

**Peptide Array, Influenza Virus
A/Anhui/1/2013 (H7N9) Hemagglutinin
Protein**

Catalog No. NR-44011

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Contributor:

BEI Resources

Manufacturer:

Bio-Synthesis, Inc.

Product Description:

The 111-peptide array spans the hemagglutinin protein (HA) of the A/Anhui/1/2013 (H7N9) strain of influenza virus (EPI439507).^{1,2} Peptide 1 through Peptide 109 are 17-mers, with 12 amino acid overlaps. Peptide 110 is a 15-mer with a 12 amino acid overlap relative to Peptide 109. Peptide 111 is a 17-mer with a 14 amino acid overlap relative to Peptide 109. Please see Table 1 for length and sequence of individual peptides.

Material Provided:

Peptides are provided lyophilized at 1 mg per vial.

Packaging/Storage:

Lyophilized peptides should be placed in a closed dry environment with dessicants and stored at -20°C or colder immediately upon arrival. A frost-free freezer should be avoided, since changes in moisture and temperature may affect peptide stability.

Solubility:

Solubility may vary based on the amino acid content of the individual peptide (see Table 2).

Reconstitution:

Lyophilized peptides should be warmed to room temperature for 1 hour prior to reconstitution. They should be dissolved at the highest possible concentration, and then diluted with water or buffer to the working concentration. Buffer should be added only after the peptide is completely in solution because salts may cause aggregation.

The most common dissolution process is 1 mg of peptide in 1 mL of sterile, distilled water. Peptides that are not soluble in water can almost always be dissolved in DMSO. Once a peptide is in solution, the DMSO can be slowly diluted with aqueous medium. Care must be taken to ensure that the peptide does not begin to precipitate out of solution. For cell-based assays, 0.5% DMSO in medium is usually well-tolerated.

Sonication and/or the addition of small amounts of dilute (10%) aqueous acetic acid for basic peptides, aqueous ammonia for acidic peptides or acetonitrile may also help dissolution (see Table 2). These solvents may not be appropriate for certain applications, including cell-based assays.

Storage of Reconstituted Peptides:

The shelf life of peptides in solution is very limited, especially for sequences containing cysteine, methionine, tryptophan, asparagine, glutamine, and N-terminal glutamic acid. In general, peptides may be aliquoted and stored in solution for a few days at -20°C or colder. For long-term storage, peptides should be re-lyophilized and stored at -20°C or colder. If long-term storage in solution is unavoidable, peptide solutions should be buffered to pH 5-6, aliquoted and stored at -20°C or colder. Freeze-thaw cycles should be avoided.

Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: Peptide Array, Influenza Virus A/Anhui/1/2013 (H7N9) Hemagglutinin Protein, NR-44011."

Biosafety Level: 1

Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the following publication: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health. Biosafety in Microbiological and Biomedical Laboratories, 5th ed. Washington, DC: U.S. Government Printing Office, 2009; see www.cdc.gov/biosafety/publications/bmb15/index.htm.

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References:

1. Han, J., et al. "Clinical Presentation and Sequence Analyses of HA and NA Antigens of the Novel H7N9 Viruses." *Emerg. Microbes Infect.* 2 (2013): e23.
2. Kageyama, T., et al. "Genetic Analysis of Novel Avian A(H7N9) Influenza Viruses Isolated from Patients in China, February to April 2013." *Euro Surveill.* 18 (2013): 20453. Erratum in: *Euro Surveill.* 18 (2013): 20459. PubMed: 23594575.

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Peptide	Length	Sequence
1 of 111	17	1 MNTQILVFALIAIPTN 17
2 of 111	17	6 LVFALIAIPTNADKIC 22
3 of 111	17	11 IAIPTNADKICLGHHA 27
4 of 111	17	16 TNADKICLGHHAVSNGT 32
5 of 111	17	21 ICLGHHAVSNGTKVNTL 37
6 of 111	17	26 HAVSNGTKVNTLTERGV 42
7 of 111	17	31 GTKVNTLTERGVVEVNA 47
8 of 111	17	36 TLTERGVVEVNATETVE 52
9 of 111	17	41 GVEVVNATETVERTNIP 57
10 of 111	17	46 NATETVERTNIPRICSK 62
11 of 111	17	51 VERTNIPRICSKGKRTV 67
12 of 111	17	56 IPRICSKGKRTVDLGQC 72
13 of 111	17	61 SKGKRTVDLGQCGLLGT 77
14 of 111	17	66 TVDLGQCGLLGTITGPP 82
15 of 111	17	71 QCGLLGTITGPPQCDQF 87
16 of 111	17	76 GTITGPPQCDQFLEFSA 92
17 of 111	17	81 PPQCDQFLEFSADLIIE 97
18 of 111	17	86 QFLEFSADLIERREGS 102
19 of 111	17	91 SADLIERREGSDVCYP 107
20 of 111	17	96 IERREGSDVCYPGKFVN 112
21 of 111	17	101 GSDVCYPGKFVNNEALR 117
22 of 111	17	106 YPGKFVNNEALRQILRE 122
23 of 111	17	111 VNEALRQILRESGGID 127
24 of 111	17	116 LRQILRESGGIDKEAMG 132
25 of 111	17	121 RESGGIDKEAMGFTYSG 137
26 of 111	17	126 IDKEAMGFTYSGIRTNG 142
27 of 111	17	131 MGFTYSGIRTNGATSAC 147
28 of 111	17	136 SGIRTNGATSACRRSGS 152
29 of 111	17	141 NGATSACRRSGSSFYAE 157
30 of 111	17	146 ACRRSGSSFYAEWKLL 162

Table 1		
Peptide	Length	Sequence
31 of 111	17	151 GSSFYAEMKWLLSNTDN 167
32 of 111	17	156 AEMKWLLSNTDNAAFPQ 172
33 of 111	17	161 LLSNTDNAAFPQMTKSY 177
34 of 111	17	166 DNAAFPQMTKSYKNTRK 182
35 of 111	17	171 PQMTKSYKNTRKSPALI 187
36 of 111	17	176 SYKNTRKSPALIVWGIH 192
37 of 111	17	181 RKSPALIVWGIHHSVST 197
38 of 111	17	186 LIVWGIHHSVSTAEQTK 202
39 of 111	17	191 IHHSVSTAEQTKLYGSG 207
40 of 111	17	196 STAEQTKLYGSGNKLVT 212
41 of 111	17	201 TKLYGSGNKLVTVGSSN 217
42 of 111	17	206 SGNKLVTVGSSNYQQSF 222
43 of 111	17	211 VTVGSSNYQQSFVPSPG 227
44 of 111	17	216 SNYQQSFVPSPGARPQV 232
45 of 111	17	221 SFVPSPGARPQVNGLSG 237
46 of 111	17	226 PGARPQVNGLSGRIDFH 242
47 of 111	17	231 QVNGLSGRIDFHWLMLN 247
48 of 111	17	236 SGRIDFHWLMLNPNDTV 252
49 of 111	17	241 FHWLMLNPNDTVTFSFN 257
50 of 111	17	246 LNPNDTVTFSFN GAFIA 262
51 of 111	17	251 TVTFSFN GAFIAPDRAS 267
52 of 111	17	256 FNGAFIAPDRASFLRGK 272
53 of 111	17	261 IAPDRASFLRGKSMGIQ 277
54 of 111	17	266 ASFLRGKSMGIQSGVQV 282
55 of 111	17	271 GKSMGIQSGVQVDANCE 287
56 of 111	17	276 IQSGVQVDANCEGDCYH 292
57 of 111	17	281 QVDANCEGDCYHSGGTI 297
58 of 111	17	286 CEGDCYHSGGTIISNLP 302
59 of 111	17	291 YHSGGTIISNLPFQNID 307
60 of 111	17	296 TIISNLPFQNIDSR AVG 312
61 of 111	17	301 LPFQNIDSR AVGKCPRY 317
62 of 111	17	306 IDSR AVGKCPRYVKQRS 322
63 of 111	17	311 VGKCPRYVKQRSLLLAT 327
64 of 111	17	316 RYVKQRSLLLATGMKNV 332
65 of 111	17	321 RLLLATGMKNVPEIPK 337
66 of 111	17	326 ATGMKNVPEIPKGRGLF 342
67 of 111	17	331 NVPEIPKGRGLFGAIAG 347
68 of 111	17	336 PKGRGLFGAIAGFIENG 352
69 of 111	17	341 LFGAIAGFIENGWEGLI 357
70 of 111	17	346 AGFIENGWEGLIDGWYG 362
71 of 111	17	351 NGWEGLIDGWYGFRHQN 367
72 of 111	17	356 LIDGWYGFRHQNAQGEG 372

Table 1		
Peptide	Length	Sequence
73 of 111	17	361 YGFRHQNAQGEGTAADY 377
74 of 111	17	366 QNAQGEGTAADYKSTQS 382
75 of 111	17	371 EGTAADYKSTQSAIDQI 387
76 of 111	17	376 DYKSTQSAIDQITGKLN 392
77 of 111	17	381 QSAIDQITGKLNRLIEK 397
78 of 111	17	386 QITGKLNRLIEKTNQQF 402
79 of 111	17	391 LNRLIEKTNQQFELIDN 407
80 of 111	17	396 EKTNQQFELIDNEFNEV 412
81 of 111	17	401 QFELIDNEFNEVEKQIG 417
82 of 111	17	406 DNEFNEVEKQIGNVINW 422
83 of 111	17	411 EVEKQIGNVINWTRDSI 427
84 of 111	17	416 IGVINWTRDSITEVWS 432
85 of 111	17	421 NWTRDSITEVWSYNAEL 437
86 of 111	17	426 SITEVWSYNAELLVAME 442
87 of 111	17	431 WSYNAELLVAMENQHTI 447
88 of 111	17	436 ELLVAMENQHTIDLADS 452
89 of 111	17	441 MENQHTIDLADSEMDKL 457
90 of 111	17	446 TIDLADSEMDKLYERVK 462
91 of 111	17	451 DSEMDKLYERVKRQLRE 467
92 of 111	17	456 KLYERVKRQLRENAEED 472
93 of 111	17	461 VKRQLRENAEEDGTGCF 477
94 of 111	17	466 RENAEEDGTGCFEIFHK 482
95 of 111	17	471 EDGTGCFEIFHKCDDDC 487
96 of 111	17	476 CFEIFHKCDDDCMASIR 492
97 of 111	17	481 HKCDDDCMASIRNNTYD 497
98 of 111	17	486 DCMASIRNNTYDHSKYR 502
99 of 111	17	491 IRNNTYDHSKYREEAMQ 507
100 of 111	17	496 YDHSKYREEAMQNRIQI 512
101 of 111	17	501 YREEAMQNRIQIDPVKL 517
102 of 111	17	506 MQNRIQIDPVKLSSGYK 522
103 of 111	17	511 QIDPVKLSSGYKDVILW 527
104 of 111	17	516 KLSSGYKDVILWFSGA 532
105 of 111	17	521 YKDVILWFSGASCFIL 537
106 of 111	17	526 LWFSFGASCFILLAIM 542
107 of 111	17	531 GASCFILLAIMGLVFI 547
108 of 111	17	536 ILLAIMGLVFICVKN 552
109 of 111	17	541 VMGLVFICVKNGNMRCT 557
110 of 111	15	546 FICVKNGNMRCTICI 560
111 of 111	17	544 LVFICVKNGNMRCTICI 560

Table 2		
Peptide	Solubility	Solvent
1 of 111	1 mg/mL	100% DMSO
2 of 111	1 mg/mL	100% DMSO
3 of 111	1 mg/mL	Water
4 of 111	1 mg/mL	Water
5 of 111	1 mg/mL	100% DMSO
6 of 111	1 mg/mL	Water
7 of 111	1 mg/mL	100% DMSO
8 of 111	1 mg/mL	100% DMSO
9 of 111	1 mg/mL	Water
10 of 111	1 mg/mL	Water
11 of 111	1 mg/mL	Water
12 of 111	1 mg/mL	Water
13 of 111	1 mg/mL	70% acetonitrile in water
14 of 111	1 mg/mL	70% acetonitrile in water
15 of 111	1 mg/mL	70% acetonitrile in water
16 of 111	1 mg/mL	70% acetonitrile in water
17 of 111	1 mg/mL	100% DMSO
18 of 111	1 mg/mL	100% DMSO
19 of 111	1 mg/mL	100% DMSO
20 of 111	1 mg/mL	Water
21 of 111	1 mg/mL	70% acetonitrile in water
22 of 111	1 mg/mL	70% acetonitrile in water
23 of 111	1 mg/mL	70% acetonitrile in water
24 of 111	1 mg/mL	70% acetonitrile in water
25 of 111	1 mg/mL	100% DMSO
26 of 111	1 mg/mL	100% DMSO
27 of 111	1 mg/mL	100% DMSO
28 of 111	1 mg/mL	70% acetonitrile in water
29 of 111	1 mg/mL	100% DMSO
30 of 111	1 mg/mL	100% DMSO
31 of 111	1 mg/mL	100% DMSO
32 of 111	1 mg/mL	100% DMSO
33 of 111	1 mg/mL	100% DMSO
34 of 111	1 mg/mL	100% DMSO
35 of 111	1 mg/mL	70% acetonitrile in water
36 of 111	1 mg/mL	70% acetonitrile in water
37 of 111	1 mg/mL	70% acetonitrile in water
38 of 111	1 mg/mL	100% DMSO
39 of 111	1 mg/mL	100% DMSO
40 of 111	1 mg/mL	100% DMSO

Table 2		
Peptide	Solubility	Solvent
41 of 111	1 mg/mL	100% DMSO
42 of 111	1 mg/mL	100% DMSO
43 of 111	1 mg/mL	100% DMSO
44 of 111	1 mg/mL	70% acetonitrile in water
45 of 111	1 mg/mL	70% acetonitrile in water
46 of 111	1 mg/mL	70% acetonitrile in water
47 of 111	1 mg/mL	100% DMSO
48 of 111	1 mg/mL	70% acetonitrile in water
49 of 111	1 mg/mL	70% acetonitrile in water
50 of 111	1 mg/mL	100% DMSO
51 of 111	1 mg/mL	100% DMSO
52 of 111	1 mg/mL	70% acetonitrile in water
53 of 111	1 mg/mL	70% acetonitrile in water
54 of 111	1 mg/mL	100% DMSO
55 of 111	1 mg/mL	100% DMSO
56 of 111	1 mg/mL	100% DMSO
57 of 111	1 mg/mL	100% DMSO
58 of 111	1 mg/mL	100% DMSO
59 of 111	1 mg/mL	70% acetonitrile in water
60 of 111	1 mg/mL	70% acetonitrile in water
61 of 111	1 mg/mL	70% acetonitrile in water
62 of 111	1 mg/mL	70% acetonitrile in water
63 of 111	1 mg/mL	70% acetonitrile in water
64 of 111	1 mg/mL	100% DMSO
65 of 111	1 mg/mL	100% DMSO
66 of 111	1 mg/mL	70% acetonitrile in water
67 of 111	1 mg/mL	70% acetonitrile in water
68 of 111	1 mg/mL	100% DMSO
69 of 111	1 mg/mL	100% DMSO
70 of 111	1 mg/mL	100% DMSO
71 of 111	1 mg/mL	100% DMSO
72 of 111	1 mg/mL	70% acetonitrile in water
73 of 111	1 mg/mL	0.05% trifluoroacetic acid in water
74 of 111	1 mg/mL	70% acetonitrile in water
75 of 111	1 mg/mL	100% DMSO
76 of 111	1 mg/mL	70% acetonitrile in water
77 of 111	1 mg/mL	0.05% trifluoroacetic acid in water
78 of 111	1 mg/mL	70% acetonitrile in water
79 of 111	1 mg/mL	100% DMSO
80 of 111	1 mg/mL	100% DMSO

Table 2		
Peptide	Solubility	Solvent
81 of 111	1 mg/mL	100% DMSO
82 of 111	1 mg/mL	100% DMSO
83 of 111	1 mg/mL	70% acetonitrile in water
84 of 111	1 mg/mL	100% DMSO
85 of 111	1 mg/mL	100% DMSO
86 of 111	1 mg/mL	100% DMSO
87 of 111	1 mg/mL	70% acetonitrile in water
88 of 111	1 mg/mL	100% DMSO
89 of 111	1 mg/mL	70% acetonitrile in water
90 of 111	1 mg/mL	70% acetonitrile in water
91 of 111	1 mg/mL	0.05% trifluoroacetic acid in water
92 of 111	1 mg/mL	70% acetonitrile in water
93 of 111	1 mg/mL	0.05% trifluoroacetic acid in water
94 of 111	1 mg/mL	30% acetonitrile in water
95 of 111	1 mg/mL	70% acetonitrile in water
96 of 111	1 mg/mL	100% DMSO
97 of 111	1 mg/mL	70% acetonitrile in water
98 of 111	1 mg/mL	0.05% trifluoroacetic acid in water
99 of 111	1 mg/mL	70% acetonitrile in water
100 of 111	1 mg/mL	70% acetonitrile in water
101 of 111	1 mg/mL	70% acetonitrile in water
102 of 111	1 mg/mL	70% acetonitrile in water
103 of 111	1 mg/mL	70% acetonitrile in water
104 of 111	1 mg/mL	70% acetonitrile in water
105 of 111	1 mg/mL	100% DMSO
106 of 111	1 mg/mL	100% DMSO
107 of 111	1 mg/mL	100% DMSO
108 of 111	1 mg/mL	100% DMSO
109 of 111	1 mg/mL	70% acetonitrile in water
110 of 111	1 mg/mL	70% acetonitrile in water
111 of 111	1 mg/mL	70% acetonitrile in water