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## New England Biolabs Certificate of Analysis

Product Name: Hhal
Catalog Number: R0139S
Concentration: 20,000 U/ml

Unit Definition: One unit is defined as the amount of enzyme required to digest 1 µg

of Lambda DNA in 1 hour at 37°C in a total reaction volume of 50 μl.

Lot Number: 1002150
Expiration Date: 09/2020
Storage Temperature: -20°C

Storage Conditions: 50 mM KCl, 10 mM Tris-HCl (pH 7.4), 1 mM DTT, 0.1 mM EDTA, 50%

Glycerol, 200 µg/ml BSA

Specification Version: PS-R0139S/L v1.0

Hhal Component List				
<b>NEB Part Number</b>	Component Description	Lot Number	Individual QC Result	
R0139SVIAL	Hhal	10020347	Pass	
B7204SVIAL	CutSmart® Buffer	10021122	Pass	

Assay Name/Specification	Lot # 10021501
Exonuclease Activity (Radioactivity Release) A 50 µl reaction in CutSmart™ Buffer containing 1 µg of a mixture of single and double-stranded [ ³H] E. coli DNA and a minimum of 60 units of Hhal incubated for 4 hours at 37°C releases <0.1% of the total radioactivity.	Pass
Ligation and Recutting (Terminal Integrity) After a 10-fold over-digestion of Lambda DNA with Hhal, >95% of the DNA fragments can be ligated with T4 DNA ligase in 16 hours at 16°C. Of these ligated fragments, >95% can be recut with Hhal.	Pass
Non-Specific DNase Activity (16 Hour) A 50 µl reaction in CutSmart™ Buffer containing 1 µg of Lambda DNA and a minimum of 60 Units of Hhal incubated for 16 hours at 37°C results in a DNA pattern free of detectable nuclease degradation as determined by agarose gel electrophoresis.	Pass

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



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Stephani Onetto

Stephanie Cornelio Production Scientist 30 Aug 2018

Mary Conlon

Packaging Quality Control Inspector

30 Nov 2018