

Peptide Array, SARS-Related Coronavirus 2 Non-Structural Protein 13 (NSP13)

Catalog No. NR-58702

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Product Description:

The 119-peptide array spans the non-structural protein 13 (NSP13) of the WIV04 strain of severe acute respiratory syndrome-related coronavirus 2 (SARS-CoV-2; GenPept: [QHR63259](#)). Peptides are 15-mers, with 10 amino acid overlaps.

Lot: 70056428

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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 tables and figures below.

Table 1: Peptide Analysis

Peptide	Date of Manufacturing	Length	Sequence	Molecular Weight (amu)	Purity by HPLC ^{1,2}	Peptide Content ³
1 of 119	10/17/2022	15	1-AVGACVLCNSQTSRLR-15	1521.73	86.5%	79.1%
2 of 119	12/8/2022	15	6-VLCNSQTSRLRCGACI-20	1567.84	95.1%	78.0%
3 of 119	10/25/2022	15	11-QTSLRCGACIRRPFL-25	1721.08	96.8%	76.2%
4 of 119	10/17/2022	15	16-CGACIRRPFLCCKCC-30	1675.88	83.3%	75.5%
5 of 119	10/17/2022	15	21-RRPFLCCKCCYDHVI-35	1855.97	94.6%	80.1%
6 of 119	12/9/2022	15	26-CCKCCYDHVISTSHK-40	1726.84	100.0%	72.1%
7 of 119	10/17/2022	15	31-YDHVISTSHKLVLSV-45	1698.09	98.5%	73.9%
8 of 119	10/17/2022	15	36-STSHKLVLSVNPYVC-50	1646.95	92.0%	83.1%
9 of 119	10/25/2022	15	41-LVLSVNPYVCNAPGC-55	1548.87	100.0%	84.6%
10 of 119	10/17/2022	15	46-NPYVCNAPGCDVTDV-60	1566.79	100.0%	94.0%
11 of 119	12/22/2022	15	51-NAPGCDVTDVTQLYL-65	1608.99	94.5%	82.0%
12 of 119	12/6/2022	15	56-DVTDVTQLYLGMSY-70	1661.96	96.3%	91.5%
13 of 119	10/25/2022	15	61-TQLYLGMSYYCKSH-75	1750.87	99.3%	86.9%
14 of 119	10/17/2022	15	66-GGMSYYCKSHKPPIS-80	1654.92	84.8%	75.5%
15 of 119	10/17/2022	15	71-YCKSHKPPISFPLCA-85	1690.92	98.1%	82.3%
16 of 119	10/17/2022	15	76-KPPISFPLCANGQVF-90	1618.02	100.0%	84.8%
17 of 119	12/8/2022	15	81-FPLCANGQVFGLYKN-95	1670.89	97.7%	89.4%
18 of 119	10/17/2022	15	86-NGQVFGLYKNTCVGS-100	1586.71	98.7%	96.0%
19 of 119	10/25/2022	15	91-GLYKNTCVGSDNVT-105	1585.63	100.0%	90.8%
20 of 119	12/6/2022	15	96-TCVGSDNVTDFNAIA-110	1526.82	91.5%	85.2%
21 of 119	11/10/2022	15	101-DNVTDFNAIATCDWT-115	1685.68	80.3%	86.3%
22 of 119	10/17/2022	15	106-FNAIATCDWTNAGDY-120	1661.65	81.6%	96.1%
23 of 119	11/27/2022	15	111-TCDWTNAGDYILANT-125	1657.72	97.9%	87.2%

Table 1: Peptide Analysis (continued)

Peptide	Date of Manufacturing	Length	Sequence	Molecular Weight (amu)	Purity by HPLC ^{1,2}	Peptide Content ³
24 of 119	10/29/2022	15	116-NAGDYILANTCTERL-130	1653.73	98.0%	83.5%
25 of 119	10/28/2022	15	121-ILANTCTERLKLFAA-135	1663.87	82.2%	70.7%
26 of 119	12/6/2022	15	126-CTERLKLFAAETLKA-140	1693.99	97.8%	81.1%
27 of 119	10/25/2022	15	131-KLFAAETLKATEETF-145	1698.83	87.3%	73.3%
28 of 119	10/17/2022	15	136-ETLKATEETFKLSYG-150	1716.78	100.0%	83.0%
29 of 119	11/3/2022	15	141-TEETFKLSYGIATVR-155	1714.85	100.0%	76.6%
30 of 119	10/25/2022	15	146-KLSYGIATVREVLSD-160	1651.00	85.7%	86.7%
31 of 119	11/10/2022	15	151-IATVREVLSDRELHL-165	1750.86	82.3%	83.7%
32 of 119	11/10/2022	15	156-EVLSDRELHLSWEVG-170	1768.85	100.0%	82.2%
33 of 119	10/25/2022	15	161-RELHLSWEVGKPRPP-175	1801.09	99.0%	73.6%
34 of 119	11/3/2022	15	166-SWEVGKPRPPLNRNY-180	1812.97	98.2%	73.7%
35 of 119	11/27/2022	15	171-KPRPPLNRNYVFTGY-185	1821.94	100.0%	74.2%
36 of 119	11/27/2022	15	176-LNRNYVFTGYRVTKN-190	1844.87	99.2%	70.3%
37 of 119	11/27/2022	15	181-VFTGYRVTKNSKVQI-195	1739.94	100.0%	66.1%
38 of 119	12/6/2022	15	186-RVTKNSKVQIGEYTF-200	1769.91	100.0%	71.3%
39 of 119	11/27/2022	15	191-SKVQIGEYTFEKGDY-205	1763.99	97.9%	78.0%
40 of 119	11/3/2022	15	196-GEYTFEKGDYGDVAV-210	1649.82	100.0%	88.9%
41 of 119	10/29/2022	15	201-EKGDYGDVAVYRGTT-215	1630.81	99.3%	85.2%
42 of 119	12/9/2022	15	206-GDAVVYRGTTTYKLN-220	1658.00	95.1%	92.1%
43 of 119	10/25/2022	15	211-YRGTTTYKLNVDYF-225	1797.80	96.2%	74.1%
44 of 119	12/8/2022	15	216-TYKLNVDYFVLTS-230	1757.11	100.0%	91.3%
45 of 119	10/17/2022	15	221-VGDYFVLTSHTVMPL-235	1678.80	98.7%	79.2%
46 of 119	11/3/2022	15	226-VLTSHTVMPLSAPTL-240	1567.00	93.3%	81.9%
47 of 119	11/10/2022	15	231-TVMPLSAPTLVPQEH-245	1619.81	100.0%	80.9%
48 of 119	12/6/2022	15	236-SAPTLVPQEHYVRIT-250	1710.83	100.0%	75.4%
49 of 119	10/17/2022	15	241-VPQEHYVRITGLYPT-255	1772.97	94.4%	75.7%
50 of 119	10/25/2022	15	246-YVRITGLYPTLNISD-260	1724.93	95.4%	75.7%
51 of 119	12/6/2022	15	251-GLYPTLNISDEFSSN-265	1656.88	90.9%	92.5%
52 of 119	12/22/2022	15	256-LNISDEFSSNVANYQ-270	1700.88	90.9%	81.7%
53 of 119	10/28/2022	15	261-EFSSNVANYQKVGMMQ-275	1701.65	82.7%	82.3%
54 of 119	10/29/2022	15	266-VANYQKVGMMQKYSTL-280	1729.93	100.0%	92.7%
55 of 119	10/17/2022	15	271-KVGMMQKYSTLQGPPG-285	1590.77	93.9%	65.0%
56 of 119	12/9/2022	15	276-KYSTLQGPPGTGKSH-290	1557.81	100.0%	69.2%
57 of 119	10/25/2022	15	281-QGPPGTGKSHFAIGL-295	1466.58	87.6%	76.1%
58 of 119	12/8/2022	15	286-TGKSHFAIGLALYYP-300	1637.93	87.4%	76.9%
59 of 119	12/6/2022	15	291-FAIGLALYYP SARIV-305	1654.07	100.0%	95.3%
60 of 119	10/25/2022	15	296-ALYYP SARIVYTACS-310	1677.97	95.8%	73.4%
61 of 119	12/8/2022	15	301-SARIVYTACSHAAVD-315	1563.84	100.0%	78.2%
62 of 119	12/8/2022	15	306-YTACSHAAVDALCEK-320	1581.77	94.9%	90.2%
63 of 119	12/8/2022	15	311-HAAVDALCEKALKYL-325	1645.00	94.0%	82.4%
64 of 119	12/6/2022	15	316-ALCEKALKYLPIDKC-330	1708.04	100.0%	68.8%
65 of 119	10/17/2022	15	321-ALKYLPIDKCSRIIP-335	1730.13	94.8%	68.3%

Table 1: Peptide Analysis (continued)

Peptide	Date of Manufacturing	Length	Sequence	Molecular Weight (amu)	Purity by HPLC ^{1,2}	Peptide Content ³
66 of 119	10/25/2022	15	326-PIDKCSRIIPARARV-340	1695.06	97.6%	75.3%
67 of 119	10/17/2022	15	331-SRIIPARARVECFDK-345	1761.09	86.0%	63.0%
68 of 119	10/17/2022	15	336-ARARVECFDKFKVNS-350	1770.04	100.0%	67.6%
69 of 119	10/28/2022	15	341-ECFDKFKVNSTLEQY-355	1850.99	100.0%	81.9%
70 of 119	10/29/2022	15	346-FKVNSTLEQYVFCTV-360	1778.10	80.0%	80.2%
71 of 119	12/22/2022	15	351-TLEQYVFCTVNALPE-365	1726.94	100.0%	88.8%
72 of 119	10/17/2022	15	356-VFCTVNALPETTADI-370	1593.91	100.0%	76.5%
73 of 119	12/9/2022	15	361-NALPETTADIVVFDE-375	1633.94	100.0%	93.5%
74 of 119	12/23/2022	15	366-TTADIVVFDEISMAT-380	1612.8	80.0%	87.3%
75 of 119	12/30/2022	15	371-VVFDEISMATNYDLS-385	1703.93	84.5%	72.3%
76 of 119	11/3/2022	15	376-ISMATNYDLSVVNAR-390	1654.01	93.2%	78.3%
77 of 119	12/8/2022	15	381-NYDLSVVNARLRAKH-395	1755.99	100.0%	81.6%
78 of 119	12/6/2022	15	386-VVNARLRAKHVYIG-400	1759.11	92.7%	69.9%
79 of 119	10/17/2022	15	391-LRAKHVYIGDPAQL-405	1744.03	87.1%	75.6%
80 of 119	12/6/2022	15	396-VYVIGDPAQLPAPRT-410	1660.96	99.3%	81.0%
81 of 119	12/6/2022	15	401-DPAQLPAPRTLLTKG-415	1577.90	97.4%	86.2%
82 of 119	12/8/2022	15	406-PAPRTLLTKGTLEPE-420	1623.02	95.4%	82.5%
83 of 119	12/6/2022	15	411-LLTKGTLEPEYFNSV-425	1711.03	97.9%	95.5%
84 of 119	12/8/2022	15	416-TLEPEYFNSVCRLMK-430	1830.00	98.5%	76.4%
85 of 119	12/6/2022	15	421-YFNSVCRLMKTIGPD-435	1743.98	94.1%	91.5%
86 of 119	12/6/2022	15	426-CRLMKTIGPDMFLGT-440	1682.91	95.9%	89.7%
87 of 119	10/25/2022	15	431-TIGPDMFLGTCRRCP-445	1666.72	96.7%	69.2%
88 of 119	12/8/2022	15	436-MFLGTCRRCPAEIVD-450	1710.98	97.1%	85.2%
89 of 119	12/6/2022	15	441-CRRCPAEIVDTVSA-455	1632.93	87.6%	78.4%
90 of 119	12/8/2022	15	446-AEIVDTVSA-460	1636.95	88.6%	82.6%
91 of 119	12/8/2022	15	451-TVSA-465	1687.09	100.0%	78.9%
92 of 119	12/8/2022	15	456-VYDNKLKAHKDKSAQ-470	1744.96	100.0%	66.9%
93 of 119	12/8/2022	15	461-LKAHKDKSAQCFKMF-475	1782.06	98.0%	75.2%
94 of 119	10/17/2022	15	466-DKSAQCFKMFYKGV-480	1765.02	87.1%	68.1%
95 of 119	11/10/2022	15	471-CFKMFYKGVITHDVS-485	1774.89	100.0%	65.6%
96 of 119	10/25/2022	15	476-YKGVITHDVSSAINR-490	1659.95	100.0%	73.6%
97 of 119	10/17/2022	15	481-THDVSSAINRPQIGV-495	1593.92	100.0%	72.5%
98 of 119	11/3/2022	15	486-SAINRPQIGVREFL-500	1699.03	92.5%	79.9%
99 of 119	10/28/2022	15	491-PQIGVVREFLTRNPA-505	1697.08	95.0%	75.0%
100 of 119	10/25/2022	15	496-VREFLTRNPAWRKAV-510	1843.32	99.0%	71.1%
101 of 119	10/17/2022	15	501-TRNPAWRKAVFISPY-515	1805.91	93.0%	71.2%
102 of 119	10/29/2022	15	506-WRKAVFISPYNSQNA-520	1781.10	96.0%	69.0%
103 of 119	10/25/2022	15	511-FISPYNSQNAVASKI-525	1638.92	91.5%	82.7%
104 of 119	12/6/2022	15	516-NSQNAVASKILGLPT-530	1512.90	99.5%	85.0%
105 of 119	12/6/2022	15	521-VASKILGLPTQTVDS-535	1528.95	98.3%	90.3%
106 of 119	12/8/2022	15	526-LGLPTQTVDS-540	1518.77	100.0%	87.2%
107 of 119	12/8/2022	15	531-QTVDS-545	1690.93	84.0%	88.6%

Table 1: Peptide Analysis (continued)

Peptide	Date of Manufacturing	Length	Sequence	Molecular Weight (amu)	Purity by HPLC ^{1,2}	Peptide Content ³
108 of 119	12/22/2022	15	536-SQGSEYDYVIFTQTT-550	1738.87	99.3%	87.2%
109 of 119	12/8/2022	15	541-YDYVIFTQTTETAHS-555	1776.00	91.9%	90.8%
110 of 119	10/17/2022	15	546-FTQTTEAHSCNVNR-560	1708.74	83.4%	81.2%
111 of 119	11/3/2022	15	551-ETAHSCNVNRFNVAI-565	1674.74	81.6%	75.2%
112 of 119	11/3/2022	15	556-CNVNRFNVAITRAKV-570	1704.90	100.0%	71.3%
113 of 119	10/25/2022	15	561-FNVAITRAKVILCI-575	1618.06	100.0%	82.0%
114 of 119	10/17/2022	15	566-TRAKVGILCIMSDRD-580	1677.95	88.5%	61.4%
115 of 119	10/25/2022	15	571-GILCIMSDRDLYDKL-585	1755.09	91.9%	86.5%
116 of 119	10/25/2022	15	576-MSDRDLYDKLQFTSL-590	1832.13	87.3%	82.7%
117 of 119	12/6/2022	15	581-LYDKLQFTSLEIPRR-595	1879.01	93.6%	77.4%
118 of 119	11/3/2022	15	586-QFTSLEIPRRNVATL-600	1745.22	98.5%	78.0%
119 of 119	12/6/2022	15	591-EIPRRNVATLQ-601	1296.76	97.3%	66.2%

¹Percent full length peptide. HPLC peaks for both target and pyroglutamyl (pGlu) forms of Peptides 3, 57, 107 and 118 were counted for final purity.

²HPLC analysis is inconclusive for Peptide 74 due to the hydrophobic nature of the sequence so purity instead is based on mass spectral analysis.

Peptide could not be purified on a column due to high hydrophobicity and poor solubility. All material were dialyzed.

³Remainder is salt and water

Figure 1: Amino Acid Analysis⁴

Peptide		Ala (A)	Arg (R)	Asx (N,D)	Glx (Q,E)	Gly (G)	His (H)	Ile (I)	Leu (L)	Lys (K)	Phe (F)	Pro (P)	Tyr (Y)	Val (V)
1 of 119	Expected	2	1	1	1	1			2					2
	Actual	2.06	0.97	0.99	0.98	1.03			2.03					1.98
2 of 119	Expected	1	1	1	1	1		1	2					1
	Actual	1.02	0.96	0.99	0.99	1.04		0.99	2.02					0.99
3 of 119	Expected	1	3		1	1		1	2		1	1		
	Actual	1.09	2.92		0.99	1.02		0.97	1.97		0.98	1.00		
4 of 119	Expected	1	2			1		1	1	1	1	1		
	Actual	1.05	1.95			1.03		0.98	1.00	1.00	0.98	0.99		
5 of 119	Expected		2	1			1	1	1	1	1	1	1	1
	Actual		2.00	1.03			1.08	0.97	1.02	1.00	1.00	1.01	0.93	0.98
6 of 119	Expected			1			2	1		2				1
	Actual			0.99			2.07	1.00		1.97				0.98
7 of 119	Expected			1			2	1	2	1			1	3
	Actual			0.98			2.08	0.95	2.08	1.02			0.96	3.01
8 of 119	Expected			1			1		2	1		1	1	3
	Actual			1.02			1.06		2.04	1.00		1.01	0.88	3.00
9 of 119	Expected	1		2		1			2			2	1	3
	Actual	1.02		2.00		1.01			2.02			1.95	0.80	2.93
10 of 119	Expected	1		4		1						2	1	3
	Actual	1.03		3.97		1.01						1.97	0.82	2.95
11 of 119	Expected	1		3	1	1			2			1	1	2
	Actual	0.94		3.09	1.05	1.04			2.14			0.96	0.88	2.06
12 of 119	Expected			2	1	2			2				2	2
	Actual			2.02	1.05	2.02			2.07				1.79	2.01
13 of 119	Expected				1	2	1		2	1			3	
	Actual				0.72	1.99	1.02		1.98	0.99			2.01	
14 of 119	Expected					2	1	1		2		2		
	Actual					1.99	1.01	1.03		1.95		1.99		
15 of 119	Expected	1					1	1	1	2	1	3	1	
	Actual	1.05					1.04	0.97	1.00	1.96	0.97	2.96	0.80	

Figure 1: Amino Acid Analysis (continued)⁴

Peptide		Ala (A)	Arg (R)	Asx (N,D)	Glx (Q,E)	Gly (G)	His (H)	Ile (I)	Leu (L)	Lys (K)	Phe (F)	Pro (P)	Tyr (Y)	Val (V)
16 of 119	Expected	1		1	1	1		1	1	1	2	3		1
	Actual	1.05		1.01	1.00	1.02		0.98	1.00	0.98	1.97	2.95		0.99
17 of 119	Expected	1		2	1	2			2	1	2	1	1	1
	Actual	1.02		1.96	0.99	2.12			2.05	0.98	1.97	0.98	0.81	0.99
18 of 119	Expected			2	1	3			1	1	1		1	2
	Actual			2.03	1.01	3.16			1.03	1.03	0.99		0.83	2.03
19 of 119	Expected			4		2			1	1				2
	Actual			4.00		1.99			1.01	1.01				1.98
20 of 119	Expected	2		4		1		1			1			2
	Actual	2.15		4.10		0.99		0.98			0.96			1.94
21 of 119	Expected	2		5				1			1			1
	Actual	1.99		5.05				0.98			0.98			1.03
22 of 119	Expected	3		4		1		1			1			
	Actual	3.05		3.99		1.01		0.99			0.98			
23 of 119	Expected	2		4		1		1	1				1	
	Actual	2.01		3.81		1.01		0.97	1.06				0.82	
24 of 119	Expected	2	1	3	1	1		1	2					
	Actual	2.09	0.97	2.97	1.01	0.99		0.99	2.02					
25 of 119	Expected	3	1	1	1			1	3	1	1			
	Actual	3.10	0.98	1.01	1.01			0.95	2.99	1.02	0.99			
26 of 119	Expected	3	1		2				3	2	1			
	Actual	3.11	0.93		2.05				3.10	2.02	0.96			
27 of 119	Expected	3			3				2	2	2			
	Actual	3.20			3.01				1.96	1.96	1.94			
28 of 119	Expected	1			3	1			2	2	1		1	
	Actual	1.06			2.93	1.08			1.98	1.98	0.98		0.93	
29 of 119	Expected	1	1		2	1		1	1	1	1		1	1
	Actual	1.04	0.97		2.00	1.09		1.01	1.01	1.00	0.99		0.88	1.01
30 of 119	Expected	1	1	1	1	1		1	2	1			1	2
	Actual	1.01	0.94	1.04	1.09	1.11		0.95	1.92	0.95			0.82	1.90
31 of 119	Expected	1	2	1	2		1	1	3					2
	Actual	0.97	1.99	1.09	2.08		1.02	0.90	3.02					1.95
32 of 119	Expected		1	1	3	1	1		3					2
	Actual		0.94	1.02	2.98	1.01	1.01		2.96					2.09
33 of 119	Expected		2		2	1	1		2	1		3		1
	Actual		1.95		2.00	1.02	1.01		1.99	1.00		3.01		1.00
34 of 119	Expected		2	2	1	1			1	1		3	1	1
	Actual		1.97	2.12	0.99	1.09			1.03	0.99		3.04	0.86	0.98
35 of 119	Expected		2	2		1			1	1	1	3	2	1
	Actual		1.86	2.08		1.14			1.03	0.99	0.99	2.94	1.80	1.00
36 of 119	Expected		2	3		1			1	1	1		2	2
	Actual		1.94	3.00		1.10			1.02	1.00	1.00		1.80	2.02
37 of 119	Expected		1	1	1	1		1		2	1		1	3
	Actual		0.97	1.00	1.02	1.07		1.01		2.02	1.00		0.91	3.03
38 of 119	Expected		1	1	2	1		1		2	1		1	2
	Actual		0.96	1.00	2.02	1.05		1.00		2.04	1.01		0.92	2.03
39 of 119	Expected			1	3	2		1		2	1		2	1
	Actual			1.08	3.05	2.02		0.98		2.01	1.00		1.84	0.98

Figure 1: Amino Acid Analysis (continued)⁴

Peptide		Ala (A)	Arg (R)	Asx (N,D)	Glx (Q,E)	Gly (G)	His (H)	Ile (I)	Leu (L)	Lys (K)	Phe (F)	Pro (P)	Tyr (Y)	Val (V)
40 of 119	Expected	1		2	2	3				1	1		2	2
	Actual	1.11		1.85	1.94	2.86				1.00	1.00		1.64	2.08
41 of 119	Expected	1	1	2	1	3				1			2	2
	Actual	1.03	1.03	1.98	0.97	3.05				0.98			1.92	2.07
42 of 119	Expected	1	1	2		2			1	1			2	2
	Actual	1.00	1.00	2.04		1.97			1.01	1.02			1.95	1.96
43 of 119	Expected		1	2		2			1	1	1		3	1
	Actual		0.98	2.03		2.08			1.02	1.02	1.00		2.73	1.01
44 of 119	Expected			2		1	1		2	1	1		2	2
	Actual			2.08		1.00	1.08		1.99	0.99	0.99		1.84	1.98
45 of 119	Expected			1		1	1		2		1	1		3
	Actual			1.00		1.04	1.03		2.01		0.96	0.99		2.92
46 of 119	Expected	1					1		3			2		2
	Actual	1.05					1.00		2.99			1.95		1.96
47 of 119	Expected	1			2		1		2			3		2
	Actual	1.05			2.00		0.99		1.97			2.93		2.00
48 of 119	Expected	1	1		2		1	1	1			2	1	2
	Actual	1.05	0.94		2.07		1.05	0.99	1.01			2.01	0.93	1.99
49 of 119	Expected		1		2	1	1	1	1			2	2	2
	Actual		0.99		2.00	1.07	1.02	1.00	1.02			1.99	1.86	1.96
50 of 119	Expected		1	2		1		2	2			1	2	1
	Actual		0.97	1.99		1.13		1.98	2.02			1.00	1.88	0.97
51 of 119	Expected			3	1	1		1	2		1	1	1	
	Actual			3.13	1.05	1.01		0.98	2.01		1.00	1.00	0.91	
52 of 119	Expected	1		4	2			1	1		1		1	1
	Actual	1.04		4.11	2.07			1.01	0.97		1.03		0.87	1.02
53 of 119	Expected	1		2	3	1				1	1		1	2
	Actual	1.14		1.93	2.88	1.14				1.00	0.95		0.90	1.90
54 of 119	Expected	1		1	2	1			1	2			2	2
	Actual	0.99		1.04	2.05	1.01			1.03	2.02			1.80	2.00
55 of 119	Expected				2	3			1	2		2	1	1
	Actual				1.92	3.59			1.09	2.07		2.10	0.89	0.98
56 of 119	Expected				1	3	1		1	2		2		
	Actual				0.99	3.13	1.01		1.00	1.95		1.97		
57 of 119	Expected	1			1	4	1	1	1	1	1	2		
	Actual	1.10			0.88	4.26	1.01	0.96	0.99	1.05	0.94	1.62		
58 of 119	Expected	2				2	1	1	2	1	1	1	2	
	Actual	2.12				2.07	0.95	1.02	2.20	0.92	0.88	1.10	1.86	
59 of 119	Expected	3	1			1		2	2		1	1	2	1
	Actual	2.99	1.00			1.03		2.01	1.93		1.01	1.02	1.94	1.01
60 of 119	Expected	3	1					1	1			1	3	1
	Actual	3.24	1.03					1.01	1.07			1.05	2.71	1.00
61 of 119	Expected	4	1	1			1	1					1	2
	Actual	4.02	0.98	1.06			1.09	0.97					0.89	1.99
62 of 119	Expected	4		1	1		1		1	1				1
	Actual	3.89		1.03	1.01		1.04		0.99	0.99				0.98
63 of 119	Expected	4		1	1		1		3	2			1	1
	Actual	3.95		1.07	1.00		1.08		2.94	1.93			0.88	1.04

Figure 1: Amino Acid Analysis (continued)⁴

Peptide		Ala (A)	Arg (R)	Asx (N,D)	Glx (Q,E)	Gly (G)	His (H)	Ile (I)	Leu (L)	Lys (K)	Phe (F)	Pro (P)	Tyr (Y)	Val (V)
64 of 119	Expected	2		1	1			1	3	3		1	1	
	Actual	1.98		1.06	1.03			0.98	3.06	2.97		1.01	0.92	
65 of 119	Expected	1	1	1				3	2	2		2	1	
	Actual	1.11	0.98	1.05				2.59	2.06	2.05		2.09	0.90	
66 of 119	Expected	2	3	1				3		1		2		1
	Actual	2.17	2.92	1.01				2.83		1.00		1.99		1.00
67 of 119	Expected	2	3	1	1			2		1	1	1		1
	Actual	2.08	2.93	1.05	0.92			1.62		1.05	1.01	0.99		0.95
68 of 119	Expected	2	2	2	1					2	2			2
	Actual	2.10	1.95	2.08	0.93					2.02	2.02			1.97
69 of 119	Expected			2	3				1	2	2		1	1
	Actual			2.06	3.07				1.04	2.03	2.00		0.88	1.01
70 of 119	Expected			1	2				1	1	2		1	3
	Actual			0.92	2.09				1.09	0.95	2.01		0.97	3.02
71 of 119	Expected	1		1	3				2		1	1		2
	Actual	1.01		1.02	3.00				2.03		0.95	1.00		1.99
72 of 119	Expected	2		2	1			1	1		1	1		2
	Actual	2.10		2.06	0.92			1.03	1.04		0.83	1.02		1.81
73 of 119	Expected	2		3	2			1	1		1	1		2
	Actual	2.01		3.19	2.11			0.94	0.98		0.98	1.00		1.95
74 of 119	Expected	2		2	1			2			1			2
	Actual	2.02		2.03	1.04			1.92			1.01			1.92
75 of 119	Expected	1		3	1			1	1		1		1	2
	Actual	1.02		3.09	1.06			1.04	1.06		1.06		0.91	1.91
76 of 119	Expected	2	1	3				1	1					2
	Actual	2.02	0.96	3.10				1.00	1.02					1.95
77 of 119	Expected	2	2	3			1		2	1			1	2
	Actual	2.04	1.92	3.00			1.06		2.00	1.03			0.93	1.98
78 of 119	Expected	2	2	1		1	1	1	1	1			2	3
	Actual	2.03	1.87	1.02		1.07	1.06	1.02	0.98	1.01			1.85	2.89
79 of 119	Expected	2	1	1	1	1	1	1	2	1		1		1
	Actual	2.19	0.94	1.03	0.95	1.07	1.00	0.98	2.03	1.01		0.99		0.91
80 of 119	Expected	2	1	1	1	1		1	1			3	2	1
	Actual	2.03	0.99	1.02	1.02	1.03		1.00	1.02			3.06	1.75	1.01
81 of 119	Expected	2	1	1	1	1			3	1		3		
	Actual	1.91	0.95	1.03	1.06	1.08			2.91	1.00		2.83		
82 of 119	Expected	1	1		2	1			3	1		3		
	Actual	0.99	0.97		2.07	1.03			2.99	0.99		2.95		
83 of 119	Expected			1	2	1			3	1	1	1	1	1
	Actual			1.07	2.05	1.02			2.95	1.01	0.92	1.02	0.93	1.01
84 of 119	Expected		1	1	2				2	1	1	1	1	1
	Actual		0.99	1.05	2.06				2.02	1.03	0.99	1.00	0.92	0.99
85 of 119	Expected		1	2		1		1	1	1	1	1	1	1
	Actual		0.97	2.12		1.03		1.00	1.04	1.01	0.99	1.01	0.88	1.00
86 of 119	Expected		1	1		2		1	2	1	1	1		
	Actual		0.97	1.05		1.99		0.98	2.00	1.00	1.01	1.00		
87 of 119	Expected		2	1		2		1	1		1	2		
	Actual		1.96	1.03		2.00		0.96	1.02		1.01	1.99		

Figure 1: Amino Acid Analysis (continued)⁴

Peptide		Ala (A)	Arg (R)	Asx (N,D)	Glx (Q,E)	Gly (G)	His (H)	Ile (I)	Leu (L)	Lys (K)	Phe (F)	Pro (P)	Tyr (Y)	Val (V)
88 of 119	Expected	1	2	1	1	1		1	1		1	1		1
	Actual	1.00	1.95	1.06	1.04	1.01		0.97	1.00		0.98	0.99		0.98
89 of 119	Expected	2	2	1	1			1	1			1		2
	Actual	2.00	1.94	1.06	1.04			0.97	1.00			0.97		1.98
90 of 119	Expected	2		3	1			1	1	1			1	3
	Actual	1.98		3.10	1.06			0.96	0.99	0.97			1.01	2.94
91 of 119	Expected	2		2			1		2	3			1	2
	Actual	1.96		2.04			1.13		1.98	2.97			0.92	1.93
92 of 119	Expected	2		3	1		1		1	4			1	1
	Actual	2.03		3.00	1.01		1.08		1.02	4.04			0.87	0.99
93 of 119	Expected	2		1	1		1		1	4	2			
	Actual	1.94		1.03	0.99		1.10		0.98	3.90	1.91			
94 of 119	Expected	1		1	1	1		1		3	2		1	1
	Actual	1.16		1.07	0.95	1.13		0.86		3.23	2.09		0.86	0.85
95 of 119	Expected			1		1	1	1		2	2		1	2
	Actual			1.01		1.07	1.13	0.97		1.93	1.93		0.91	1.96
96 of 119	Expected	1	1	2		1	1	2		1			1	2
	Actual	1.05	0.99	2.04		1.00	1.02	1.93		1.02			0.97	1.94
97 of 119	Expected	1	1	2	1	1	1	2				1		2
	Actual	1.18	1.00	2.02	0.89	1.03	1.05	2.01				1.00		2.02
98 of 119	Expected	1	2	1	2	1		2	1		1	1		2
	Actual	1.09	1.91	1.05	2.04	1.04		1.90	1.00		0.97	0.98		1.89
99 of 119	Expected	1	2	1	2	1		1	1		1	2		2
	Actual	1.08	2.01	1.04	2.04	1.02		0.98	1.04		1.02	2.01		1.84
100 of 119	Expected	2	3	1	1				1	1	1	1		2
	Actual	2.17	2.90	1.00	0.99				0.99	1.02	0.96	1.00		1.96
101 of 119	Expected	2	2	1				1		1	1	2	1	1
	Actual	2.32	1.94	1.20				1.02		1.03	0.92	1.99	0.83	1.02
102 of 119	Expected	2	1	2	1			1		1	1	1	1	1
	Actual	2.03	0.97	2.05	1.01			1.00		1.02	1.00	0.99	0.93	1.03
103 of 119	Expected	2		2	1			2		1	1	1	1	1
	Actual	2.19		2.02	0.99			1.99		1.04	0.93	0.99	0.92	1.02
104 of 119	Expected	2		2	1	1		1	2	1		1		1
	Actual	1.99		2.05	1.02	1.01		0.98	2.00	0.99		1.00		0.99
105 of 119	Expected	1		1	1	1		1	2	1		1		2
	Actual	1.00		0.99	1.01	1.03		0.98	2.00	1.00		1.01		1.99
106 of 119	Expected			1	3	2			2			1		1
	Actual			1.03	3.04	1.97			1.99			0.99		0.98
107 of 119	Expected			2	3	1		1					2	2
	Actual			2.09	3.06	1.02		0.99					1.88	1.96
108 of 119	Expected			1	3	1		1			1		2	1
	Actual			1.03	2.95	1.14		0.99			1.01		1.75	0.97
109 of 119	Expected	1		1	2		1	1			1		2	1
	Actual	1.00		1.03	2.04		1.11	0.97			0.99		1.81	0.97
110 of 119	Expected	1	1	2	2		1				1			1
	Actual	1.06	0.97	1.98	1.96		1.03				0.97			0.99
111 of 119	Expected	2	1	3	1		1	1			1			2
	Actual	2.07	0.97	3.11	0.98		1.01	0.99			0.99			1.98

Figure 1: Amino Acid Analysis (continued)⁴

Peptide		Ala (A)	Arg (R)	Asx (N,D)	Glx (Q,E)	Gly (G)	His (H)	Ile (I)	Leu (L)	Lys (K)	Phe (F)	Pro (P)	Tyr (Y)	Val (V)
112 of 119	Expected	2	2	3				1		1	1			3
	Actual	2.02	1.95	3.13				0.99		1.01	0.99			2.97
113 of 119	Expected	2	1	1		1		3	1	1	1			2
	Actual	2.13	0.98	0.88		1.08		2.98	1.05	1.04	0.94			1.94
114 of 119	Expected	1	2	2		1		2	1	1				1
	Actual	1.18	1.73	2.10		1.12		1.78	0.84	1.04				1.04
115 of 119	Expected		1	3		1		2	3	1			1	
	Actual		0.99	3.09		1.04		2.02	3.03	0.97			0.95	
116 of 119	Expected		1	3	1				3	1	1		1	
	Actual		1.00	3.13	1.04				3.08	1.03	1.03		0.96	
117 of 119	Expected		2	1	2			1	3	1	1	1	1	
	Actual		1.96	1.01	2.04			1.00	3.02	1.05	1.01	1.04	0.89	
118 of 119	Expected	1	2	1	2			1	2		1	1		1
	Actual	0.98	1.97	1.04	2.07			0.99	1.97		1.00	1.02		0.97
119 of 119	Expected	1	2	1	2			1	1			1		1
	Actual	1.01	1.93	1.01	2.01			0.99	1.01			1.01		1.00

⁴The following amino acids were not reported due to partial or complete destruction during hydrolysis: Cysteine (C), methionine (M), Serine (S), threonine (T) and tryptophan (W).

Table 2: Peptide Solubility

Peptide	Sequence	Solubility	Solvent
1 of 119	1-AVGACVLCNSQTSRLR-15	10 mg/mL	DMSO
2 of 119	6-VLCNSQTSRLRCGACI-20	10 mg/mL	50% acetonitrile / 50% water
3 of 119	11-QTSRLRCGACIRRPFL-25	10 mg/mL	50% acetonitrile / 50% water
4 of 119	16-CGACIRRPFLCCKCC-30	10 mg/mL	50% acetonitrile / 50% water
5 of 119	21-RRPFLCCKCCYDHVI-35	10 mg/mL	50% acetonitrile / 50% water
6 of 119	26-CCKCCYDHVISTSHK-40	10 mg/mL	50% acetonitrile / 50% water
7 of 119	31-YDHVISTSHKLVLVS-45	10 mg/mL	50% acetonitrile / 50% water
8 of 119	36-STSHKLVLVSNPYVC-50	10 mg/mL	50% acetonitrile / 50% water
9 of 119	41-LVLVSNPYVCNAPGC-55	10 mg/mL	DMSO
10 of 119	46-NPYVCNAPGCDVTDV-60	10 mg/mL	50% acetonitrile / 50% water
11 of 119	51-NAPGCDVTDVTQLYL-65	10 mg/mL	DMSO
12 of 119	56-DVTDVTQLYLGMSY-70	10 mg/mL	DMSO
13 of 119	61-TQLYLGMSYCKSH-75	10 mg/mL	50% acetonitrile / 50% water
14 of 119	66-GGMSYCKSHKPPIS-80	10 mg/mL	50% acetonitrile / 50% water
15 of 119	71-YCKSHKPPISFPLCA-85	10 mg/mL	50% acetonitrile / 50% water
16 of 119	76-KPPISFPLCANGQVF-90	10 mg/mL	50% acetonitrile / 50% water
17 of 119	81-FPLCANGQVFGLYKN-95	10 mg/mL	50% acetonitrile / 50% water
18 of 119	86-NGQVFGLYKNTCVGS-100	10 mg/mL	DMSO
19 of 119	91-GLYKNTCVGSDNVT-105	10 mg/mL	50% acetonitrile / 50% water
20 of 119	96-TCVGSDNVTDFNAIA-110	10 mg/mL	DMSO
21 of 119	101-DNVTDFNAIATCDWT-115	10 mg/mL	DMSO
22 of 119	106-FNAIATCDWTNAGDY-120	10 mg/mL	DMSO

Table 2: Peptide Solubility (continued)

Peptide	Sequence	Solubility	Solvent
23 of 119	111-TCDWTNAGDYILANT-125	10 mg/mL	DMSO
24 of 119	116-NAGDYILANTCTERL-130	10 mg/mL	DMSO
25 of 119	121-ILANTCTERLKLFAA-135	10 mg/mL	50% acetonitrile / 50% water
26 of 119	126-CTERLKLFAAETLKA-140	10 mg/mL	DMSO
27 of 119	131-KLFAAETLKATEETF-145	10 mg/mL	50% acetonitrile / 50% water
28 of 119	136-ETLKATEETFKLSYG-150	10 mg/mL	50% acetonitrile / 50% water
29 of 119	141-TEETFKLSYGIATVR-155	10 mg/mL	50% acetonitrile / 50% water
30 of 119	146-KLSYGIATVREVLSD-160	10 mg/mL	DMSO
31 of 119	151-IATVREVLSDRELHL-165	10 mg/mL	DMSO
32 of 119	156-EVLSDRELHLSWEVG-170	10 mg/mL	DMSO
33 of 119	161-RELHLSWEVGKPRPP-175	10 mg/mL	50% acetonitrile / 50% water
34 of 119	166-SWEVGKPRPPLNRNY-180	10 mg/mL	50% acetonitrile / 50% water
35 of 119	171-KPRPPLNRNYVFTGY-185	10 mg/mL	50% acetonitrile / 50% water
36 of 119	176-LNRNYVFTGYRVTKN-190	10 mg/mL	50% acetonitrile / 50% water
37 of 119	181-VFTGYRVTKNSKVQI-195	10 mg/mL	50% acetonitrile / 50% water
38 of 119	186-RVTKNSKVQIGEYTF-200	10 mg/mL	50% acetonitrile / 50% water
39 of 119	191-SKVQIGEYTFEKGDY-205	10 mg/mL	50% acetonitrile / 50% water
40 of 119	196-GEYTFEKGDYGDAVV-210	10 mg/mL	50% acetonitrile / 50% water
41 of 119	201-EKGDYGDAVVYRGTT-215	10 mg/mL	50% acetonitrile / 50% water
42 of 119	206-GDAVVYRGTTTYKLN-220	10 mg/mL	50% acetonitrile / 50% water
43 of 119	211-YRGTTTYKLNVGDYF-225	10 mg/mL	50% acetonitrile / 50% water
44 of 119	216-TYKLNVGDYFVLTS-230	10 mg/mL	DMSO
45 of 119	221-VGDYFVLTSHTVMPL-235	10 mg/mL	50% acetonitrile / 50% water
46 of 119	226-VLTSHTVMPLSAPTL-240	10 mg/mL	DMSO
47 of 119	231-TVMPLSAPTLVPQEH-245	10 mg/mL	50% acetonitrile / 50% water
48 of 119	236-SAPTLVPQEHYVRIT-250	10 mg/mL	50% acetonitrile / 50% water
49 of 119	241-VPQEHYVRITGLYPT-255	10 mg/mL	50% acetonitrile / 50% water
50 of 119	246-YVRITGLYPTLNISD-260	10 mg/mL	50% acetonitrile / 50% water
51 of 119	251-GLYPTLNISDEFSSN-265	10 mg/mL	DMSO
52 of 119	256-LNISDEFSSNVANYQ-270	10 mg/mL	DMSO
53 of 119	261-EFSSNVANYQKVG-275	10 mg/mL	50% acetonitrile / 50% water
54 of 119	266-VANYQKVGGMQKYSTL-280	10 mg/mL	50% acetonitrile / 50% water
55 of 119	271-KVGGMQKYSTLQGPPG-285	10 mg/mL	50% acetonitrile / 50% water
56 of 119	276-KYSTLQGPPGTGKSH-290	10 mg/mL	50% acetonitrile / 50% water
57 of 119	281-QGPPGTGKSHFAIGL-295	10 mg/mL	50% acetonitrile / 50% water
58 of 119	286-TGKSHFAIGLALYYP-300	10 mg/mL	50% acetonitrile / 50% water
59 of 119	291-FAIGLALYYP SARIV-305	10 mg/mL	DMSO
60 of 119	296-ALYYP SARIVYTACS-310	10 mg/mL	50% acetonitrile / 50% water
61 of 119	301-SARIVYTACSHAAVD-315	10 mg/mL	DMSO
62 of 119	306-YTACSHAAVDALCEK-320	10 mg/mL	50% acetonitrile / 50% water

Table 2: Peptide Solubility (continued)

Peptide	Sequence	Solubility	Solvent
63 of 119	311-HAAVDALCEKALKYL-325	10 mg/mL	50% acetonitrile / 50% water
64 of 119	316-ALCEKALKYLPIDKC-330	10 mg/mL	50% acetonitrile / 50% water
65 of 119	321-ALKYLPIDKCSRIIP-335	10 mg/mL	50% acetonitrile / 50% water
66 of 119	326-PIDKCSRIIPARARV-340	10 mg/mL	50% acetonitrile / 50% water
67 of 119	331-SRIIPARARVECFDK-345	10 mg/mL	50% acetonitrile / 50% water
68 of 119	336-ARARVECFDKFKVNS-350	10 mg/mL	50% acetonitrile / 50% water
69 of 119	341-ECDFDKFVNSTLEQY-355	10 mg/mL	50% acetonitrile / 50% water
70 of 119	346-FKVNSTLEQYVFCTV-360	10 mg/mL	DMSO
71 of 119	351-TLEQYVFCTVNALPE-365	10 mg/mL	DMSO
72 of 119	356-VFCTVNALPETTADI-370	10 mg/mL	50% acetonitrile / 50% water
73 of 119	361-NALPETTADIVVFDE-375	10 mg/mL	50% acetonitrile / 50% water
74 of 119	366-TTADIVVFDEISMAT-380	10 mg/mL	DMSO
75 of 119	371-VVFDEISMATNYDLS-385	10 mg/mL	DMSO
76 of 119	376-ISMATNYDLSVVNAR-390	10 mg/mL	50% acetonitrile / 50% water
77 of 119	381-NYDLSVVNARLRAKH-395	10 mg/mL	50% acetonitrile / 50% water
78 of 119	386-VVNARLRAKHVYVIG-400	10 mg/mL	50% acetonitrile / 50% water
79 of 119	391-LRAKHVYVIGDPAQL-405	10 mg/mL	DMSO
80 of 119	396-YVYIGDPAQLPAPRT-410	10 mg/mL	DMSO
81 of 119	401-DPAQLPAPRTLLTKG-415	10 mg/mL	50% acetonitrile / 50% water
82 of 119	406-PAPRTLLTKGTLEPE-420	10 mg/mL	50% acetonitrile / 50% water
83 of 119	411-LLTKGTLEPEYFNSV-425	10 mg/mL	DMSO
84 of 119	416-TLEPEYFNSVCRLMK-430	10 mg/mL	50% acetonitrile / 50% water
85 of 119	421-YFNSVCRLMKTIGPD-435	10 mg/mL	DMSO
86 of 119	426-CRLMKTIGPDMFLGT-440	10 mg/mL	DMSO
87 of 119	431-TIGPDMFLGTCRRCP-445	10 mg/mL	50% acetonitrile / 50% water
88 of 119	436-MFLGTCRRCPAEIVD-450	10 mg/mL	50% acetonitrile / 50% water
89 of 119	441-CRRCPAEIVDTVSA-455	10 mg/mL	50% acetonitrile / 50% water
90 of 119	446-AEIVDTVSA-460	10 mg/mL	50% acetonitrile / 50% water
91 of 119	451-TVSALVYDNKLKAHK-465	10 mg/mL	50% acetonitrile / 50% water
92 of 119	456-VYDNKLKAHKDKSAQ-470	10 mg/mL	50% acetonitrile / 50% water
93 of 119	461-LKAHKDKSAQCFKMF-475	10 mg/mL	50% acetonitrile / 50% water
94 of 119	466-DKSAQCFKMFYKGV-480	10 mg/mL	50% acetonitrile / 50% water
95 of 119	471-CFKMFYKGVITHDVS-485	10 mg/mL	50% acetonitrile / 50% water
96 of 119	476-YKGVITHDVSSAINR-490	10 mg/mL	50% acetonitrile / 50% water
97 of 119	481-THDVSSAINRPQIGV-495	10 mg/mL	50% acetonitrile / 50% water
98 of 119	486-SAINRPQIGVVREFL-500	10 mg/mL	50% acetonitrile / 50% water
99 of 119	491-PQIGVVREFLTRNPA-505	10 mg/mL	DMSO
100 of 119	496-VREFLTRNPAWRKAV-510	10 mg/mL	50% acetonitrile / 50% water
101 of 119	501-TRNPAWRKAVFISPY-515	10 mg/mL	DMSO
102 of 119	506-WRKAVFISPYNSQNA-520	10 mg/mL	50% acetonitrile / 50% water

Table 2: Peptide Solubility (continued)

Peptide	Sequence	Solubility	Solvent
103 of 119	511-FISPYNSQNAVASKI-525	10 mg/mL	50% acetonitrile / 50% water
104 of 119	516-NSQNAVASKILGLPT-530	10 mg/mL	50% acetonitrile / 50% water
105 of 119	521-VASKILGLPTQTVDS-535	10 mg/mL	DMSO
106 of 119	526-LGLPTQTVDSQGSE-540	10 mg/mL	50% acetonitrile / 50% water
107 of 119	531-QTVDSQGSEYDYVI-545	10 mg/mL	50% acetonitrile / 50% water
108 of 119	536-SQGSEYDYVIFTQTT-550	10 mg/mL	DMSO
109 of 119	541-YDYVIFTQTTETAHS-555	10 mg/mL	DMSO
110 of 119	546-FTQTTETAHSCNVNR-560	10 mg/mL	50% acetonitrile / 50% water
111 of 119	551-ETAHSCNVNRFNVAI-565	10 mg/mL	50% acetonitrile / 50% water
112 of 119	556-CNVNRFNVAITRAKV-570	10 mg/mL	50% acetonitrile / 50% water
113 of 119	561-FNVAITRAKVGILCI-575	10 mg/mL	DMSO
114 of 119	566-TRAKVGILCIMSDRD-580	10 mg/mL	50% acetonitrile / 50% water
115 of 119	571-GILCIMSDRDLYDKL-585	10 mg/mL	50% acetonitrile / 50% water
116 of 119	576-MSDRDLYDKLQFTSL-590	10 mg/mL	50% acetonitrile / 50% water
117 of 119	581-LYDKLQFTSLEIPRR-595	10 mg/mL	50% acetonitrile / 50% water
118 of 119	586-QFTSLEIPRRNVATL-600	10 mg/mL	50% acetonitrile / 50% water
119 of 119	591-EIPRRNVATLQ-601	10 mg/mL	50% acetonitrile / 50% water

/Sonia Bjorun Brower/
Sonia Bjorun Brower

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