

## 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:** *10140745*  
**Expiration Date:** *09/2023*  
**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	10119282	Pass
B7024AVIAL	Gel Loading Dye, Purple (6X)	10131976	Pass
B6004SVIAL	rCutSmart™ Buffer	10136926	Pass

Assay Name/Specification	Lot # 10140745
<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>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>Endonuclease Activity (Nicking)</b>	Pass

Assay Name/Specification	Lot # 10140745
<p>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>Blue-White Screening (Terminal Integrity)</b> 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>Pass</b></p>

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

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01 Mar 2022



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