

## Blood DNA Medi Kit

**Product Number: DNK0301**

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### Shipping and Storage

1. When the ambient temperature is low, some detergent ingredients in Buffer NLY will precipitate and become turbid or precipitate. It can be heated in a 37°C water bath for a few minutes to restore clarity. Do not shake violently to avoid excessive foam formation.
2. Buffer PP may experience precipitation and precipitation, and can be re dissolved by taking a water bath at 37°C for a few minutes. If it cannot be completely dissolved, it will not affect the effectiveness of use. Simply take the upper solution.
3. To avoid volatilization, oxidation, and pH changes caused by prolonged exposure of reagents to the air, each solution should be covered tightly in a timely manner after use.

### Components

Component	Storage	DNK0301	DNK0302
		20 Preps×3ml	50 Preps×3ml
10x Buffer ELY	RT	20 ml	45 ml
Buffer NLY	RT	60 ml	150 ml
Buffer PP	RT	20 ml	50 ml
Buffer DA	RT	10 ml	20 ml

### Description

This kit uses several rapid steps to extract genomic DNA based on the characteristics of whole blood. Firstly, Buffer ELY cleaves red blood cells without DNA, while Buffer NLY cleaves white blood cells to release genomic DNA. Then, Buffer PP selectively precipitates to remove proteins. Finally, pure genomic DNA is precipitated in isopropanol and re dissolved in Buffer DA.

### Features

1. The Buffer ELY formula selected from over a dozen formulas is fast and complete in cracking.
2. No need to use toxic reagents such as phenol.
3. Fast and simple, the operation of a single sample can generally be completed within 1 hour.
4. The results are stable and the yield is high (typical yield of 3ml whole blood can extract 50-150μg). The OD260/OD280 typical ratio is 1.7-1.9, and the length can reach 50Kb-150kb. It can be directly used for library construction, PCR, Southern blot, and various enzyme digestion reactions.

### Application

Suitable for rapid extraction of genomic DNA from whole blood of various animals

### Note

1. All centrifugation steps are completed at room temperature, with a rotational speed of up to 2,500×g, and equipped with a traditional desktop centrifuge that can accommodate 15ml centrifuge tube heads.
2. Users need to bring their own isopropanol and 70% ethanol.
3. A typical yield of 3ml of whole blood can extract 75-150μg of genomic DNA (the number of white blood cells in different samples, especially in disease samples, may vary greatly, so individual differences in yield may also be significant).
4. This reagent kit is a solution type and can easily increase or decrease the total blood volume (20μl-10ml) for each treatment in proportion.
5. This test kit can be used for whole blood with various anticoagulants, such as EDTA, citric acid, and heparin for anticoagulation. Due to the difficulty in dispersing and resuspending the white blood cell precipitates of heparin anticoagulant, which affects the

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lysis effect, it is recommended to use non heparin anticoagulants to collect blood samples.

- For optimal results, it is best to use fresh blood specimens or specimens stored at 4°C for less than 3 days. Do not use specimens that have been repeatedly freeze-thawed more than 3 times, otherwise it will seriously reduce production.

**Protocol(Please read the precautions before the experiment)**

- Take 9ml 1×Buffer ELY (diluted to 1×) into a 15ml centrifuge tube.

**Note:Before use, 10×Buffer ELY should be diluted 10 times with deionized water to 1×.**

- Invert the anticoagulant whole blood (return to room temperature before use) and mix well. Take 3ml and add it to the centrifuge tube containing Buffer ELY in the previous step. Invert 6-8 times and gently flick the tube wall upside down to ensure thorough mixing.
- Let it stand at room temperature for 10 minutes (during which it should be flipped upside down and lightly bounced, mixed several times to help lyse red blood cells).
- Centrifuge 2500×g for 2 minutes, discard the red supernatant, and carefully aspirate as much supernatant as possible (be careful not to aspirate cell clusters at the bottom of the tube), leaving intact white blood cell clusters at the bottom of the tube and approximately 50µl of residual supernatant.

**Note:After centrifugation, white white blood cell clusters should be seen at the bottom of the tube, and there may also be some red blood cell fragments and white blood cell clusters together. However, if most of the red blood cell clusters are seen, it indicates that red blood cell lysis is not sufficient. Add an appropriate amount of Buffer ELY to resuspend the cell clusters and repeat steps 3 and 4.**

- Vortex oscillation until the white blood cell clusters are fully resuspended and dispersed.

**Note: The resuspension and dispersion of white blood cells are crucial for the next step of lysis. Adding Buffer NLY without dispersing white blood cells can cause them to not fully lyse and form visible clumps.**

- Add 3ml Buffer NLY to resuspended white blood cells, blow up and down to lyse white blood cells, or vigorously vortex for 10 seconds to help lyse white blood cells.

**Optional steps, generally not required:** add RNase A (10mg/ml) to the lysate to a final concentration of 30µg/ml, mix 25 times, incubate at 37 °C for 15 minutes to remove residual RNA, and then cool back to room temperature.

- After adding 1ml Buffer PP, oscillate continuously at high speed on a vortex oscillator and mix well for 25 seconds. After mixing, you may see some small protein clumps.
- Centrifuge 2500×g (adjustable to increase centrifugal force as needed) for 5 minutes. At this point, you should be able to see dark brown protein precipitates at the bottom of the tube, or you may see some protein precipitates floating on the surface of the liquid.
- Carefully aspirate the supernatant (approximately 3ml) into a new 15ml centrifuge tube.

**Note: When aspirating the supernatant, be careful not to aspirate onto the bottom of the tube and protein precipitates floating on the surface of the liquid. If the protein precipitate is accidentally transferred into a new centrifuge tube, it can be centrifuged again for 2 minutes before taking the supernatant.**

- Add an equal volume of room temperature isopropanol (3ml), gently invert 30 times and mix well or until a cotton like (filamentous) white DNA precipitate appears.
- Centrifuge at 2,000×g for 3 minute, and white DNA precipitates can be seen at the bottom of the tube. Discard the supernatant.
- Add 3ml of 70% ethanol, invert and rinse the DNA precipitate several times, centrifuge at 2,000×g for 1 minute, remove the supernatant (be careful not to pour out the DNA precipitate), invert and gently tap on absorbent paper a few times to control the residual ethanol. You can also use a gun to carefully remove the residual ethanol around the bottom precipitate and the wall of the tube, and air dry the precipitate for a few minutes.

**Note: Do not dry too much, otherwise DNA is extremely insoluble; Also, too much ethanol should not be left behind, otherwise ethanol may inhibit downstream reactions such as enzyme digestion.**

- Add 250µl of Buffer DA to dissolve the DNA precipitate again, gently tap the tube wall and mix well. It can be incubated at 65 °C for 30-60 minutes (not more than one hour), during which occasional light tapping of the tube wall helps rehydrate the DNA. DNA can also be rehydrated by staying overnight at room temperature or 4 °C.



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14. DNA can be stored at 2-8 °C, and if it needs to be stored for a long time, it can be placed at -20 °C.