Code No. 9750 Size: 100 ml

Description:

Sample Protector for RNA/DNA is a non-toxic stabilization solution for storage of mammalian or plant tissues, cultured cells, yeast, or bacteria prior to DNA or RNA extraction. It rapidly inactivates RNase and DNase, allowing these samples to remain stable at room temperature or 4°C for specific periods of time (Please refer to Protocol 2. Sample storage). When RNA or DNA extraction from fresh tissue or cell samples cannot be performed immediately after harvesting, the samples are often stored at -20°C, which can result in some RNA and DNA degradation. This product can effectively solve common problems with storage and shipment of fresh tissue and cell samples to be used for DNA or RNA preparation. In addition, if biological samples collected at various time points are immediately submerged in Sample Protector for RNA/DNA, this reagent can stabilize RNA and preserve gene expression profiles, enabling gene expression analysis. The effect of preservation is equal to that in -80°C refrigerator for specific period of time.

Storage: 4°C

This product will remain stable until the expiration date, but performance may diminish with longer-term storage.

Protocol:

- 1. Sample processing
- (1) Mammalian and plant tissues

Cut the mammalian or plant tissue into 0.5-cm square pieces and add 0.5 - 1 ml of Sample Protector for RNA/DNA, mix upside down and immerse tissue under the surface as much as possible. Then store under appropriate conditions as described in Step 2. Sample storage.

(2) Cultured cells and leukocytes

Harvest the cells (10⁶ - 5 x 10⁶, centrifuge < 5,000 rpm, avoid cells damage as much as possible) according to the standard protocol, wash with 0.5 -1 ml of PBS, centrifuge < 5,000 rpm, (avoid cells damage as much as possible), discard supernatant, add 0.5 -1 ml of Sample Protector for RNA/DNA, and completely suspend cells. Store under appropriate conditions as described in Step 2. Sample storage.

(3) Adherent cells

Treat cells with trypsin, harvest the cells $(10^6 - 5 \times 10^6)$ by centrifuging <5,000 rpm, (avoid cells damage as much as possible) and discard the supernatant. Wash with 0.5 - 1 ml of PBS, centrifuge <5,000 rpm, (avoid cells damage as much as possible) and discard the supernatant. Add 0.5 - 1 ml of Sample Protector for RNA/DNA and completely suspend cells. Store under appropriate conditions as described in Step 2. Sample storage.

(4) Yeast

Harvest approximately 10⁸ cells by centrifuging at 12,000 rpm for 2 min and discard the supernatant. Add 0.5 - 1 ml of Sample Protector for RNA/DNA and completely suspend the cells. Store under appropriate conditions as described in Step 2. Sample storage.

(5) Bacteria

Harvest approximately 10^9 cells by centrifuging at 12,000 rpm for 2 min and discarding the supernatant. Add 0.5 - 1 ml of Sample Protector for RNA/DNA, completely suspend the cells. Store under appropriate conditions as described in Step 2. Sample storage.

2. Sample storage

Sample can be stored in Sample Protector for RNA/DNA for up to 1 day at 37° C, 1 week at 25° C, 1 month at 4° C, or long-time storage* at -20° C.

* For long-time storage, incubate the samples in Sample Protector for RNA/DNA for 1 hour at room temperature then store at -20°C.

- 3. RNA or DNA extraction
 - (1) Remove the cell or tissue sample for RNA or DNA extraction from the Sample Protector for RNA/DNA solution as follows: Remove tissue samples from the Sample Protector solution using sterile forceps, etc. Separate cultured cells from Sample Protector solution by centrifuging at >5,000 rpm for 5 min or 12,000 rpm for 1 min, as Sample Protector for RNA/DNA is the higher density.
 - (2) Wash the tissues or cells once or twice with PBS or RNase-free H₂O, by centrifuging at appropriate centrifugal force.
 - (3) Extract RNA or DNA from the sample using a conventional nucleic acid extraction kit.

Note:

- Small tissue samples such as mouse kidney or spleen can be stored in Sample Protector for RNA/DNA directly without cutting into smaller pieces.
- 2. Sample Protector for RNA/DNA is a non-toxic reagent.
- 3. For long-time storage, incubate the samples in the Sample Protector for RNA/DNA for 1 hour at room temperature, then store at -20°C.
- 4. When the sample is stored in Sample Protector for RNA/DNA at -20°C, it may be in the state of solution or freezing.

Note

This product is for research use only. It is not intended for use in therapeutic or diagnostic procedures for humans or animals. Also, do not use this product as food, cosmetic, or household item, etc. Takes are products may not be resold or transferred, modified for resale or transfer, or used to manufacture commercial products without written approval from Takara Bio Inc.

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Code No. 9750 容量: 100 ml

● 製品説明

Sample Protector for RNA/DNA は、動植物組織、培養細胞、酵母、バクテリアなどの試料を核酸抽出するまで保存しておくための低毒性溶液です。本試薬に組織等を浸漬することで、試料中の RNase、DNase は迅速に失活され、試料を室温や 4℃で長期間保存できます。

組織や細胞などの試料を採取後、すぐに核酸抽出しないで - 20℃で保存すると、核酸の分解が起こることがあります。Sample Protector for RNA/DNA 中で保存することにより、試料からただちに核酸抽出したり、液体窒素で凍結保存する必要がなくなります。さらに、多数のサンプリングを行う場合にも迅速な RNA の安定化ができ、良好な遺伝子発現結果が得られます。Sample Protector for RNA/DNA 中での試料保存は、一定期間は - 80℃での保存と同等の効果があります。

● 保存 4℃

● 使用法

1. Sample Protector for RNA/DNA は、新鮮な組織や細胞に用いる場合に のみ有効です。 Sample Protector for RNA/DNA に浸漬する前は、決し て試料組織を凍結しないでください。

(1)動物組織、植物組織

組織試料を厚さが 5 mm 以下に切り(例えば、5 × 5 × 5 mm 切片)、 新鮮な状態で 0.5 ~ 1 ml の Sample Protector for RNA/DNA を加え、 転倒混和してよく浸漬する。

(2) 培養細胞、白血球細胞

 $10^6\sim5\times10^6$ の細胞をペレットとして回収後、PBS などで洗浄し培地を十分に取り除く。 $0.5\sim1$ ml の Sample Protector for RNA/DNA を加えて、良く細胞を懸濁して保存する。

(3)接着性細胞

トリプシンなどを使用して、細胞をプレート等から剥がし、細胞懸濁液を遠心操作により $10^6 \sim 5 \times 10^6$ の細胞をペレットとして回収する。PBS などで洗浄した後、 $0.5 \sim 1$ ml の Sample Protector for RNA/DNA を加えて、良く細胞懸濁して保存する。

(4) 酵母

約 10^8 個の酵母を 12,000 rpm で 2 分間遠心してペレットとして回収した後、 $0.5\sim1$ mlの Sample Protector for RNA/DNA を加えてよく細胞懸濁し保存する。

(5) バクテリア

約 10⁹ 個のバクテリアを 12,000 rpm で 2 分間遠心してペレットとして回収した後、0.5~1 ml の Sample Protector for RNA/DNA を加えて良く菌体を懸濁し保存する。

2. 各温度での保存方法と安定性

Sample Protector for RNA/DNA 中で各試料は、37 で 1 日、25 で 1 週間、4 で 1 か月間保存できる。さらに長期間の保存は、Sample Protector for RNA/DNA を加えた後、室温で 1 時間静置後 - 20 で保存する。この場合溶液が凍結する場合があります。

3. Sample Protector for RNA/DNA 保存試料からの RNA、DNA の精製

(1)組織

Sample Protector for RNA/DNA に保存された組織を滅菌済みピンセットなどで溶液から取り出し、PBS などで2回洗浄する。その後、核酸精製キットなどを使用して核酸を精製する。

(2)細胞

5,000 rpm 以上で 5 分間遠心して、細胞を沈殿させて、上清を取り除く。PBS などで 2 回洗浄後、核酸精製キットなどを使用して核酸を精製する。

[注意]

- ・ Sample Protector for RNA/DNA は新鮮な試料の保存に使用してください。すでに凍結させた試料や、採取後時間の経過した試料の保存にはおすすめできません。凍結した試料を Sample Protector for RNA/DNA 中で保存する場合は、凍結状態の試料に Sample Protector for RNA/DNA を加え、混合後 4℃以上で保存してください。
- Sample Protector for RNA/DNA は全血の保存には適していません。分離された白血球細胞は本試薬中で保存できます。
- ・ 試料を 80℃保存する場合は、Sample Protector for RNA/DNA の添加は不要です。
- ・マウスの腎臓や脾臓など小さな組織には直接 Sample Protector for RNA/DNA を加えて保存できます。細断する必要はありません。
- Sample Protector for RNA/DNA は毒劇物を含んでいません。

●注意

本製品は研究用として販売しております。ヒト、動物への医療、臨床診断用には使用しないようご注意ください。また、食品、化粧品、家庭用品等として使用しないでください。

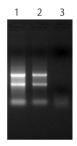
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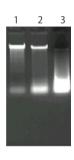
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Experimental Examples:

 Extraction of total RNA from HL-60 cells that were stored in Sample Protector for RNA/DNA.



- 1: Stored at 37°C for 1 day after adding Sample Protector 2: Stored at 25°C for 1 week
- after adding Sample Protector
- 3: Stored at 37°C for 1 day without Sample Protector
- 2. Extraction of genomic DNA from rat spleen that was stored in Sample Protector.



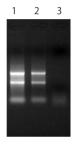
- 1: Stored at 37°C for 1 day after adding Sample Protector
- 2: Stored at 25°C for 1 week after adding Sample Protector
- 3: Stored at 37°C for 1 day without Sample Protector

O & A:

- Q1: Which samples are suitable for storage in the Sample Protector for RNA/DNA?
- A1: Sample Protector for RNA/DNA is suitable for storage of fresh samples. For frozen samples, add Sample Protector for RNA/DNA before melting of the samples (that is, just be taken out from the freezer or liquid nitrogen), vortex to make samples thawing, then store at ≥ 4°C; If further cryopreservation is required, the sample will be placed in freezing conditions immediately after adding Sample Protector for RNA/DNA.
 - Note: If adding this product after samples melt, the storage effect will become worse.
- Q2: Is Sample Protector for RNA/DNA suitable for storage of whole blood?
- A2: No. Because a lot of insoluble matter will appear after adding this product in the whole blood, it can't store the whole blood. Lymphocyte separation solution can be used to separate leukocytes, and then store with this product.
- Q3: Can samples be stored in the Sample Protector for RNA/DNA at -80°C?
- A3: Under the condition of -80°C, the samples can be frozen directly. It is not recommended to add Sample Protector for RNA/DNA.

● 実施例

1. Sample Protector for RNA/DNA 中で保存された HL-60 細胞からの RNA 精製



- 1. Sample Protector for RNA/DNA 中で 37℃ 1 日保存した細胞から 精製された RNA
- 2. Sample Protector for RNA/DNA 中で 25℃ 1 週間保存した細胞か ら精製された RNA
- 3. Sample Protector for RNA/DNA なしで 37℃ 1 日保存した細胞か ら精製された RNA
- Sample Protector for RNA/DNA 中で保存されたラットの脾臓からの DNA 精製



- 1. Sample Protector for RNA/DNA 中で37℃1日保存した脾臓から精製されたDNA
- 2. Sample Protector for RNA/DNA 中で25℃1週間保存した脾臓から精製されたDNA
- 3. Sample Protector for RNA/DNA な しで 37℃ 1 日保存した脾臓から 精製された DNA

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