

Peptide Array, Influenza Virus A/Shanghai/1/2013 (H7N9) Hemagglutinin Protein Diverse Peptides

Catalog No. NR-44012

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

For research use only. Not for human use.

Contributor:

BEI Resources

Manufacturer:

Bio-Synthesis, Inc.

Product Description:

NR-44012 is a peptide array that represents regions of amino acid sequence diversity in the hemagglutinin protein (HA) of influenza virus A/Shanghai/1/2013 (H7N9) (EPI439486) compared to the HA of influenza virus A/Anhui/1/2013 (H7N9) (EPI439507).^{1,2} Peptides are 17-mers, with 12 amino acid overlaps. Please see Table 1 for length and sequence of individual peptides.

The HA of influenza virus A/Shanghai/1/2013 (H7N9) is identical to that of the HA of A/Anhui/1/2013 (H7N9) with the exception of 9 amino acids.^{1,2} **Note: NR-44012 contains diverse peptides for 8 of these 9 amino acid differences.** It does not include diverse peptides for the H292Y variant of A/Shanghai/1/2013 (H7N9) relative to A/Anhui/1/2013. NR-44012 can be used with BEI Resources NR-44011 [Peptide Array, Influenza Virus A/Anhui/1/2013 (H7N9) Hemagglutinin Protein] to construct a peptide array covering the HA protein of A/Shanghai/1/2013 (H7N9), excluding the H292Y amino acid change.

Material Provided:

Peptides are provided lyophilized at 1 mg per vial. **Note: The strain designation on the individual vials is incorrect. The vials should be labeled influenza A virus, A/Shanghai/1/2013 rather than influenza A virus, A/Shanghai/2/2013. The vials are being provided in boxes that are correctly labeled.**

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/Shanghai/1/2013 (H7N9) Hemagglutinin Protein Diverse Peptides, NR-44012."

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/bmbl5/index.htm.

Disclaimers:

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

Use of this product is subject to the terms and conditions of the BEI Resources Material Transfer Agreement (MTA). The MTA is available on our Web site at www.beiresources.org.

While BEI Resources uses reasonable efforts to include accurate and up-to-date information on this product sheet,

neither ATCC® nor the U.S. Government makes any warranties or representations as to its accuracy. Citations from scientific literature and patents are provided for informational purposes only. Neither ATCC® nor the U.S. Government warrants that such information has been confirmed to be accurate.

This product is sent with the condition that you are responsible for its safe storage, handling, use and disposal. ATCC® and the U.S. Government are not liable for any damages or injuries arising from receipt and/or use of this product. While reasonable effort is made to ensure authenticity and reliability of materials on deposit, the U.S. Government, ATCC®, their suppliers and contributors to BEI Resources are not liable for damages arising from the misidentification or misrepresentation of products.

Use Restrictions:

This material is distributed for internal research, non-commercial purposes only. This material, its product or its derivatives may not be distributed to third parties. Except as performed under a U.S. Government contract, individuals contemplating commercial use of the material, its products or its derivatives must contact the contributor to determine if a

license is required. U.S. Government contractors may need a license before first commercial sale. This material may be subject to third party patent rights.

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.

ATCC® is a trademark of the American Type Culture Collection.



Table 1		
Peptide	Length	Sequence
1 of 23	17	131 MGFTYSGIRTNGATSSC 147
2 of 23	17	136 SGIRTNGATSSCRRSGS 152
3 of 23	17	141 NGATSSCRRSGSSFYAE 157
4 of 23	17	146 SCRRSGSSFYAEMKWLL 162
5 of 23	17	171 PQMTKSYKNTRKNPALI 187
6 of 23	17	176 SYKNTRKNPALIVWGIH 192
7 of 23	17	181 RKNPALIVWGIHHSGST 197
8 of 23	17	186 LIVWGIHHSGSTAEQTK 202
9 of 23	17	191 IHHSNSTAEQTKLYGSG 207
10 of 23	17	216 SNYQQSFVPSPGARTQV 232
11 of 23	17	221 SFVPSPGARTQVNGQSG 237
12 of 23	17	226 PGARTQVNGQSGRIDFH 242
13 of 23	17	231 QVNGQSGRIDFHWLMLN 247
14 of 23	17	271 GKSMGIQSGVQVDADCE 287
15 of 23	17	276 IQSGVQVDADCEGDCYH 292
16 of 23	17	281 QVDADCEGDCYHSGGTI 297
17 of 23	17	396 EKTNQQFELIDNEFTEV 412
18 of 23	17	401 QFELIDNEFTEVEKQIG 417
19 of 23	17	406 DNEFTEVEKQIGNVINW 422
20 of 23	17	526 LWFSFGASCFILLAIAM 542
21 of 23	17	531 GASCFILLAIAMGLVFI 547
22 of 23	17	536 ILLAIAMGLVFICVKNK 552
23 of 23	17	541 AMGLVFICVKNKGNMRCT 557

Table 2		
Peptide	Solubility	Solvent
1 of 23	1 mg/mL	70% acetonitrile in water
2 of 23	1 mg/mL	70% acetonitrile in water
3 of 23	1 mg/mL	70% acetonitrile in water
4 of 23	1 mg/mL	100% DMSO
5 of 23	1 mg/mL	Water
6 of 23	1 mg/mL	Water
7 of 23	1 mg/mL	70% acetonitrile in water
8 of 23	1 mg/mL	70% acetonitrile in water
9 of 23	1 mg/mL	70% acetonitrile in water
10 of 23	1 mg/mL	Water
11 of 23	1 mg/mL	Water
12 of 23	1 mg/mL	Water
13 of 23	1 mg/mL	70% acetonitrile in water
14 of 23	1 mg/mL	Water
15 of 23	1 mg/mL	Water
16 of 23	1 mg/mL	Water
17 of 23	1 mg/mL	100% DMSO
18 of 23	1 mg/mL	70% acetonitrile in water
19 of 23	1 mg/mL	70% acetonitrile in water
20 of 23	1 mg/mL	100% DMSO
21 of 23	1 mg/mL	100% DMSO
22 of 23	1 mg/mL	100% DMSO
23 of 23	1 mg/mL	70% acetonitrile in water