

## New England Biolabs Certificate of Analysis

**Product Name:** HhaI  
**Catalog Number:** R0139L  
**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:** 10041009  
**Expiration Date:** 03/2021  
**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

HhaI Component List			
NEB Part Number	Component Description	Lot Number	Individual QC Result
R0139LVIAL	HhaI	10041010	Pass
B7204SVIAL	CutSmart® Buffer	10042965	Pass

Assay Name/Specification	Lot # 10041009
<b>Non-Specific DNase Activity (16 Hour)</b> A 50 µl reaction in CutSmart™ Buffer containing 1 µg of Lambda DNA and a minimum of 60 Units of HhaI incubated for 16 hours at 37°C results in a DNA pattern free of detectable nuclease degradation as determined by agarose gel electrophoresis.	Pass
<b>Exonuclease Activity (Radioactivity Release)</b> A 50 µl reaction in CutSmart™ Buffer containing 1 µg of a mixture of single and double-stranded [ <sup>3</sup> H] E. coli DNA and a minimum of 60 units of HhaI incubated for 4 hours at 37°C releases <0.1% of the total radioactivity.	Pass
<b>Ligation and Recutting (Terminal Integrity)</b> After a 10-fold over-digestion of Lambda DNA with HhaI, >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 HhaI.	Pass

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

*Stephanie Cornelio*

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Stephanie Cornelio  
Production Scientist  
27 Mar 2019

*Michael Tonello*

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Michael Tonello  
Packaging Quality Control Inspector  
23 May 2019