

**Peptide Array, *Mycobacterium tuberculosis* Antigen 85A**

**Catalog No. NR-34827**

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

**Product Description:** The 71-peptide array spans antigen 85A of the bacterium *Mycobacterium tuberculosis* ([UniProt: P0A4V2](#)). The initial 43-amino-acid signal peptide has been excluded; therefore the array starts from a mature N-terminus. Peptides are 15-mers, with 11 amino acid overlaps.

**Lot: T6193-1 to T6193-71**

**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-TOF
- 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)	Hydrophilicity	Purity by HPLC <sup>a</sup>	Peptide Content <sup>b</sup>
1 of 71	T6193-1	2/14/2012	15	1-FSRPGLPVEYLQVPS-15	1688.95	0.59	97.4%	88.1%
2 of 71	T6193-2	2/14/2012	15	5-GLPVEYLQVPSPSMG-19	1573.83	0.62	92.7%	87.3%
3 of 71	T6193-3	2/14/2012	15	9-EYLQVPSPSMGRDIK-23	1719.99	0.31	97.9%	83.4%
4 of 71	T6193-4	2/14/2012	15	13-VPSPSMGRDIKVFQFQ-27	1688.97	0.36	95.6%	83.2%
5 of 71	T6193-5	2/14/2012	15	17-SMGRDIKVFQSGGA-31	1580.79	0.2	97.7%	82.2%
6 of 71	T6193-6	2/14/2012	15	21-DIKVFQSGGANSPA-35	1518.66	0.3	94.9%	86.9%
7 of 71	T6193-7	2/14/2012	15	25-QFQSGGANSPALYLL-39	1565.76	0.62	93.3%	87.3%
8 of 71	T6193-8	2/14/2012	15	29-GGANSPALYLLDGLR-43	1516.73	0.53	95.2%	86.9%
9 of 71	T6193-9	2/14/2012	15	33-SPALYLLDGLRAQDD-47	1646.84	0.37	97.7%	87.8%
10 of 71	T6193-10	2/14/2012	15	37-YLLDGLRAQDDFSGW-51	1755.92	0.46	92.1%	88.5%
11 of 71	T6193-11	2/14/2012	15	41-GLRAQDDFSGWDINT-55	1694.79	0.34	95.8%	88.1%
12 of 71	T6193-12	2/14/2012	15	45-QDDFSGWDINTPAFE-59	1741.81	0.42	86.7%	88.4%
13 of 71	T6193-13	2/14/2012	15	49-SGWDINTPAFEWYDQ-63	1828.94	0.57	94.6%	88.9%
14 of 71	T6193-14	2/14/2012	15	53-INTPAFEWYDQSGLS-67	1727.87	0.58	94.7%	88.3%
15 of 71	T6193-15	2/14/2012	15	57-AFEWYDQSGLSVVMP-71	1728.96	0.65	83.7%	88.3%
16 of 71	T6193-16	2/14/2012	15	61-YDQSGLSVVMPVGGQ-75	1536.71	0.47	98.2%	87.1%
17 of 71	T6193-17	2/14/2012	15	65-GLSVVMPVGGQSSFY-79	1527.75	0.65	92.4%	87.0%
18 of 71	T6193-18	2/14/2012	15	69-VMPVGGQSSFYSDWY-83	1722.90	0.62	97.2%	88.3%
19 of 71	T6193-19	2/14/2012	15	73-GGQSSFYSDWYQPAC-87	1695.80	0.48	96.0%	88.1%
20 of 71	T6193-20	2/14/2012	15	77-SFYSDWYQPACGKAG-91	1679.86	0.45	96.9%	88.0%
21 of 71	T6193-21	2/14/2012	15	81-DWYQPACGKAGCQTY-95	1690.90	0.44	96.2%	88.1%
22 of 71	T6193-22	2/14/2012	15	85-PACGKAGCQTYKWET-99	1642.91	0.35	97.2%	82.8%
23 of 71	T6193-23	2/14/2012	15	89-KAGCQTYKWETFLTS-103	1763.04	0.43	97.4%	83.8%
24 of 71	T6193-24	2/14/2012	15	93-QTYKWETFLTSELPG-107	1800.03	0.49	96.6%	88.8%
25 of 71	T6193-25	2/14/2012	15	97-WETFLTSELPGWLQA-111	1778.03	0.76	96.0%	88.6%

# Certificate of Analysis for NR-34827

Table 1

Peptide	Lot #	Date of Mfg.	Length	Sequence	Molecular Weight (amu)	Hydrophilicity	Purity by HPLC <sup>a</sup>	Peptide Content <sup>b</sup>
26 of 71	T6193-26	2/14/2012	15	101-LTSELPGWLQANRHV-115	1720.96	0.58	98.2%	83.4%
27 of 71	T6193-27	2/14/2012	15	105-LPGWLQANRHVKPTG-119	1673.95	0.49	96.0%	78.6%
28 of 71	T6193-28	2/14/2012	15	109-LQANRHVKPTGSAVV-123	1576.83	0.36	91.8%	77.6%
29 of 71	T6193-29	2/14/2012	15	113-RHVKPTGSAVVGLSM-127	1538.84	0.4	95.7%	77.1%
30 of 71	T6193-30	2/14/2012	15	117-PTGSAVVGLSMAASS-131	1334.54	0.47	93.7%	85.4%
31 of 71	T6193-31	2/14/2012	15	121-AVVGLSMAASSALT-135	1390.70	0.68	93.8%	85.9%
32 of 71	T6193-32	2/14/2012	15	125-LSMAASSALTLAIYH-139	1548.87	0.71	91.8%	87.2%
33 of 71	T6193-33	2/14/2012	15	129-ASSALTLAIYHPQQF-143	1646.90	0.63	96.5%	87.8%
34 of 71	T6193-34	2/14/2012	15	133-LTLAIYHPQQFVYAG-147	1721.01	0.76	93.4%	88.3%
35 of 71	T6193-35	2/14/2012	15	137-IYHPQQFVYAGAMSG-151	1668.91	0.6	93.9%	88.0%
36 of 71	T6193-36	2/14/2012	15	141-QQFVYAGAMSGLLDP-155	1596.84	0.58	86.3%	87.5%
37 of 71	T6193-37	2/14/2012	15	145-YAGAMSGLLDPSQAM-159	1511.77	0.49	98.1%	86.9%
38 of 71	T6193-38	2/14/2012	15	149-MSGLLDPSQAMGPTL-163	1517.80	0.57	95.5%	86.9%
39 of 71	T6193-39	2/14/2012	15	153-LDPSQAMGPTLIGLA-167	1483.77	0.63	98.0%	86.7%
40 of 71	T6193-40	2/14/2012	15	157-QAMGPTLIGLAMGDA-171	1445.75	0.57	93.3%	86.4%
41 of 71	T6193-41	2/14/2012	15	161-PTLIGLAMGDAGGYK-175	1463.74	0.48	91.4%	86.5%
42 of 71	T6193-42	2/14/2012	15	165-GLAMGDAGGYKASDM-179	1443.65	0.23	88.5%	86.4%
43 of 71	T6193-43	2/14/2012	15	169-GDAGGYKASDMWGPK-183	1539.72	0.15	91.5%	81.8%
44 of 71	T6193-44	2/14/2012	15	173-GYKASDMWGPKEDPA-187	1651.86	0.15	80.6%	82.8%
45 of 71	T6193-45	2/14/2012	15	177-SDMWGPKEDPAWQRN-191	1817.00	0.24	94.1%	84.2%
46 of 71	T6193-46	2/14/2012	15	181-GPKEDPAWQRNDPLL-195	1735.94	0.29	92.5%	83.5%
47 of 71	T6193-47	2/14/2012	15	185-DPAWQRNDPLLNVGK-199	1722.93	0.4	94.7%	83.4%
48 of 71	T6193-48	2/14/2012	15	189-QRNDPLLNVGKLIAN-203	1664.92	0.53	91.4%	83.0%
49 of 71	T6193-49	2/14/2012	15	193-PLLNVGKLIANNTRV-207	1621.94	0.7	89.3%	82.6%
50 of 71	T6193-50	2/14/2012	15	197-VGKLIANNTRVVWVYC-211	1736.07	0.78	89.8%	83.5%
51 of 71	T6193-51	2/14/2012	15	201-IANNTRVVWVYCGNGK-215	1694.93	0.62	98.8%	83.2%
52 of 71	T6193-52	2/14/2012	15	205-TRVVWVYCGNGKPSDL-219	1694.93	0.51	80.4%	83.2%
53 of 71	T6193-53	2/14/2012	15	209-VYCGNGKPSDLGGNN-223	1494.58	0.41	87.9%	86.8%
54 of 71	T6193-54	2/14/2012	15	213-NGKPSDLGGNNLPAK-227	1481.63	0.28	95.2%	81.2%
55 of 71	T6193-55	2/14/2012	15	217-SDLGGNNLPAKFLEG-231	1531.69	0.45	94.4%	87.0%
56 of 71	T6193-56	2/14/2012	15	221-GNNLPAKFLEGFVRT-235	1662.92	0.54	99.3%	82.9%
57 of 71	T6193-57	2/14/2012	15	225-PAKFLEGFVRTSNIK-239	1707.03	0.43	84.4%	78.9%
58 of 71	T6193-58	2/14/2012	15	229-LEGFVRTSNIKFQDA-243	1724.95	0.39	96.2%	83.5%
59 of 71	T6193-59	2/14/2012	15	233-VRTSNIKFQDAYNAG-247	1683.86	0.32	87.8%	83.1%
60 of 71	T6193-60	2/14/2012	15	237-NIKFQDAYNAGGGHN-251	1605.69	0.34	89.8%	82.4%
61 of 71	T6193-61	2/14/2012	15	241-QDAYNAGGGHNGVFD-255	1521.52	0.28	86.8%	87.0%
62 of 71	T6193-62	2/14/2012	15	245-NAGGGHNGVDFPDS-259	1490.50	0.37	97.6%	86.7%
63 of 71	T6193-63	2/14/2012	15	249-GHNGVDFPDSGTHS-263	1573.59	0.33	99.6%	82.1%
64 of 71	T6193-64	2/14/2012	15	253-VDFPDSGTHSWEYW-267	1872.99	0.61	91.5%	89.1%
65 of 71	T6193-65	2/14/2012	15	257-PDSGTHSWEYWG AQL-271	1733.84	0.46	81.9%	88.4%
66 of 71	T6193-66	2/14/2012	15	261-THSWEYWG AQLNAMK-275	1822.07	0.54	98.8%	84.2%
67 of 71	T6193-67	2/14/2012	15	265-EYWG AQLNAMKPD LQ-279	1764.02	0.46	97.5%	88.6%
68 of 71	T6193-68	2/14/2012	15	269-AQLNAMKPD LQRALG-283	1625.94	0.36	98.1%	82.6%
69 of 71	T6193-69	2/14/2012	15	273-AMKPD LQRALGATPN-287	1582.88	0.32	83.8%	82.2%
70 of 71	T6193-70	2/14/2012	15	277-DLQRALGATPNTGPA-291	1481.66	0.33	96.2%	86.7%
71 of 71	T6193-71	2/14/2012	15	281-ALGATPNTGPAPQGA-295	1322.48	0.4	96.6%	85.3%

<sup>a</sup>% full-length

<sup>b</sup>Remainder is salt and water

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)
1 of 71	Expected		1.00			2.00	1.00			2.00			1.00	3.00	2.00			1.00	2.00
	Actual		1.00			2.01	1.03			2.01			0.92	2.93	1.69			0.86	2.00
2 of 71	Expected					2.00	2.00			2.00		1.00		3.00	2.00			1.00	2.00
	Actual					2.10	2.15			2.06		0.98		3.00	1.69			0.90	1.97
3 of 71	Expected		1.00	1.00		2.00	1.00		1.00	1.00	1.00	1.00		2.00	2.00			1.00	1.00
	Actual		1.10	1.00		2.13	1.09		0.93	1.10	0.88	1.02		2.08	1.89			0.95	1.01
4 of 71	Expected		1.00	1.00		2.00	1.00		1.00		1.00	1.00	1.00	2.00	2.00				2.00
	Actual		1.07	0.98		1.98	1.06		0.80		0.71	1.06	0.94	2.00	1.84				1.82
5 of 71	Expected	1.00	1.00	1.00		2.00	3.00		1.00		1.00	1.00	1.00		2.00				1.00
	Actual	1.00	1.38	1.04		2.01	3.12		0.93		0.88	0.97	1.02		1.99				0.96
6 of 71	Expected	2.00		2.00		2.00	2.00		1.00		1.00		1.00	1.00	2.00				1.00
	Actual	2.02		2.00		1.97	2.11		0.84		0.75		0.99	1.04	1.85				1.02
7 of 71	Expected	2.00		1.00		2.00	2.00			3.00			1.00	1.00	2.00				1.00
	Actual	2.03		1.00		2.06	2.18			3.09			0.97	1.01	1.83				0.94
8 of 71	Expected	2.00	1.00	2.00			3.00			4.00				1.00	1.00				1.00
	Actual	2.01	1.15	2.00			3.26			4.19				1.06	0.99				0.96
9 of 71	Expected	2.00	1.00	3.00		1.00	1.00			4.00				1.00	1.00				1.00
	Actual	2.03	1.08	2.87		1.11	1.06			4.00				1.01	0.97				0.93
10 of 71	Expected	1.00	1.00	3.00		1.00	2.00			3.00			1.00		1.00		1.00	1.00	1.00
	Actual	0.99	1.08	3.00		1.04	1.89			2.92			0.96		0.92		0.00 <sup>a</sup>	0.90	
11 of 71	Expected	1.00	1.00	4.00		1.00	2.00		1.00	1.00			1.00		1.00	1.00	1.00	1.00	
	Actual	0.98	1.08	3.83		1.04	2.10		1.00	1.04			1.00		0.99	1.03	0.00 <sup>a</sup>		
12 of 71	Expected	1.00		4.00		2.00	1.00		1.00				2.00	1.00	1.00	1.00	1.00	1.00	
	Actual	1.02		4.00		2.14	1.00		1.06				1.85	1.08	0.91	1.04	0.00 <sup>a</sup>		
13 of 71	Expected	1.00		3.00		2.00	1.00		1.00				1.00	1.00	1.00	1.00	2.00	1.00	
	Actual	0.99		3.00		2.05	0.89		1.05				0.94	1.05	0.92	0.98	0.00 <sup>a</sup>	0.95	
14 of 71	Expected	1.00		2.00		2.00	1.00		1.00	1.00			1.00	1.00	2.00	1.00	1.00	1.00	
	Actual	1.04		2.00		1.92	0.98		1.03	0.95			0.96	1.08	1.67	0.96	0.00 <sup>a</sup>	0.98	
15 of 71	Expected	1.00		1.00		2.00	1.00			1.00		1.00	1.00	1.00	2.00		1.00	1.00	2.00
	Actual	0.98		1.00		2.01	1.12			1.05		1.04	0.90	1.13	1.92		0.00 <sup>a</sup>	0.83	1.31 <sup>b</sup>
16 of 71	Expected			1.00		2.00	3.00			1.00		1.00		1.00	2.00			1.00	3.00
	Actual			1.00		2.12	3.06			1.12		1.17		1.08	1.68			1.03	2.48 <sup>b</sup>
17 of 71	Expected					1.00	3.00			1.00		1.00	1.00	1.00	3.00			1.00	3.00
	Actual					1.00	3.13			0.99		1.03	0.91	1.00	2.79			0.91	2.10 <sup>b</sup>
18 of 71	Expected			1.00		1.00	2.00					1.00	1.00	1.00	3.00		1.00	2.00	2.00
	Actual			1.05		1.00	2.03					1.14	0.93	1.15	2.64		0.00 <sup>a</sup>	1.96	1.88
19 of 71	Expected	1.00		1.00	1.00	2.00	2.00						1.00	1.00	3.00		1.00	2.00	
	Actual	1.00		1.02	0.70 <sup>c</sup>	1.91	2.19						1.01	1.10	2.76		0.00 <sup>a</sup>	2.02	
20 of 71	Expected	2.00		1.00	1.00	1.00	2.00				1.00		1.00	1.00	2.00		1.00	2.00	
	Actual	2.00		0.95	0.63 <sup>c</sup>	1.04	2.14				0.97		0.97	1.05	1.76		0.00 <sup>a</sup>	1.97	
21 of 71	Expected	2.00		1.00	2.00	2.00	2.00				1.00			1.00		1.00	1.00	2.00	
	Actual	2.00		0.93	1.20 <sup>c</sup>	2.09	2.17				0.94			1.14		1.01	0.00 <sup>a</sup>	2.08	
22 of 71	Expected	2.00			2.00	2.00	2.00				2.00			1.00		2.00	1.00	1.00	
	Actual	2.00			0.12 <sup>c</sup>	2.14	2.27				1.78			1.06		2.01	0.00 <sup>a</sup>	1.06	

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)
23 of 71	Expected	1.00			1.00	2.00	1.00			1.00	2.00		1.00		1.00	3.00	1.00	1.00	
	Actual	0.97			0.46 <sup>c</sup>	2.09	0.94			1.00	1.78		0.96		0.90	2.87	0.00 <sup>a</sup>	1.00	
24 of 71	Expected					3.00	1.00			2.00	1.00		1.00	1.00	1.00	3.00	1.00	1.00	
	Actual					3.07	1.14			2.11	0.95		1.00	1.07	0.91	2.93	0.00 <sup>a</sup>	0.97	
25 of 71	Expected	1.00				3.00	1.00			3.00			1.00	1.00	1.00	2.00	2.00		
	Actual	1.01				3.04	0.96			3.00			0.95	1.03	0.87	1.88	0.00 <sup>a</sup>		
26 of 71	Expected	1.00	1.00	1.00		2.00	1.00	1.00		3.00				1.00	1.00	1.00	1.00		1.00
	Actual	0.97	1.05	0.92		1.95	0.96	0.96		3.00				1.04	0.92	1.04	0.00 <sup>a</sup>		1.09
27 of 71	Expected	1.00	1.00	1.00		1.00	2.00	1.00		2.00	1.00			2.00		1.00	1.00		1.00
	Actual	0.98	1.04	0.95		1.02	2.05	1.03		2.00	0.77			2.08		1.04	0.00 <sup>a</sup>		0.88
28 of 71	Expected	2.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00			3.00
	Actual	1.99	1.04	0.98		1.05	1.03	1.01		1.00	0.88			1.03	0.96	1.08			2.33 <sup>b</sup>
29 of 71	Expected	1.00	1.00				2.00	1.00		1.00	1.00	1.00		1.00	2.00	1.00			3.00
	Actual	0.96	1.01				2.03	1.04		1.00	1.08	1.04		1.00	1.84	1.02			2.06 <sup>b</sup>
30 of 71	Expected	3.00					2.00			1.00		1.00		1.00	4.00	1.00			2.00
	Actual	2.90					2.08			1.00		0.97		0.98	3.89	0.97			0.90 <sup>b</sup>
31 of 71	Expected	4.00					1.00			3.00		1.00			3.00	1.00			2.00
	Actual	4.00					0.99			3.05		1.00			2.93	1.01			0.99 <sup>b</sup>
32 of 71	Expected	4.00						1.00	1.00	3.00		1.00			3.00	1.00		1.00	
	Actual	4.00						1.04	0.94	3.13		0.95			2.85	1.01		0.86	
33 of 71	Expected	3.00				2.00		1.00	1.00	2.00			1.00	1.00	2.00	1.00			1.00
	Actual	3.18				2.22		1.11	1.00	2.04			1.05	1.09	1.94	1.05		0.91	
34 of 71	Expected	2.00				2.00	1.00	1.00	1.00	2.00			1.00	1.00		1.00		2.00	1.00
	Actual	2.00				2.06	1.04	1.05	0.87	2.06			0.94	1.03		0.99		1.92	0.88
35 of 71	Expected	2.00				2.00	2.00	1.00	1.00			1.00	1.00	1.00	1.00			2.00	1.00
	Actual	2.03				2.14	2.10	1.07	0.90			1.00	0.92	1.03	0.96			1.88	0.89
36 of 71	Expected	2.00		1.00		2.00	2.00			2.00		1.00	1.00	1.00	1.00			1.00	1.00
	Actual	1.99		0.95		1.90	2.19			2.00		1.01	0.94	1.04	0.97			0.86	0.78
37 of 71	Expected	3.00		1.00		1.00	2.00			2.00		2.00		1.00	2.00			1.00	
	Actual	3.00		0.97		1.04	2.22			2.06		1.95		1.05	1.97			0.96	
38 of 71	Expected	1.00		1.00		1.00	2.00			3.00		2.00		2.00	2.00	1.00			
	Actual	0.98		0.99		1.04	2.16			3.00		1.90		2.07	1.85	0.97			
39 of 71	Expected	2.00		1.00		1.00	2.00		1.00	3.00		1.00		2.00	1.00	1.00			
	Actual	2.00		1.00		0.95	2.03		1.04	3.11		1.00		2.10	1.02	0.99			
40 of 71	Expected	3.00		1.00		1.00	3.00		1.00	2.00		2.00		1.00		1.00			
	Actual	2.93		0.95		1.00	3.12		1.00	2.04		1.93		1.00		0.96			
41 of 71	Expected	2.00		1.00			4.00		1.00	2.00	1.00	1.00		1.00		1.00		1.00	
	Actual	2.00		0.96			4.08		0.99	2.02	0.93	0.95		1.02		1.00		0.95	
42 of 71	Expected	3.00		2.00			4.00			1.00	1.00	2.00			1.00			1.00	
	Actual	3.08		1.96			4.11			1.04	0.99	2.00			1.01			0.98	
43 of 71	Expected	2.00		2.00			4.00				2.00	1.00		1.00	1.00		1.00	1.00	
	Actual	2.00		1.85			4.17				1.83	0.99		1.14	0.94		0.00 <sup>a</sup>	1.02	
44 of 71	Expected	2.00		2.00		1.00	2.00				2.00	1.00		2.00	1.00		1.00	1.00	
	Actual	2.00		2.03		0.93	2.13				1.88	0.96		1.87	0.74		0.00 <sup>a</sup>	0.90	
45 of 71	Expected	1.00	1.00	3.00		2.00	1.00				1.00	1.00		2.00	1.00		2.00		
	Actual	1.01	1.15	3.00		2.15	1.11				0.99	0.97		2.12	0.98		0.00 <sup>a</sup>		

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)
46 of 71	Expected	1.00	1.00	3.00		2.00	1.00			2.00	1.00			3.00			1.00		
	Actual	0.96	1.08	2.85		2.04	1.05			2.04	0.94			3.00			0.00 <sup>a</sup>		
47 of 71	Expected	1.00	1.00	4.00		1.00	1.00			2.00	1.00			2.00			1.00		1.00
	Actual	0.95	1.05	3.86		1.03	0.98			2.00	0.91			1.99			0.00 <sup>a</sup>		1.08
48 of 71	Expected	1.00	1.00	4.00		1.00	1.00		1.00	3.00	1.00			1.00					1.00
	Actual	0.97	1.03	3.97		1.05	0.96		0.96	3.00	0.96			0.96					1.03
49 of 71	Expected	1.00	1.00	3.00			1.00		1.00	3.00	1.00			1.00		1.00			2.00
	Actual	0.88	0.91	2.84			0.91		0.92	2.87	0.86			0.97		0.94			2.00
50 of 71	Expected	1.00	1.00	2.00	1.00		1.00		1.00	1.00	1.00					1.00	1.00	1.00	3.00
	Actual	0.98	1.00	1.99	0.49 <sup>c</sup>		1.01		1.04	1.08	0.97					1.02	0.00 <sup>a</sup>	0.91	3.00
51 of 71	Expected	1.00	1.00	3.00	1.00		2.00		1.00		1.00					1.00	1.00	1.00	2.00
	Actual	0.89	0.95	2.85	0.35 <sup>c</sup>		1.98		1.18		1.00					0.97	0.00 <sup>a</sup>	0.75	1.62
52 of 71	Expected		1.00	2.00	1.00		2.00			1.00	1.00			1.00	1.00	1.00	1.00	1.00	2.00
	Actual		0.88	2.00	0.49 <sup>c</sup>		1.92			1.04	1.11			1.03	0.95	0.84	0.00 <sup>a</sup>	0.75	1.87
53 of 71	Expected			4.00	1.00		4.00			1.00	1.00			1.00	1.00			1.00	1.00
	Actual			4.00	0.45 <sup>c</sup>		4.16			1.15	1.11			1.18	1.10			0.89	0.91
54 of 71	Expected	1.00		4.00			3.00			2.00	2.00			2.00	1.00				
	Actual	1.00		4.00			3.22			2.01	1.96			2.04	0.96				
55 of 71	Expected	1.00		3.00		1.00	3.00			3.00	1.00		1.00	1.00	1.00				
	Actual	1.09		3.00		1.14	2.93			2.94	1.07		0.85	1.04	1.07				
56 of 71	Expected	1.00	1.00	2.00		1.00	2.00			2.00	1.00		2.00	1.00		1.00			1.00
	Actual	0.99	0.89	2.00		1.05	2.12			1.95	1.02		1.78	0.96		1.01			0.96
57 of 71	Expected	1.00	1.00	1.00		1.00	1.00		1.00	1.00	2.00		2.00	1.00	1.00	1.00			1.00
	Actual	0.99	0.77	1.16		1.09	1.06		0.66	1.00	1.67		1.79	1.02	1.03	1.02			0.89
58 of 71	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
	Actual	1.11	0.70	2.00		2.17	1.10		0.93	1.05	0.87		1.82		0.95	1.01			0.88
59 of 71	Expected	2.00	1.00	3.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00	1.00
	Actual	2.02	0.94	3.00		1.06	1.10		1.03		1.02		0.89		0.98	1.02		1.09	1.01
60 of 71	Expected	2.00		4.00		1.00	3.00	1.00	1.00		1.00		1.00					1.00	
	Actual	1.97		4.00		1.18	2.81	0.79	0.87		0.84		1.06					0.90	
61 of 71	Expected	2.00		4.00		1.00	4.00	1.00					1.00					1.00	1.00
	Actual	2.04		4.00		0.80	4.25	1.19					0.85					0.99	0.87
62 of 71	Expected	1.00		4.00			4.00	1.00					2.00	1.00	1.00				1.00
	Actual	0.98		3.78			4.10	1.12					1.82	1.00	0.88				1.01
63 of 71	Expected			3.00			3.00	2.00					2.00	1.00	2.00	1.00			1.00
	Actual			3.00			3.13	2.14					1.84	1.02	1.78	0.97			1.02
64 of 71	Expected			2.00		1.00	1.00	1.00					2.00	1.00	2.00	1.00	2.00	1.00	1.00
	Actual			2.00		1.06	1.06	1.07					1.80	1.17	1.77	1.04	0.00 <sup>a</sup>	0.95	1.07
65 of 71	Expected	1.00		1.00		2.00	2.00	1.00		1.00				1.00	2.00	1.00	2.00	1.00	
	Actual	0.98		0.78		1.83	2.05	1.04		1.03				1.00	1.63	0.91	0.00 <sup>a</sup>	0.96	
66 of 71	Expected	2.00		1.00		2.00	1.00	1.00		1.00	1.00	1.00			1.00	1.00	2.00	1.00	
	Actual	1.96		0.99		2.08	0.98	1.08		1.00	1.00	0.93			0.95	0.98	0.00 <sup>a</sup>	0.94	
67 of 71	Expected	2.00		2.00		3.00	1.00			2.00	1.00	1.00		1.00			1.00	1.00	
	Actual	2.02		1.92		2.98	1.10			2.14	0.99	1.02		1.10			0.00 <sup>a</sup>	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)
68 of 71	Expected	3.00	1.00	2.00		2.00	1.00			3.00	1.00	1.00		1.00					
	Actual	2.90	1.10	1.86		2.03	1.07			3.00	0.96	0.95		1.02					
69 of 71	Expected	3.00	1.00	2.00		1.00	1.00			2.00	1.00	1.00		2.00		1.00			
	Actual	2.99	1.08	1.99		1.08	1.12			2.00	0.91	0.86		2.08		1.08			
70 of 71	Expected	3.00	1.00	2.00		1.00	2.00			2.00				2.00		2.00			
	Actual	2.92	1.00	1.81		0.90	2.10			2.05				2.01		2.00			
71 of 71	Expected	4.00		1.00		1.00	3.00			1.00				3.00		2.00			
	Actual	3.92		0.83		0.93	3.03			0.84				3.00		1.67			

<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 partially destroyed during hydrolysis

Date: 17 MAY 2012

Signature: *Dorothy C. Young*

Title: Technical Manager, BEI Authentication or designee

ATCC<sup>®</sup>, on behalf of BEI Resources, hereby represents and warrants that the material provided under this certificate has been subjected by the vendor to the tests and procedures specified and that the results described, along with any other data provided in this certificate, are true and accurate to the best of ATCC<sup>®</sup>'s knowledge.

ATCC<sup>®</sup> is a trademark of the American Type Culture Collection.

You are authorized to use this product for research use only. It is not intended for human use.

