

**Peptide Array, Influenza Virus A/Brisbane/59/2007 (H1N1) Hemagglutinin Protein**

**Catalog No. NR-18970**

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/Brisbane/59/2007 (H1N1) strain of influenza virus (GenPept: ACA28844). Peptides are 13- or 17-mers, with 11 amino acid overlaps.

**Lot: PF0728-1**

**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	A0191	05/20/2010	17	1-MKVKLLVLLCTFTATYA-17	1914.26	99.5%	80.1%
2 of 93	A0641	07/14/2010	17	7-VLLCTFTATYADTICIG-23	1804.13	pass by MS	88.2%
3 of 93	A0295	06/02/2010	17	13-TATYADTICIGYHANNNS-29	1814.40	94.1%	75.1%
4 of 93	A1213	06/19/2010	17	19-TICIGYHANNSTDTVDT-35	1824.20	95.7%	77.1%
5 of 93	A1157	06/10/2010	17	25-HANNSTDTVDTVLEKNV-41	1857.00	99.7%	84.9%
6 of 93	A1158	06/10/2010	17	31-DTVDTVLEKNVTVTHSV-47	1856.60	96.2%	85.9%
7 of 93	A0083	05/07/2010	17	37-LEKNVTVTHSVNLENS-53	1896.73	95.7%	84.9%
8 of 93	A0131	05/12/2010	17	43-VTHSVNLENSHNGKLC-59	1864.73	93.4%	78.2%
9 of 93	A0132	05/12/2010	17	49-LLENSHNGKLCLLKGIA-65	1823.13	90.3%	83.8%
10 of 93	A0088	05/07/2010	17	55-NGKLCLLKGIAPLQLGN-71	1751.93	98.4%	70.2%
11 of 93	A0095	05/10/2010	17	61-LKGIAPLQLGNCSVAGW-77	1726.33	98.7%	77.8%
12 of 93	A0237	05/26/2010	17	67-LQLGNCSVAGWILGNPE-83	1770.93	93.1%	75.4%
13 of 93	A0102	05/11/2010	17	73-SVAGWILGNPECELLIS-89	1800.07	95.6%	81.4%
14 of 93	A0119	05/12/2010	17	79-LGNPECELLISKESWSY-95	1968.07	98.8%	82.4%
15 of 93	A0159	05/17/2010	17	85-ELLISKESWSYIVEKPN-101	2037.20	95.2%	78.2%
16 of 93	A0105	05/11/2010	17	91-ESWSYIVEKPNPENGTC-107	1952.07	97.3%	75.6%
17 of 93	A0106	05/12/2010	17	97-VEKPNPENGTCYPGHFA-113	1859.07	97.7%	86.7%
18 of 93	A0107	05/11/2010	17	103-ENGTCYPGHFADYEELR-119	2002.00	98.9%	84.0%
19 of 93	A0139	05/13/2010	17	109-PGHFADYEELREQLSSV-125	1977.60	96.7%	83.9%
20 of 93	A0521	06/30/2010	17	115-YEELREQLSSVSSFERF-131	2107.34	95.8%	80.3%
21 of 93	A0816	08/02/2010	17	121-QLSSVSSFERFEIFPKE-137	2031.34	90.4%	87.3%
22 of 93	A1164	06/10/2010	17	127-SFERFEIFPKESSWPNH-143	2137.20	97.9%	80.6%
23 of 93	A0224	05/25/2010	17	133-IFPKESSWPNHTVTGVS-149	1885.27	98.6%	77.3%
24 of 93	A0505	06/29/2010	17	139-SWPNHTVTGVSASC SHN-155	1783.60	95.5%	72.4%
25 of 93	A0175	05/20/2010	17	145-VTGVSASC SHNGESSFY-161	1730.80	96.1%	78.7%

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	A0140	05/14/2010	17	151-SCSHNGESSFYRNLLWL-167	2015.34	99.6%	84.5%
27 of 93	A0174	05/18/2010	17	157-ESSFYRNLLWLTGKNGL-173	1997.80	99.4%	77.3%
28 of 93	A0108	05/12/2010	17	163-NLLWLTGKNGLYPNLSK-179	1930.73	95.5%	77.1%
29 of 93	A0120	05/12/2010	17	169-GKNGLYPNLSKSYANNK-185	1867.93	99.7%	89.8%
30 of 93	A0096	05/10/2010	17	175-PNLSKSYANNKEKEVLV-191	1932.20	98.9%	72.3%
31 of 93	A0320	06/04/2010	17	181-YANNKEKEVLVLWGVHH-197	2036.94	98.0%	75.7%
32 of 93	A0133	05/12/2010	17	187-KEVLVLWGVHHPNIGD-203	1909.87	96.7%	72.4%
33 of 93	A0141	05/14/2010	17	193-WGVHHPNIGDQKALYH-209	1969.67	97.9%	75.4%
34 of 93	A0152	05/14/2010	17	199-PNIGDQKALYHTENAYV-215	1932.13	96.9%	74.3%
35 of 93	A0348	06/09/2010	17	205-KALYHTENAYVSVSSH-221	1905.00	94.0%	74.8%
36 of 93	A0109	05/11/2010	17	211-ENAYVSVSSHYSRKFT-227	1973.47	95.0%	73.9%
37 of 93	A0110	05/11/2010	17	217-VVSSHYSRKFTPEIAKR-233	2004.60	99.0%	72.4%
38 of 93	A0121	05/12/2010	17	223-SRKFTPEIAKRPKVRDQ-239	2057.06	98.6%	78.9%
39 of 93	A0122	05/12/2010	17	229-EIAKRPKVRDQEGRINY-245	2073.20	95.1%	68.3%
40 of 93	A0134	05/13/2010	17	235-KVRDQEGRINYWTLL-251	2184.54	99.4%	75.5%
41 of 93	A0123	05/12/2010	17	241-GRINYYWTLLPEGDII-257	2024.54	98.5%	78.1%
42 of 93	A0376	06/12/2010	17	247-WTLLPEGDIIFEANGN-263	1889.93	87.8%	77.7%
43 of 93	A0415	06/16/2010	17	253-GDIIIFEANGNLIAPRY-269	1863.53	88.5%	74.5%
44 of 93	A0111	05/12/2010	17	259-EANGNLIAPRYAFALSR-275	1863.46	99.2%	81.3%
45 of 93	A0142	05/13/2010	17	265-IAPRYAFALSRGFGSGI-281	1784.07	99.2%	76.6%
46 of 93	A0124	05/12/2010	17	271-FALSRGFGSGIINSNAP-287	1707.80	95.2%	69.8%
47 of 93	A0087	05/07/2010	17	277-FGSGIINSNAPMDKCA-293	1739.53	98.1%	70.5%
48 of 93	A0125	05/12/2010	17	283-NSNAPMDKCAKQTPQ-299	1851.93	95.5%	87.7%
49 of 93	A0079	05/07/2010	17	289-DKCAKQTPQGAINSS-305	1763.53	95.4%	75.7%
50 of 93	A0112	05/12/2010	17	295-CQTPQGAINSSLPFQNV-311	1803.47	98.4%	78.5%
51 of 93	A0113	05/12/2010	17	301-AINSSLPFQNVHPVTIG-317	1793.67	98.5%	78.0%
52 of 93	A0143	05/13/2010	17	307-PFQNVHPVTIGCEPKYV-323	1928.13	99.2%	88.0%
53 of 93	A1135	06/01/2010	17	313-PVTIGCEPKYVRSALKR-329	1915.80	96.7%	86.3%
54 of 93	A1136	06/01/2010	17	319-CPKYVRSALKRMVTLGLR-335	1976.70	98.6%	85.3%
55 of 93	A1175	06/10/2010	17	325-SALKRMVTLGLRNIPSIQ-341	1884.00	97.4%	78.3%
56 of 93	A1114	05/27/2010	17	331-VTGLRNIPSIQSRGLFG-347	1814.10	98.1%	79.1%
57 of 93	A0489	06/24/2010	17	337-IPSIQSRGLFGAIGFI-353	1746.27	95.4%	78.2%
58 of 93	A0522	06/30/2010	17	343-RGLFGAIGFIEGGWTG-359	1708.80	pass by MS	81.7%
59 of 93	A0126	05/13/2010	17	349-IAGFIEGGWTGMVDGWY-365	1858.33	98.4%	69.1%
60 of 93	A0144	05/14/2010	17	355-GGWTGMVDGWYGYHHQN-371	1963.80	99.1%	70.3%
61 of 93	A0127	05/13/2010	17	361-VDGWYGYHHQNEQSGY-377	1995.40	99.4%	88.2%
62 of 93	A0911	08/11/2010	17	367-YHHQNEQSGYAADQKS-383	1919.00	95.8%	78.7%
63 of 93	A2091	06/21/2010	17	373-QSGYAADQKSTQNAIN-389	1752.60	95.8%	77.4%
64 of 93	A1178	06/10/2010	17	379-ADQKSTQNAINGITNKV-395	1801.60	97.9%	71.3%
65 of 93	A0160	05/17/2010	17	385-QNAINGITNKVNSVIEK-401	1842.26	91.0%	73.7%
66 of 93	A0495	06/25/2010	17	391-ITNKVNSVIEKMNTQFT-407	1966.33	95.2%	74.7%
67 of 93	A0266	05/29/2010	17	397-SVIEKMNTQFTAVGKEF-413	1929.27	96.9%	76.8%
68 of 93	A0173	05/18/2010	17	403-NQFTAVGKEFNKLERR-419	2038.26	98.8%	70.1%
69 of 93	A0192	05/20/2010	17	409-VGKEFNKLERRMENLNK-425	2105.60	99.7%	74.9%
70 of 93	A0176	05/19/2010	17	415-KLERRMENLNKKVDDGF-431	2092.40	95.1%	80.2%
71 of 93	A0149	05/14/2010	17	421-ENLNKKVDDGFIDIWY-437	2070.26	95.1%	85.2%
72 of 93	A0150	05/17/2010	17	427-VDDGFIDIWYNAELLV-443	1982.73	96.2%	75.7%

Peptide	Lot #	Date of Mfg.	Length	Sequence	Molecular Weight (amu)	Purity by HPLC <sup>a</sup>	Peptide Content <sup>b</sup>
73 of 93	A0530	07/01/2010	17	433-DIWTYNAELLVLENER-449	2091.86	80.1%	80.2%
74 of 93	A0775	07/27/2010	17	439-AELLVLENERTLDFHD-455	2029.34	83.6%	74.6%
75 of 93	A1153	06/08/2010	17	445-LENERTLDFHDSNVKLN-461	2044.50	99.7%	74.0%
76 of 93	A1118	05/27/2010	17	451-LDFHDSNVKLNLYEKVKS-467	2035.50	99.3%	71.7%
77 of 93	A1204	06/15/2010	17	457-NVKLNLYEKVKSQKLNNA-473	1989.90	97.2%	71.1%
78 of 93	A1205	06/15/2010	17	463-EKVKSQKLNNAKEIGNG-479	1857.60	97.5%	71.6%
79 of 93	A1181	06/10/2010	17	469-LKNNAKEIGNGCFEYH-485	1983.90	98.4%	75.5%
80 of 93	A0168	05/18/2010	17	475-EIGNGCFEYHKCNDEC-491	2009.46	90.2%	71.9%
81 of 93	A0135	05/13/2010	17	481-FEYHKCNDECMESVKN-497	2123.74	95.3%	80.8%
82 of 93	A0321	06/04/2010	17	487-CNDECMESVKNGTDYP-503	1967.40	95.4%	83.0%
83 of 93	A0136	05/14/2010	17	493-ESVKNGTDYPKYSEES-509	1995.93	98.5%	75.0%
84 of 93	A1146	06/01/2010	17	499-TYDYPKYSEESKLNREK-515	2149.50	95.5%	81.7%
85 of 93	A0153	05/14/2010	17	505-YSEESKLNREKIDGVKL-521	2008.94	98.3%	76.2%
86 of 93	A0151	05/14/2010	17	511-LNREKIDGVKLESMGVY-527	1950.47	99.0%	69.8%
87 of 93	A0167	05/18/2010	17	517-DGVKLESMGVYQILAIY-533	1898.33	95.2%	78.2%
88 of 93	A0239	05/27/2010	17	523-SMGVYQILAIYSTVASS-539	1790.20	pass by MS	69.2%
89 of 93	A0591	07/08/2010	17	529-ILAIYSTVASSLVLLVS-545	1749.00	pass by MS	92.4%
90 of 93	A0531	07/07/2010	17	535-TVASSLVLLVSLGAISF-551	1676.53	pass by MS	90.7%
91 of 93	A0532	07/07/2010	17	541-VLLVSLGAISFWMCSNG-557	1796.80	pass by MS	84.2%
92 of 93	A0592	07/08/2010	17	547-GAISFWMCSNGLQCRI-563	1871.20	pass by MS	74.8%
93 of 93	A0762	07/26/2010	13	553-MCSNGLQCRI-565	1427.47	83.3%	88.2%

<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	2.00			1.00					4.00	2.00	1.00	1.00			3.00		1.00	2.00
	Actual	2.18			0.00 <sup>c</sup>					4.09	1.97	1.00	1.05			2.60		0.82	2.29
2 of 93	Expected	2.00		1.00	2.00		1.00		2.00	2.00			1.00			4.00		1.00	1.00
	Actual	2.09		1.11	0.00 <sup>c</sup>		0.98		1.79	2.09			1.01			3.91		0.92	1.10
3 of 93	Expected	3.00		3.00	1.00		1.00	1.00	2.00						1.00	3.00		2.00	
	Actual	2.51		3.14	0.00 <sup>c</sup>		1.18	1.09	2.05						0.94	3.14		1.94	
4 of 93	Expected	1.00		4.00	1.00		1.00	1.00	2.00						1.00	4.00		1.00	1.00
	Actual	0.96		4.43	0.00 <sup>c</sup>		0.88	1.05	1.90						0.88	3.94		0.83	1.12
5 of 93	Expected	1.00		5.00		1.00		1.00		1.00	1.00				1.00	3.00			3.00
	Actual	0.84		5.36		1.07		0.83		0.88	1.06				0.83	2.86			3.26
6 of 93	Expected			3.00		1.00		1.00		1.00	1.00				1.00	4.00			5.00
	Actual			3.29		1.03		0.87		0.86	1.04				0.85	3.69			5.37
7 of 93	Expected			3.00		2.00		1.00		3.00	1.00				2.00	2.00			3.00
	Actual			3.33		2.19		1.17		2.91	1.00				1.65	1.86			2.88
8 of 93	Expected			3.00	1.00	1.00	1.00	2.00		3.00	1.00				2.00	1.00			2.00
	Actual			2.99	0.00 <sup>c</sup>	1.07	0.87	1.82		3.12	0.99				2.03	0.88			2.23

**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	1.00		2.00	1.00	1.00	2.00	1.00	1.00	5.00	2.00				1.00				
	Actual	1.03		2.27	0.00 <sup>c</sup>	1.07	1.73	0.89	1.06	5.12	1.97				0.87				
10 of 93	Expected	1.00		2.00	1.00	1.00	3.00		1.00	5.00	2.00			1.00					
	Actual	1.08		2.16	0.00 <sup>c</sup>	0.99	2.57		1.08	5.22	1.99			0.92					
11 of 93	Expected	2.00		1.00	1.00	1.00	3.00		1.00	3.00	1.00			1.00	1.00		1.00		1.00
	Actual	2.05		1.14	0.00 <sup>c</sup>	1.14	2.60		1.07	3.13	0.98			0.92	0.83				1.14
12 of 93	Expected	1.00		2.00	1.00	2.00	3.00		1.00	3.00				1.00	1.00		1.00		1.00
	Actual	1.01		2.28	0.00 <sup>c</sup>	2.35	2.61		0.86	3.07				1.03	0.91				0.88
13 of 93	Expected	1.00		1.00	1.00	2.00	2.00		2.00	3.00				1.00	2.00		1.00		1.00
	Actual	1.03		1.16	0.00 <sup>c</sup>	2.25	1.70		2.11	3.12				0.90	1.60				1.13
14 of 93	Expected			1.00	1.00	3.00	1.00		1.00	3.00	1.00			1.00	3.00		1.00	1.00	
	Actual			1.18	0.00 <sup>c</sup>	3.38	0.87		1.08	3.11	0.98			0.90	2.61			0.89	
15 of 93	Expected			1.00		3.00			2.00	2.00	2.00			1.00	3.00		1.00	1.00	1.00
	Actual			1.18		3.42			1.99 <sup>b</sup>	2.06	1.91			0.90	2.54			0.86	1.13
16 of 93	Expected			2.00	1.00	3.00	1.00		1.00		1.00			2.00	2.00	1.00	1.00	1.00	1.00
	Actual			2.37	0.00 <sup>c</sup>	3.46	0.89		0.87 <sup>b</sup>		0.98			1.85	1.76	0.81		0.93	1.07
17 of 93	Expected	1.00		2.00	1.00	2.00	2.00	1.00			1.00		1.00	3.00		1.00		1.00	1.00
	Actual	1.05		2.32	0.00 <sup>c</sup>	2.32	1.77	0.93			0.99		0.99	2.76		0.81		0.91	1.15
18 of 93	Expected	1.00	1.00	2.00	1.00	3.00	2.00	1.00		1.00			1.00	1.00		1.00		2.00	
	Actual	1.02	0.90	2.35	0.00 <sup>c</sup>	3.44	1.75	0.93		1.04			0.97	0.91		0.82		1.87	
19 of 93	Expected	1.00	1.00	1.00		4.00	1.00	1.00		2.00			1.00	1.00	2.00			1.00	1.00
	Actual	1.05	0.90	1.15		4.43	0.85	0.92		2.09			0.97	0.90	1.64			0.96	1.14
20 of 93	Expected		2.00			5.00				2.00			2.00		4.00			1.00	1.00
	Actual		1.74			5.47				1.96			1.85		4.01			0.86	1.11
21 of 93	Expected		1.00			4.00			1.00	1.00	1.00		3.00	1.00	4.00				1.00
	Actual		0.84			4.26			1.10	1.12	1.20		2.89	0.92	3.69				0.98
22 of 93	Expected		1.00	1.00		3.00		1.00	1.00		1.00		3.00	2.00	3.00		1.00		
	Actual		0.84	1.18		3.39		0.99	0.91		1.16		2.71	2.07	2.74		0.00 <sup>a</sup>		
23 of 93	Expected			1.00		1.00	1.00	1.00	1.00		1.00		1.00	2.00	3.00	2.00	1.00		2.00
	Actual			1.16		1.07	0.92	0.97	1.09		1.03		1.00	1.91	2.58	2.03	0.00 <sup>a</sup>		2.25
24 of 93	Expected	1.00		2.00	1.00		1.00	2.00						1.00	4.00	2.00	1.00		2.00
	Actual	1.11		2.40	0.00 <sup>c</sup>		0.89	2.12						0.92	3.59	1.68	0.00 <sup>a</sup>		2.30
25 of 93	Expected	1.00		1.00	1.00	1.00	2.00	1.00					1.00		5.00	1.00		1.00	2.00
	Actual	1.15		1.02	0.00 <sup>c</sup>	0.85	2.09	1.06					1.06		4.51	1.02		0.91	2.33
26 of 93	Expected		1.00	2.00	1.00	1.00	1.00	1.00		3.00			1.00		4.00		1.00	1.00	
	Actual		0.92	2.31	0.00 <sup>c</sup>	1.06	0.93	0.94		3.32			1.02		3.59		0.00 <sup>a</sup>	0.91	
27 of 93	Expected		1.00	2.00		1.00	2.00			4.00	1.00		1.00		2.00	1.00	1.00	1.00	
	Actual		0.90	2.26		1.16	1.80			4.25	1.00		0.99		1.76	1.03	0.00 <sup>a</sup>	0.85	
28 of 93	Expected			3.00			2.00			5.00	2.00			1.00	1.00	1.00	1.00	1.00	
	Actual			3.40			1.78			5.16	1.95			0.93	0.87	1.01	0.00 <sup>a</sup>	0.90	
29 of 93	Expected	1.00		4.00			2.00			2.00	3.00			1.00	2.00			2.00	
	Actual	1.07		4.28			1.79			2.11	3.14			0.93	1.79			1.90	
30 of 93	Expected	1.00		3.00		2.00				2.00	3.00			1.00	2.00			1.00	2.00
	Actual	0.98		3.40		2.23				1.93	2.87			0.86	1.63			0.81	2.30
31 of 93	Expected	1.00		2.00		2.00	1.00	2.00		2.00	2.00						1.00	1.00	3.00
	Actual	0.97		2.11		2.21	0.86	1.70		2.03	1.90						0.00 <sup>a</sup>	0.85	3.36
32 of 93	Expected			2.00		1.00	2.00	2.00	1.00	2.00	1.00			2.00			1.00		3.00
	Actual			2.28		1.05	1.73	1.71	1.01	2.03	0.98			1.86			0.00 <sup>a</sup>		3.35
33 of 93	Expected	1.00		2.00		1.00	2.00	3.00	1.00	1.00	1.00			2.00			1.00	1.00	1.00
	Actual	1.05		2.39		1.13	1.76	2.81	1.04	1.06	0.97			1.88			0.00 <sup>a</sup>	0.81	1.08
34 of 93	Expected	2.00		3.00		2.00	1.00	1.00	1.00	1.00	1.00			1.00		1.00		2.00	1.00
	Actual	1.96		3.48		2.29	0.83	0.87	0.99	1.00	0.93			0.87		0.93		1.69	1.17
35 of 93	Expected	2.00		1.00		1.00		2.00		1.00	1.00				3.00	1.00		2.00	3.00
	Actual	2.15		1.02		0.96		2.07		1.07	1.04				2.63	0.97		1.81	3.28
36 of 93	Expected	1.00	1.00	1.00		1.00		1.00			1.00		1.00		4.00	1.00		2.00	3.00
	Actual	1.08	1.00	1.20		1.19		1.06			0.86		0.93		3.68	1.04		1.75	3.20

**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)
37 of 93	Expected	1.00	2.00			1.00		1.00	1.00		2.00		1.00	1.00	3.00	1.00		1.00	2.00
	Actual	1.17	2.14			1.19		1.08	1.07		1.69		0.92	1.06	2.94	1.09		0.98	1.67 <sup>b</sup>
38 of 93	Expected	1.00	3.00	1.00		2.00			1.00		3.00		1.00	2.00	1.00	1.00			1.00
	Actual	1.06	2.65	1.11		2.34			1.07		2.99		0.97	1.84	0.83	0.98			1.17
39 of 93	Expected	1.00	3.00	2.00		3.00	1.00		2.00		2.00			1.00				1.00	1.00
	Actual	0.97	2.51	2.39		3.49	0.96		2.03		1.83			0.88				0.82	1.12
40 of 93	Expected		2.00	2.00		3.00	1.00		1.00	2.00	1.00					1.00	1.00	2.00	1.00
	Actual		1.71	2.26		3.44	0.96		0.96	1.98	0.88					0.97	0.00 <sup>a</sup>	1.72	1.11
41 of 93	Expected		1.00	2.00		1.00	2.00		3.00	2.00				1.00		2.00	1.00	2.00	
	Actual		0.88	2.36		1.16	1.83		2.82 <sup>b</sup>	2.17				0.97		2.02	0.00 <sup>a</sup>	1.79	
42 of 93	Expected	1.00		3.00		2.00	2.00		2.00	2.00			1.00	1.00		2.00	1.00		
	Actual	1.03		3.25		2.07	1.72		2.09	2.10			0.95	0.92		1.87	0.00 <sup>a</sup>		
43 of 93	Expected	2.00	1.00	3.00		1.00	2.00		3.00	1.00			1.00	1.00		1.00		1.00	
	Actual	2.33	0.97	3.30		0.99	1.70		2.75 <sup>b</sup>	1.16			1.00	1.07		0.92		0.82	
44 of 93	Expected	4.00	2.00	2.00		1.00	1.00		1.00	2.00			1.00	1.00	1.00			1.00	
	Actual	4.06	1.80	2.19		1.12	0.87		1.08	2.10			0.98	0.92	0.90			0.97	
45 of 93	Expected	3.00	2.00				3.00		2.00	1.00			2.00	1.00	2.00			1.00	
	Actual	3.15	1.88				2.74		2.28	1.13			2.08	0.97	1.80			0.95	
46 of 93	Expected	2.00	1.00	2.00			3.00		2.00	1.00			2.00	1.00	3.00				
	Actual	2.24	0.94	2.33			2.94		1.63 <sup>b</sup>	0.92			2.14	1.04	2.82				
47 of 93	Expected	2.00		4.00	1.00		2.00		2.00		1.00	1.00	1.00	1.00	2.00				
	Actual	2.23		4.14	0.00 <sup>c</sup>		1.91		1.64 <sup>b</sup>		1.17	0.95	1.08	1.02	1.87				
48 of 93	Expected	2.00		4.00	2.00	2.00					2.00	1.00		2.00	1.00	1.00			
	Actual	1.90		4.43	0.00 <sup>c</sup>	2.38					1.87	0.95		1.69	0.87	0.93			
49 of 93	Expected	2.00		3.00	2.00	2.00	1.00		1.00		2.00			1.00	2.00	1.00			
	Actual	1.99		3.31	0.00 <sup>c</sup>	2.23	0.85		1.03		1.97			0.90	1.76	0.96			
50 of 93	Expected	1.00		2.00	1.00	3.00	1.00		1.00	1.00			1.00	2.00	2.00	1.00			1.00
	Actual	1.00		2.33	0.00 <sup>c</sup>	3.15	0.85		1.04	1.05			0.98	1.84	1.63	0.96			1.18
51 of 93	Expected	1.00		2.00		1.00	1.00	1.00	2.00	1.00			1.00	2.00	2.00	1.00			2.00
	Actual	1.02		2.34		1.04	0.85	0.81	2.12	1.09			0.98	1.87	1.72	0.95			2.21
52 of 93	Expected			1.00	1.00	2.00	1.00	1.00	1.00		1.00		1.00	3.00		1.00	1.00	1.00	3.00
	Actual			1.14	0.00 <sup>c</sup>	2.31	0.85	0.81	1.01		0.99		0.96	2.76		0.91		0.93	3.33
53 of 93	Expected	1.00	2.00		1.00	1.00	1.00		1.00	1.00	2.00			2.00	1.00	1.00		1.00	2.00
	Actual	0.97	1.65		0.00 <sup>c</sup>	1.05	0.86		0.82	1.01	2.28			2.05	1.17	1.00		0.85	2.27
54 of 93	Expected	1.00	3.00		1.00		1.00			2.00	2.00	1.00		1.00	1.00	1.00		1.00	2.00
	Actual	0.97	2.76		0.00 <sup>c</sup>		0.91			1.98	2.15	0.94		0.99	1.16	1.12		0.82	2.20
55 of 93	Expected	1.00	2.00	1.00		1.00	1.00		2.00	2.00	1.00	1.00		1.00	2.00	1.00			1.00
	Actual	0.91	1.74	1.15		1.02	0.88		2.10	1.99	1.09	0.87		0.99	2.05	1.17			1.07
56 of 93	Expected		2.00	1.00		1.00	3.00		2.00	2.00			1.00	1.00	2.00	1.00			1.00
	Actual		1.76	1.15		1.00	2.75		2.08	2.06			0.96	0.96	2.00	1.10			1.20
57 of 93	Expected	2.00	1.00			1.00	3.00		4.00	1.00			2.00	1.00	2.00				
	Actual	2.03	0.94			0.94	3.04		3.84	1.17			1.82	1.03	2.19				
58 of 93	Expected	2.00	1.00			1.00	6.00		2.00	1.00			2.00			1.00	1.00		
	Actual	2.26	0.94			1.14	5.70		1.91	1.13			1.81			1.11	0.00 <sup>a</sup>		
59 of 93	Expected	1.00		1.00		1.00	5.00		2.00			1.00	1.00			1.00	2.00	1.00	1.00
	Actual	0.99		1.15		1.18	4.75		1.96			0.95	0.89			0.97	0.00 <sup>a</sup>	0.99	1.16
60 of 93	Expected			2.00		1.00	5.00	2.00				1.00				1.00	2.00	2.00	1.00
	Actual			2.18		1.11	4.82	1.82				0.93				1.01	0.00 <sup>a</sup>	1.99	1.14
61 of 93	Expected			2.00		3.00	4.00	2.00							1.00		1.00	3.00	1.00
	Actual			2.27		3.27	3.66	1.85							0.92		0.00 <sup>a</sup>	2.88	1.15
62 of 93	Expected	2.00		2.00		4.00	2.00	2.00			1.00			2.00				2.00	
	Actual	1.85		2.27		4.29	1.78	2.05			1.09			2.01				1.67	
63 of 93	Expected	3.00		3.00		3.00	2.00		1.00		1.00			2.00	1.00			1.00	
	Actual	2.86		3.40		3.05	1.70		0.96		1.12			2.00	1.04			0.86	
64 of 93	Expected	2.00		4.00		2.00	1.00		2.00		2.00			1.00	2.00				1.00
	Actual	1.70		4.15		1.97	0.81		1.98		1.90			1.13	2.20				1.16



**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		2.00	1.00		3.00		2.00				1.00	1.00			2.00
	Actual	1.06		4.48		2.26	0.86		2.63 <sup>b</sup>		2.00				0.87	1.08			1.75 <sup>b</sup>
66 of 93	Expected			3.00		2.00			2.00		1.00	1.00			1.00	3.00			2.00
	Actual			3.36		2.36			1.95 <sup>b</sup>		2.03	0.90	0.84		0.90	2.86			1.81 <sup>b</sup>
67 of 93	Expected	1.00		1.00		3.00	1.00		1.00		2.00	1.00	2.00		1.00	2.00			2.00
	Actual	1.09		1.14		3.45	0.93		0.81 <sup>b</sup>		2.05	0.83	2.08		0.84	1.96			1.84 <sup>b</sup>
68 of 93	Expected	1.00	2.00	2.00		3.00	1.00			1.00	2.00		2.00			2.00			1.00
	Actual	1.01	1.72	2.25		3.39	0.82			1.07	1.92		1.90			1.86			1.07
69 of 93	Expected		2.00	3.00		3.00	1.00			2.00	3.00	1.00	1.00						1.00
	Actual		1.88	3.31		3.23	0.80			2.06	2.93	0.89	1.00						0.89
70 of 93	Expected		2.00	4.00		2.00	1.00			2.00	3.00	1.00	1.00						1.00
	Actual		1.75	4.38		2.31	0.87			2.06	2.80	0.84	0.97						1.02
71 of 93	Expected			5.00		1.00	1.00		2.00	1.00	2.00		1.00			1.00	1.00	1.00	1.00
	Actual			4.96		1.10	0.94		1.95	1.12	1.98		0.98			0.99	0.00 <sup>a</sup>	1.02	0.96
72 of 93	Expected	1.00		4.00		1.00	1.00		2.00	2.00			1.00			1.00	1.00	1.00	2.00
	Actual	0.97		4.46		1.20	0.88		1.65	1.98			0.86			1.03	0.00 <sup>a</sup>	0.87	2.10
73 of 93	Expected	1.00	1.00	3.00		3.00			1.00	4.00						1.00	1.00	1.00	1.00
	Actual	1.04	1.08	3.08		3.27			0.93	3.71						1.15	0.00 <sup>a</sup>	0.80	0.95
74 of 93	Expected	1.00	1.00	3.00		3.00		1.00		5.00			1.00			1.00			1.00
	Actual	0.94	0.83	3.39		3.40		1.11		4.74			0.91			0.85			0.83
75 of 93	Expected		1.00	5.00		2.00		1.00		3.00	1.00		1.00		1.00	1.00			1.00
	Actual		0.85	5.27		2.13		1.01		2.75	0.99		0.94		1.11	1.13			0.82
76 of 93	Expected			4.00		1.00		1.00		2.00	3.00		1.00		2.00			1.00	2.00
	Actual			4.38		1.08		0.87		2.16	2.69		0.85		2.30			0.90	1.78
77 of 93	Expected	1.00		4.00		2.00				2.00	4.00				1.00			1.00	2.00
	Actual	1.00		4.34		2.30				2.09	3.65				1.01			0.88	1.73
78 of 93	Expected	1.00		3.00		3.00	2.00		1.00	1.00	4.00				1.00				1.00
	Actual	1.01		3.02		3.25	1.80		1.00	0.99	3.82				1.11				1.00
79 of 93	Expected	1.00		3.00	1.00	2.00	2.00	1.00	1.00	1.00	2.00		2.00					1.00	
	Actual	0.95		3.42	0.00 <sup>c</sup>	2.15	1.73	1.12	1.02	0.91	2.10		1.75					0.86	
80 of 93	Expected			3.00	3.00	3.00	2.00	1.00	1.00		1.00		2.00					1.00	
	Actual			3.38	0.00 <sup>c</sup>	3.11	1.90	0.86	0.96		0.99		1.91					0.89	
81 of 93	Expected			3.00	2.00	3.00		1.00			2.00	1.00	2.00		1.00			1.00	1.00
	Actual			2.88	0.00 <sup>c</sup>	3.41		1.11			1.83	0.94	1.85		0.99			0.98	1.01
82 of 93	Expected			4.00	2.00	2.00	1.00				1.00	1.00		1.00	1.00	1.00		2.00	1.00
	Actual			4.48	0.00 <sup>c</sup>	2.14	0.87				0.82	0.89		0.94	0.90	1.06		1.92	1.00
83 of 93	Expected			2.00		3.00	1.00				2.00			1.00	3.00	1.00		3.00	1.00
	Actual			2.18		3.05	0.84				1.78			0.95	3.49	1.19		2.60	0.92
84 of 93	Expected		1.00	2.00		3.00				1.00	3.00			1.00	2.00	1.00		3.00	
	Actual		1.09	2.04		3.01				0.90	3.02			0.89	2.02	1.00		3.03	
85 of 93	Expected		1.00	2.00		3.00	1.00		1.00	2.00	3.00				2.00			1.00	1.00
	Actual		1.00	2.23		3.28	0.94		0.89	2.14	2.58				2.06			1.04	0.84
86 of 93	Expected		1.00	2.00		2.00	2.00		1.00	2.00	2.00	1.00			1.00			1.00	2.00
	Actual		0.83	2.18		2.35	1.83		0.95	2.22	1.97	0.93			1.03			0.85	1.85
87 of 93	Expected	1.00		1.00		2.00	2.00		2.00	2.00	1.00	1.00			1.00			2.00	2.00
	Actual	0.95		1.11		2.21	1.85		1.70	2.37	1.03	0.82			1.13			1.65	2.19
88 of 93	Expected	2.00				1.00	1.00		2.00	1.00		1.00			4.00	1.00		2.00	2.00
	Actual	2.31				0.97	0.83		1.96	1.00		0.87			4.00	1.15		1.70	2.21
89 of 93	Expected	2.00							2.00	4.00					4.00	1.00		1.00	3.00
	Actual	2.10							1.70	3.81					4.03	1.05		1.06	3.25
90 of 93	Expected	2.00					1.00		1.00	4.00			1.00		4.00	1.00			3.00
	Actual	2.01					0.92		0.98	4.14			0.88		3.75	1.09			3.24

**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	1.00		1.00	1.00		2.00		1.00	3.00		1.00	1.00		3.00		1.00		2.00
	Actual	0.97		1.14	0.00 <sup>c</sup>		1.83		1.17	2.99		1.06	1.03		2.96		0.00 <sup>a</sup>		1.85
92 of 93	Expected	1.00	1.00	1.00	2.00	1.00	2.00		2.00	1.00		1.00	1.00		3.00		1.00		
	Actual	1.00	0.93	1.17	0.00 <sup>c</sup>	1.18	1.84		2.01	1.09		0.87	0.97		2.95		0.00 <sup>a</sup>		
93 of 93	Expected		1.00	1.00	3.00	1.00	1.00		2.00	1.00		1.00			2.00				
	Actual		0.95	1.17	0.00 <sup>c</sup>	1.19	0.91		1.97	1.13		0.88			1.80				

<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:** 08 NOV 2010

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

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

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