

## New England Biolabs Certificate of Analysis

Product Name: *Ph.D.<sup>™</sup>-12 Phage Display Peptide Library Kit*  
 Catalog Number: *E8110S*  
 Packaging Lot Number: *10061293*  
 Expiration Date: *10/2021*  
 Storage Temperature: *-20°C*  
 Specification Version: *PS-E8110S v2.0*

Ph.D. <sup>™</sup> -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	10060978	Pass
E8111AVIAL	Ph.D. <sup>™</sup> -12 Phage Display Peptide Library	10049736	Pass
E4104SVIAL	E.coli K12 ER2738	10034478	Pass

Assay Name/Specification	Lot # 10061293
<p><b>Sequence Verification (DNA)</b>            The Ph.D.<sup>™</sup>-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.</p>	Pass
<p><b>Phage Contamination (Environmental)</b>            A 1:100 dilution of an overnight culture of E. coli ER2738 was made in 20 ml LB, to which 10<sup>3</sup> pfu of Ph.D.<sup>™</sup>-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 each plate.</p>	Pass
<p><b>Functional Testing (Panning)</b>            A 100-fold representation of the Ph.D.<sup>™</sup>-12 Phage Display Peptide Library containing approximately 10<sup>11</sup> 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</p>	Pass

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<p>selection, ≥75% of sequences contain a motif related to the known epitope for the antibody.</p> <p><b>Absolute Phage Titer</b> Infection of a mid-log culture of E. coli ER2738 with Ph.D.<sup>™</sup>-12 Phage Display Peptide Library followed by plating, yields ≥ 1 x 10<sup>13</sup> pfu/ml.</p>	<p><b>Pass</b></p>

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  
23 Dec 2019