NEW ENGLAND BioLabs Inc.
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New England Biolabs
Certificate of Analysis

Product Name: *Ph.D.™-12 Phage Display Peptide Library Kit*
Catalog Number: *E8110S*
Lot Number: *10007437*
Expiration Date: *11/2020*
Storage Temperature: *-20°C*
Specification Version: *PS-E8110S v1.0*

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)	10018554	**Pass**
S1258AVIAL	-28 gIII Sequencing Primer (22-mer)	10018553	**Pass**
N7024AVIAL	Biotin	10018921	**Pass**
N7023AVIAL	Streptavidin, lyophilized	10013509	**Pass**
E8111AVIAL	Ph.D.™-12 Phage Display Peptide Library	10007438	**Pass**
E4104SVIAL	E.coli K12 ER2738	0181706	**Pass**

Assay Name/Specification	Lot # 10007437
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**
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 10^5 pfu of Ph.D.™-12 Phage Display Peptide Library was added. The flask was	**Pass**

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incubated at 37°C on a rotating shaker for 5 hours. A 1 ml volume of culture was removed and centrifuged. Five microliters (5 µl) of phage-containing supernatant was used for three successive rounds of amplification. The final culture supernatant was plated on three LB/IPTG/Xgal plates and then titered. Fewer than 5% clear or white plaques were observed in a minimum of 100 total plaques counted on each plate.	

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

Beth M. Paschal

Beth Paschal
Production Scientist
06 Nov 2018

Josh Hersey
Packaging Quality Control Inspector
07 Nov 2018