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Blood DNA Isolation 96-Well Kit (Magnetic Bead System) **Product Insert**
Product # 62600

Norgen's Blood Genomic DNA Isolation 96-Well (Magnetic Bead System) is designed for the rapid and high throughput preparation of genomic DNA from up to 200 µL of whole blood from various species, including human. Purification is based on magnetic beads as the separation matrix. Norgen's magnetic beads bind DNA under optimized salt concentrations and release the bound DNA under low salt and slightly alkali conditions. The genomic DNA is preferentially purified from other cellular proteinaceous components. Typical yields of genomic DNA will vary depending on the cell density of the blood sample. The purified genomic DNA is fully digestible with all restriction enzymes tested and is completely compatible with downstream applications including real-time PCR, NGS and microarray analysis. The purified DNA is of the highest quality which could be extracted either manually or by using automation platform IsoPure™. The protocol can also be easily modified by making minor changes to be able to run on other Magnetic Bead-based automation platforms such as KingFisher™ Flex 96 and Hamilton MagEx STAR platforms.

Norgen's Purification Technology
Purification is based on the use of magnetic beads that bind DNA under optimized binding conditions. Norgen's Blood DNA Isolation 96-Well (Magnetic Bead System) kit allows for the isolation of genomic DNA from various different blood samples, including humans. Lysis Buffer B and Proteinase K are added to the sample, mixed and incubated at 55°C to lyse the cells. Ethanol is then added to the lysate, and it is then transferred into 96-well plate. Magnetic Beads A is added to the clean supernatant, and the resulting solution is placed on the magnetic separation rack. Only the DNA will bind to the magnetic beads, while most of the proteins will be removed in the supernatant. The bound DNA is then washed with Solution WN and 70% ethanol in order to remove any impurities and the purified total DNA is eluted with the Elution Buffer B. The purified DNA can be used in a number of downstream applications.

Specifications

Kit Specifications	
Number of Preps	192
Maximum Blood Input	200 µL
Average Yield (200 µL of blood) *	2-12 µg
Average Purity (OD260/280)	1.7-1.9
Time to Complete 96 Purifications	30 minutes (hands-on time)
Time to Complete 96 Purifications	60 minutes (hands-on time)

* Average DNA yield will vary depending on the sample

Advantages

- Isolate genomic DNA from blood from various species.
- Fast, reproducible and easy processing using a magnetic bead system
- Magnetic Bead protocol can easily be adapted on a variety of automation systems (IsoPure™, KingFisher, Hamilton Star/Vantage, and Tecan)
- Purified DNA is suitable for a variety of downstream applications, including qPCR or NGS sequencing.

Storage Conditions and Product Stability
All solutions should be kept tightly sealed and stored at room temperature. This kit is stable for 1 year after the date of shipment. The kit contains a ready-to-use Proteinase K, which is dissolved in a specially prepared storage buffer. The buffered Proteinase K is stable for up to 1 year after the date of shipment when stored at room temperature.

Kit Components

Component	Product # 62600 (192 samples)
Lysis Buffer B	1 x 40 mL 1 x 20 mL
Proteinase K in Storage Buffer	4 mL
Solution WN	55 mL
Elution Buffer B	1 x 30 mL 1 x 15 mL
Magnetic Beads A	8.5 mL
96-Well Plate	2
96-Well Elution Plate	2
Adhesive Tape	2
Product Insert	1

Precautions and Disclaimers

This kit is designed for research purposes only. It is not intended for human or diagnostic use.

Ensure that a suitable lab coat, disposable gloves and protective goggles are worn when working with chemicals. For more information, please consult the appropriate Safety Data Sheets (SDSs). These are available as convenient PDF files online at *www.norgenbiotek.com*.

Lysis Buffer B and **Solution WN** contains guanidinium salts and should be handled with care. Guanidinium salts form highly reactive compounds when combined with bleach, thus care must be taken to properly dispose of any of these solutions.

Blood of all human and animal subjects is considered potentially infectious. All necessary precautions recommended by the appropriate authorities in the country of use should be taken when working with these samples.

Customer-Supplied Reagents and Equipment

- Magnetic Bead 96-Well Separation Plate (For manual Isolation)
- Adhesive Tape (For manual Isolation) – We recommended Norgen Cat. 28394
- IsoPure™ 96 or IsoPure™ Mini Purification System (For automated Isolation)
- Micropipettors
- Microcentrifuge tube
- 96-well plate
- 70% ethanol (prepare fresh)
- 96 – 100% ethanol
- Temperature adjustable (37°C, 55°C, 65ºC) incubator(s)
- Orbital Shaker (Plates) or Tube Revolver Rotator (Tubes)
- Lysozyme (400 mg/mL) (For blood containing Gram positive bacterial pathogens)

Procedure

Notes prior to use:

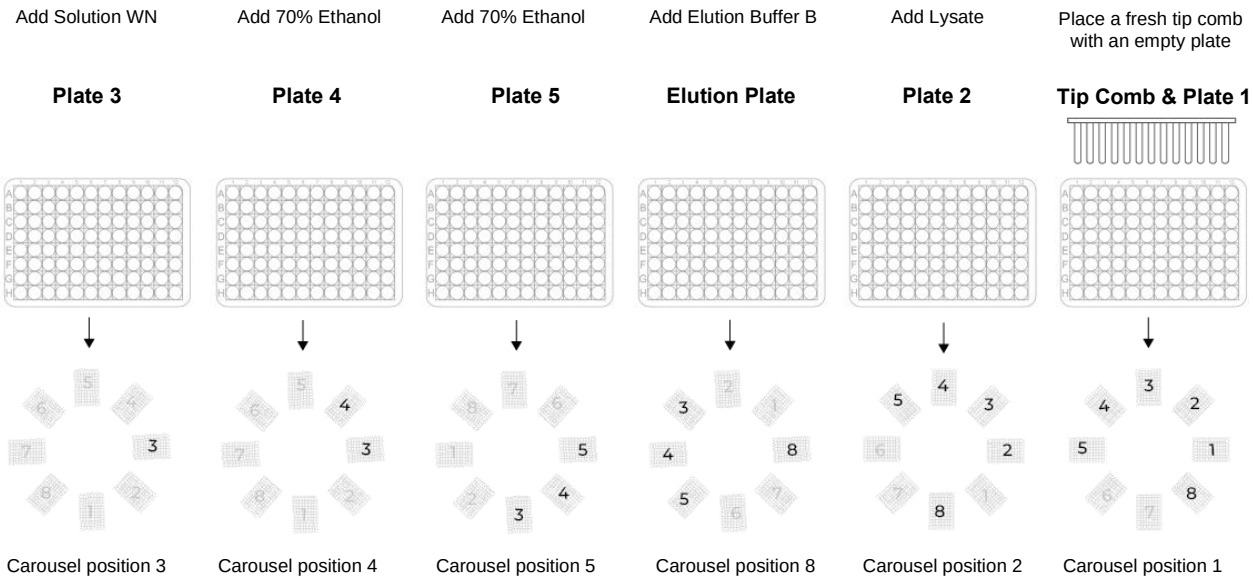
- The procedure provides information and steps to follow to extract DNA using Automated as well as Manual method.
- Ensure that all solutions are at room temperature prior to use, and that no precipitates have formed. If necessary, warm the solutions and mix well until the solutions become clear again.
- **Always** vortex the **Magnetic Beads A** and **Proteinase K** before use.
- Preheat the incubator(s) according to the protocol (37ºC, 55°C or 65°C). For automation procedures, the automation platform that is being used may have a heat block to provide appropriate temperatures for

incubation and thus an incubator might not be required. IsoPure™ instruments come with heat blocks and the scripts provided include the incubation at required temperature.

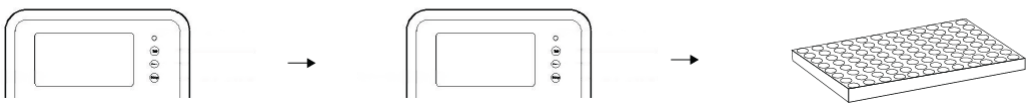
- Prepare a working concentration of the **Solution WN** by adding 73 mL of 96 - 100 % ethanol (provided by the user) to the supplied bottle containing the concentrated **Solution WN**. This will give a final volume of 128 mL. The label on the bottle has a box that may be checked to indicate that the ethanol has been added.
- For best results, the use of whole blood collected into tubes containing an anticoagulant is highly recommended.
- Both fresh and frozen anticoagulated blood may be used with this procedure. Ensure that frozen blood is thawed at room temperature prior to starting the protocol.
- **For blood containing Gram positive bacterial pathogens**, prepare a 400 mg/mL stock solution (approximately 1.7 x 10^7 units/mL) of lysozyme as per supplier's instructions

Flow Chart

Procedure for using Norgen's Blood DNA Isolation 96-Well Kit (Magnetic Bead System) – IsoPure™ 96



Run Instrument



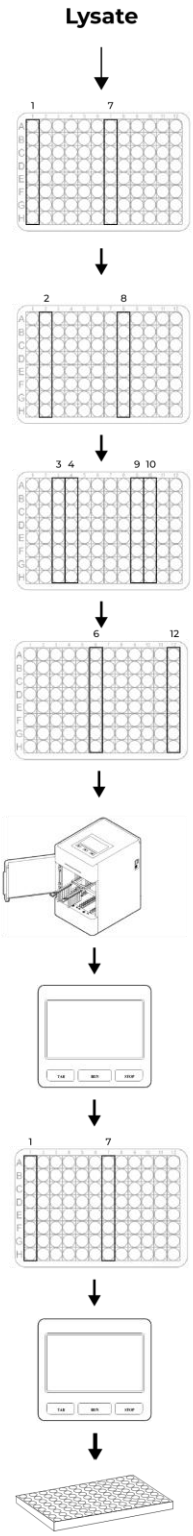
Add ethanol & bead mix to Plate 2 when prompted

Press "OK" after placing plate 2 back at position 2

Run Complete. Take Elution plate and store DNA.

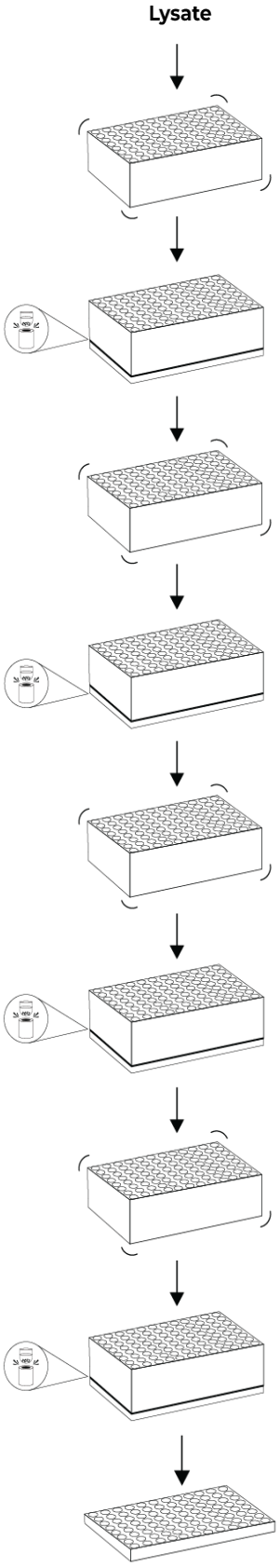
Flow Chart

Procedure for using Norgen's Blood DNA Isolation 96-Well Kit (Magnetic Bead System) – IsoPure™ Mini



Flow Chart

Procedure for Norgen's Blood DNA Isolation 96-Well Kit (Magnetic Bead System) - Manual Method



Prepare Sample Lysate and Mix.
Add 96-100% Ethanol, Magnetic Beads and Mix.

Place Plate on magnetic rack.
Discard Supernatant

Add Solution WN and Mix.

Place Plate on magnetic rack.
Discard Supernatant.

Add 70% ethanol and Mix.

Place Plate on magnetic rack.
Discard Supernatant.
Repeat 70% Wash step.

Add Elution Buffer B and Mix. Incubate at 65°C.

Place Plate on magnetic rack.

Transfer DNA to a fresh Elution Plate.

I. Genomic DNA Isolation using Automation Platforms

Procedure for IsoPure™ Mini or IsoPure™ 96 Automation System

The procedure outlined below is for extraction of DNA using automation platforms IsoPure™ 96 (Cat. AP1096) and IsoPure™ Mini (Cat. AP1016). This procedure can easily be adapted to other automation platforms such as KingFisher™ Flex 96 and Hamilton MagEx STAR platforms.

Set-up the IsoPure™ Plates

Notes Prior to Use

- Only use plates that are compatible with the instrument that is being used. Use 96 deep well plates for IsoPure 96 (Cat. AP1096-DWP), 96 well elution plates for IsoPure™ (Cat. AP1096-ELP) and Tip Comb for IsoPure 96 (Cat. AP1096-TC) while working with IsoPure™ 96 Instruments. Use 96 deep well plates for IsoPure 96 (Cat. AP1096-DWP) and 8-place magnetic tip comb for IsoPure Mini (Cat. AP1016-MC) while working with IsoPure™ Mini Instruments.
- The numbering of plates is based on where it should be placed on the carousel in the instrument. Use the carousel rotation keys on the instrument or select the carousel position on the screen to bring it to the right position as mentioned in the flow chart.
- IsoPure™ 96 uses multiple plates for DNA extraction while and IsoPure™ Mini uses single plate for DNA extraction.
- For IsoPure™ 96 most of the lysate preparation is performed in plate 2 while other plates are used for performing washing and elution steps.
- For IsoPure™ Mini the lysate preparation is performed in column 1 and/or 7 while washing and elutions steps could be performed in other columns of the same plate.
- For IsoPure™ 96, DNA elution step is always performed in plate 8.
- Prepare the plates and label them based on the sample type as mentioned in the table below.

Table 1. Set-up for Blood DNA Extraction

Prepare plates as per the volumes mentioned in the table below. Detailed description of step-wise process can be found in **Section 1 and 2.**

Component	IsoPure™ Mini	IsoPure™ 96	Location on Carousel	Amount
Tip Comb	In the instrument	Plate 1	1	Empty Plate
Lysate	Column 1 / Column 7	Plate 2	2	Variable
Solution WN	Column 2 / Column 8	Plate 3	3	500 µL
70% Ethanol	Column 3 / Column 9 and Column 4 / Column 10	Plate 4 & Plate 5	4 & 5	500 µL
Elution Buffer B	Column 6 / Column 12	Elution Plate	8	100 µL

Section 1. Blood DNA Isolation using IsoPure™ Mini system

1A. Blood without gram positive bacteria

a) Setup plates according to **Table 1.**
b) Add 500 µL of **Solution WN** to **Column 2 / Column 8**.
c) Add 700 µL of **70% Ethanol** to **Column 3 / Column 9** and **Column 4 / Column 10**.
d) Add 100 µL of **Elution Buffer B** to Column 6 / Column 12**.**
e) Place a clean tip comb into IsoPure™ Mini.
f) Transfer 200 µL of blood sample to **Column 1 / Column 7**. If the volume of blood is less than 200 µL, simply bring up the volume to 200 µL using 1X PBS.
g) Add 20 µL of **Proteinase K** and 300 µL of **Lysis Buffer B** to the well/tube with blood sample.

Alternatively, prepare a mixture of 20 µL of **Proteinase K** and 300 µL of **Lysis Buffer B** to the sample. We recommend a 10% overage while making mixture for multiple samples, to compensate for pipetting errors. Make sure to mix by inverting the bulk before adding it to the lysate (do not vortex). It is recommended to prepare the bulk fresh every time a new DNA isolation is performed.

h) Place the plate into the instrument and run the program and run the program **BLDNA_16**.

i) Prepare a mixture of 500 µL **96-100% ethanol** and 40 µL **Magnetic Beads A** for the number of samples extracted. (For example, if DNA is to be extracted from 10 samples, mix 5 mL of **96-100% ethanol** with 400 µL **Magnetic Beads A)** A fresh bulk mixture can be made every time DNA isolation is performed. Make 10% extra volume to avoid volume loss due to pipetting.

j) After a few minutes of incubation, the instrument will pause and allow the user to add mixture prepared in **step i**. Open the cover and remove the plate from the instrument and add 540 µL of **96-100% ethanol** and **Magnetic Beads A** mixture to **Column 1 / Column 7** that was prepared in **step i**. Make sure to vortex this mixture before adding to the sample, to maintain a homogenous mixture.

k) Put the plate back into the instrument and press OK. The instrument will continue to perform the extraction.

l) The instrument will prompt after the procedure is complete. Remove the plate from the instrument and the DNA is now ready for further downstream processing.

m) Transfer the eluted DNA from **Column 6 and/or Column 12** to a fresh plate. The purified DNA sample may be stored at 4°C for a few days. The provided Adhesive Tape can be used to seal the plate for storage of the DNA. It is recommended that samples be placed at –20°C for long-term storage.

1B. Blood with gram positive bacteria

a) Setup plates according to **Table 1.**

b) Add 500 µL of **Solution WN** to **Column 2 / Column 8**.

c) Add 500 µL of **70% Ethanol** to **Column 3 / Column 9** and **Column 4 / Column 10**.

d) Add 100 µL of **Elution Buffer B** to Column 6 / Column 12**.**

e) Place a clean tip comb into IsoPure™ Mini.

f) Transfer 200 µL of blood sample to **Column 1 / Column 7**. If the volume of blood is less than 200 µL, simply bring up the volume to 200 µL using 1X PBS.

g) Prepare a 400 mg/mL stock solution (approximately 1.7 x 10^7 units/mL) of lysozyme as per supplier's instructions (not provided).

h) Add 20 µL of **Lysozyme** to the well with the blood sample.

i) Place sample plate in the machine and run the program **BLDNA_16_GP.** After an hour of incubation, the instrument will pause and allow the user to continue with next steps.

j) Add 20 µL of **Proteinase K** and 300 µL of **Lysis Buffer B** to the well/tube with blood sample.
Alternatively, prepare a mixture of 20 µL of **Proteinase K** and 300 µL of **Lysis Buffer B** to the sample. We recommend a 10% overage while making mixture for multiple samples, to compensate for pipetting errors. Make sure to mix by inverting the bulk before adding it to the lysate (do not vortex). It is recommended to prepare the bulk fresh every time a new DNA isolation is performed.

k) Put the plate back into the instrument and press OK. The instrument will continue to perform the extraction.

l) Prepare a mixture of 500 µL **96-100% ethanol** and 40 µL **Magnetic Beads A** for the number of samples extracted. (For example, if DNA is to be extracted from 10 samples, mix 5 mL of **96-100% ethanol** with 400 µL **Magnetic Beads A)** A fresh bulk mixture can be made every time DNA isolation is performed. Make 10% extra volume to avoid volume loss due to pipetting.

m) After a few minutes of incubation, the instrument will pause and allow the user to add mixture prepared in **step i**. Open the cover and remove the plate from the instrument and add 540 µL of **96-100% ethanol** and **Magnetic Beads A** mixture to **Column 1 / Column 7** that was prepared in **step i**. Make sure to vortex this mixture before adding to the sample, to maintain a homogenous mixture.

n) Put the plate back into the instrument and press OK. The instrument will continue to perform the extraction.

o) The instrument will prompt after the procedure is complete. Remove the plate from the instrument and the DNA is now ready for further downstream processing.

p) Transfer the eluted DNA from **Column 6 and/or Column 12** to a fresh plate. The purified DNA sample may be stored at 4°C for a few days. The provided Adhesive Tape can be used to seal the plate for storage of the DNA. It is recommended that samples be placed at –20°C for long-term storage.

Section 2. Blood DNA Isolation using IsoPure™ 96 system

2A. Blood without gram positive bacteria

a) Setup plates according to **Table 1.**
b) Add 500 µL of **Solution WN** to **Plate 3** and place it at **position 3** on the carousel.
c) Add 500 µL of **70% Ethanol** to **Plate 4 & 5** and place it at **position 4 & 5** on the carousel.
d) Add 100 µL of **Elution Buffer B** to the **Elution plate** and place it at **position 8** on the carousel.
e) Place a clean tip comb in an empty plate **(Plate 1)** and keep it at **position 1.**
f) Transfer 200 µL of blood sample to **Plate 2** (IsoPure™ 96). If the volume of blood is less than 200 µL, simply bring up the volume to 200 µL using 1X PBS.
g) Add 20 µL of **Proteinase K** and 300 µL of **Lysis Buffer B** to the well/tube with blood sample.
Alternatively, prepare a mixture of 20 µL of **Proteinase K** and 300 µL of **Lysis Buffer B** to the sample. We recommend a 10% overage while making mixture for multiple samples, to compensate for pipetting errors. Make sure to mix by inverting the bulk before adding it to the lysate (do not vortex). It is recommended to prepare the bulk fresh every time a new DNA isolation is performed.
h) Place sample plate **(Plate 2)** in the machine at **position 2** on the carousel.
i) After setting up, run the program **BLDNA_96**.
j) Prepare a mixture of 500 µL **96-100% ethanol** and 40 µL **Magnetic Beads A** for the number of samples extracted. (For example, if DNA is to be extracted from 10 samples, mix 5 mL of **96-100% ethanol** with 400 µL **Magnetic Beads A)** A fresh bulk mixture can be made every time RNA isolation is performed. Make 10% extra volume to avoid volume loss due to pipetting.
k) After a few minutes of incubation, the instrument will pause and allow the user to add mixture prepared in **step h**. Open the cover and remove **plate 2** from the instrument and add 540 µL of **96-100% ethanol** and **Magnetic Beads A** mixture that was prepared in **step f**. Make sure to vortex this mixture before adding to the sample, to maintain a homogenous mixture.
l) Put the plate back into the instrument and press OK. The instrument will continue to perform the extraction.
m) The instrument will prompt after the procedure is complete. Remove the **Elution plate** from the instrument and the DNA is now ready for further downstream processing.
n) The instrument will prompt after the procedure is complete. Remove the elution plate from the instrument and the DNA is now ready for further downstream processing.
o) The purified DNA sample may be stored at 4°C for a few days. The provided Adhesive Tape can be used to seal the **Elution Plate** for storage of the DNA. It is recommended that samples be placed at –20°C for long-term storage.

2B. Blood with gram positive bacteria

a) Setup plates according to **Table 1.**
b) Add 500 µL of **Solution WN** to **Plate 3** and place it at **position 3** on the carousel.
c) Add 500 µL of **70% Ethanol** to **Plate 4 & 5** and place it at **position 4 & 5** on the carousel.
d) Add 100 µL of **Elution Buffer B** to the **Elution plate** and place it at **position 8** on the carousel.
e) Place a clean tip comb in an empty plate **(Plate 1)** and keep it at **position 1.**
f) Transfer 200 µL of blood sample to **Plate 2** (IsoPure™ 96). If the volume of blood is less than 200 µL, simply bring up the volume to 200 µL using 1X PBS.
g) Prepare a 400 mg/mL stock solution (approximately 1.7 x 10^7 units/mL) of lysozyme as per supplier's instructions.
h) Add 20 µL of **Lysozyme** to **Plate 2** (IsoPure™ 96).
i) Place sample plate **(Plate 2)** in the machine at **position 2** on the carousel and run the program **BLDNA_96_GP.** After an hour of incubation, the instrument will pause and allow the user to continue with next steps.
j) Add 20 µL of **Proteinase K** and 300 µL of **Lysis Buffer B** to the well/tube with blood sample.
Alternatively, prepare a mixture of 20 µL of **Proteinase K** and 300 µL of **Lysis Buffer B** to the sample. We recommend a 10% overage while making mixture for multiple samples, to compensate for pipetting errors.

Make sure to mix by inverting the bulk before adding it to the lysate (do not vortex). It is recommended to prepare the bulk fresh every time a new DNA isolation is performed.

k) Put the plate back into the instrument at **Position 2** and press OK. The instrument will continue to perform the extraction.

l) Prepare a mixture of 500 µL **96-100% ethanol** and 40 µL **Magnetic Beads A** for the number of samples extracted. (For example, if DNA is to be extracted from 10 samples, mix 5 mL of **96-100% ethanol** with 400 µL **Magnetic Beads A)** A fresh bulk mixture can be made every time RNA isolation is performed. Make 10% extra volume to avoid volume loss due to pipetting.

m) After a few minutes of incubation, the instrument will pause and allow the user to add mixture prepared in **step l**. Open the cover and remove **plate 2** from the instrument and add 540 µL of **96-100% ethanol** and **Magnetic Beads A** mixture that was prepared in **step l**. Make sure to vortex this mixture before adding to the sample, to maintain a homogenous mixture.

n) Put the plate back into the instrument and press OK. The instrument will continue to perform the extraction.

o) The instrument will prompt after the procedure is complete. Remove the **Elution plate** from the instrument and the DNA is now ready for further downstream processing.

p) The purified DNA sample may be stored at 4°C for a few days. The provided Adhesive Tape can be used to seal the **Elution Plate** for storage of the DNA. It is recommended that samples be placed at –20°C for long-term storage.

II. Genomic DNA Isolation using Manual Method

Section 1. Blood DNA Isolation

a) Add 20 µL of **Proteinase K** (vortex before use) to a **96-Well plate** (provided).

b) Transfer 20 - 200 µL of blood sample to the tube containing **Proteinase K**. If the volume of blood is less than 200 µL, simply bring up the volume to 200 µL using 1X PBS.

c) Add 300 µL of **Lysis Buffer B** to the blood.

d) Seal the plate with an Adhesive Tape (provided by user) and mix the plate on an orbital shaker at 1000 rpm for 2 minutes. If orbital shaker is not available, mix the lysate 10 times using a pipette and incubate at room temperature for minutes.

e) Incubate at 55ºC for 10 minutes.

Note: If any debris is present in the sample, centrifuge for 2 minutes at 3220 x g (~4,000 RPM) to precipitate. Transfer the clean supernatant to a fresh 96-well plate (not provided) prior to Step f.

f) Briefly spin the plate to collect any drops of liquid.

g) Remove the Adhesive Tape, add 500µL **96-100% Ethanol** and 40 µL of **Magnetic Beads A** (vortex prior to use) to the lysate.

h) Seal the plate with an Adhesive Tape (provided by user) and mix the plate on an orbital shaker at 1000 rpm for 5 minutes. If orbital shaker is not available, mix the lysate 10 times using a pipette and incubate at room temperature for 5 minutes.

i) Place the 96-Well Plate on the magnetic plate. Allow to sit for 1 minute. Incubate for more time if the solution is not clear.

j) Remove the Adhesive Tape. Aspirate and discard supernatant without touching the magnetic beads.

k) Remove the 96-Well Plate from the magnetic plate and gently add 500 µL of **Solution WN (ensure ethanol was added).**

l) Seal the plate with an Adhesive Tape (provided by user) and mix the plate on an orbital shaker at 1000 rpm for 1 minutes. If orbital shaker is not available, mix the lysate 10 times using a pipette and incubate at room temperature for 1 minutes.

m) Place the 96-Well Plate on the magnetic plate and allow to sit for 1 minute. Incubate for more time if the solution is not clear.

n) Aspirate and discard supernatant without touching the magnetic beads.

o) Add 500 µL of freshly prepared **70% ethanol**.
p) Seal the plate with an Adhesive Tape (provided by user) and mix the plate on an orbital shaker at 1000 rpm for 1 minutes. If orbital shaker is not available, mix the lysate 10 times using a pipette and incubate at room temperature for 1 minutes.
q) Place the 96-Well Plate on the magnetic plate and allow to sit for 1 minute. Incubate for more time if the solution is not clear.
r) Aspirate and discard supernatant without touching the magnetic beads.
s) Repeat **Steps o – r from this section** for a second wash step.

Note: Remove as much of the **70% ethanol** in the sample plate as possible by pipetting.

t) Incubate the 96-Well plate at room temperature for 5 to 10 minutes to air-dry the magnetic beads. Make sure not to over-dry the magnetic beads as this might affect the DNA yield.
u) Remove the sample plate from the magnetic rack and add 100 µL of **Elution Buffer B**. Mix by gently pipetting and incubate at 65˚C for 10 minutes.
v) Briefly mix by pipetting and place the 96-Well Plate on the magnetic plate and allow to sit for 1 minute. Incubate for more time if the solution is not clear.
w) Carefully transfer the elution to a **96-Well Elution Plate** (provided) without touching the magnetic beads.
x) The purified DNA sample may be stored at 4°C for a few days. The provided Adhesive Tape can be used to seal the **96-Well Elution Plate** for storage of the DNA. It is recommended that samples be placed at –20°C for long-term storage.

Section 2. Blood DNA Isolation – blood with gram positive bacteria

Notes prior to use:

- Prepare a 400 mg/mL stock solution (approximately 1.7 x 10^7 units/mL) of lysozyme as per supplier's instructions.

Sample Preparation for Blood Containing Gram Positive Bacterial Pathogens

a) Add 20 mL of Lysozyme to a **96-Well Plate** and transfer 20 µL - 200 µL of blood sample to the **96-Well Plate** containing Lysozyme. Cover the plate by using Adhesive Tape (provided by user)**.**
b) Mix well by pipetting and shake the plate 2 minutes on an orbital shaker at 1000 RPM. Alternatively mix by pipetting 10 times.
c) Incubate at 37ºC for 1 hour. (Note: 0.5 to 2 hours incubation time can be used depending on the bacterial strain being lysed).
d) After incubation, add 20 mL of Proteinase K (vortex before use) to the **96-Well Plate** and proceed to Section 1 **Step c.**

Troubleshooting Guide

Problem	Possible Cause	Solution and Explanation
Magnetic beads were accidently pipetted up with the supernatant.	The pipette tip was placed too close to the magnetic beads while pipetting	Return the magnetic beads and the supernatant back into the sample well. Mix well, and place the plate back onto the magnetic separation plate for the specified time. Carefully remove the supernatant without touching the magnetic beads.
The yield of genomic DNA is low	Incomplete lysis of cells	Ensure that correct volume of **Lysis Buffer B** was added to blood sample. Also increase incubation time up to 15 minutes at 55°C.

	Amount of magnetic beads added was not sufficient	Ensure that the magnetic bead A is mixed well prior to use to avoid any inconsistency in DNA isolation.
DNA does not perform well in downstream applications.	DNA was not washed with 70% ethanol	Traces of salt from the binding step may remain in the sample if the magnetic beads are not washed with 70% ethanol. Salt may interfere with downstream applications, and thus must be washed from the magnetic beads.
	Ethanol carryover	Ensure that the drying step after the 70% ethanol wash steps is performed, in order to remove traces of ethanol prior to elution. Ethanol is known to interfere with many downstream applications.
RNA is present in eluted DNA.	RNA is coeluted with the DNA.	Carry out a digestion with RNase A on the elution if the RNA present will interfere with downstream applications. Refer to manufacturer's instructions regarding amount of enzyme to use, optimal incubation time and temperature.

Related Products	**Product #**
Blood DNA Isolation Kit (Magnetic Bead System)	59800
Blood Genomic DNA Isolation Mini Kit	46300
Dried Blood Spot Genomic DNA Isolation Kit	36000
HighRanger 1kb DNA Ladder	11900
UltraRanger 1kb DNA Ladder	12100
Adhesive Tape – 100 Units	28394

Technical Support

Contact our Technical Support Team between the hours of 8:30 and 5:30 (Eastern Standard Time) at (905) 227-8848 or Toll Free at 1-866-667-4362. Technical support can also be obtained from our website (www.norgenbiotek.com) or through email at techsupport@norgenbiotek.com.

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