

Genomic DNA Isolation from 1 ml of Body Fluid

AquaPure® Genomic DNA Isolation Kit

Catalog #732-6340

Expected yield range: 2–50 µg DNA (15-ml tube prep)

Method

Cell Lysis

1. Add 1 ml body fluid (e.g., cerebrospinal fluid, plasma, saliva, serum, sputum, synovial fluid, urine, whole blood, milk) to a sterile 15 ml centrifuge tube containing 5 ml cell lysis solution. Pipet up and down several times to mix thoroughly. Note: if the sample has a high protein content, 0.5 ml body fluid may be added to 5.5 ml cell lysis solution.
2. Heat to 65°C for 15 min to complete lysis. Alternatively, for maximum yield, add 30 µl of proteinase K (20 mg/ml) and incubate lysate at 55°C for 1 hr to overnight.

RNase Treatment (Optional)

1. Add 30 µl RNase A solution to the cell lysate.
2. Mix the sample by inverting the tube 25 times and incubate at 37°C for 15–60 min.

Protein Precipitation

1. Cool sample to room temperature.
2. Add 2 ml protein precipitation solution to the lysate.
3. Vortex sample at high speed for 20 sec to mix the protein precipitation solution uniformly with the lysate.
4. Place sample into an ice bath for 5–15 min.
5. Centrifuge at 2,000 x g for 10 min. The precipitated proteins should form a tight pellet. Note: if body fluid has a high lipid content, particulates may stay near top of tube; see alternative transfer method in step 1 below.

DNA Precipitation

1. Pour the supernatant containing the DNA (leaving behind the precipitated protein pellet) into a clean 15 ml centrifuge tube containing 6 ml 100% isopropanol (2-propanol). Alternatively, if particulates are present, transfer supernatant using a pipet so that particulates are excluded. If the DNA yield is expected to be low (<20 µg), add a DNA carrier such as glycogen (10 µl of 20 mg/ml glycogen per 6 ml isopropanol).
2. Mix the sample by inverting gently 50 times and keep tube at room temperature for at least 5 min.

3. Centrifuge at 2,000 x g for 10 min. The DNA may or may not be visible as a small white pellet, depending on yield.
4. Pour off the supernatant and drain tube briefly on clean absorbent paper. Add 6 ml 70% ethanol and invert the capped tube several times to wash the DNA pellet.
5. Centrifuge at 2,000 x g for 1 min. Carefully pour off the ethanol. Pellet may be loose, so pour slowly and watch pellet to ensure it stays in the tube.
6. Invert and drain the tube on clean absorbent paper and allow to air-dry for 15 min.

DNA Hydration

1. Add 100 µl of DNA hydration solution (100 µl will give a concentration of 200 µg/ml if the yield is 20 µg DNA).
2. Allow DNA to rehydrate overnight at room temperature. Alternatively, heat at 65°C for 1 hr. Tap tube periodically to aid in dispersing the DNA.
3. Vortex briefly and pulse-spin before use. Store DNA at 2–8°C.

Ordering Information

Catalog #	Description
732-6340	AquaPure Genomic DNA Isolation Kit, for cultured cells and gram-negative bacteria, processes up to 100 cultured cell preps (1–2 x 10 ⁶ cells/prep), or 100 x 0.5 ml bacterial cultures per kit

Related Products

732-6343	AquaPure Genomic DNA Tissue Kit, for animal and plant tissues, cultured cells, and gram-negative bacteria, processes up to 100 x 0.5–10 mg animal or plant tissue preps, 100 cultured cell preps (1–2 x 10 ⁶ cells/prep), or 100 x 0.5 ml bacterial cultures per kit
732-6345	AquaPure Genomic DNA Blood Kit, for human and mammalian whole blood and bone marrow, processes up to 100 x 0.3 ml whole blood samples per kit
732-6370	AquaPure RNA Isolation Kit, for cultured cells, animal and plant tissues, and gram-negative bacteria, processes up to 100 x 5–10 mg animal or plant tissue preps, 100 cultured cell preps (1–2 x 10 ⁶ cells/prep), or 100 x 0.5 ml bacterial cultures per kit
732-6371	AquaPure RNA Blood Kit, for human and mammalian whole blood and bone marrow, processes up to 100 x 0.3 ml whole blood samples per kit