Instruction Manual
Research Use Only

Urine Preservation Solution

For Stabilization of Genomic DNA, Cell-free DNA, and Cells in Urine

Size: 350 mL
Storage: 2 - 8 °C
Cat. No.: 116594350
Content Version: Jan 2026

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1. Introduction to Urine Preservation Solution

Urine contains both nucleated cells and cell-free DNA, which are unstable and prone to rapid lysis or degradation upon sample collection. In addition, exfoliated nucleated cells such as normal epithelial cells or cancer-derived cells release genomic DNA which leads to dilution of cell-free DNA. To prevent nucleated cells and the cell-free DNA from degradation during storage and shipping, efficient stabilization methods are needed.

Urine Preservation Solution offers simultaneous stabilization of cell-free DNA, genomic DNA, and cells in urine up to 30 days at ambient temperature. The Urine Preservation Solution can be added directly to urine samples after collection, without the need to separate nucleated cells and cell-free DNA by centrifugation.

Note: The Urine Preservation Solution is for research use only and not for diagnostic procedures.

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2. User Supplied Materials

- Sterile urine collection cup (50 mL capacity minimum)
- Collection cup labels

Note: Alternatively, you can purchase the Urine Collection and Preservation Kit (Cat. No. 116594000), which includes all required materials such as the collection cup and labels.

3. Storage and Kit Stability

Urine Preservation Solution should be stored at 2-8°C upon arrival and avoid direct heat/sunlight.

4. Safety Precaution

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment.

5. Protocol

1. Prepare a sterile collection cup and set it aside. Wash hands thoroughly with soap and water before starting the collection.
2. Fill out a collection cup label with the donor's name and date of collection. Attach the label to the collection cup.
3. Remove the cap from the collection cup. Do not touch the inside of the cap. Fill the collection cup with urine specimen up to the 50 mL mark.
4. Pour 7 mL the Urine Preservation Solution into the collection cup containing the urine sample.
5. Cap and screw the Collection Cup securely.
6. Gently invert the cup 8-10 times to mix the urine and the preservation solution thoroughly. The sample is now stable at ambient temperature for up to 30 days and is ready for transport or storage prior to nucleic acid purification.

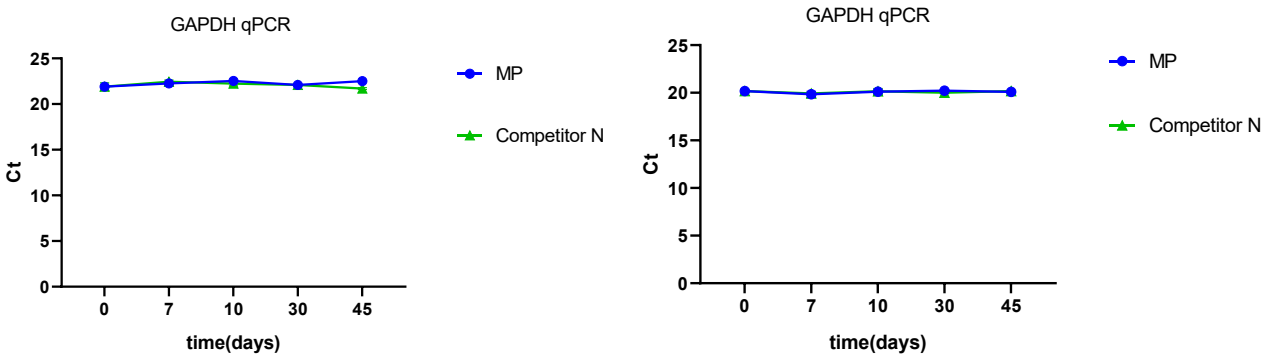
Note:

1. For extended storage, store the samples with the Urine Preservation Solution at 2-8°C

2. For gDNA and cfDNA purification, do not store urine sample with Urine Preservation Solution at -20°C or -80°C. Low temperatures will cause nucleated cells to lyse, preventing separation of gDNA and cfDNA.

6. Data

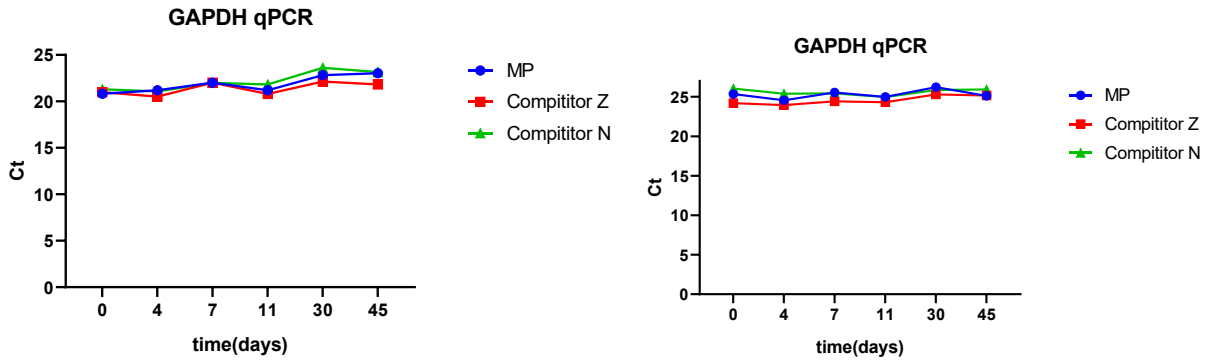
The Urine Preservation Solution is designed to simultaneously stabilize cell-free DNA, genomic DNA, and cells in urine. **For genomic DNA**, the solution can preserve urinary cells for at least 30 days at ambient temperature. Its performance is comparable to that of Competitor N. (Figure 1)



a) Female Donor b) Male Donor

Figure 1: **Performance of the Urine Preservation Solution for urinary cell stabilization.** Urine samples from (a) one female donor and (b) one male donor were treated with either the Urine Preservation Solution or Competitor N and stored at ambient temperature. Genomic DNA was extracted using the SPINeasy DNA Kit for Urine on Days 0, 7, 10, 30, and 45. Quantitative PCR (qPCR) was performed using 4 µL of gDNA per reaction. Threshold cycle (Ct) values were compared. Targets were amplified using SYBR Green technology.

The Urine Preservation Solution can stabilize cell-free DNA in urine for at least 30 days at ambient temperature. The performance is comparable to that of Competitor N and Competitor Z (Figure 2).



a) Female donor b) Male donor

Figure 2: **Performance of the Urine Preservation Solution in stabilizing cell-free DNA (cfDNA) in urine.** Urine samples from (a) one female donor and (b) one male donor were treated with the Urine Preservation

Solution, Competitor N, or Competitor Z and stored at ambient temperature. Cell-free DNA was extracted using the SPINeasy DNA Kit for Urine on Days 0, 7, 10, 30, and 45. Quantitative PCR (qPCR) was performed using 4 µL of cfDNA per reaction. Threshold cycle (Ct) values were compared. Targets were amplified using SYBR Green technology.

7. Troubleshooting

Problem	Possible Cause	Recommendation
Low DNA Yield	Sample degradation	Fresh or freshly frozen samples are preferred to obtain optimal yield and integrity. Urine should be stabilized by adding Urine Protective Buffer within 2 hours of collection. Urine samples in the preservative should be stored at room temperature. Turbidity or precipitation may occur if urine samples are stored at 4°C. This precipitation will reduce DNA yield (including both genomic DNA and cell-free DNA).
	Sample has low DNA content	The concentration of cell-free DNA in urine may be low and varies considerably due to many factors, including individual differences, sex, health status of the donor, collection time, and hydration status. To compensate for low concentrations, increase the input volume to as much as 50 mL.
A slightly yellow appearance	-	A slightly yellow appearance does not affect the performance of the additive as long as the solution is used before its expiration date.
Urine Preservation Solution (116594350)	-	This production does not include a urine collection cup. If you purchase SKU 116594350, you must provide your own urine collection cup separately.
Isolation Kit	-	Following urine stabilization with Urine Preservation Solution, genomic DNA and cell-free DNA isolation can be performed using the SPINeasy DNA Kit for Urine (SKU 116593050/116593000). This solution is also compatible with multiple commercial kits.

8. Related Products

Products	Package	Cat No.
Urine Collection and Preservation Kit	8 PACK	116594000
SPINeasy DNA Kit for Urine	50 PREP	116593050
SPINeasy DNA Kit for Urine	5 PREP	116593000
SPINeasy RNA Kit for Urine	50 PREP	116595050
SPINeasy RNA Kit for Urine	5 PREP	116595000

9. Product Use Limitation & Warranty

The products presented in this instruction manual are for research or manufacturing use only. They are not to be used as drugs or medical devices in order to diagnose, cure, mitigate, treat or prevent diseases in humans or animals, either as part of an accepted course of therapy or in experimental clinical investigation. These products are not to be used as food, food additives or general household items. Purchase of MP Biomedicals products does not grant rights to reproduce, modify, or repackage the products or any derivative thereof to third parties. MP Biomedicals makes no warranty of any kind, expressed or implied, including merchantability or fitness for any particular purpose, except that the products sold will meet our specifications at the time of delivery.

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