

**Peptide Array, Influenza Virus A/Vietnam/1203/2004 (H5N1) Hemagglutinin Protein**

**Catalog No. NR-18974**

This reagent is the tangible property of the U.S. Government.

**Product Description:** The 93-peptide array spans the hemagglutinin (HA) protein of the A/Vietnam/1203/2004 (H5N1) strain of influenza virus (GenPept: ABW90137). Peptides are 12- or 17-mers, with 11 amino acid overlaps.

**Lot: PF0730-1**

**Note:** The lot numbers of the individual peptides are shown on the vial labels and in Table 1 below.

The following information applies to all peptides:

- Appearance White lyophilized powder
- Mass spectral analysis Correct MW by Electrospray Ionization
- Counter Ion Trifluoroacetate

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

Table 1							
Peptide	Lot #	Date of Mfg.	Length	Sequence	Molecular Weight (amu)	Purity by HPLC <sup>a</sup>	Peptide Content <sup>b</sup>
1 of 93	A0593	07/08/2010	17	1-MEKIVLLFAIVSLVKSD-17	1904.47	84.4%	76.5%
2 of 93	A0606	07/09/2010	17	7-LFAIVSLVKSDQICIGY-23	1868.53	pass by MS	80.7%
3 of 93	A1122	05/31/2010	17	13-LVKSDQICIGYHANNST-29	1863.30	98.9%	71.6%
4 of 93	A0552	07/07/2010	17	19-ICIGYHANNSTEQVDTI-35	1877.67	91.9%	85.5%
5 of 93	A2056	05/27/2010	17	25-ANNSTEQVDTIMEKNVT-41	1893.87	98.6%	74.4%
6 of 93	A1159	06/10/2010	17	31-QVDTIMEKNVTVTHAQD-47	1928.00	96.0%	78.7%
7 of 93	A2054	05/27/2010	17	37-EKNVTVTHAQDILEKKH-53	1988.87	96.7%	83.0%
8 of 93	A2055	05/27/2010	17	43-THAQDILEKKHNGKLCD-59	1949.33	96.3%	66.2%
9 of 93	A2057	05/27/2010	17	49-LEKKHNGKLCDLGDKVP-65	1894.73	97.0%	68.3%
10 of 93	A2058	05/27/2010	17	55-GKLCDLGDKVPLILRDC-71	1858.40	97.2%	66.6%
11 of 93	A0540	07/07/2010	17	61-DGVKPLILRDCSVAGWL-77	1841.53	82.2%	86.5%
12 of 93	A0776	07/28/2010	17	67-ILRDCSVAGWLLGNPMC-83	1847.87	83.9%	73.2%
13 of 93	A0533	07/07/2010	17	73-VAGWLLGNPMCDEFINV-89	1877.87	96.6%	86.5%
14 of 93	A2087	05/27/2010	17	79-GNPMCDEFINPEWSYI-95	2013.74	95.1%	90.7%
15 of 93	A2059	05/27/2010	17	85-EFINVPEWSYIVEKANP-101	2036.40	97.6%	70.4%
16 of 93	A0818	08/02/2010	17	91-EWSYIVEKANPVNDLCY-107	2044.14	94.3%	82.4%
17 of 93	A1097	05/26/2010	17	97-EKANPVNDLCYPGDFND-113	1910.80	96.5%	79.0%
18 of 93	A2048	05/27/2010	17	103-NDLCYPGDFNDYEELKH-119	2072.40	97.9%	75.5%
19 of 93	A1185	06/14/2010	17	109-GDFNDYEELKHLLSRIN-125	2062.80	99.6%	84.2%
20 of 93	A1098	05/26/2010	17	115-EELKHLLSRINHFEKIQ-131	2133.90	99.2%	77.4%
21 of 93	A2061	05/27/2010	17	121-LSRINHFEKIQIIPKSS-137	2011.60	98.2%	72.6%
22 of 93	A1099	05/26/2010	17	127-FEKIIPKSSWSSHEA-143	1986.30	97.5%	75.1%
23 of 93	A2062	05/27/2010	17	133-IPKSSWSSHEASLGVSS-149	1759.47	99.0%	74.5%
24 of 93	A0524	06/29/2010	17	139-SSHEASLGVSSACPYQG-155	1679.67	97.5%	82.6%
25 of 93	A1129	05/31/2010	17	145-LGVSSACPYQGKTSFFR-161	1847.40	98.1%	82.5%

**Table 1**

Peptide	Lot #	Date of Mfg.	Length	Sequence	Molecular Weight (amu)	Purity by HPLC <sup>a</sup>	Peptide Content <sup>b</sup>
26 of 93	A2086	05/27/2010	17	151-CPYQGKTSFFRNVVWLI-167	2058.94	95.3%	74.5%
27 of 93	A1209	06/19/2010	17	157-TSFFRNVVWLIKKNSTY-173	2104.50	99.9%	81.7%
28 of 93	A2063	05/27/2010	17	163-VVWLIKKNSTYPTIKRS-179	2034.94	97.8%	84.0%
29 of 93	A2067	05/28/2010	17	169-KNSTYPTIKRSYNNNTQ-185	2030.40	98.6%	77.9%
30 of 93	A1131	05/31/2010	17	175-TIKRSYNNNTQEDLLVL-191	2019.90	99.8%	91.5%
31 of 93	A2064	05/27/2010	17	181-NNTNQEDLLVLWGIHHP-197	2001.34	98.1%	75.2%
32 of 93	A2085	05/27/2010	17	187-DLLVLWGIHHPNDAAEQ-203	1927.73	98.0%	77.3%
33 of 93	A1132	05/31/2010	17	193-GIHHPNDAAEQTKLYQN-209	1935.00	99.5%	89.6%
34 of 93	A2084	05/27/2010	17	199-DAAEQTKLYQNPTTYIS-215	1943.40	98.7%	76.7%
35 of 93	A2083	05/27/2010	17	205-KLYQNPTTYISVGTSTL-221	1886.07	98.5%	75.5%
36 of 93	A2082	05/27/2010	17	211-TTYISVGTSTLNQRLVP-227	1849.93	98.7%	89.7%
37 of 93	A1103	05/26/2010	17	217-GTSTLNQRLVPRIATRS-233	1870.70	99.7%	79.0%
38 of 93	A2073	06/02/2010	17	223-QRLVPRIATRSKVNQGS-239	1910.73	98.5%	80.0%
39 of 93	A1104	05/26/2010	17	229-IATRSKVNQSGRMEFF-245	1927.50	99.4%	88.0%
40 of 93	A0673	07/15/2010	17	235-VNQSGRMEFFWTLKP-251	2012.27	91.8%	76.5%
41 of 93	A1106	05/26/2010	17	241-RMEFFWTLKPNDAINF-257	2142.30	98.1%	79.7%
42 of 93	A1190	06/14/2010	17	247-TILKPNDAINFESNGNF-263	1893.30	98.9%	75.0%
43 of 93	A0763	07/27/2010	17	253-DAINFESNGNFIAPEYA-269	1871.60	pass by MS	88.8%
44 of 93	A1134	05/31/2010	17	259-SNGNFIAPEYAYKIVKK-275	1941.60	99.4%	76.3%
45 of 93	A0404	06/16/2010	17	265-APEYAYKIVKKGSTIM-281	1913.40	98.8%	70.4%
46 of 93	A2049	05/27/2010	17	271-KIVKKGSTIMKSELEY-287	1969.13	96.3%	79.8%
47 of 93	A0594	07/07/2010	17	277-DSTIMKSELEYGNCNTK-293	1932.00	88.3%	85.8%
48 of 93	A0785	07/28/2010	17	283-SELEYGNCNTKQTPMG-299	1874.26	85.9%	87.6%
49 of 93	A0620	07/13/2010	17	289-NCNTKQTPMGAINSSM-305	1799.87	80.1%	72.4%
50 of 93	A1194	06/14/2010	17	295-QTPMGAINSSMPFHNIH-311	1882.50	95.4%	68.9%
51 of 93	A0761	07/24/2010	17	301-INSSMPFHNIHPLTIGE-317	1905.47	85.5%	89.4%
52 of 93	A2081	05/27/2010	17	307-FHNIHPLTIGCEPKYVK-323	1996.53	98.3%	76.5%
53 of 93	A2080	05/27/2010	17	313-LTIGCEPKYVKSRLVL-329	1933.53	96.2%	79.2%
54 of 93	A1137	06/01/2010	17	319-PKYVKSRLVLATGLRN-335	1928.70	99.0%	75.7%
55 of 93	A2050	05/27/2010	17	325-NRLVLATGLRNSPQRET-341	1925.67	98.1%	85.6%
56 of 93	A0513	06/29/2010	17	331-TGLRNSPQRETRGLFGA-347	1859.67	95.8%	78.3%
57 of 93	A1207	07/03/2010	17	337-PQRETRGLFGAIGFIE-353	1862.40	97.2%	78.6%
58 of 93	A0525	06/30/2010	17	343-GLFGAIGFIEGGWQGM-359	1710.87	pass by MS	86.9%
59 of 93	A0554	07/07/2010	17	349-AGFIEGGWQGMVDGWYG-365	1830.20	81.7%	81.7%
60 of 93	A0595	07/07/2010	17	355-GWQGMVDGWYGYHHSNE-371	2024.00	98.7%	83.1%
61 of 93	A1115	05/27/2010	17	361-DGWYGYHHSNEQGSYA-377	1927.00	98.2%	79.6%
62 of 93	A2088	05/27/2010	17	367-HHSNEQGSYAADKEST-383	1817.27	96.8%	73.0%
63 of 93	A1177	06/10/2010	17	373-GSGYAADKESTQKAIDG-389	1697.00	99.5%	89.1%
64 of 93	A1150	06/08/2010	17	379-DKESTQKAIDGVTNKVN-395	1846.20	97.7%	65.1%
65 of 93	A0392	06/14/2010	17	385-KAIDGVTNKVNSIIDKM-401	1846.60	95.1%	67.7%
66 of 93	A1141	06/01/2010	17	391-TNKVNSIIDKMNTQFEA-407	1953.00	97.5%	85.2%
67 of 93	A1200	06/14/2010	17	397-IIDKMNTQFEAVGREFN-413	2012.10	95.3%	74.1%
68 of 93	A2051	05/27/2010	17	403-TQFEAVGREFNLERRI-419	2079.60	96.6%	83.4%
69 of 93	A2052	05/27/2010	17	409-GREFNLERRIENLNKK-425	2131.86	97.8%	72.1%

Peptide	Lot #	Date of Mfg.	Length	Sequence	Molecular Weight (amu)	Purity by HPLC <sup>a</sup>	Peptide Content <sup>b</sup>
70 of 93	A1201	06/14/2010	17	415-LERRIENLNKKMEDGFL-431	2105.40	97.0%	82.3%
71 of 93	A1203	06/15/2010	17	421-NLNKKMEDGFLDVWVTYN-437	2086.50	96.1%	76.8%
72 of 93	A0555	07/03/2010	17	427-EDGFLDVWVTYNAELLVL-443	1998.54	91.4%	76.5%
73 of 93	A0556	07/07/2010	17	433-VWVTYNAELLVLMENERT-449	2082.54	85.1%	92.1%
74 of 93	A1142	06/08/2010	17	439-ELLVLMENERTLDFHDS-455	2060.70	98.5%	78.9%
75 of 93	A2053	05/27/2010	17	445-ENERTLDFHDSNVKNLY-461	2096.14	95.2%	76.0%
76 of 93	A1119	05/27/2010	17	451-DFHDSNVKNLYDKVRLQ-467	2091.00	99.5%	82.0%
77 of 93	A2079	05/27/2010	17	457-VKNLYDKVRLQLRDNAL-473	2076.54	95.8%	84.9%
78 of 93	A2078	05/27/2010	17	463-KVRLQLRDNALGNGC-479	1914.27	96.3%	78.4%
79 of 93	A2077	05/27/2010	17	469-RDNALGNGCFEFYHK-485	2029.60	95.9%	78.8%
80 of 93	A0514	06/28/2010	17	475-LGNGCFEFYHKCDNECM-491	2011.60	96.0%	78.9%
81 of 93	A0632	07/13/2010	17	481-EFYHKCDNECMESVRNG-497	2062.66	94.0%	88.6%
82 of 93	A2076	05/27/2010	17	487-DNECMESVRNGTYDYPQ-503	2022.80	95.2%	86.5%
83 of 93	A2075	05/27/2010	17	493-SVRNGTYDYPQYSEEAR-509	2036.26	95.0%	80.3%
84 of 93	A1120	05/27/2010	17	499-YDYPQYSEEARLKREEI-515	2188.50	98.9%	81.2%
85 of 93	A2074	05/28/2010	17	505-SEEARLKREEISGVKLE-521	1973.27	95.9%	89.8%
86 of 93	A1121	05/27/2010	17	511-KREEISGVKLESIGIYQ-527	1948.20	99.5%	79.0%
87 of 93	A0618	07/09/2010	17	517-GVKLESIGIYQILSIYS-533	1882.87	pass by MS	85.3%
88 of 93	A0557	07/06/2010	17	523-IGIYQILSIYSTVASSL-539	1827.07	pass by MS	88.5%
89 of 93	A0463	06/23/2010	17	529-LSIYSTVASSLALAIMV-545	1737.93	pass by MS	78.9%
90 of 93	A0558	07/06/2010	17	535-VASSLALAIMVAGLSLW-551	1703.00	pass by MS	87.7%
91 of 93	A0607	07/09/2010	17	541-LAIMVAGLSLWMCNLS-557	1752.20	pass by MS	88.2%
92 of 93	A0559	07/06/2010	17	547-GLSLWMCNLSLQCRIC-563	1870.80	pass by MS	80.6%
93 of 93	A2089	05/27/2010	12	553-CSNLSLQCRICI-564	1296.33	97.7%	65.5%

<sup>a</sup>% full-length  
<sup>b</sup>Remainder is salt and water

Peptide		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)
1 of 93	Expected	1.00		1.00		1.00			2.00	3.00	2.00	1.00	1.00		2.00				3.00
	Actual	1.16		1.06		1.06			2.17	3.00	2.01	0.99	1.00		1.84				2.72 <sup>b</sup>
2 of 93	Expected	1.00		1.00	1.00	1.00	1.00		3.00	2.00	1.00		1.00		2.00			1.00	2.00
	Actual	1.13		1.16	0.00 <sup>c</sup>	1.13	0.85		2.90 <sup>b</sup>	2.12	1.07		0.98		1.69			0.84	2.14
3 of 93	Expected	1.00		3.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00				2.00	1.00		1.00	1.00
	Actual	0.95		3.47	0.00 <sup>c</sup>	1.18	0.98	0.94	1.87	0.95	0.87				1.86	0.97		0.93	1.02
4 of 93	Expected	1.00		3.00	1.00	2.00	1.00	1.00	3.00						1.00	2.00		1.00	1.00
	Actual	0.94		3.44	0.00 <sup>c</sup>	2.28	0.84	0.89	2.73						0.91	2.08		0.84	1.06
5 of 93	Expected	1.00		4.00		3.00			1.00		1.00	1.00			1.00	3.00			2.00
	Actual	0.88		4.19		3.17			0.92		1.09	0.91			0.81	2.95			2.09
6 of 93	Expected	1.00		3.00		3.00		1.00	1.00		1.00	1.00				3.00			3.00
	Actual	0.85		3.37		3.33		0.92	0.85		1.02	1.03				2.76			2.86
7 of 93	Expected	1.00		2.00		3.00		2.00	1.00	1.00	3.00					2.00			2.00
	Actual	0.87		2.32		3.48		1.71	0.85	0.85	2.85					2.02			2.05
8 of 93	Expected	1.00		3.00	1.00	2.00	1.00	2.00	1.00	2.00	3.00					1.00			
	Actual	0.92		3.32	0.00 <sup>c</sup>	2.39	0.84	1.73	0.96	1.74	2.91					1.20			

**Table 2 - Amino Acid Analysis**

Peptide		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)	
9 of 93	Expected			3.00	1.00	1.00	2.00	1.00		3.00	4.00			1.00					1.00	
	Actual			3.47	0.00 <sup>c</sup>	0.99	1.67	0.92		3.01	4.09			0.98					0.87	
10 of 93	Expected		1.00	3.00	2.00		2.00		1.00	4.00	2.00			1.00					1.00	
	Actual		0.89	3.44	0.00 <sup>c</sup>		1.69		0.93	4.11	2.03			0.96					0.96	
11 of 93	Expected	1.00	1.00	2.00	1.00		2.00		1.00	3.00	1.00			1.00	1.00		1.00		2.00	
	Actual	1.01	0.85	2.39	0.00 <sup>c</sup>		1.79		0.97	3.04	0.91			0.96	0.98		0.00 <sup>a</sup>		2.10	
12 of 93	Expected	1.00	1.00	2.00	2.00		2.00		1.00	3.00		1.00		1.00	1.00		1.00		1.00	
	Actual	1.17	0.87	2.38	0.00 <sup>c</sup>		1.77		1.10	2.86		0.89		1.02	0.92		0.00 <sup>a</sup>		1.01	
13 of 93	Expected	1.00		3.00	1.00	1.00	2.00		1.00	2.00		1.00	1.00	1.00				1.00	2.00	
	Actual	0.93		3.34	0.00 <sup>c</sup>	1.13	1.73		0.95	2.04		1.01	0.88	0.94				0.00 <sup>a</sup>	2.05	
14 of 93	Expected			3.00	1.00	2.00	1.00		2.00			1.00	1.00	2.00	1.00		1.00	1.00	1.00	
	Actual			3.39	0.00 <sup>c</sup>	2.34	0.84		2.01			0.89	0.92	1.80	0.99		0.00 <sup>a</sup>	0.86	0.96	
15 of 93	Expected	1.00		2.00		3.00			2.00		1.00		1.00	2.00	1.00		1.00	1.00	2.00	
	Actual	0.96		2.37		3.43			1.82 <sup>b</sup>		1.14		0.88	1.80	0.90		0.00 <sup>a</sup>	0.85	1.86 <sup>b</sup>	
16 of 93	Expected	1.00		3.00	1.00	2.00			1.00	1.00	1.00			1.00	1.00			1.00	2.00	
	Actual	0.87		3.41	0.00 <sup>c</sup>	2.31			0.95 <sup>b</sup>	1.05	1.17			0.87	0.94			0.00 <sup>a</sup>	1.82	1.62 <sup>b</sup>
17 of 93	Expected	1.00		6.00	1.00	1.00	1.00			1.00	1.00		1.00	2.00					1.00	1.00
	Actual	0.85		6.42	0.00 <sup>c</sup>	1.19	0.97			0.95	1.03		0.86	1.73					0.91	1.10
18 of 93	Expected			5.00	1.00	2.00	1.00	1.00		2.00	1.00		1.00	1.00					2.00	
	Actual			5.36	0.00 <sup>c</sup>	2.23	0.88	0.88		1.98	1.06		0.92	0.88					1.82	
19 of 93	Expected		1.00	4.00		2.00	1.00	1.00	1.00	3.00	1.00		1.00		1.00				1.00	
	Actual		1.11	4.44		2.23	0.89	0.83	0.89	2.70	1.04		0.82		1.06				1.00	
20 of 93	Expected		1.00	1.00		4.00		2.00	2.00	3.00	2.00		1.00		1.00					
	Actual		0.89	1.04		4.45		2.12	1.69	2.90	1.98		0.85		1.08					
21 of 93	Expected		1.00	1.00		2.00		1.00	4.00	1.00	2.00		1.00	1.00	3.00					
	Actual		0.90	1.20		2.38		0.99	3.48 <sup>b</sup>	1.09	2.15		1.00	0.96	2.85					
22 of 93	Expected	1.00				3.00		1.00	3.00			2.00	1.00	1.00	4.00		1.00			
	Actual	1.05				3.42		0.98	2.52 <sup>b</sup>			2.08		0.98	0.99	3.97		0.00 <sup>a</sup>		
23 of 93	Expected	1.00				1.00	1.00	1.00	1.00	1.00	1.00			1.00	7.00		1.00			1.00
	Actual	1.05				1.08	0.86	1.00	1.07	1.12	1.05			0.95	6.71		0.00 <sup>a</sup>			1.11
24 of 93	Expected	2.00			1.00	2.00	2.00	1.00		1.00				1.00	5.00				1.00	1.00
	Actual	2.11			0.00 <sup>c</sup>	2.27	1.89	1.09		1.08				1.01	4.50				0.88	1.17
25 of 93	Expected	1.00	1.00		1.00	1.00	2.00			1.00	1.00		2.00	1.00	3.00	1.00			1.00	1.00
	Actual	1.01	0.95		0.00 <sup>c</sup>	1.18	1.85			1.07	1.17		2.09	1.02	2.61	1.08			0.82	1.14
26 of 93	Expected		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		2.00	1.00	1.00	1.00	1.00	1.00	2.00	
	Actual		0.90	1.15	0.00 <sup>c</sup>	1.19	0.86		1.07	1.09	1.03		1.97	0.94	0.96	1.15	0.00 <sup>a</sup>	1.03	1.67 <sup>b</sup>	
27 of 93	Expected		1.00	2.00					1.00	1.00	2.00		2.00		2.00	2.00	1.00	1.00	2.00	
	Actual		0.96	2.21					1.00	1.04	2.22		1.88		1.71	1.88	0.00 <sup>a</sup>	0.99	2.12	
28 of 93	Expected		1.00	1.00					2.00	1.00	3.00			1.00	2.00	2.00	1.00	1.00	2.00	
	Actual		0.88	1.17					1.94	1.10	3.17			0.95	1.90	2.14	0.00 <sup>a</sup>	1.01	1.75 <sup>b</sup>	
29 of 93	Expected		1.00	4.00		1.00			1.00					1.00	2.00	3.00			2.00	
	Actual		0.83	4.38		1.09			0.94					0.87	1.95	3.21			1.69	
30 of 93	Expected		1.00	4.00		2.00			1.00	3.00	1.00				1.00	2.00			1.00	1.00
	Actual		0.93	4.50		2.25			0.91	2.83	1.02				0.85	1.86			0.80	1.05
31 of 93	Expected			4.00		2.00	1.00	2.00	1.00	3.00				1.00		1.00	1.00			1.00
	Actual			4.29		2.30	0.97	1.66	0.95	2.83				0.85		1.12	0.00 <sup>a</sup>			1.03
32 of 93	Expected	2.00		3.00		2.00	1.00	2.00	1.00	3.00				1.00			1.00			1.00
	Actual	1.80		3.25		2.32	0.96	1.88	0.95	2.91				0.87			0.00 <sup>a</sup>			1.07
33 of 93	Expected	2.00		3.00		3.00	1.00	2.00	1.00	1.00	1.00			1.00		1.00		1.00		
	Actual	1.79		3.39		3.26	0.91	2.08	0.90	0.94	1.04			0.84		0.91		0.94		
34 of 93	Expected	2.00		2.00		3.00			1.00	1.00	1.00			1.00	1.00	3.00			2.00	
	Actual	1.79		2.25		3.47			0.95	1.00	0.93			0.86	0.97	3.11			1.68	
35 of 93	Expected			1.00		1.00	1.00		1.00	2.00	1.00			1.00	2.00	4.00			2.00	1.00
	Actual			1.05		1.10	0.83		0.98	2.03	1.17			0.91	1.81	4.22			1.79	1.09
36 of 93	Expected		1.00	1.00		1.00	1.00		1.00	2.00				1.00	2.00	4.00			1.00	2.00
	Actual		0.88	1.08		1.15	0.85		1.00	2.05				0.92	1.79	4.15			0.85	2.29

Table 2 - Amino Acid Analysis

Peptide		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)
37 of 93	Expected	1.00	3.00	1.00		1.00	1.00		1.00	2.00				1.00	2.00	3.00			1.00
	Actual	0.99	2.80	1.18		1.16	1.07		1.02	2.04				0.94	1.68	2.98			1.15
38 of 93	Expected	1.00	3.00	1.00		2.00	1.00		1.00	1.00	1.00			1.00	2.00	1.00			2.00
	Actual	0.99	2.75	1.16		2.29	0.83		0.92	1.06	1.03			0.88	1.87	1.12			2.09
39 of 93	Expected	1.00	2.00	1.00		2.00	2.00		1.00		1.00	1.00	2.00		2.00	1.00			1.00
	Actual	0.97	1.82	1.14		2.38	1.82		0.98		1.15	0.81	1.96		2.05	1.00			0.91
40 of 93	Expected		1.00	1.00		2.00	2.00		1.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00			1.00
	Actual		0.88	1.06		2.33	1.73		1.02	1.11	1.15	0.81	1.97	0.97	0.92	1.04	0.00 <sup>a</sup>		1.00
41 of 93	Expected	1.00	1.00	3.00		1.00			2.00	1.00	1.00	1.00	3.00	1.00		1.00	1.00		
	Actual	0.94	0.97	3.33		1.17			1.99	1.00	0.95	0.82	2.79	0.91		1.12	0.00 <sup>a</sup>		
42 of 93	Expected	1.00		5.00		1.00	1.00		2.00	1.00	1.00		2.00	1.00	1.00	1.00			
	Actual	0.92		5.46		1.17	0.91		1.89	0.96	0.98		1.86	0.89	0.92	1.04			
43 of 93	Expected	3.00		4.00		2.00	1.00		2.00				2.00	1.00	1.00			1.00	
	Actual	2.72		4.46		2.35	0.84		2.01				1.91	0.86	0.99			0.87	
44 of 93	Expected	2.00		2.00		1.00	1.00		2.00		3.00		1.00	1.00	1.00			2.00	1.00
	Actual	2.03		2.40		1.14	0.90		1.66 <sup>b</sup>		3.11		0.93	0.99	1.10			1.93	0.84 <sup>b</sup>
45 of 93	Expected	2.00		1.00		1.00	1.00		2.00		3.00	1.00		1.00	1.00	1.00		2.00	1.00
	Actual	2.07		1.15		1.10	0.91		1.84 <sup>b</sup>		3.12	0.88		0.98	1.10	1.20		1.81	0.84 <sup>b</sup>
46 of 93	Expected			1.00		2.00	1.00		2.00	1.00	4.00	1.00			2.00	1.00		1.00	1.00
	Actual			1.10		2.29	0.92		1.64 <sup>b</sup>	0.99	4.16	0.91			2.09	1.02		0.97	0.91 <sup>b</sup>
47 of 93	Expected			3.00	1.00	2.00	1.00		1.00	1.00	2.00	1.00			2.00	2.00		1.00	
	Actual			3.33	0.00 <sup>c</sup>	2.23	0.99		1.00	0.98	1.96	0.84			1.88	1.96		0.82	
48 of 93	Expected			2.00	2.00	3.00	2.00			1.00	1.00	1.00		1.00	1.00	2.00		1.00	
	Actual			2.36	0.00 <sup>c</sup>	3.39	1.69			0.96	1.10	0.99		0.87	0.90	1.82		0.92	
49 of 93	Expected	1.00		3.00	2.00	1.00	1.00		1.00				1.00	2.00	2.00	2.00			
	Actual	1.02		3.42	0.00 <sup>c</sup>	1.11	0.91		0.96		1.13	1.62		0.99	1.75	2.09			
50 of 93	Expected	1.00		2.00		1.00	1.00	2.00	2.00				2.00	1.00	2.00	2.00	1.00		
	Actual	1.07		2.39		1.05	0.91	1.71	1.86				1.73	0.99	2.00	2.11	1.18		
51 of 93	Expected			2.00		1.00	1.00	2.00	3.00	1.00			1.00	1.00	2.00	2.00	1.00		
	Actual			2.21		1.18	0.82	2.04	3.06	1.07			0.94	1.00	1.96	1.77	0.95		
52 of 93	Expected			1.00	1.00	1.00	1.00	2.00	2.00	1.00	2.00		1.00	2.00		1.00		1.00	1.00
	Actual			1.14	0.00 <sup>c</sup>	1.13	0.92	1.65	1.68	1.19	2.05		1.02	2.13		1.16		0.96	0.95
53 of 93	Expected		1.00	1.00	1.00	1.00	1.00		1.00	3.00	2.00			1.00	1.00	1.00		1.00	2.00
	Actual		0.90	1.10	0.00 <sup>c</sup>	1.18	0.84		0.89	3.09	1.98			0.95	1.15	1.10		0.91	1.90
54 of 93	Expected	1.00	2.00	2.00			1.00			3.00	2.00			1.00	1.00	1.00		1.00	2.00
	Actual	0.96	1.74	2.35			0.92			2.93	2.17			0.89	0.94	1.01		0.80	2.29
55 of 93	Expected	1.00	3.00	2.00		2.00	1.00			3.00				1.00	1.00	2.00			1.00
	Actual	0.96	2.53	2.35		2.38	0.83			2.81				0.90	1.08	2.32			0.84
56 of 93	Expected	1.00	3.00	1.00		2.00	3.00			2.00			1.00	1.00	1.00	2.00			
	Actual	0.85	2.88	1.12		2.36	2.75			2.13			1.08	0.99	0.94	1.90			
57 of 93	Expected	2.00	2.00			3.00	3.00		2.00	1.00			2.00	1.00		1.00			
	Actual	2.05	1.80			3.48	2.70		2.08	1.06			1.98	0.92		0.94			
58 of 93	Expected	2.00				2.00	6.00		2.00	1.00		1.00	2.00				1.00		
	Actual	1.97				2.33	5.83		2.08	1.07		0.85	1.88				0.00 <sup>a</sup>		
59 of 93	Expected	1.00		1.00		2.00	6.00		1.00				1.00	1.00				1.00	1.00
	Actual	1.06		1.16		2.33	5.61		0.93			0.95	0.87				0.00 <sup>a</sup>	1.01	1.07
60 of 93	Expected			2.00		2.00	4.00	2.00					1.00		1.00		2.00	2.00	1.00
	Actual			2.18		2.30	3.78	1.88					0.82		0.83		0.00 <sup>a</sup>	2.05	1.16
61 of 93	Expected	1.00		2.00		2.00	4.00	2.00							2.00		1.00	3.00	
	Actual	0.98		2.36		2.35	3.61	2.14							1.96		0.00 <sup>a</sup>	2.61	
62 of 93	Expected	2.00		2.00		3.00	2.00	2.00			1.00				3.00	1.00			1.00
	Actual	1.97		2.21		3.41	1.72	1.80			1.04				2.85	1.16			0.85
63 of 93	Expected	3.00		2.00		2.00	3.00		1.00		2.00				2.00	1.00		1.00	
	Actual	3.02		2.22		2.20	2.73		1.01		2.32				1.75	0.94		0.81	
64 of 93	Expected	1.00		4.00		2.00	1.00		1.00		3.00				1.00	2.00			2.00
	Actual	0.93		4.07		2.15	0.90		0.93		2.89				0.94	2.03			2.17

Table 2 - Amino Acid Analysis

Peptide		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)
65 of 93	Expected	1.00		4.00			1.00		3.00		3.00	1.00			1.00	1.00			2.00
	Actual	0.99		4.41			0.81		2.88 <sup>b</sup>		3.01	1.02			0.86	1.19			1.84
66 of 93	Expected	1.00		4.00		2.00			2.00		2.00	1.00	1.00		1.00	2.00			1.00
	Actual	0.92		4.40		2.10			1.71 <sup>b</sup>		2.20	0.91	0.87		0.88	1.92			1.10
67 of 93	Expected	1.00	1.00	3.00		3.00	1.00		2.00		1.00	1.00	2.00			1.00			1.00
	Actual	0.95	0.81	3.47		3.39	0.82		1.78 <sup>b</sup>		0.96	0.87	1.82			1.13			0.99
68 of 93	Expected	1.00	3.00	2.00		4.00	1.00		1.00	1.00			2.00			1.00			1.00
	Actual	0.95	2.57	2.29		4.32	0.86		0.98	1.06			1.79			1.15			1.02
69 of 93	Expected		3.00	4.00		3.00	1.00		1.00	2.00	2.00		1.00						
	Actual		2.86	4.36		3.38	0.80		0.91	1.98	1.86		0.85						
70 of 93	Expected		2.00	3.00		3.00	1.00		1.00	3.00	2.00	1.00	1.00						
	Actual		1.62	3.43		3.49	0.82		0.93	2.99	1.97	0.85	0.91						
71 of 93	Expected			5.00		1.00	1.00			2.00	2.00	1.00	1.00			1.00	1.00	1.00	1.00
	Actual			5.26		0.99	0.96			1.92	1.92	1.05	0.86			1.18	0.00 <sup>a</sup>	0.81	1.04
72 of 93	Expected	1.00		3.00		2.00	1.00			4.00			1.00			1.00	1.00	1.00	2.00
	Actual	0.91		3.41		2.25	0.90			3.78			0.82			0.99	0.00 <sup>a</sup>	0.86	2.09
73 of 93	Expected	1.00	1.00	2.00		3.00				3.00		1.00				2.00	1.00	1.00	2.00
	Actual	1.02	0.84	2.33		3.43				2.81		0.82				2.15	0.00 <sup>a</sup>	0.87	1.73
74 of 93	Expected		1.00	3.00		3.00		1.00		4.00		1.00	1.00		1.00	1.00			1.00
	Actual		1.09	3.29		3.44		0.90		3.68		0.82	0.83		0.89	1.10			0.96
75 of 93	Expected		1.00	5.00		2.00		1.00		2.00	1.00		1.00		1.00	1.00		1.00	1.00
	Actual		0.89	5.22		2.21		0.94		1.97	0.92		0.87		1.00	1.17		0.82	0.99
76 of 93	Expected		1.00	5.00		1.00		1.00		2.00	2.00		1.00		1.00			1.00	2.00
	Actual		0.85	5.44		1.17		0.95		1.84	2.09		0.84		0.93			0.81	2.09
77 of 93	Expected	1.00	2.00	4.00		1.00				3.00	3.00							1.00	2.00
	Actual	0.95	1.67	4.46		1.16				3.07	2.87							0.81	2.00
78 of 93	Expected	1.00	2.00	3.00	1.00	2.00	2.00			3.00	2.00								1.00
	Actual	0.95	1.66	3.47	0.00 <sup>c</sup>	2.37	1.72			3.00	1.85								0.98
79 of 93	Expected	1.00	1.00	3.00	1.00	2.00	2.00	1.00		1.00	2.00		2.00						1.00
	Actual	0.99	0.99	3.27	0.00 <sup>c</sup>	2.38	1.69	0.87		1.06	2.10		1.82						0.83
80 of 93	Expected			3.00	3.00	2.00	2.00	1.00		1.00	1.00	1.00	2.00						1.00
	Actual			3.38	0.00 <sup>c</sup>	2.39	1.72	0.82		1.18	1.02	0.83	1.81						0.85
81 of 93	Expected		1.00	3.00	2.00	3.00	1.00	1.00			1.00	1.00	1.00		1.00			1.00	1.00
	Actual		0.86	3.43	0.00 <sup>c</sup>	3.36	0.84	0.90			1.03	0.85	0.88		1.02			0.84	0.97
82 of 93	Expected		1.00	4.00	1.00	3.00	1.00				1.00			1.00	1.00	1.00		2.00	1.00
	Actual		1.02	4.47	0.00 <sup>c</sup>	3.41	0.82					0.84		0.91	0.83	0.93		1.79	0.97
83 of 93	Expected	1.00	2.00	2.00		3.00	1.00							1.00	2.00	1.00		3.00	1.00
	Actual	1.01	1.73	2.38		3.41	0.88							0.97	1.70	1.12		2.72	1.07
84 of 93	Expected	1.00	2.00	1.00		5.00			1.00	1.00	1.00			1.00	1.00			3.00	
	Actual	0.94	1.77	1.10		5.37			0.95	0.99	1.10			0.93	1.00			2.86	
85 of 93	Expected	1.00	2.00			5.00	1.00		1.00	2.00	2.00				2.00				1.00
	Actual	1.08	1.65			5.36	0.87		0.96	2.10	2.19				1.75				1.03
86 of 93	Expected		1.00			4.00	2.00		3.00	1.00	2.00				2.00			1.00	1.00
	Actual		0.84			4.47	1.75		3.00	1.02	2.21				1.82			0.84	1.05
87 of 93	Expected					2.00	2.00		4.00	2.00	1.00				3.00			2.00	1.00
	Actual					2.23	1.74		4.39	2.26	0.97				2.59			1.70	1.13
88 of 93	Expected	1.00				1.00	1.00		4.00	2.00					4.00	1.00		2.00	1.00
	Actual	1.07				1.13	0.87		3.83	2.09					3.90	1.18		1.75	1.19
89 of 93	Expected	3.00							2.00	3.00		1.00			4.00	1.00		1.00	2.00
	Actual	3.05							2.01	3.26		0.92			3.60	1.05		0.92	2.18
90 of 93	Expected	4.00					1.00		1.00	4.00		1.00			3.00		1.00		2.00
	Actual	4.01					0.92		1.05	4.12		0.87			2.65		0.00 <sup>a</sup>		2.38

**Table 2 - Amino Acid Analysis**

Peptide		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)
91 of 93	Expected	2.00		1.00	1.00		2.00		1.00	3.00		2.00			3.00		1.00		1.00
	Actual	2.28		1.04	0.00 <sup>c</sup>		1.97		1.03	3.01		2.20			2.50		0.00 <sup>a</sup>		0.98
92 of 93	Expected		1.00	1.00	3.00	1.00	2.00		1.00	3.00		1.00			3.00		1.00		
	Actual		0.95	1.18	0.00 <sup>c</sup>	1.17	1.94		0.83	3.40		0.93			2.60		0.00 <sup>a</sup>		
93 of 93	Expected		1.00	1.00	3.00	1.00	1.00		2.00	1.00					2.00				
	Actual		1.01	0.99	0.00 <sup>c</sup>	1.11	0.94		1.96	1.17					1.81				

<sup>a</sup>Trp was completely destroyed during hydrolysis  
<sup>b</sup>Val-Ile, Val-Val, Ile-Ile and/or Ile-Val bonds were only partially destroyed during hydrolysis  
<sup>c</sup>Cys was completely destroyed during hydrolysis

**Date:** 09 NOV 2010

**Signature:** *Dorothy C. Young*

**Title:** Technical Manager, BEI Authentication or designee

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