Peptide Array, Dengue Virus Type 3 (DEN-3), Philippines/H87/1956, E Protein, Diverse Peptides

Catalog No. NR-9228

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Contributor:

NIH Biodefense and Emerging Infections Research Resources Repository, NIAID, NIH

Product Description:

NR-9228 contains 22 peptides that represent regions of amino acid sequence diversity in the envelope (E) protein found in dengue virus type 3 (DEN-3), Philippines/H87/1956 (GenPept: P27915) compared to DEN-3, Sleman/1978. DEN-3, Philippines/H87/1956 E protein is identical to that of DEN-3, Sleman/1978 E protein with the exception of 11 amino acids. A complete 68-peptide array of the E protein of DEN-3, Philippines/H87/1956 can be constructed using these 22 peptides and peptides from DEN-3, Sleman/1978 (BEI Resources NR-511). Peptides are 12- to 19-mers, with 10 or 11 amino acid overlaps. 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 the NIH Biodefense and Emerging Infections Research Resources Repository, NIAID, NIH: Peptide Array, Dengue Virus Type 3 (DEN-3), Philippines/H87/1956, E Protein, Diverse Peptides, NR-9228."

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, 2007; see www.cdc.gov/od/ohs/biosfty/bmbl5/bmbl5toc.htm.

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References:

1. Osatomi, K. and H. Sumiyoshi. "Complete Nucleotide Sequence of Dengue Type 3 Virus Genome RNA." Virology 176 (1990): 643–647. PubMed: 2345967.
2. Modis, Y., S. Ogata, D. Clements, and S. C. Harrison. "Variable Surface Epitopes in the Crystal Structure of Dengue Virus Type 3 Envelope Glycoprotein." J. Virol. 79 (2005): 1223–1231. PubMed: 15613349.

Support Provided by NIAID

Table 1

Peptide	Length	Sequence
8 of 68	18	51-TQLATLRKLCIEGKITNI-68
9 of 68	15	59-LCIEGKITNITTDSR-73
10 of 68	18	64-KITNITTDSRCPTQGEAI-81
11 of 68	19	72-SRCPTQGEAILPEEQDQNY-90
12 of 68	17	81-ILPEEQDQNYVCKHTYV-97
13 of 68	15	87-DQNYVCKHTYVDRGW-101
22 of 68	18	149-HQVGNETQGVTAEITSQA-166
23 of 68	17	157-GVTAEITSQASTAEAIL-173
24 of 68	18	164-SQASTAEAILPEYGTLGL-181
31 of 68	17	213-DLPLPWTSGATTKTPTW-229
32 of 68	17	220-SGATTKTPTWNRKELLV-236
33 of 68	18	227-PTWNRKELLVTFKNAHAK-244
40 of 68	18	280-HLKCRLKMDKLKLKGMSY-297
41 of 68	18	288-DKLKLKGMSYAMCLNTFV-305
42 of 68	15	296-SYAMCLNTFVLKKEV-310
43 of 68	18	301-LNTFVLKKEVSETQHGTI-318
53 of 68	16	377-VIGIGDKALKINWYRK-392
54 of 68	18	383-KALKINWYRKGSSIGKMF-400
55 of 68	18	391-RKGSSIGKMFEATARGAR-408
66 of 68	18	466-LNSKNTSMSFSCIAIGII-483
67 of 68	18	474-SFSCIAIGIITLYLGVVV-491
68 of 68	12	482-IITLYLGVVVQA-493

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Table 2		
Peptide	**Solubility**	**Solvent**
8 of 68	1 mg/mL	70% acetonitrile and 30% formic acid in water
9 of 68	1 mg/mL	70% acetonitrile and 30% formic acid in water
10 of 68	1 mg/mL	70% acetonitrile in water
11 of 68	1 mg/mL	70% acetonitrile in water
12 of 68	1 mg/mL	70% acetonitrile in water
13 of 68	1 mg/mL	70% acetonitrile in water
22 of 68	1 mg/mL	70% acetonitrile and 30% formic acid in water
23 of 68	1 mg/mL	100% DMSO
24 of 68	1 mg/mL	70% acetonitrile in water
31 of 68	1 mg/mL	70% acetonitrile in water
32 of 68	1 mg/mL	70% acetonitrile in water
33 of 68	1 mg/mL	70% acetonitrile in water
40 of 68	1 mg/mL	50% acetic acid in water
41 of 68	1 mg/mL	70% acetonitrile and 30% formic acid in water
42 of 68	1 mg/mL	70% acetonitrile and 30% formic acid in water
43 of 68	1 mg/mL	70% acetonitrile and 30% formic acid in water
53 of 68	1 mg/mL	70% acetonitrile in water
54 of 68	1 mg/mL	70% acetonitrile in water
55 of 68	1 mg/mL	70% acetonitrile in water
66 of 68	1 mg/mL	70% acetonitrile and 30% formic acid in water
67 of 68	1 mg/mL	100% DMSO
68 of 68	1 mg/mL	100% DMSO

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