NEW ENGLAND BioLabs Inc.
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New England Biolabs
Certificate of Analysis

Product Name: *Ph.D.™ Peptide Display Cloning System*
Catalog Number: *E8101S*
Lot Number: *10049580*
Expiration Date: *07/2021*
Storage Temperature: *-20°C*
Specification Version: *PS-E8101S v1.0*

Ph.D.™ Peptide Display Cloning System Component List			
NEB Part Number	**Component Description**	**Lot Number**	**Individual QC Result**
S1203AVIAL	M13 Extension Primer	10049582	**Pass**
N3541SVIAL	M13KE gIII Cloning Vector	10049581	**Pass**

Assay Name/Specification	**Lot # 10049580**
A260/A280 Assay The ratio of UV absorption of M13KE gIII Cloning Vector at 260 and 280 nm is between 1.8 and 2.0.	**Pass**
DNA Concentration (A260) The concentration of M13KE gIII Cloning Vector is between 1000 and 1050 µg/ml as determined by UV absorption at 260 nm.	**Pass**
Electrophoretic Pattern (Plasmid) The banding pattern of M13KE gIII Cloning Vector on a 1.2% agarose gel is evaluated against a control lot for sharpness and relative intensity as determined by gel electrophoresis using Ethidium Bromide.	**Pass**
Functional Testing (PCR) The performance of the Ph.D.™ Peptide Display Cloning System is tested in a 25 µl PCR reaction using 1 ng M13KE gIII Cloning Vector as the substrate, 0.0125 nmol M13KE Extension Primer and 0.0125 nmol reverse primer (5-CCC ATG TAC CGT AAC ACT GAGTTTC-3) for 25 cycles of PCR resulting in the expected 194 bp product as determined by agarose gel electrophoresis.	**Pass**
Non-Specific DNase Activity (DNA, 16 hour) A 50 µl reaction in 1X NEBuffer 2 containing 2.5 µg of M13KE gIII Cloning Vector incubated for 16 hours at 37°C results in a DNA pattern free of detectable nuclease degradation as determined by agarose gel electrophoresis.	**Pass**

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

Beth Paschal
Production Scientist
12 Jul 2019

Michael Tonello
Packaging Quality Control Inspector
23 Jul 2019