NEW ENGLAND BioLabs Inc.
be INSPIRED drive DISCOVERY stay GENUINE
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New England Biolabs
Certificate of Analysis

Product Name: *Ph.D.™-12 Phage Display Peptide Library Kit*
Catalog Number: *E8110S*
Packaging Lot Number: *10057682*
Expiration Date: *10/2021*
Storage Temperature: *-20°C*
Specification Version: *PS-E8110S v2.0*

Ph.D.™-12 Phage Display Peptide Library Kit Component List			
NEB Part Number	**Component Description**	**Lot Number**	**Individual QC Result**
S1259AVIAL	-96 gIII Sequencing Primer (20-mer)	10043734	**Pass**
S1258AVIAL	-28 gIII Sequencing Primer (22-mer)	10043733	**Pass**
N7024AVIAL	Biotin	10043732	**Pass**
N7023AVIAL	Streptavidin, lyophilized	10040079	**Pass**
E8111AVIAL	Ph.D.™-12 Phage Display Peptide Library	10049736	**Pass**
E4104SVIAL	E.coli K12 ER2738	10034478	**Pass**

Assay Name/Specification	**Lot # 10057682**
Absolute Phage Titer Infection of a mid-log culture of E. coli ER2738 with Ph.D.™-12 Phage Display Peptide Library followed by plating, yields ≥ 1 x 10^{13} pfu/ml.	**Pass**
Functional Testing (Panning) A 100-fold representation of the Ph.D.™-12 Phage Display Peptide Library containing approximately 1011 pfu is diluted in 200 µl TBS and panned against 300 ng β-endorphin monoclonal antibody. The bound phage is affinity captured using magnetic beads and eluted with 1 ml of 0.2M Glycine-HCl, pH 2.2. After three rounds of selection, ≥75% of sequences contain a motif related to the known epitope for the antibody.	**Pass**
Phage Contamination (Environmental) A 1:100 dilution of an overnight culture of E. coli ER2738 was made in 20 ml LB, to which 10^{3} pfu of Ph.D.™-12 Phage Display Peptide Library was added. The flask was incubated at 37°C on a rotating shaker for 5 hours. A 1 ml volume of culture was removed and centrifuged. A volume of culture supernatant equivalent to the initial PFU input was added to a second, 20 ml culture like the first. The final culture supernatant was plated on three LB/IPTG/Xgal plates and then titered. Fewer than 20% clear or white plaques were observed in a minimum of 100 total plaques counted on	**Pass**

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Assay Name/Specification	Lot # 10057682
each plate. **Sequence Verification (DNA)** The Ph.D.™-12 Phage Display Peptide Library was sequenced using 5'-CCCATGTACCGTAACACTGAGTTTC-3' as a primer to confirm the correct form of the cloned insert on the displayed peptide, X12-GGG.	**Pass**

This product has been tested and shown to be in compliance with all specifications.

Beth Paschal
Production Scientist
07 Oct 2019

Michael Tonello
Packaging Quality Control Inspector
30 Oct 2019