**New England Biolabs**

**Product Specification**

**Product Name:** Antarctic Thermolabile UDG

**Catalog #:** M0372S/L

**Concentration:** 1,000 units/ml

**Unit Definition:** One unit is defined as the amount of enzyme that catalyzes the release of 60 pmol of uracil per minute from double-stranded, uracil-containing DNA. Activity is measured by release of [3H]-uracil in a 50 µl reaction containing 0.2 µg DNA (10⁴-10⁵ cpm/µg) in 30 minutes at 37°C.

**Shelf Life:** 24 months

**Storage Temp:** -20°C

**Storage Conditions:** 50 mM NaCl, 10 mM Tris-HCl, 1 mM DTT, 0.1 mM EDTA, 50% Glycerol, (pH 7.4 @ 25°C)

**Specification Version:** PS-M0372S/L v1.0

**Effective Date:** 28 Sep 2017

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### Assay Name/Specification (minimum release criteria)

**DNase Activity (Labeled Oligo, 3’ extension)** - A 50 µl reaction in NEBuffer 4 containing a 20 nM solution of a fluorescent labeled double-stranded oligonucleotide containing a 3’ extension and a minimum of 1 unit of Antarctic Thermolabile UDG incubated for 16 hours at 37°C yields <5% degradation as determined by capillary electrophoresis.

**DNase Activity (Labeled Oligo, 5’ extension)** - A 50 µl reaction in NEBuffer 4 containing a 20 nM solution of a fluorescent labeled double-stranded oligonucleotide containing a 5’ extension and a minimum of 1 unit of Antarctic Thermolabile UDG incubated for 16 hours at 37°C yields <5% degradation as determined by capillary electrophoresis.

**Double Stranded DNase Activity (Labeled Oligo)** - A 50 µl reaction in NEBuffer 4 containing a 20 nM solution of a fluorescent labeled double-stranded oligonucleotide containing a blunt end and a minimum of 1 unit of Antarctic Thermolabile UDG incubated for 16 hours at 37°C yields <5% degradation as determined by capillary electrophoresis.

**Endonuclease Activity (Nicking)** - A 50 µl reaction in Standard Taq Reaction Buffer containing 1 µg of supercoiled PhiX174 RF I DNA and a minimum of 15 units of Antarctic Thermolabile UDG incubated for 4 hours at 37°C results in <20% conversion to RFII as determined by agarose gel electrophoresis.

**Non-Specific DNase Activity (16 Hour)** - A 50 µl reaction in Standard Taq Reaction Buffer containing 1 µg of HindIII digested Lambda DNA and a minimum of 50 units of Antarctic Thermolabile UDG incubated for 16 hours at 37°C results in a DNA pattern free of detectable nuclease degradation as determined by agarose gel electrophoresis.

**Protein Purity Assay (SDS-PAGE)** - Antarctic Thermolabile UDG is ≥ 95% pure as determined by SDS-PAGE analysis using Coomassie Blue detection.

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<tr>
<th>Assay Name/Specification (minimum release criteria)</th>
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<tr>
<td><strong>qPCR DNA Contamination (E. coli Genomic)</strong> - A minimum of 1 unit of Antarctic Thermolabile UDG is screened for the presence of <em>E. coli</em> genomic DNA using SYBR® Green qPCR with primers specific for the <em>E. coli</em> 16S rRNA locus. Results are quantified using a standard curve generated from purified <em>E. coli</em> genomic DNA. The measured level of <em>E. coli</em> genomic DNA contamination is ≤ 1 <em>E. coli</em> genome.</td>
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<td><strong>RNase Activity (Extended Digestion)</strong> - A 10 µl reaction in NEBuffer 4 containing 40 ng of f-300 RNA transcript and a minimum of 1 unit of Antarctic Thermolabile UDG is incubated at 37°C. After incubation for 4 hours, &gt;90% of the substrate RNA remains intact as determined by gel electrophoresis using agarose gel electrophoresis.</td>
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<td><strong>Single Stranded DNase Activity (FAM-Labeled Oligo)</strong> - A 50 µl reaction in NEBuffer 4 containing a 20 nM solution of a fluorescent internal labeled oligonucleotide and a minimum of 1 unit of Antarctic Thermolabile UDG incubated for 16 hours at 37°C yields &lt;5% degradation as determined by capillary electrophoresis.</td>
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