

**Peptide Array, Influenza Virus A/California/04/2009 (H1N1)pdm09 Neuraminidase Protein**

**Catalog No. NR-18975**

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

**Product Description:** The 115-peptide array spans the neuraminidase (NA) protein of the A/California/04/2009 (H1N1)pdm09 strain of influenza virus (GenPept: ACP44158.1). Peptides are 13- to 16-mers, with 10 to 12 amino acid overlaps.

**Lot: 586086-3**

**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 MALDI or Electrospray
- 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	Peptide Content
001 of 115	LS1593	8/10/2010	15	1-MNPNQKIITIGSVCM-15	1649	80.79%	71.92%
002 of 115	2089-14/19	9/27/2010	14	6-KIITIGSVCMTIGM-19	1467	Crude	76.01%
003 of 115	LS1591	8/16/2010	15	9-TIGSVCMTIGMANLI-23	1524	100.00%	79.21%
004 of 115	LS1600	9/27/2010	15	13-VCMTIGMANLILQIG-27	1577	Crude	77.84%
005 of 115	LS1589	9/22/2010	15	17-IGMANLILQIGNIIS-31	1570	Crude	71.20%
006 of 115	A4797	9/27/2010	15	21-NLILQIGNISIWIS-35	1697	Crude	42.18%
007 of 115	A4769	10/5/2010	14	26-IGNISIWISHSIQ-39	1581	94.92%	71.81%
008 of 115	A4745	9/22/2010	15	29-IISIWISHSIQLGNQ-43	1709	82.01%	75.53%
009 of 115	LS1585	8/16/2010	15	33-WISHSIQLGNQNGIE-47	1767	99.65%	79.81%
010 of 115	A4752	9/29/2010	15	37-SIQLGNQNGIETCNQ-51	1690	Crude	69.79%
011 of 115	A4753	9/29/2010	15	41-GNQNQIETCNQSVIT-55	1649	Crude	74.13%
012 of 115	PR3429	9/22/2010	14	46-IETCNQSVITYENN-59	1628	100.00%	75.67%
013 of 115	A4755	9/30/2010	15	49-CNQSVITYENNTWVN-63	1785	Crude	74.40%
014 of 115	LS1579	9/20/2010	15	53-VITYENNTWVNQTYV-67	1844	100.00%	76.00%
015 of 115	A4754	9/30/2010	15	57-ENNTWVNQTYVNISN-71	1796	Crude	74.55%
016 of 115	A4756	9/30/2010	15	61-WVNQTYVNISNTNFA-75	1771	Crude	77.45%
017 of 115	2088-1/6	9/27/2010	15	65-TYVNISNTNFAAGQS-79	1587	93.14%	62.29%
018 of 115	LS1581	9/7/2010	15	69-ISNTNFAAGQSVVSV-83	1494	94.58%	71.07%
019 of 115	PR3566	9/27/2010	15	73-NFAAGQSVVSVKLAG-87	1448	100.00%	75.12%
020 of 115	LS1569	7/12/2010	15	77-GQSVVSVKLAGNSSL-91	1446	95.74%	68.47%
021 of 115	LS1574	7/12/2010	15	81-VSVKLAGNSSLCPVS-95	1461	98.41%	78.87%
022 of 115	LS1573	7/19/2010	15	85-LAGNSSLCPVSGWAI-99	1475	95.69%	80.08%
023 of 115	LS1572	7/14/2010	15	89-SSLCPVSGWAIYSKD-103	1613	88.38%	76.49%
024 of 115	LS1571	7/14/2010	15	93-PVSGWAIYSKDNSVR-107	1679	97.51%	76.23%
025 of 115	LS1565	7/21/2010	15	97-WAIYSKDNSVRIGSK-111	1724	95.86%	67.49%

# Certificate of Analysis for NR-18975

Table 1							
Peptide	Lot #	Date of Mfg.	Length	Sequence	Molecular Weight (amu)	Purity by HPLC	Peptide Content
026 of 115	LS1638	7/27/2010	15	101-SKDNSVRIGSKGDVF-115	1609	96.75%	68.86%
027 of 115	LS1637	7/19/2010	15	105-SVRIGSKGDVVFIRE-119	1662	90.87%	68.82%
028 of 115	LS1564	7/21/2010	15	109-GSKGDVVFIREPFIS-123	1651	96.01%	75.12%
029 of 115	LS1563	7/16/2010	15	113-DVVFIREPFISCSPL-127	1722	96.25%	70.60%
030 of 115	LS1562	9/20/2010	15	117-IREPFISCSPLECRT-131	1751	89.19%	72.56%
031 of 115	LS1636	8/9/2010	15	121-FISCSPLECRTFFLT-135	1764	94.56%	73.12%
032 of 115	LS1560	8/10/2010	15	125-SPLECRTFFLTQ GAL-139	1683	85.07%	76.23%
033 of 115	LS1559	9/7/2010	15	129-CRTFFLTQ GALLNDK-143	1727	82.31%	74.98%
034 of 115	LS1568	7/16/2010	15	133-FLTQ GALLNDKHSNG-147	1615	97.13%	72.93%
035 of 115	LS1567	7/12/2010	15	137-GALLNDKHSNGTIKD-151	1583	90.41%	65.38%
036 of 115	LS1566	7/14/2010	15	141-NDKHSNGTIKDRSPY-155	1732	99.39%	71.07%
037 of 115	LS1555	7/21/2010	15	145-SNGTIKDRSPYRTLM-159	1739	91.90%	77.79%
038 of 115	LS1558	7/19/2010	15	149-IKDRSPYRTLMSCPI-163	1780	89.87%	75.30%
039 of 115	LS1554	7/21/2010	16	153-SPYRTLMSCPIGEVPS-168	1737	91.01%	81.64%
040 of 115	LS1553	7/19/2010	15	157-TLMSCPIGEVPSYPN-171	1608	98.87%	79.34%
041 of 115	LS1552	7/19/2010	15	161-CPIGEVPSYPNSRFE-175	1695	98.04%	70.22%
042 of 115	LS1597	8/16/2010	15	165-EVPSPYNSRFESVAW-179	1768	94.27%	75.22%
043 of 115	LS1551	11/11/2010	15	169-PYNSRFESVAWSASA-183	1672	98.00%	79.18%
044 of 115	LS1596	9/22/2010	14	173-RFESVAWSASACHD-186	1566	87.03%	70.61%
045 of 115	2072-19/24	9/7/2010	15	177-VAWSASACHDGINWL-191	1630	85.17%	73.68%
046 of 115	LS1550	8/10/2010	15	181-ASACHDGINWLTIGI-195	1571	89.36%	72.06%
047 of 115	LS1549	8/9/2010	15	185-HDGINWLTIGISGPD-199	1595	98.57%	71.80%
048 of 115	2088-13/18	10/25/2010	15	189-NWLTIGISGPDNGAV-203	1514	42.88%	79.41%
049 of 115	LS1547	7/16/2010	15	193-IGISGPDNGAVAVLK-207	1411	95.63%	70.88%
050 of 115	LS1546	8/2/2010	15	197-GPDNGAVAVLKYNGI-211	1488	98.17%	68.01%
051 of 115	LS1545	7/27/2010	15	201-GAVAVLKYNGIITDT-215	1535	89.11%	67.45%
052 of 115	LS1544-2	9/23/2010	15	205-VLKYNGIITDTIKSW-219	1751	98.77%	76.75%
053 of 115	LS1543	7/21/2010	15	209-NGIITDTIKSWRNNI-223	1745	92.34%	63.35%
054 of 115	LS1578	7/16/2010	15	213-TDTIKSWRNNILRTQ-227	1846	87.93%	69.47%
055 of 115	LS1540	7/12/2010	15	217-KSWRNNILRTQESEC-231	1864	86.30%	72.30%
056 of 115	LS1561	7/19/2010	15	221-NNILRTQESECACVN-235	1694	85.87%	76.35%
057 of 115	LS1539	7/12/2010	15	225-RTQESECACVNGSCF-239	1634	87.60%	74.97%
058 of 115	2088-7/12	9/23/2010	15	229-SECACVNGSCFTVMT-243	1552	Crude	74.07%
059 of 115	LS1542	9/17/2010	15	233-CVNGSCFTVMTDGPS-247	1518	94.98%	76.94%
060 of 115	LS1534	7/12/2010	15	237-SCFTVMTDGPSNGQA-251	1515	99.30%	79.15%
061 of 115	LS1541	7/14/2010	15	241-VMTDGPSNGQASYKI-255	1568	98.47%	74.02%
062 of 115	LS1529	7/19/2010	15	245-GPSNGQASYKIFRIE-259	1667	93.35%	79.64%
063 of 115	LS1576	7/9/2010	15	249-GQASYKIFRIEKGKI-263	1738	93.12%	67.14%
064 of 115	LS1524	7/19/2010	15	253-YKIFRIEKGKIVKSV-267	1808	89.72%	80.00%
065 of 115	LS1557	7/19/2010	15	257-RIEKGKIVKSVEMNA-271	1702	95.49%	59.43%
066 of 115	LS1523	7/19/2010	15	261-GKIVKSVEMNAPNYH-275	1687	92.20%	76.04%
067 of 115	LS1522	7/19/2010	15	265-KSVEMNAPNYHYEEC-279	1814	93.99%	73.29%
068 of 115	LS1521	7/19/2010	16	269-MNAPNYHYEECSYCPD-284	1936	98.73%	77.72%
069 of 115	PR3565	9/27/2010	15	273-NYHYEECSYCPDSSE-287	1826	100.00%	69.44%
070 of 115	LS1519	7/16/2010	15	277-EECSYCPDSSEITCV-291	1665	91.72%	79.55%

Table 1

Peptide	Lot #	Date of Mfg.	Length	Sequence	Molecular Weight (amu)	Purity by HPLC	Peptide Content
071 of 115	LS1518	8/13/2010	15	281-CYPDSSEITCVCRDN-295	1705	97.82%	69.90%
072 of 115	LS1517	7/19/2010	15	285-SSEITCVCRDNWHGS-299	1694	84.54%	77.13%
073 of 115	LS1538	7/19/2010	15	289-TCVCRDNWHGSNRPW-303	1831	97.19%	74.51%
074 of 115	LS1516	7/12/2010	15	293-RDNWHGSNRPWVSFN-307	1872	95.78%	73.07%
075 of 115	LS1533	7/9/2010	15	297-HGSNRPWVSFNQNLE-311	1785	92.28%	78.04%
076 of 115	LS1532	7/19/2010	15	301-RPWVSFNQNLEYQIG-315	1851	94.86%	77.60%
077 of 115	LS1537	8/10/2010	15	305-SFNQNLEYQIGYICS-319	1779	87.83%	80.60%
078 of 115	LS1536	9/7/2010	15	309-NLEYQIGYICSGIFG-323	1677	89.00%	74.54%
079 of 115	LS1535	7/16/2010	14	314-IGYICSGIFGDNPR-327	1512	99.01%	76.67%
080 of 115	LS1514	7/21/2010	15	317-ICSGIFGDNPRPNDK-331	1633	99.25%	74.79%
081 of 115	LS1531	7/12/2010	15	321-IFGDNPRPNDKTGSC-335	1621	97.14%	78.38%
082 of 115	LS1513	7/12/2010	15	325-NPRPNDKTGSCGPVS-339	1529	97.01%	62.98%
083 of 115	LS1515	9/2/2010	15	329-NDKTGSCGPVSSNGA-343	1393	95.06%	70.46%
084 of 115	LS1509	7/16/2010	15	333-GSCGPVSSNGANGVK-347	1333	99.48%	79.29%
085 of 115	LS1512	7/16/2010	15	337-PVSSNGANGVKGFSF-351	1468	99.76%	78.14%
086 of 115	LS1511	9/1/2010	15	341-NGANGVKGFSFKYGN-355	1560	90.72%	78.03%
087 of 115	LS1510	7/14/2010	15	345-GVKGFSFKYGNVWI-359	1659	95.78%	73.24%
088 of 115	LS1504	7/12/2010	15	349-FSFKYGNVWIGRTK-363	1760	99.35%	74.57%
089 of 115	LS1508	7/14/2010	15	353-YGNVWIGRTKSISS-367	1625	95.03%	70.44%
090 of 115	LS1528	7/21/2010	15	357-VWIGRTKSISSRNGF-371	1708	92.33%	65.04%
091 of 115	LS1527	7/21/2010	15	361-RTKSISSRNGFEMIW-375	1812	96.87%	66.48%
092 of 115	LS1526	7/16/2010	15	365-ISSRNGFEMIWDPNG-379	1723	99.54%	75.08%
093 of 115	LS1525	7/19/2010	15	369-NGFEMIWDPNGWTGT-383	1725	97.31%	82.02%
094 of 115	LS1503	7/12/2010	15	373-MIWDPNGWTGTDNNF-387	1768	98.78%	79.85%
095 of 115	LS1502	7/12/2010	15	377-PNGWTGTDNNFSIKQ-391	1679	96.36%	76.88%
096 of 115	LS1501	7/12/2010	15	381-TGTDNNFSIKQDIVG-395	1609	97.21%	77.19%
097 of 115	LS1500	7/21/2010	15	385-NNFSIKQDIVGINEW-399	1777	99.71%	67.84%
098 of 115	LS1499	8/10/2010	15	389-IKQDIVGINEWSGYS-403	1709	96.49%	71.72%
099 of 115	LS1498	8/10/2010	15	393-IVGINEWSGYSGSFV-407	1615	89.71%	81.59%
100 of 115	LS1507	7/21/2010	15	397-NEWWSGYSGSFVQHPE-411	1724	97.22%	78.74%
101 of 115	LS1506	7/21/2010	15	401-GYSGSFVQHPELTGL-415	1592	99.79%	78.57%
102 of 115	LS1505	7/12/2010	15	405-SFVQHPELTGLDCIR-419	1715	86.09%	82.89%
103 of 115	LS1497	7/12/2010	15	409-HPELTGLDCIRPCFW-423	1787	98.30%	74.10%
104 of 115	LS1496	9/22/2010	15	413-TGLDCIRPCFWVELI-427	1765	95.60%	81.53%
105 of 115	LS1495	7/12/2010	16	417-CIRPCFWVELIRGRPK-432	1973	84.72%	72.78%
106 of 115	LS1494	7/16/2010	15	421-CFWVELIRGRPKENT-435	1848	89.87%	76.70%
107 of 115	LS1556	7/19/2010	15	425-ELIRGRPKENTWTS-439	1800	92.15%	66.57%
108 of 115	LS1493	8/13/2010	15	429-GRPKENTWTSGSSI-443	1633	83.09%	70.87%
109 of 115	LS1492	9/20/2010	15	433-ENTIWTSGSSISFCG-447	1589	84.91%	76.33%
110 of 115	A4795	10/19/2010	15	437-WTSGSSISFCGVNSD-451	1547	Crude	67.09%
111 of 115	LS1491	8/18/2010	15	441-SSISFCGVNSDTVGW-455	1559	87.28%	72.37%
112 of 115	LS1490	8/10/2010	15	445-FCGVNSDTVGWSWPD-459	1670	83.15%	78.22%
113 of 115	LS1489	7/21/2010	15	449-NSDTVGWSWPDGAEL-463	1634	96.53%	82.18%
114 of 115	LS1488	7/21/2010	15	453-VGWSWPDGAELPFTI-467	1675	96.18%	78.68%
115 of 115	LS1487	7/21/2010	13	457-WPDGAELPFTIDK-469	1489	97.89%	78.27%

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)
001 of 115	Expected			2.00	1.00	1.00	1.00		3.00		1.00	2.00		1.00	1.00	1.00			1.00
	Actual			1.80	0.00 <sup>c</sup>	1.06	1.05		2.77		0.97	1.96		1.00	1.03	1.04			1.09
002 of 115	Expected				1.00		2.00		4.00		1.00	2.00			1.00	2.00			1.00
	Actual				0.00 <sup>c</sup>		1.98		4.04		1.03	1.92			1.08	1.94			1.01
003 of 115	Expected	1.00		1.00	1.00		2.00		3.00	1.00		2.00			1.00	2.00			1.00
	Actual	1.04		1.05	0.00 <sup>c</sup>		1.99		3.04	1.08		1.88			1.06	1.95			0.97
004 of 115	Expected	1.00		1.00	1.00	1.00	2.00		3.00	2.00		2.00				1.00			1.00
	Actual	1.04		1.06	0.00 <sup>c</sup>	0.94	2.00		2.90	2.03		2.00				1.07			0.95
005 of 115	Expected	1.00		2.00		1.00	2.00		5.00	2.00		1.00			1.00				
	Actual	0.99		2.10		1.07	1.84		4.90	2.19		1.01			0.98				
006 of 115	Expected			2.00		1.00	1.00		6.00	2.00					2.00		1.00		
	Actual			1.95		1.05	1.04		9.56 <sup>b</sup>	1.88					1.99		0.00 <sup>a</sup>		
007 of 115	Expected			1.00		1.00	1.00	1.00	6.00						3.00		1.00		
	Actual			0.97		1.02	0.97	0.99	5.93						3.21		0.00 <sup>a</sup>		
008 of 115	Expected			1.00		2.00	1.00	1.00	5.00	1.00					3.00		1.00		
	Actual			1.00		2.10	0.99	1.04	4.81	1.07					2.90		0.00 <sup>a</sup>		
009 of 115	Expected			2.00		4.00	1.00	1.00	3.00	1.00					2.00		1.00		
	Actual			1.98		3.90	1.00	1.02	2.93	1.04					1.75		0.00 <sup>a</sup>		
010 of 115	Expected			3.00	1.00	5.00	1.00		2.00	1.00					1.00	1.00			
	Actual			3.23	0.00 <sup>c</sup>	5.03	1.00		2.70 <sup>b</sup>	0.96					0.97	1.04			
011 of 115	Expected			3.00	1.00	4.00	1.00		2.00						1.00	2.00			1.00
	Actual			3.21	0.00 <sup>c</sup>	4.12	1.12		2.06						1.00	1.86			0.96
012 of 115	Expected			3.00	1.00	3.00			2.00						1.00	2.00		1.00	1.00
	Actual			3.26	0.00 <sup>c</sup>	3.19			1.98						0.98	2.03		1.05	0.89
013 of 115	Expected			4.00	1.00	2.00			1.00						1.00	2.00	1.00	1.00	2.00
	Actual			4.20	0.00 <sup>c</sup>	1.95			0.93						1.00	2.02	0.00 <sup>a</sup>	1.08	2.00
014 of 115	Expected			3.00		2.00			1.00							3.00	1.00	2.00	3.00
	Actual			3.16		2.03			0.90							3.18	0.00 <sup>a</sup>	2.16	2.82
015 of 115	Expected			5.00		2.00			1.00						1.00	2.00	1.00	1.00	2.00
	Actual			4.73		2.01			1.07						1.05	1.95	0.00 <sup>a</sup>	1.06	2.07
016 of 115	Expected	1.00		4.00		1.00			1.00				1.00		1.00	2.00	1.00	1.00	2.00
	Actual	1.00		4.04		1.08			1.05				0.97		1.09	2.12	0.00 <sup>a</sup>	1.02	1.74
017 of 115	Expected	2.00		3.00		1.00	1.00		1.00				1.00		2.00	2.00		1.00	1.00
	Actual	1.99		3.03		1.06	1.03		0.99				1.02		2.04	1.96		1.01	1.03
018 of 115	Expected	2.00		2.00		1.00	1.00		1.00				1.00		3.00	1.00			3.00
	Actual	2.00		2.09		1.04	1.02		1.03				1.05		3.08	0.91			2.91
019 of 115	Expected	3.00		1.00		1.00	2.00			1.00	1.00		1.00		2.00				3.00
	Actual	3.04		0.94		1.01	2.05			1.05	1.07		1.02		1.96				2.93
020 of 115	Expected	1.00		1.00		1.00	2.00			2.00	1.00				4.00				3.00
	Actual	1.01		1.03		1.02	2.04			2.17	0.99				4.06				2.76
021 of 115	Expected	1.00		1.00	1.00		1.00			2.00	1.00			1.00	4.00				3.00
	Actual	1.02		1.03	0.00 <sup>c</sup>		1.02			2.08	0.96			1.02	4.03				2.98
022 of 115	Expected	2.00		1.00	1.00		2.00		1.00	2.00				1.00	3.00		1.00		1.00
	Actual	2.05		1.00	0.00 <sup>c</sup>		1.98		1.01	2.03				1.02	3.02		0.00 <sup>a</sup>		1.03
023 of 115	Expected	1.00		1.00	1.00		1.00		1.00	1.00	1.00			1.00	4.00		1.00	1.00	1.00
	Actual	1.02		1.01	0.00 <sup>c</sup>		1.00		0.97	1.02	1.03			1.02	3.75		0.00 <sup>a</sup>	1.00	1.01
024 of 115	Expected	1.00	1.00	2.00			1.00		1.00		1.00			1.00	3.00		1.00	1.00	2.00
	Actual	1.04	0.98	2.06			1.01		1.01		1.02			0.99	3.04		0.00 <sup>a</sup>	0.98	2.04
025 of 115	Expected	1.00	1.00	2.00			1.00		2.00		2.00				3.00		1.00	1.00	1.00
	Actual	1.02	0.97	2.04			1.01		1.97		2.05				3.04		0.00 <sup>a</sup>	1.02	1.02
026 of 115	Expected		1.00	3.00			2.00		1.00		2.00		1.00		3.00				2.00
	Actual		0.95	2.97			2.02		1.02		2.08		1.04		3.10				2.02

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)
027 of 115	Expected		2.00	1.00		1.00	2.00		2.00		1.00		1.00		2.00				3.00
	Actual		1.97	1.07		1.07	2.01		1.80		1.08		1.07		1.98				2.74
028 of 115	Expected		1.00	1.00		1.00	2.00		2.00		1.00		2.00	1.00	2.00				2.00
	Actual		1.02	1.07		1.05	2.05		1.75		1.08		2.07	1.04	2.04				1.77
029 of 115	Expected		1.00	1.00	1.00	1.00			2.00	1.00			2.00	2.00	2.00				2.00
	Actual		0.99	1.04	0.00 <sup>c</sup>	1.03			1.70	1.06			2.12	2.19	1.81				1.76
030 of 115	Expected		2.00		2.00	2.00			2.00	1.00			1.00	2.00	2.00	1.00			
	Actual		2.01		0.00 <sup>c</sup>	2.01			2.05	1.04			1.07	1.95	2.06	0.98			
031 of 115	Expected		1.00		2.00	1.00			1.00	2.00			3.00	1.00	2.00	2.00			
	Actual		1.01		0.00 <sup>c</sup>	1.03			0.97	2.12			3.17	1.01	1.89	2.08			
032 of 115	Expected	1.00	1.00		1.00	2.00	1.00			3.00			2.00	1.00	1.00	2.00			
	Actual	1.01	0.99		0.00 <sup>c</sup>	1.97	1.02			3.13			2.16	0.91	0.90	2.02			
033 of 115	Expected	1.00	1.00	2.00	1.00	1.00	1.00			3.00	1.00		2.00			2.00			
	Actual	1.02	0.97	2.09	0.00 <sup>c</sup>	0.98	1.00			3.06	0.97		2.01			1.99			
034 of 115	Expected	1.00		3.00		1.00	2.00	1.00		3.00	1.00		1.00		1.00	1.00			
	Actual	1.03		3.03		1.03	2.02	0.99		3.10	0.98		1.07		0.98	1.00			
035 of 115	Expected	1.00		4.00			2.00	1.00	1.00	2.00	2.00				1.00	1.00			
	Actual	1.04		4.03			2.00	0.99	0.98	2.09	2.00				1.00	0.99			
036 of 115	Expected		1.00	4.00			1.00	1.00	1.00		2.00			1.00	2.00	1.00			1.00
	Actual		1.00	4.05			1.02	1.00	0.99		2.04			1.03	1.94	0.97			1.04
037 of 115	Expected		2.00	2.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00			1.00
	Actual		2.03	2.03			0.98		0.95	1.06	1.00	0.91		1.06	1.98	2.03			1.06
038 of 115	Expected		2.00	1.00	1.00				2.00	1.00	1.00	1.00		2.00	2.00	1.00			1.00
	Actual		1.99	1.04	0.00 <sup>c</sup>				1.95	1.03	0.98	0.99		1.91	1.88	1.04			1.04
039 of 115	Expected		1.00		1.00	1.00	1.00		1.00	1.00		1.00		3.00	3.00	1.00			1.00
	Actual		1.00		0.00 <sup>c</sup>	1.02	1.03		1.02	1.03		0.94		3.07	2.92	0.97			1.02
040 of 115	Expected			1.00	1.00	1.00	1.00		1.00	1.00		1.00		3.00	2.00	1.00			1.00
	Actual			1.01	0.00 <sup>c</sup>	1.03	1.09		0.97	1.03		0.95		2.96	1.82	0.94			0.99
041 of 115	Expected		1.00	1.00	1.00	2.00	1.00		1.00				1.00	3.00	2.00				1.00
	Actual		0.99	1.02	0.00 <sup>c</sup>	1.98	1.01		0.99				1.03	2.78	1.84				1.02
042 of 115	Expected	1.00	1.00	1.00		2.00							1.00	2.00	3.00			1.00	1.00
	Actual	0.96	0.98	1.02		2.04							1.04	2.03	2.92			0.00 <sup>a</sup>	1.06
043 of 115	Expected	3.00	1.00	1.00		1.00							1.00	1.00	4.00			1.00	1.00
	Actual	2.94	0.99	1.02		0.99							1.05	0.99	3.73			0.00 <sup>a</sup>	0.99
044 of 115	Expected	3.00	1.00	1.00	1.00	1.00		1.00					1.00		3.00			1.00	1.00
	Actual	2.96	0.91	1.04	0.00 <sup>c</sup>	1.04		1.05					1.05		3.02			0.00 <sup>a</sup>	1.01
045 of 115	Expected	3.00		2.00	1.00		1.00	1.00	1.00	1.00					2.00			2.00	1.00
	Actual	2.96		1.95	0.00 <sup>c</sup>		1.01	1.09	1.00	1.06					1.90			0.00 <sup>a</sup>	0.92
046 of 115	Expected	2.00		2.00	1.00		2.00	1.00	3.00	1.00					1.00	1.00	1.00		
	Actual	1.99		1.84	0.00 <sup>c</sup>		2.01	1.10	2.97	1.04					1.00	0.95	0.00 <sup>a</sup>		
047 of 115	Expected			3.00			3.00	1.00	3.00	1.00				1.00	1.00	1.00	1.00		
	Actual			2.88			3.05	1.03	2.97	1.01				1.02	1.01	1.01	0.00 <sup>a</sup>		
048 of 115	Expected	1.00		3.00			3.00		2.00	1.00				1.00	1.00	1.00	1.00		1.00
	Actual	1.02		2.95			3.02		2.01	1.04				0.98	1.02	0.97	0.00 <sup>a</sup>		1.02
049 of 115	Expected	2.00		2.00			3.00		2.00	1.00	1.00			1.00	1.00				2.00
	Actual	2.05		2.03			2.92		1.91	1.00	1.02			0.98	0.98				2.10
050 of 115	Expected	2.00		3.00			3.00		1.00	1.00	1.00			1.00					1.00
	Actual	1.95		2.92			2.99		1.01	1.01	0.99			0.99					1.02
051 of 115	Expected	2.00		2.00			2.00		2.00	1.00	1.00					2.00			1.00
	Actual	2.03		2.11			1.93		1.73	1.02	1.03					2.04			1.01
052 of 115	Expected			2.00			1.00		3.00	1.00	2.00				1.00	2.00	1.00	1.00	1.00
	Actual			2.00			0.99		2.83	1.03	1.98				1.06	1.96	0.00 <sup>a</sup>	1.05	1.00



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)
053 of 115	Expected		1.00	4.00			1.00		4.00		1.00				1.00	2.00	1.00		
	Actual		0.99	4.14			1.03		3.76		0.99				1.03	2.04	0.00 <sup>a</sup>		
054 of 115	Expected		2.00	3.00		1.00			2.00	1.00	1.00				1.00	3.00	1.00		
	Actual		1.97	3.04		1.10			1.98	1.06	0.96				1.01	3.04	0.00 <sup>a</sup>		
055 of 115	Expected		2.00	2.00	1.00	3.00			1.00	1.00	1.00				2.00	1.00	1.00		
	Actual		1.99	2.08	0.00 <sup>c</sup>	3.16			1.01	1.06	1.00				1.89	1.03	0.00 <sup>a</sup>		
056 of 115	Expected	1.00	1.00	3.00	2.00	3.00			1.00	1.00					1.00	1.00			1.00
	Actual	0.98	0.99	3.05	0.00 <sup>c</sup>	2.99			0.98	1.00					0.96	1.03			1.04
057 of 115	Expected	1.00	1.00	1.00	3.00	3.00	1.00						1.00		2.00	1.00			1.00
	Actual	0.99	0.99	1.04	0.00 <sup>c</sup>	3.04	1.05						1.08		1.95	0.99			1.01
058 of 115	Expected	1.00		1.00	3.00	1.00	1.00					1.00	1.00		2.00	2.00			2.00
	Actual	0.98		1.02	0.00 <sup>c</sup>	0.96	0.99					1.01	1.09		2.00	2.00			2.01
059 of 115	Expected			2.00	2.00		2.00					1.00	1.00	1.00	2.00	2.00			2.00
	Actual			1.99	0.00 <sup>c</sup>		1.94					1.00	1.06	1.03	1.73	1.98			2.00
060 of 115	Expected	1.00		2.00	1.00	1.00	2.00					1.00	1.00	1.00	2.00	2.00			1.00
	Actual	0.92		2.04	0.00 <sup>c</sup>	0.95	1.99					1.02	1.06	1.05	1.83	2.01			1.02
061 of 115	Expected	1.00		2.00		1.00	2.00		1.00		1.00	1.00		1.00	2.00	1.00		1.00	1.00
	Actual	1.02		2.04		1.06	1.97		1.00		1.00	0.96		1.03	2.05	1.01		1.04	0.99
062 of 115	Expected	1.00	1.00	1.00		2.00	2.00		2.00		1.00		1.00	1.00	2.00				1.00
	Actual	0.98	0.97	1.01		1.96	1.98		1.99		1.03		1.03	0.97	1.92				1.04
063 of 115	Expected	1.00	1.00			2.00	2.00		3.00		3.00		1.00		1.00				1.00
	Actual	0.99	1.00			2.10	2.06		3.05		3.14		1.03		0.94				0.98
064 of 115	Expected		1.00			1.00	1.00		3.00		4.00		1.00		1.00				1.00
	Actual		0.98			1.02	1.06		2.79		4.32		1.03		1.07				1.01
065 of 115	Expected	1.00	1.00	1.00		2.00	1.00		2.00		3.00	1.00			1.00				2.00
	Actual	1.05	0.98	1.07		2.09	1.06		1.81		3.12	1.03			0.97				1.89
066 of 115	Expected	1.00		2.00		1.00	1.00	1.00	1.00		2.00	1.00		1.00	1.00			1.00	2.00
	Actual	1.03		2.09		1.01	1.00	1.07	0.94		2.10	1.00		0.96	1.06			1.07	1.82
067 of 115	Expected	1.00		2.00	1.00	3.00		1.00			1.00	1.00		1.00	1.00				2.00
	Actual	0.96		2.03	0.00 <sup>c</sup>	2.89		1.03			1.02	0.97		0.99	0.92				2.07
068 of 115	Expected	1.00		3.00	2.00	2.00		1.00				1.00		2.00	1.00				3.00
	Actual	0.97		3.03	0.00 <sup>c</sup>	1.89		1.02				0.96		2.15	0.91				3.07
069 of 115	Expected			2.00	2.00	3.00		1.00						1.00	3.00				3.00
	Actual			2.00	0.00 <sup>c</sup>	3.00		1.03						1.06	2.91				3.09
070 of 115	Expected			1.00	3.00	3.00			1.00					1.00	3.00	1.00		1.00	1.00
	Actual			1.04	0.00 <sup>c</sup>	2.97			1.05					1.00	2.70	0.94		0.97	1.05
071 of 115	Expected		1.00	3.00	3.00	1.00			1.00					1.00	2.00	1.00		1.00	1.00
	Actual		1.00	3.05	0.00 <sup>c</sup>	1.09			1.00					0.99	1.88	0.91		1.05	1.05
072 of 115	Expected		1.00	2.00	2.00	1.00	1.00	1.00	1.00						3.00	1.00	1.00		1.00
	Actual		1.00	1.92	0.00 <sup>c</sup>	1.00	1.01	1.02	1.00						2.97	1.01	0.00 <sup>a</sup>		1.05
073 of 115	Expected		2.00	3.00	2.00		1.00	1.00						1.00	1.00	1.00	2.00		1.00
	Actual		2.05	2.67	0.00 <sup>c</sup>		1.06	1.06						0.92	1.02	1.02	0.00 <sup>a</sup>		1.06
074 of 115	Expected		2.00	4.00			1.00	1.00					1.00	1.00	2.00			2.00	1.00
	Actual		1.98	3.95			1.02	1.00					1.07	0.98	2.03			0.00 <sup>a</sup>	1.03
075 of 115	Expected		1.00	3.00		2.00	1.00	1.00		1.00			1.00	1.00	2.00			1.00	1.00
	Actual		1.00	3.06		2.03	1.02	0.98		0.97			1.02	1.04	1.96			0.00 <sup>a</sup>	1.03
076 of 115	Expected		1.00	2.00		3.00	1.00		1.00	1.00			1.00	1.00	1.00			1.00	1.00
	Actual		0.94	1.98		2.86	1.06		1.00	1.03			1.00	0.99	0.93			0.00 <sup>a</sup>	1.02
077 of 115	Expected			2.00	1.00	3.00	1.00		2.00	1.00			1.00		2.00				2.00
	Actual			2.01	0.00 <sup>c</sup>	3.11	1.01		1.85	1.02			1.01		1.76				2.00
078 of 115	Expected			1.00	1.00	2.00	3.00		3.00	1.00			1.00		1.00				2.00
	Actual			1.05	0.00 <sup>c</sup>	2.00	3.09		2.78	1.04			1.02		1.01				1.85

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)
079 of 115	Expected		1.00	2.00	1.00		3.00		3.00				1.00	1.00	1.00			1.00	
	Actual		1.03	2.09	0.00 <sup>c</sup>		3.05		2.69				1.05	0.92	0.99			1.05	
080 of 115	Expected		1.00	4.00	1.00		2.00		2.00		1.00		1.00	2.00	1.00				
	Actual		1.01	4.10	0.00 <sup>c</sup>		2.07		1.80		1.04		1.07	1.94	1.04				
081 of 115	Expected		1.00	4.00	1.00		2.00		1.00		1.00		1.00	2.00	1.00	1.00			
	Actual		0.99	4.00	0.00 <sup>c</sup>		2.01		0.99		0.99		1.03	2.07	0.90	1.01			
082 of 115	Expected		1.00	3.00	1.00		2.00				1.00			3.00	2.00	1.00			1.00
	Actual		0.99	3.08	0.00 <sup>c</sup>		2.02				1.02			3.11	1.96	1.05			1.02
083 of 115	Expected	1.00		3.00	1.00		3.00				1.00			1.00	3.00	1.00			1.00
	Actual	1.05		2.91	0.00 <sup>c</sup>		3.08				0.99			1.06	2.89	1.03			1.05
084 of 115	Expected	1.00		2.00	1.00		4.00				1.00			1.00	3.00				2.00
	Actual	1.02		2.01	0.00 <sup>c</sup>		4.03				0.98			1.09	2.91				2.02
085 of 115	Expected	1.00		2.00			3.00				1.00		2.00	1.00	3.00				2.00
	Actual	1.02		2.00			3.03				0.97		2.09	0.98	2.87				2.03
086 of 115	Expected	1.00		3.00			4.00				2.00		2.00		1.00			1.00	1.00
	Actual	1.01		2.85			4.03				1.97		2.07		0.94			1.08	1.00
087 of 115	Expected			1.00			4.00		1.00		2.00		2.00		1.00		1.00	1.00	2.00
	Actual			1.04			4.01		1.02		1.99		2.03		1.04		0.00 <sup>a</sup>	1.01	1.94
088 of 115	Expected		1.00	1.00			3.00		1.00		2.00		2.00		1.00	1.00	1.00	1.00	1.00
	Actual		0.97	1.02			3.01		1.00		2.06		2.01		0.98	1.02	0.00 <sup>a</sup>	1.04	0.98
089 of 115	Expected		1.00	1.00			3.00		2.00		1.00				3.00	1.00	1.00	1.00	1.00
	Actual		0.98	1.02			3.02		2.01		1.02				2.96	1.00	0.00 <sup>a</sup>	1.05	0.98
090 of 115	Expected		2.00	1.00			2.00		2.00		1.00		1.00		3.00	1.00	1.00		1.00
	Actual		1.96	1.02			2.04		2.03		1.00		1.01		2.84	0.99	0.00 <sup>a</sup>		1.05
091 of 115	Expected		2.00	1.00		1.00	1.00		2.00		1.00	1.00	1.00		3.00	1.00	1.00		
	Actual		1.98	1.06		1.03	1.02		2.00		1.04	0.94	1.06		3.07	0.98	0.00 <sup>a</sup>		
092 of 115	Expected		1.00	3.00		1.00	2.00		2.00			1.00	1.00	1.00	2.00			1.00	
	Actual		1.00	3.03		1.03	2.03		2.03			1.04	1.08	0.93	2.01			0.00 <sup>a</sup>	
093 of 115	Expected			3.00		1.00	3.00		1.00			1.00	1.00	1.00		2.00	2.00		
	Actual			3.04		0.95	3.02		1.00			1.00	1.06	0.98		2.09	0.00 <sup>a</sup>		
094 of 115	Expected			5.00			2.00		1.00			1.00	1.00	1.00		2.00	2.00		
	Actual			4.94			1.99		0.98			1.01	1.03	1.01		2.09	0.00 <sup>a</sup>		
095 of 115	Expected			4.00		1.00	2.00		1.00		1.00		1.00	1.00	1.00	2.00	1.00		
	Actual			4.17		1.05	2.03		0.98		0.97		1.00	1.04	0.99	2.10	0.00 <sup>a</sup>		
096 of 115	Expected			4.00		1.00	2.00		2.00		1.00		1.00		1.00	2.00			1.00
	Actual			4.09		1.10	2.01		1.78		0.97		1.10		1.02	2.02			1.02
097 of 115	Expected			4.00		2.00	1.00		3.00		1.00		1.00		1.00		1.00		1.00
	Actual			4.08		2.17	1.05		2.85		1.00		1.03		0.97		0.00 <sup>a</sup>		0.98
098 of 115	Expected			2.00		2.00	2.00		3.00		1.00				2.00		1.00	1.00	1.00
	Actual			2.12		2.03	2.13		2.85		1.03				1.95		0.00 <sup>a</sup>	1.03	0.96
099 of 115	Expected			1.00		1.00	3.00		2.00				1.00		3.00		1.00	1.00	2.00
	Actual			1.03		1.02	3.20		1.73				1.08		2.96		0.00 <sup>a</sup>	1.08	1.75
100 of 115	Expected			1.00		3.00	2.00	1.00					1.00	1.00	3.00		1.00	1.00	1.00
	Actual			0.96		3.01	2.02	1.03					1.04	1.02	2.90		0.00 <sup>a</sup>	1.03	1.03
101 of 115	Expected					2.00	3.00	1.00		2.00			1.00	1.00	2.00	1.00		1.00	1.00
	Actual					2.12	3.05	1.00		2.08			1.03	1.01	1.87	1.00		1.02	1.03
102 of 115	Expected		1.00	1.00	1.00	2.00	1.00	1.00	1.00	2.00			1.00	1.00	1.00	1.00			1.00
	Actual		0.94	1.06	0.00 <sup>c</sup>	2.06	1.06	1.01	0.90	2.18			1.09	0.93	0.94	1.05			1.03
103 of 115	Expected		1.00	1.00	2.00	1.00	1.00	1.00	1.00	2.00			1.00	2.00		1.00	1.00		
	Actual		0.94	1.03	0.00 <sup>c</sup>	0.97	0.99	0.99	0.92	2.08			1.08	2.08		1.07	0.00 <sup>a</sup>		
104 of 115	Expected		1.00	1.00	2.00	1.00	1.00		2.00	2.00			1.00	1.00		1.00	1.00		1.00
	Actual		0.94	1.01	0.00 <sup>c</sup>		0.96		1.93	2.05			1.07	0.98	1.08	1.00	0.00 <sup>a</sup>		1.02

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)
105 of 115	Expected		3.00		2.00	1.00	1.00		2.00	1.00	1.00		1.00	2.00			1.00		1.00
	Actual		2.95		0.00 <sup>c</sup>	0.92	0.99		1.72	1.05	1.07		1.07	1.94			0.00 <sup>a</sup>		1.09
106 of 115	Expected		2.00	1.00	1.00	2.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
	Actual		1.91	1.02	0.00 <sup>c</sup>	1.85	1.00		0.96	1.03	1.03		1.05	1.01		1.07	0.00 <sup>a</sup>		1.00
107 of 115	Expected		2.00	1.00		2.00	1.00		2.00	1.00	1.00			1.00	1.00	2.00	1.00		
	Actual		1.92	1.07		2.03	1.03		1.96	1.00	1.04			1.04	0.99	1.96	0.00 <sup>a</sup>		
108 of 115	Expected		1.00	1.00		1.00	2.00		2.00		1.00			1.00	3.00	2.00	1.00		
	Actual		0.97	1.03		1.00	2.04		2.02		1.02			1.00	2.95	2.04	0.00 <sup>a</sup>		
109 of 115	Expected			1.00	1.00	1.00	2.00		2.00				1.00		4.00	2.00	1.00		
	Actual			1.02	0.00 <sup>c</sup>	0.99	2.04		2.01				1.08		3.90	1.91	0.00 <sup>a</sup>		
110 of 115	Expected			2.00	1.00		2.00		1.00				1.00		5.00	1.00	1.00		1.00
	Actual			2.11	0.00 <sup>c</sup>		2.00		0.99				1.07		5.16	0.95	0.00 <sup>a</sup>		1.04
111 of 115	Expected			2.00	1.00		2.00		1.00				1.00		4.00	1.00	1.00		2.00
	Actual			2.03	0.00 <sup>c</sup>		2.00		1.00				1.10		4.00	1.01	0.00 <sup>a</sup>		2.03
112 of 115	Expected			3.00	1.00		2.00						1.00	1.00	2.00	1.00	2.00		2.00
	Actual			3.08	0.00 <sup>c</sup>		2.00						1.04	0.94	1.95	1.03	0.00 <sup>a</sup>		2.06
113 of 115	Expected	1.00		3.00		1.00	2.00			1.00				1.00	2.00	1.00	2.00		1.00
	Actual	1.01	1.02	3.02		1.02	2.01			1.04				1.02	2.03	0.99	0.00 <sup>a</sup>		1.04
114 of 115	Expected	1.00		1.00		1.00	2.00		1.00	1.00			1.00	2.00	1.00	1.00	2.00		1.00
	Actual	0.98	0.98	1.05		1.04	2.00		1.02	1.04			1.02	1.99	0.98	1.01	0.00 <sup>a</sup>		1.02
115 of 115	Expected	1.00		2.00		1.00	1.00		1.00	1.00	1.00		1.00	2.00		1.00	1.00		
	Actual	0.99		1.99		0.94	1.00		0.99	1.03	1.05		1.04	1.94		1.03	0.00 <sup>a</sup>		

\*Crude peptides may show AAA variability

<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: 22 MAY 2013

Signature: *Dorothy C. Young*

Title: Technical Manager, BEI Authentication or designee

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