

**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.

**Lot: P97019B**

The following information applies to all peptides:

- Appearance White lyophilized powder
- Mass spectral analysis Correct MW by MALDI-TOF
- Counter Ion Trifluoroacetate

Peptide-specific information is shown in the two tables below.

Table 1								
Protein	Date of Mfg.	Length	Sequence	MW (amu)	Hydrophilicity	Purity by HPLC <sup>1</sup>	Peptide Content <sup>2</sup>	Viruses with Identical Peptide Sequence
<b>NRC-421: Vaccinia H-2b Epitopes</b>								
J6R	11/9/2006	8	993-INFEFVCL-1000	984	-1	>95.0	81.47	VACV-WR <sup>a</sup>
A51R	9/28/2006	8	78-RISRFANL-85	976	0	>95.0	70.3	VACV-WR <sup>a</sup>
A6L	9/29/2006	8	265-YTLIYRQL-272	1069	-0.9	99.5	58.30	VACV-WR <sup>a</sup>
C4L	9/29/2006	8	125-LNFRFENV-132	1038	-0.2	>95.0	81.31	VACV-WR <sup>a</sup>
C4L; Variant	10/2/2006	8	125-LDFKSKKV-132	964	0.8	96.9	69.13	Variant for VACV-WR and VACV-COP
C4L; Variant	9/29/2006	8	125-LDFKSTKV-132	937	0.4	98.7	72.33	Variant for VACV-MVA
J3R	9/29/2006	8	289-SIFRFLNI-296	1009	-0.9	99.9	78.16	VACV-WR <sup>a</sup>
A3L	11/13/2006	8	270-KSYNYMLL-277	1031	-0.7	99.9	73.42	VACV-WR <sup>a</sup>
A26L	9/29/2006	8	257-SIYQYVRL-264	1041	-0.8	97.6	78.57	VACV-WR <sup>a</sup>
A8R	11/14/2006	8	70-IHYLFRCV-77	1050	-1	96.4	71.61	VACV-WR <sup>a</sup>
A8R	10/2/2006	8	189-ITYRFYLI-196	1088	-1.2	98.9	67.11	VACV-WR <sup>a</sup>
E7R	9/29/2006	8	130-STLNFNNL-137	922	-0.7	97.1	81.6	VACV-WR <sup>a</sup>
K ORF B	10/4/2006	8	27-IPLKYIVL-34	958	-1	99.6	69.50	VACV-WR <sup>a</sup>
F1L	10/4/2006	8	200-STREYLKL-207	1009	0.4	98.4	68.67	VACV-WR <sup>a</sup>
A10L	11/14/2006	8	265-FIYTYDRV-272	1076	-0.6	98.2	74.15	VACV-WR <sup>a</sup>
A10L; Variant	10/2/2006	8	265-FVDDYDRV-272	1028	0.5	97.6	77.44	Variant for VARV-BSH
B1R	10/2/2006	8	92-INVEYRFL-99	1053	-0.5	98.5	71.01	VACV-WR <sup>a</sup>
B1R; Variant	10/2/2006	8	92-INTEYRFL-99	1055	-0.3	97.8	74.05	Variant for VARV-BSH
B8R	10/2/2006	8	20-TSYKFESV-27	960	0	98.9	72.17	VACV-WR <sup>a</sup>
G8R	11/20/2006	8	34-LMYIFAAL-41	941	-1.6	85.5	51.79	VACV-WR <sup>a</sup>

Table 2 - Amino Acid Analysis																			
		Ala (A)	Arg (R)	Asx (N,D)	Cys (C)	Glx (Q,E)	Gly (G)	His (H)	Ile (I)	Leu (L)	Lys (K)	Met (M)	Phe (F)	Pro (P)	Ser (S)	Thr (T)	Trp (W)	Tyr (Y)	Val (V)
<b>NRC-421: Vaccinia H-2b Epitopes</b>																			
J6R	Expected			1.00	1.00	1.00			1.00	1.00			2.00	0.00					1.00
	Actual			1.00	0.00 <sup>a</sup>	0.95			0.96	1.02			2.02	0.57 <sup>a</sup>					1.05
A51R	Expected	1.00	2.00	1.00					1.00	1.00			1.00		1.00				
	Actual	1.04	1.98	1.11					0.93	1.02			1.01		0.94				
A6L	Expected		1.00			1.00			1.00	2.00						1.00			2.00
	Actual		0.88			0.97			0.99	2.24						1.06			2.07
C4L	Expected		1.00	2.00		1.00				1.00			2.00						1.00
	Actual		0.94	1.81		0.97				1.02			2.14						1.10
C4L; variant	Expected			1.00					1.00	3.00			1.00		1.00				1.00
	Actual			0.90					0.99	2.99			1.06		0.85				1.05
C4L; variant	Expected			1.00					1.00	2.00			1.00		1.00	1.00			1.00
	Actual			0.95					1.05	1.95			1.13		0.91	0.94			1.13
J3R	Expected		1.00	1.00					2.00	1.00			2.00		1.00				
	Actual		1.01	0.96					1.99	1.09			2.09		0.95				
A3L	Expected			1.00						2.00	1.00	1.00			1.00				2.00
	Actual			1.10						2.07	0.94	1.01			0.90				2.11
A26L	Expected		1.00			1.00			1.00	1.00					1.00				2.00
	Actual		0.92			0.95			0.98	1.05					0.84				2.04
A8R	Expected		1.00		1.00			1.00	1.00	1.00			1.00	0.00					1.00
	Actual		0.89		0.00 <sup>a</sup>			0.86	0.94	1.05			1.08	0.52 <sup>2</sup>					1.06
A8R	Expected		1.00						2.00	1.00			1.00			1.00			2.00
	Actual		1.00						1.97	1.02			1.07			0.95			2.05
E7R	Expected			3.00						2.00			1.00		1.00	1.00			
	Actual			3.30						1.94			1.02		1.01	1.00			
K ORF B	Expected								2.00	2.00	1.00			1.00					1.00
	Actual								1.85	2.13	0.99			0.99					1.08
F1L	Expected		1.00			1.00				2.00	1.00				1.00	1.00			1.00
	Actual		0.99			1.00				2.22	1.03				0.96	1.00			1.19
A10L	Expected		1.00	1.00					1.00				1.00			1.00			2.00
	Actual		0.87	1.03					0.99				1.03			1.01			2.04
A10L; Variant	Expected		1.00	3.00									1.00						1.00
	Actual		0.95	2.67									1.03						1.06
B1R	Expected		1.00	1.00		1.00			1.00	1.00			1.00						1.00
	Actual		1.04	0.91		0.93			0.97	1.04			1.05						1.02
B1R; Variant	Expected		1.00	1.00		1.00			1.00	1.00			1.00			1.00			1.00
	Actual		0.94	0.92		0.95			1.02	1.08			1.08			0.99			1.07
B8R	Expected					1.00					1.00		1.00		2.00	1.00			1.00
	Actual					0.91					0.96		1.09		1.71	0.91			1.08
G8R	Expected	2.00							1.00	2.00		1.00	1.00						1.00
	Actual	2.10							0.92	2.10		0.93	0.96						1.09
A18R	Expected					1.00				2.00			1.00		1.00	2.00			1.00
	Actual					0.95				2.06			1.05		0.97	1.98			1.10
A38L	Expected									2.00	1.00		2.00		1.00		1.00		1.00
	Actual									1.96	0.97		2.04		0.82		0.00 <sup>b</sup>		1.03
A19L	Expected			2.00					1.00	1.00		1.00			1.00	1.00			1.00
	Actual			2.08					0.98	1.04		1.01			0.90	0.95			1.04
L2R	Expected		1.00						2.00	1.00			1.00			1.00			1.00
	Actual		1.16						1.52 <sup>c</sup>	1.37 <sup>d</sup>			0.91			1.32 <sup>e</sup>			0.87
B6R	Expected			2.00					2.00	1.00		1.00			1.00				1.00
	Actual			1.97					1.52 <sup>c</sup>	0.99		0.96			0.83				0.99
L2R	Expected		1.00	1.00		1.00				2.00		1.00			1.00				1.00
	Actual		0.96	0.97		0.98				2.07		0.97			0.87				1.09
D1R	Expected		1.00				1.00		2.00	1.00				1.00					2.00
	Actual		0.91				1.03		1.59 <sup>c</sup>	1.05				0.96					2.10
D12L	Expected					1.00				3.00			1.00	1.00		1.00			1.00
	Actual					0.95				2.95			1.05	0.90		1.05			1.02
A2L	Expected					2.00		1.00	1.00	1.00	1.00		1.00						2.00
	Actual					1.91		1.02	0.93	1.07	1.04		0.99						1.58 <sup>c</sup>
A47L	Expected	2.00		1.00		1.00			1.00	1.00			2.00		1.00				
	Actual	1.95		1.09		1.00			1.01	1.08			1.62		0.89				
C19L	Expected			1.00					1.00	2.00	1.00		1.00	1.00	1.00				1.00
	Actual			1.03					0.94	2.05	1.02		0.98	0.91	0.85				1.11

		Table 2 - Amino Acid Analysis																	
		Ala (A)	Arg (R)	Asx (N,D)	Cys (C)	Glx (Q,E)	Gly (G)	His (H)	Ile (I)	Leu (L)	Lys (K)	Met (M)	Phe (F)	Pro (P)	Ser (S)	Thr (T)	Trp (W)	Tyr (Y)	Val (V)
<b>NRC-421: Vaccinia H-2b Epitopes</b>																			
C19L; Variant	Expected			2.00					1.00	2.00	1.00		1.00			1.00			1.00
	Actual			2.02					0.94	2.03	0.89		1.05			1.04			1.10
C19L; Variant	Expected			2.00						2.00	1.00		1.00			1.00			2.00
	Actual			1.93						1.88	0.80		1.00			1.08			2.13
B2R	Expected		1.00	1.00		1.00			1.00		1.00				1.00			2.00	1.00
	Actual		0.96	0.93		0.92			1.07		0.98				0.78 <sup>a</sup>			2.11	1.09
D1R	Expected				1.00					1.00	1.00	1.00	1.00	0.00	2.00	1.00		1.00	
	Actual				0.00 <sup>a</sup>					1.04	0.92	1.05	1.09	0.58 <sup>a</sup>	1.88	0.98		1.06	
A51R	Expected		2.00	3.00					2.00	1.00									1.00
	Actual		1.78	3.12					1.97	1.05									1.04
A23R	Expected			1.00			1.00		2.00	1.00		1.00	2.00			1.00			
	Actual			1.03			0.96		1.98	1.04		0.99	2.03			1.03			
G6R	Expected			1.00		2.00			1.00	1.00		2.00						1.00	1.00
	Actual			1.02		1.86			0.96	1.01		1.95						1.00	1.11
E9L	Expected		1.00	2.00	1.00	1.00			1.00			1.00		0.00	1.00				1.00
	Actual		0.73 <sup>f</sup>	2.05	0.00 <sup>a</sup>	0.99			0.99			1.00		0.53 <sup>a</sup>	0.85				1.13
A3L	Expected			1.00				2.00	1.00	1.00				1.00	2.00			1.00	
	Actual			0.94				1.93	0.99	1.07				0.98	1.70			1.06	
E11L	Expected	1.00		3.00					1.00		1.00		1.00			1.00			1.00
	Actual	0.97		2.73					1.01		0.94		1.09			1.02			1.11
E11L; Variant	Expected			3.00					1.00		1.00		1.00			1.00			2.00
	Actual			3.15					0.78 <sup>c</sup>		0.89		1.05			1.06			2.01
A47L	Expected			1.00					2.00			3.00	1.00	1.00		1.00			
	Actual			0.93					2.03			2.79	1.11	1.05		1.02			
F5L	Expected	1.00		3.00						1.00		1.00	1.00	1.00	1.00				1.00
	Actual	0.99		3.07						1.03		1.03		0.92	0.90				1.15
F5L; Variant	Expected	1.00		3.00					1.00	1.00				1.00	1.00				
	Actual	1.01		3.21					1.02	1.09				0.97	0.90				
D13L	Expected	1.00		3.00	1.00				2.00	1.00				0.00		1.00			
	Actual	1.04		2.80	0.00 <sup>a</sup>				1.91	1.03				0.6 <sup>b</sup>		1.09			
J4R	Expected	1.00	1.00	2.00					1.00	1.00								1.00	2.00
	Actual	1.02	0.88	2.07					0.75 <sup>c</sup>	1.04								1.03	1.98
B16R	Expected	1.00		1.00					2.00		1.00	1.00			1.00			1.00	1.00
	Actual	0.99		0.93					2.09		0.97	0.80			0.86			1.06	1.13
N2L	Expected			2.00		1.00				2.00	1.00	2.00	1.00						
	Actual			2.09		0.96				2.08	0.87	2.00	1.09						
F13L	Expected			2.00		1.00			1.00	1.00	1.00		1.00			2.00			
	Actual			2.29		0.96			0.97	1.04	0.89		1.04			2.01			
K2L	Expected	1.00		1.00					3.00				1.00			1.00	1.00	1.00	
	Actual	1.02		1.11					2.79				1.04			1.01	0.00 <sup>b</sup>	0.93	
E ORF A	Expected	1.00				2.00				2.00					2.00	2.00			
	Actual	1.04				2.03				2.17					1.92	1.99			
A42R	Expected	1.00							2.00					2.00	1.00			1.00	2.00
	Actual	1.06							1.90					2.14	0.94			1.21 <sup>d</sup>	2.04
E8R	Expected			2.00		1.00			1.00		1.00		3.00			1.00	1.00		
	Actual			2.09		0.98			1.05		0.89		3.16			1.03	0.00 <sup>b</sup>		
B12R	Expected			1.00		1.00			2.00	1.00		1.00	1.00			2.00			1.00
	Actual			1.12		1.09			1.86	1.03		0.95	0.97			2.12			0.90
K3L	Expected	1.00		2.00			1.00		1.00	1.00				1.00	1.00			1.00	1.00
	Actual	1.02		2.13			1.02		0.70 <sup>c</sup>	1.06				0.93	0.90			1.05	0.80
K3L; Variant	Expected			2.00			1.00			2.00				1.00	1.00			1.00	2.00
	Actual			2.11			1.02			2.01				0.89	0.92			1.04	2.25
M1L	Expected			2.00		1.00			1.00						1.00	3.00			2.00
	Actual			2.17		0.98			0.70 <sup>c</sup>						1.02	3.12			1.94

Table 2 - Amino Acid Analysis

		Ala (A)	Arg (R)	Asx (N,D)	Cys (C)	Glx (Q,E)	Gly (G)	His (H)	Ile (I)	Leu (L)	Lys (K)	Met (M)	Phe (F)	Pro (P)	Ser (S)	Thr (T)	Trp (W)	Tyr (Y)	Val (V)
<b>NRC-422: Vaccinia H-2d Epitopes</b>																			
A52R	Expected		1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00						1.00
	Actual		0.91	1.07		0.98	0.99		1.02	1.05	0.90		1.05						1.04
F2L	Expected	2.00		1.00			1.00			1.00				1.00	1.00				2.00
	Actual	1.92		1.06			0.99			1.03				0.89	0.87				2.14
F2L; Variant	Expected	2.00		1.00			2.00			1.00				1.00	1.00				1.00
	Actual	2.01		1.09			2.04			1.04				0.90	0.91				1.08
E3L	Expected			1.00			1.00						1.00	2.00	2.00	1.00			1.00
	Actual			1.08			1.00						1.10	1.78	1.86	0.96			1.12

<sup>a</sup>Cys degradation products co-elute with Pro.

<sup>b</sup>Trp completely destroyed during hydrolysis.

<sup>c</sup>Val:Ile, Val:Val, Ile:Ile, Ile:Val bonds are only partially cleaved in the 22-hour hydrolysis.

<sup>d</sup>Incomplete hydrolysis due to Ile:Ile, Ile:Val bonds.

<sup>e</sup>Ser and Thr partially destroyed during hydrolysis. *p*-Ser and *p*-Thr destroyed at a higher rate.

<sup>f</sup>Arg peak was split into two peaks. Total reading for Arg was 0.97.

**Date:** 23 FEB 2007

**Signature:** Signature on File

**Title:** Technical Manager, BEI Authentication

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