Feb 22, 2019 Version 1

E. coli K12 DNA Extraction V.1

DOI
dx.doi.org/10.17504/protocols.io.yekftcw

Kenneth Schackart[1]

[1]University of Arizona

Yoon Lab

Kenneth Schackart
University of Arizona

DOI: dx.doi.org/10.17504/protocols.io.yekftcw

Protocol Citation: Kenneth Schackart 2019. E. coli K12 DNA Extraction. **protocols.io https://dx.doi.org/10.17504/protocols.io.yekftcw**

Protocol status: In development
We are still developing and optimizing this protocol

Created: February 22, 2019

Last Modified: February 22, 2019

Protocol Integer ID: 20652

Abstract

How to extract DNA from *E. coli* K12 using Wizard® Genomic DNA Purification Kit by Promega®.

I do not claim any credit for the development of this protocol. It has been adapted from the protocol detailed in:
Wizard Genomic DNA Purification....
.

Materials

MATERIALS

Wizard(R) Genomic DNA Purification Kit **Promega Catalog #**A1620

Additional materials:

- 1.5 mL microcentrifuge tubes
- Isopropanol, room temperature
- 70% ethanol, room temperature

Culture bacteria

1 Culture *E. coli* K12 in BHI broth overnight.
2 mg lyophilized *E. coli* K12 in 10 mL BHI broth.

Pellet the cells

2 Add 1 mL cell suspension to 1.5 mL microcentrifuge tube.

3 Centrifuge at 13,000-16,000 × *g* for 00:02:00 .

4 Remove supernatant.

Lyse nuclei

5 Add 600 µL of Nuclei Lysis Solution.

6 Gently pipet until the cells are resuspended.

7 Incubate at 80 °C for 00:05:00 to lyse the cells.

8 Cool to room temperature.

Degrade RNA

9 Add 600 µL RNase Solution to the cell lysate.

10 Invert 2-5 times to mix.

11 Incubate at 37 °C for 00:15:00 to 01:00:00 .

12 Cool to room temperature.

Precipitate proteins

13 Add 200 µL of Protein Precipitation Solution to the RNase-treated cell lysate.

14 Vortex vigorously at high speed for 00:00:20 .

15 Incubate on ice for 00:05:00

16 Centrifuge at 13,000-16,000 × *g* for 00:03:00 .

Harvest DNA

17 Transfer the supernatant containing the DNA to a clean 1.5 mL microcentrifuge tube containing 600 µL isopropanol.

> Note
>
> Some supernatant may remain in the original tube conatining the protein pellet. Leave this residual to avoid contaminating the DNA solution with the precipitated protein.

18 Gently mix by inversion until the thread-like strands of DNA form a visible mass.

Wash and dry DNA

19 Centrifuge at 13,000-16,000 × *g* for 00:02:00 .

20 Carefully pour off the supernatant and drain the tube on clean absorbent paper.

21 Add 600 µL of 70% ethanol and gently invert the tube several times to wash the DNA pellet.

22 Centrifuge at 13,000-16,000 × *g* for 00:02:00 .

23 Carefully aspirate the ethanol.

24 Drain the tube on clean absorbent paper and allow to air-dry for 10-15 minutes.

Rehydrate DNA

25 Add 100 µL of DNA rehydration solution to the tube.

26 Rehydrate by incubating the solution overnight at room temperature or 4 °C .

27 Store DNA at 2 °C to 8 °C .