetonitrile in water
NRC-416: Vaccinia HLA Supertype A2 Epitopes		
C7L	1 mg/mL	50% acetonitrile in water
N2L	1 mg/mL	50% acetonitrile in water
F12L	1 mg/mL	50% acetonitrile in water
F12L	1 mg/mL	50% acetonitrile in water
VACWR082	1 mg/mL	50% acetonitrile in water
E2L	1 mg/mL	50% acetonitrile in water
E9L	1 mg/mL	50% acetonitrile in water
O1L	1 mg/mL	50% acetonitrile in water
I4L	1 mg/mL	Water
A6L	1 mg/mL	50% acetonitrile in water
D3R	1 mg/mL	Acetonitrile
A26L	1 mg/mL	50% acetonitrile in water
A36R	1 mg/mL	50% acetonitrile in water
A36R; Variant	1 mg/mL	50% acetonitrile in water
A55R	1 mg/mL	50% acetonitrile in water
A14L	1 mg/mL	Acetonitrile
I1L	1 mg/mL	50% acetonitrile in water
A46R	1 mg/mL	Acetonitrile
A17L	1 mg/mL	Acetonitrile
H3L	1 mg/mL	50% acetonitrile in water
B14R	1 mg/mL	50% acetonitrile in water
B14R; Variant	1 mg/mL	50% acetonitrile in water
A6L	1 mg/mL	50% acetonitrile in water
D12L	1 mg/mL	Water
G7L	1 mg/mL	50% acetonitrile in water
VACWR050	1 mg/mL	50% acetonitrile in water
M1L	1 mg/mL	Acetonitrile
A17L	1 mg/mL	Acetonitrile
B6R	1 mg/mL	50% acetonitrile in water
VETFsm	1 mg/mL	50% acetonitrile in water
A26L	1 mg/mL	50% acetonitrile in water
A26L; Variant	1 mg/mL	50% acetonitrile in water
B22R & C16L	1 mg/mL	50% acetonitrile in water
B22R & C16L; Variant	1 mg/mL	Acetonitrile
NRC-417: Vaccinia HLA Supertype A3 Epitopes		
C12L	1 mg/mL	Water
C9L	1 mg/mL	Acetonitrile
C7L	1 mg/mL	Water
C5L	1 mg/mL	50% acetonitrile in water
I3L	1 mg/mL	Water
G8R	1 mg/mL	50% acetonitrile in water

Table 2		
Protein	Solubility	Solvent
NRC-417: Vaccinia HLA Supertype A3 Epitopes		
J6R	1 mg/mL	50% acetonitrile in water
D1R	1 mg/mL	50% acetonitrile in water
D5R	1 mg/mL	50% acetonitrile in water
D5R; Variant	1 mg/mL	50% acetonitrile in water
A8R	1 mg/mL	50% acetonitrile in water
A31R	1 mg/mL	50% acetonitrile in water
A31R; Variant	1 mg/mL	Water
A31R; Variant	1 mg/mL	50% acetonitrile in water
B5R	1 mg/mL	50% acetonitrile in water
B14R	1 mg/mL	50% acetonitrile in water
B14R; Variant	1 mg/mL	50% acetonitrile in water
NRC-418: Vaccinia HLA Supertype A24 Epitopes		
D5R	1 mg/mL	50% acetonitrile in water
D5R	1 mg/mL	Water
D5R; Variant	1 mg/mL	50% acetonitrile in water
C6L	1 mg/mL	50% acetonitrile in water
C6L; Variant	1 mg/mL	Water
NRC-419: Vaccinia HLA Supertype B7 Epitopes		
C1L	1 mg/mL	50% acetonitrile in water
C1L; Variant	1 mg/mL	50% acetonitrile in water
F4L	1 mg/mL	Water
F4L; Variant	1 mg/mL	50% acetonitrile in water
O1L	1 mg/mL	Water
J6R	1 mg/mL	50% acetonitrile in water
D1R	1 mg/mL	50% acetonitrile in water
D1R; Variant	1 mg/mL	50% acetonitrile in water
NRC-420: Vaccinia HLA Supertype B44 Epitopes		
C3L	1 mg/mL	50% acetonitrile in water
C3L; Variant	1 mg/mL	Water
C3L; Variant	1 mg/mL	50% acetonitrile in water
G2R	1 mg/mL	50% acetonitrile in water
G2R; Variant	1 mg/mL	50% acetonitrile in water
B8R	1 mg/mL	Water