

## New England Biolabs Certificate of Analysis

**Product Name:** Smal  
**Catalog Number:** R0141S  
**Concentration:** 20,000 U/ml  
**Unit Definition:** One unit is defined as the amount of enzyme required to digest 1 µg of Lambda DNA (HindIII digest) in 1 hour at 25°C in a total reaction volume of 50 µl.  
**Packaging Lot Number:** 10092926  
**Expiration Date:** 10/2022  
**Storage Temperature:** -20°C  
**Storage Conditions:** 300 mM NaCl, 10 mM Tris-HCl (pH 7.4), 1 mM DTT, 0.1 mM EDTA, 50% Glycerol, 500 µg/ml BSA  
**Specification Version:** PS-R0141S/L v1.0

Smal Component List			
NEB Part Number	Component Description	Lot Number	Individual QC Result
R0141SVIAL	Smal	10087671	Pass
B7204SVIAL	CutSmart® Buffer	10091031	Pass
B7024AVIAL	Gel Loading Dye, Purple (6X)	10089392	Pass

Assay Name/Specification	Lot # 10092926
<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 100 units of Smal 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 Smal, ~50% 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 Smal.	Pass
<b>Non-Specific DNase Activity (16 Hour)</b> A 50 µl reaction in CutSmart™ Buffer containing 1 µg of Lambda-HindIII DNA and a minimum of 60 Units of Smal 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>Blue-White Screening (Terminal Integrity)</b>	Pass

Assay Name/Specification	Lot # 10092926
<p>A sample of pUC19 vector linearized with a 10-fold excess of SmaI, religated and transformed into an E. coli strain expressing the LacZ beta fragment gene results in &lt;1% white colonies.</p> <p><b>Endonuclease Activity (Nicking)</b> A 50 µl reaction in CutSmart™ Buffer containing 1 µg of supercoiled PhiX174 DNA and a minimum of 20 Units of SmaI incubated for 4 hours at 37°C results in &lt;20% conversion to the nicked form as determined by agarose gel electrophoresis.</p>	<p><b>Pass</b></p>

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

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Penghua Zhang  
Production Scientist  
11 Dec 2020



Josh Hersey  
Packaging Quality Control Inspector  
11 Dec 2020