

Peptide Arrays, H-2, Epitopes of Vaccinia Virus Proteins

Catalog No. NR-4058

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Product Description:

NR-4058 contains two peptide arrays. The first peptide array (NRC-421; 58 peptides) consists of H-2b epitopes of the vaccinia virus proteins: J6R, A51R, A6L, C4L, C4L variant, C4L variant, J3R, A3L, A26L, A8R, A8R, E7R, K ORF B, F1L, A10L, A10L variant, B1R, B1R variant, B8R, G8R, A18R, A38L, A19L, L2R, B6R, L2R, D1R, D12L, A2L, A47L, C19L, C19L variant, C19L variant, B2R, D1R, A51R, A23R, G6R, E9L, A3L, E11L, E11L variant, A47L, F5L, F5L variant, D13L, J4R, B16R, N2L, F13L, K2L, E ORF A, A42R, E8R, B12R, K3L, K3L variant, and M1L. The second peptide array (NRC-422; 4 peptides) consists of H-2d epitopes of the vaccinia virus proteins: A52R, F2L, F2L, variant, and E3L. Peptides are 8- to 10-mers. Please see Table 1 for 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, H-2, Epitopes of Vaccinia Virus Proteins, NR-4058.”

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:

1. Moutaftsi, M., et al. "A Consensus Epitope Predication Approach Identifies the Breadth of Murine T_{CD8+}-Cell Responses to Vaccinia Virus." *Nat. Biotechnol.* 24 (2006): 817–819. PubMed: 16767078.
2. Tschärke, D. C., et al. "Identification of Poxvirus CD8⁺ T Cell Determinants to Enable Rational Design and Characterization of Smallpox Vaccines." *J. Exp. Med.* 201 (2005): 95–104. PubMed: 15623576.
3. Tschärke, D. C., et al. "Poxvirus CD8⁺ T-Cell Determinants and Cross-Reactivity in BALB/c Mice." *J. Virol.* 80 (2006): 6318–6323. PubMed: 16775319.

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Protein	Length	Sequence
NRC-421: Vaccinia H-2b Epitopes		
J6R	8	993-INFEFVCL-1000
A51R	8	78-RISRFANL-85
A6L	8	265-YTLIYRQL-272
C4L	8	125-LNFRFENV-132
C4L; Variant	8	125-LDFKSKKV-132
C4L; Variant	8	125-LDFKSTKV-132
J3R	8	289-SIFRFLNI-296
A3L	8	270-KSYNYMLL-277
A26L	8	257-SIYQYVRL-264
A8R	8	70-IHYLFRCV-77
A8R	8	189-ITYRFYLI-196
E7R	8	130-STLNFNNL-137
K ORF B	8	27-IPLKYIVL-34
F1L	8	200-STREYLKL-207
A10L	8	265-FIYTYDRV-272
A10L; Variant	8	265-FVDDYDRV-272
B1R	8	92-INVEYRFL-99
B1R; Variant	8	92-INTEYRFL-99
B8R	8	20-TSYKFESV-27
G8R	8	34-LMYIFAAL-41
A18R	8	57-TSLVFETL-64
A38L	8	203-KVFSFWLL-210
A19L	9	47-VSLDYINTM-55

Protein	Length	Sequence
NRC-421: Vaccinia H-2b Epitopes		
L2R	9	53-VIYIFTVRL-61
B6R	9	108-LMYDIINSV-116
L2R	9	61-LVSRNYQML-69
D1R	9	282-LGYIIRYPV-290
D12L	9	14-VLLPFYETL-22
A2L	9	129-EVVEIFKHL-137
A47L	9	138-AAFEFINSL-146
C19L	9	77-FNPSVLKIL-85
C19L; Variant	9	77-FTNDVLKIL-85
C19L; Variant	9	77-FTNDVLKVL-85
B2R	9	54-YSQVNKRYI-62
D1R	9	578-SMYCSKTFL-586
A51R	9	310-NLIRNRDYI-318
A23R	9	297-IGMFNLTFI-305
G6R	9	77-YMLENIQVM-85
E9L	9	858-RMNSNQVCI-866
A3L	9	191-YSPSNHHIL-199
E11L	9	17-FAIKNTDDV-25
E11L; Variant	9	17-FVIKNTDDV-25
A47L	9	93-TMMINPFMI-101
F5L	9	279-SAPMNVDNL-287
F5L; Variant	9	279-SAPMNINNL-287
D13L	9	118-NCINNTIAL-126
J4R	9	24-YAVINRNVL-32
B16R	9	275-ISVANKIYM-283
N2L	9	60-FLMMNKDEL-68
F13L	9	307-FTIQNNTKL-315
K2L	9	161-WAIINTIYF-169
E ORF A	9	35-STLSTQEAL-43
A42R	9	88-YAPVSPIVI-96
E8R	10	141-FWFKNTQFDI-150
B12R	10	121-VTMINTLEFI-130
K3L	10	6-YSLPNAGDVI-15
K3L; Variant	10	6-YSLPNVGDVL-15
M1L	10	291-TSNVITDQTV-300
NRC-422: Vaccinia H-2d Epitopes		
A52R	9	75-KYGRLFNEI-83
F2L	9	26-SPYAAGYDL-34
F2L; Variant	9	26-SPGAAGYDL-34
E3L	9	140-VGSPNSPTF-148

Table 2		
Protein	Solubility	Solvent
NRC-421: Vaccinia H-2b Epitopes		
J6R	1 mg/mL	50% acetonitrile in water
A51R	1 mg/mL	50% acetonitrile in water
A6L	1 mg/mL	Water
C4L	1 mg/mL	50% acetonitrile in water
C4L; Variant	1 mg/mL	Water
C4L; Variant	1 mg/mL	50% acetonitrile in water
J3R	1 mg/mL	50% acetonitrile in water
A3L	1 mg/mL	50% acetonitrile in water
A26L	1 mg/mL	50% acetonitrile in water
A8R	1 mg/mL	50% acetonitrile in water
A8R	1 mg/mL	50% acetonitrile in water
E7R	1 mg/mL	50% acetonitrile in water
K ORF B	1 mg/mL	50% acetonitrile in water
F1L	1 mg/mL	Water
A10L	1 mg/mL	50% acetonitrile in water
A10L; Variant	1 mg/mL	Water
B1R	1 mg/mL	50% acetonitrile in water
B1R; Variant	1 mg/mL	Water
B8R	1 mg/mL	50% acetonitrile in water
G8R	1 mg/mL	Acetonitrile
A18R	1 mg/mL	50% acetonitrile in water
A38L	1 mg/mL	50% acetonitrile in water
A19L	1 mg/mL	50% acetonitrile in water
L2R	1 mg/mL	50% acetonitrile in water
B6R	1 mg/mL	50% acetonitrile in water
L2R	1 mg/mL	Water
D1R	1 mg/mL	Water
D12L	1 mg/mL	50% acetonitrile in water
A2L	1 mg/mL	50% acetonitrile in water
A47L	1 mg/mL	50% acetonitrile in water
C19L	1 mg/mL	50% acetonitrile in water
C19L; Variant	1 mg/mL	50% acetonitrile in water
C19L; Variant	1 mg/mL	Water
B2R	1 mg/mL	Water
D1R	1 mg/mL	50% acetonitrile in water
A51R	1 mg/mL	Water
A23R	1 mg/mL	50% acetonitrile in water
G6R	1 mg/mL	Acetonitrile
E9L	1 mg/mL	50% acetonitrile in water
A3L	1 mg/mL	50% acetonitrile in water
E11L	1 mg/mL	50% acetonitrile in water
E11L; Variant	1 mg/mL	50% acetonitrile in water
A47L	1 mg/mL	50% acetonitrile in water
F5L	1 mg/mL	50% acetonitrile in water
F5L; Variant	1 mg/mL	Water
D13L	1 mg/mL	Acetonitrile
J4R	1 mg/mL	50% acetonitrile in water
B16R	1 mg/mL	50% acetonitrile in water
N2L	1 mg/mL	50% acetonitrile in water
F13L	1 mg/mL	50% acetonitrile in water

Table 2		
Protein	Solubility	Solvent
NRC-421: Vaccinia H-2b Epitopes		
K2L	1 mg/mL	50% acetonitrile in water
E ORF A	1 mg/mL	50% acetonitrile in water
A42R	1 mg/mL	50% acetonitrile in water
E8R	1 mg/mL	50% acetonitrile in water
B12R	1 mg/mL	Acetonitrile
K3L	1 mg/mL	50% acetonitrile in water
K3L; Variant	1 mg/mL	50% acetonitrile in water
M1L	1 mg/mL	50% acetonitrile in water
NRC-422: Vaccinia H-2d Epitopes		
A52R	1 mg/mL	50% acetonitrile in water
F2L	1 mg/mL	50% acetonitrile in water
F2L; Variant	1 mg/mL	50% acetonitrile in water
E3L	1 mg/mL	50% acetonitrile in water