

SYNCstore™ STM

Specimen Transport Medium

For in vitro diagnostic use only

Geneaid



CERTIFICATE NO. QAIC/TW/50077

ISO 9001:2008 QMS

Indications for use

SYNCstore™ STM is intended for the stabilization, transportation and inactivation of infectious samples suspected of containing viral and bacterial DNA/RNA.

Sample

Nasopharyngeal swabs
Oropharyngeal swabs
Sputum specimens

Functions

Virus/bacteria killing
Nucleases inactivation
RNA stabilization
Sample long term storage
Room temperature transport
Human cfDNA/cfRNA stabilization

Introduction

The SYNCstore™ STM device consists of a 8 mL storage tube with a cap containing 1 mL or 3 mL of the stabilization solution. These components are intended to inactivate virus and bacteria, lyse cells, lyse lipid membranes, denatures proteins, inactivates enzymes, and stabilize viral and bacterial DNA/RNA. The transport medium is designed for storage of specimens between 2-25 °C.

Kit Contents

Product name	SS1000-100	SS1000-400
SYNCstore™ STM	1ml X 100	1ml X 400

Safety Measures

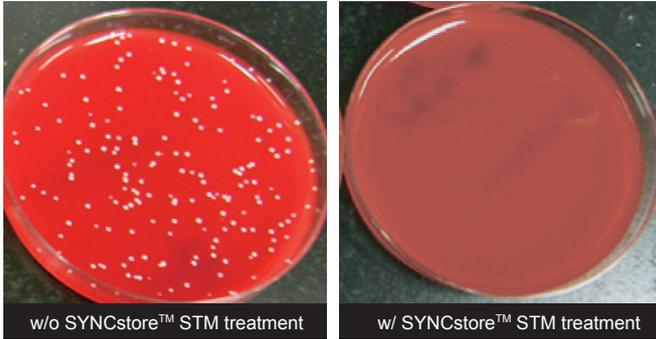
SYNCstore™ STM contains guanidine thiocyanate which produces a dangerous chemical reaction releasing cyanide gas when exposed to bleach (sodium hypochlorite). During the procedure, always wear a lab coat, disposable gloves, and protective goggles.

Sample preservation in SYNCstore™ STM Protocol

Protocol 1	<p>For nasopharyngeal and oropharyngeal swab sample</p> <ul style="list-style-type: none">• Collect the sample using a nasopharyngeal or oropharyngeal swab according to your internal procedures.• Place the swab in the SYNCstore™ STM medium and break the swab shaft at the marked breaking point. Make sure the swab tip is completely immersed into the SYNCstore™ STM medium.• Close the cap.• Ready for transport or store at low temperature.
Protocol 2	<p>For sputum sample</p> <ul style="list-style-type: none">• Add the sputum to the SYNCstore™ STM (V/V=1:2, ex. add 0.5 ml sputum to 1 ml medium).• Close the cap and vortex for 1 minute.• Ready for transport or store at low temperature.

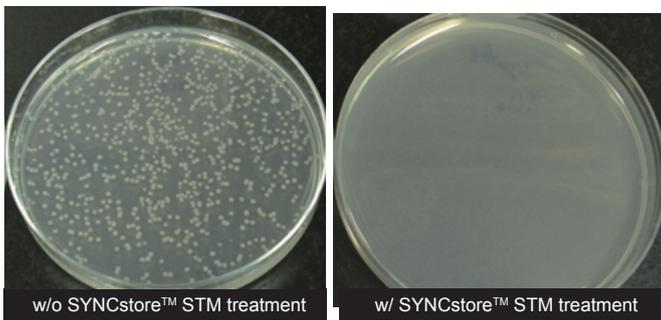
Test data

Bacteria Killing



Test 1

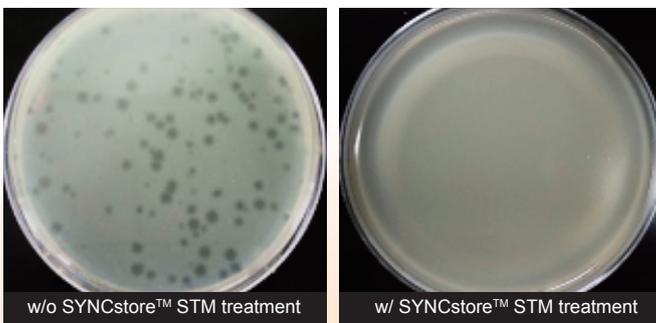
Staphylococcus aureus (Gram-positive) were grown to 0.8 of OD600. A 10,000x dilution was made, same amount cells with SYNCstore™ STM treatment at room temperature for 1 hour and without treatment were plated on BAP plates and incubated for 48 hrs. The results showed that the *Staphylococcus aureus* cells can be completely killed by SYNCstore™ STM.



Test 2

Escherichia coli (Gram-negative) were grown to 0.8 of OD600. A 10,000x dilution was made, same amount cells with SYNCstore™ STM treatment at room temperature for 1 hour and without treatment were plated on LB plates and incubated for 18 hrs. The results showed that the *Escherichia coli* cells can be completely killed by SYNCstore™ STM.

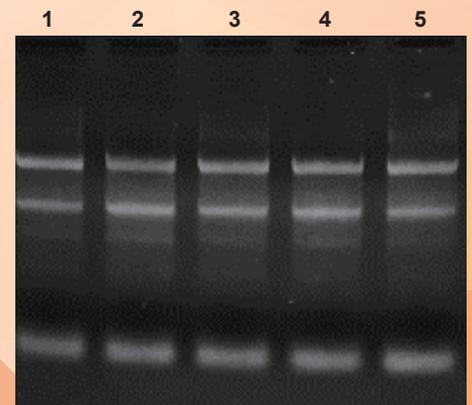
Virus killing



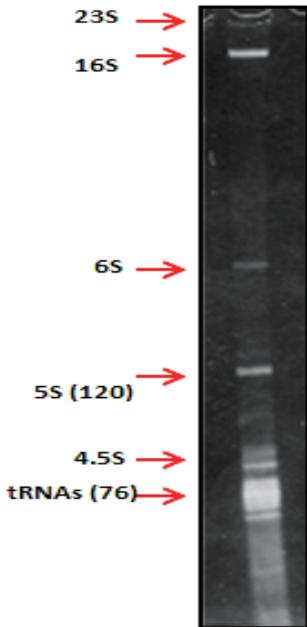
The MS2 phage (RNA, non-enveloped, icosahedral virus) with SYNCstore™ STM treatment and without treatment were mixed with the cells and pour to a plate with a lawn of actively growing compatible bacteria. After overnight growth, the plaques can be visualized, quantitated, and then titer determined. The results showed that the MS2 phage can be completely killed by SYNCstore™ STM.

RNA stability

SYNCstore™ STM provides long-term storage of *E. coli* total RNA. It efficiently protects all RNA species (23S RNA, 16S, RNA, mRNA, and 5S RNA/tRNA) from nucleases attacking. Lane 1: Original RNA. Lane 2: RNA stored in the SYNCstore™ STM medium for 1 day at room temperature. Lane 3: RNA stored in the SYNCstore™ STM medium for 2 days at room temperature. Lane 4: RNA stored in the SYNCstore™ STM medium for 3 days at room temperature. Lane 5: RNA stored in the SYNCstore™ STM medium for 7 days at room temperature.

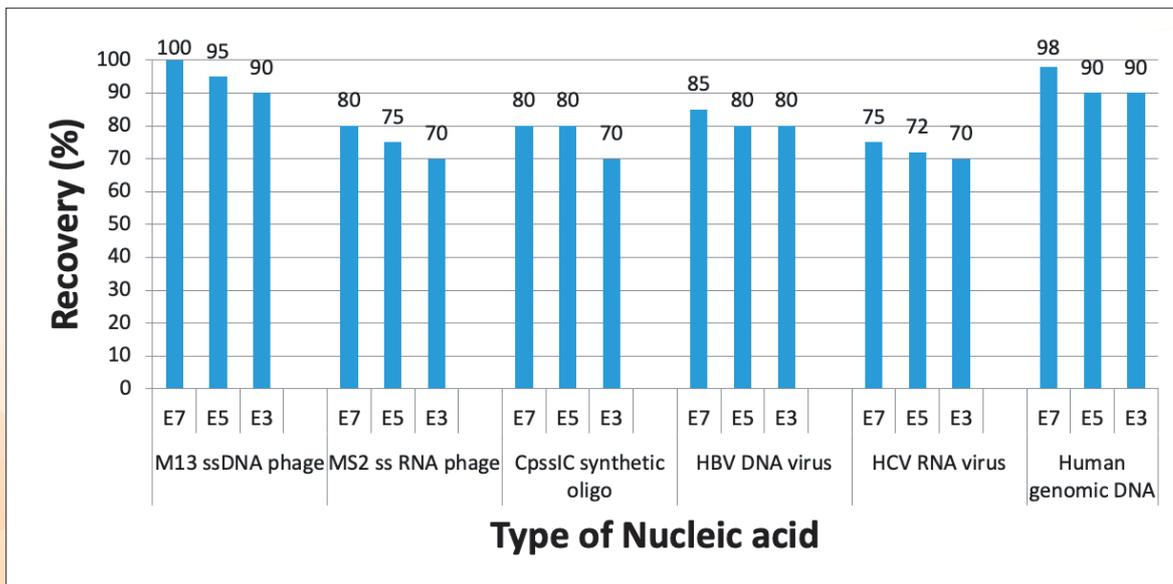


RNA stability



RNA purified by SYNCstore™ STM show high quality and excellent RNA integrity. *E. coli* cells were lysed and stored in SYNCstore™ STM for 7 days. RNA were purified. RNA species were separated on a 6% semi-denaturing PAGE. RNA species were cut out from the gel, purified, and were confirmed by Northern blot hybridization using P32-labeled oligo probes specific to various RNA species. Various RNA were also demonstrated by RT-PCR assays. These experiments demonstrate that various RNA species (23S, 16S, 6S, 5S, 4.5S, and 4S (tRNA) can be protected from RNase attack in SYNCstore™ STM. Gel results also show the RNA were kept in an excellent integrity.

Compatible to spin column and magnetic bead nucleic acid purification kits



Different copy numbers of nucleic acid from M13 DNA phage, MS2 RNA phage, long synthetic oligo DNA, HBV DNA virus, HCV RNA virus, and human genomic DNA were spiked into SYNCstore™ STM. The nucleic acid were then purified from SYNCstore™ STM medium using spin column and magnetic beads format kits individually. The nucleic acid recovery were determined by qPCR or qRT-PCR.