



March 2026

QIAasprint® DNA Blood Application Guide

For automated, simultaneous purification of genomic DNA from whole blood

Table of Contents

Required Kits and Components	3
Kit Contents	4
Shipping and Storage	5
Intended Use	6
Safety Information	7
Quality Control	8
Introduction	9
Automated purification on QIA sprint Connect	10
Principle and procedure	11
Lysis with Proteinase K	11
Binding to magnetic particles	11
Washing of bound nucleic acids	11
Elution of purified nucleic acids	12
Equipment and Reagents to Be Supplied by User	13
Required materials not supplied	13
Important Notes	14
Preparing samples	14
Preparing lysis buffer	14
Elution volumes and eluate handling	15
Storing genomic DNA	15
Preparation of Buffer AW1 and Buffer AW2	15
Preparation of Buffer RDW	16
Working with the QIA sprint Connect	16
Protocol: Purification of gDNA from 200 µL Blood	18
Troubleshooting Guide	21
Contact Information	23
Ordering Information	24
Document Revision History	25

Required Kits and Components

For isolation of genomic DNA (gDNA) from 200 µL blood, the following kits and components are required:

Required kit/component name	Cat. no.
QIAsprint DNA Blood PrepSet (384)	585459
QIAsprint Essential Kit A (384)	585009
QIAsprint Prep Cover (8)	582103
QIAsprint Prep Plate Insert (32)	582226
QIAsprint Elution Plate (10)	583204
Optional kit/component name	Cat. no.
RNase A	19101

Kit Contents

The QIAprint Connect offers the possibility of a modular kit concept, and the following combination is recommended for purification of gDNA from blood samples.

QIAprint DNA Blood PrepSet	(384)
Catalog no.	585459
Number of preps	384
Buffer AL *	54 mL
Buffer AL *	33 mL
Proteinase K	10 mL
Buffer RDW	4 × 25 mL

* Contains a chaotropic salt. Take appropriate laboratory safety measures and wear gloves when handling. Not compatible with disinfectants containing bleach. See page 7 for Safety Information.

QIAprint Essential Kit A	(384)
Catalog no.	585009
Number of preps	384
Buffer AW1 * (concentrate)	95 mL
Buffer AW1 * (concentrate)	27 mL
Buffer AW2 (concentrate)	2 × 40.5 mL
Buffer AW2 (concentrate)	17 mL
RNase-free water	50 mL
RNase-free water	30 mL
MagG Bead Suspension	12 mL

* Contains a chaotropic salt. Take appropriate laboratory safety measures and wear gloves when handling. Not compatible with disinfectants containing bleach. See page 7 for Safety Information.

Shipping and Storage

The QIAasprint DNA Blood PrepSet and QIAasprint Essential Kit A are shipped at ambient temperature.

All buffers and reagents should be stored at room temperature (15–25°C) until the expiration date printed on the box label.

Intended Use

The QIAasprint DNA Blood PrepSet is intended for molecular biology applications. This product is not intended for the diagnosis, prevention, or treatment of a disease.

All due care and attention should be exercised in the handling of the products. We recommend all users of QIAGEN® products to adhere to the NIH guidelines that have been developed for recombinant DNA experiments, or to other applicable guidelines.

Safety Information

When working with chemicals, always wear a suitable lab coat, disposable gloves, and protective goggles. For more information, please consult the appropriate safety data sheets (SDSs). These are available online in convenient and compact PDF format at www.qiagen.com/safety, where you can find, view, and print the SDS for each QIAGEN kit and components.

CAUTION

DO NOT add bleach or acidic solutions directly to the sample preparation waste.



Buffers AL and AW1 contain chaotropic salts, which can form highly reactive compounds when combined with bleach. If liquid containing these buffers is spilled, clean with a suitable laboratory detergent and water. If the spilled liquid contains potentially infectious agents, clean the affected area first with laboratory detergent and water, and then with 1% (v/v) sodium hypochlorite.

Quality Control

In accordance with QIAGEN's ISO-certified Quality Management System, each lot of QIAprint DNA Blood PrepSet and QIAprint Essential Kit A are tested against predetermined specifications to ensure consistent product quality.

Introduction

The application guide describes processing of the QIAasprint DNA Blood PrepSet and the QIAasprint Essential Kit A with the QIAasprint Connect instrument. For a detailed description of the QIAasprint Connect instrument, refer to the respective user manual (www.qiagen.com/HB-3708) and quick-start guide (www.qiagen.com/HB-3709). The QIAasprint Blood application enables automated high-throughput purification of DNA from blood using the QIAasprint Connect instrument.

The QIAasprint DNA Blood PrepSet and the Essential Kit A are for purification of gDNA from whole blood samples and buffy coat. Magnetic-particle technology enables purification of high-quality nucleic acids that are free of proteins, nucleases, and other impurities. The purified nucleic acids are ready to use for highly sensitive detection in downstream assays, such as amplification, or other enzymatic reactions. The QIAasprint Connect can process up to 96 samples per run, and subsequent runs allow handling of up to 192 samples in a single session.

Automated purification on QIAasprint Connect

Nucleic acid purification is fully automated on the QIAasprint Connect platform. The advanced technology integrated into QIAasprint Connect ensures efficient purification of nucleic acids for a wide range of applications while offering exceptional flexibility to allow customers to customize their purification protocols according to specific requirements.

QIAasprint Connect provides comprehensive protocols and purification guides for plasmid DNA, gDNA, RNA, and viral/bacterial nucleic acids.



Figure 1. The QIAasprint Connect instrument.

Principle and procedure

The QIAasprint DNA Blood application combines the speed and efficiency of silica-based nucleic acid purification with the convenient handling of magnetic particles. The purification procedure is designed to ensure safe and reproducible handling of potentially infectious samples. The purification procedure comprises four steps: lyse, bind, wash, and elute.

Lysis with Proteinase K

Proteolysis of blood samples is performed under highly denaturing condition at elevated temperatures. Lysis is performed in the presence of Proteinase K and lysis buffer, which together ensure digestion of proteins and inactivation of RNases.

Binding to magnetic particles

The QIAasprint DNA Blood application provides a fully automated protocol for purification of gDNA from blood. Samples are added to Proteinase K, followed by addition of Lysis Buffer. To ensure a consistent lysis, the samples must be mixed thoroughly, either by pulse vortexing or by efficient pipetting mix. Isopropanol and magnetic beads are added to the sample to ensure optimal adsorption of gDNA to the silica surface directly before starting the run. Lysis at elevated temperature is then done on the instrument.

Washing of bound nucleic acids

While gDNA remains bound to the magnetic particles, contaminants are efficiently washed away during a sequence of wash steps using first Buffer AW1, then Buffer RDW, and then Buffer AW2.

Elution of purified nucleic acids

In a single step, highly purified gDNA is eluted in RNase-free water. The purified nucleic acid can be either used immediately in downstream applications or stored for future use.

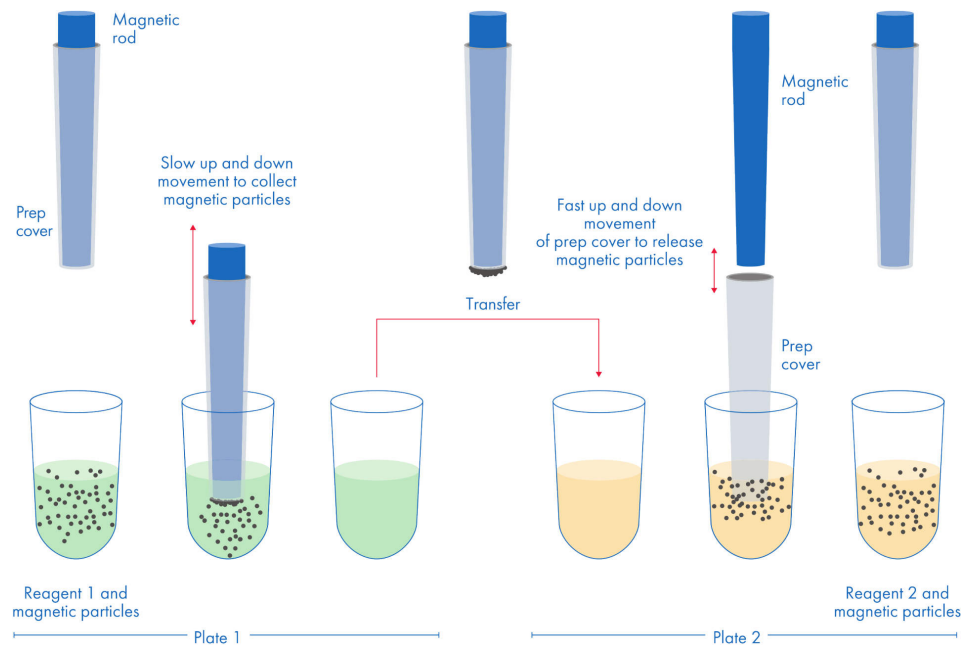


Figure 2. Handling of magnetic particles by the QIAasprint Connect instrument.

Equipment and Reagents to Be Supplied by User

When working with chemicals, always wear a suitable lab coat, disposable gloves, and protective goggles. For more information, consult the appropriate safety data sheets (SDSs) available from the product supplier.

Required materials not supplied

- Pipettes and sterile pipette tips
- Disposable gloves
- 96–100% Ethanol*
- Isopropanol
- **For samples <200 µL:** PBS or 0.9% NaCl solution
- **Optional:** Vortexer
- **Optional:** QIASprint Frame Shield (100) (cat. no. 580010)

Note: If desired, use QIASprint Frame Shield to minimize adhesions of beads to the QIASprint Prep Cover Frame (cat. no. 582111). For this, place QIASprint Frame Shield into the QIASprint Prep Cover Frame before loading the QIASprint Prep Cover. After the run, discard the QIASprint Frame Shield.

- QIASprint Connect consumables (see Table 1)

Table 1. QIASprint Connect consumables

Item	Cat. no.	Pieces required for 4 × 96 samples
QIASprint Prep Cover (8)	582103	4
QIASprint Prep Plate Insert (32)	582226	16
QIASprint Elution Plate (10)	583204	4

* Do not use denatured alcohol, which contains other substances such as methanol or methyl ethyl ketone.

Important Notes

Preparing samples

The purification procedure is optimized for the extraction of gDNA from 200 µL blood.

Storage of blood

Whole blood samples treated with EDTA, ACD, or heparin can be used and may be either fresh or frozen. In general, follow instructions and guidelines of the blood collection tube provider.

Frozen samples should be thawed at room temperature with mild agitation before beginning the procedure. Yield and quality of the purified DNA depend on storage conditions of the blood. Fresher blood samples may yield better results.

For short-term storage (up to 10 days), collect blood in tubes containing EDTA as an anticoagulant and store the tubes at 2–8°C. However, for applications requiring maximum fragment size, such as Southern blotting, we recommend storage at 2–8°C for up to 3 days only, because low levels of DNA degradation will occur after this time.

For long-term storage, collect blood in tubes containing a standard anticoagulant (preferably EDTA, if high-molecular-weight DNA is required) and store the tubes at –70°C to –80°C.

Preparing lysis buffer

Precipitates may form in lysis Buffer AL during storage. Dissolve the precipitates by incubating the bottles at 50°C for 15 min and shaking them manually twice within this incubation period.

Elution volumes and eluate handling

In the final step of the purification procedure, the gDNA is eluted in RNase-free water. The protocol is optimized for a target eluate volume of 80 μL and requires the addition of 1 μL elution buffer per 1 μL magnetic beads to counteract the dead volume of the magnetic beads. Therefore, for a target eluate volume of 80 μL , the recommended elution buffer volume is 100 μL .

Storing genomic DNA

For short-term storage of up to 24 h, we recommend storing the purified DNA at 2–8°C. For long-term storage of over 24 h, we recommend storage at –90°C to –65°C (preferred) or at –30°C to –15°C.

Preparation of Buffer AW1 and Buffer AW2

Add the required volume of ethanol (96–100%) to Buffer AW1^{*} concentrate and Buffer AW2 concentrate, as described on the bottle. Tick the checkbox on the label to indicate that ethanol has been added. Store reconstituted Buffers AW1 and AW2 at room temperature (15–25°C). Reconstituted Buffers AW1 and AW2 are stable for up to 1 year when stored at room temperature, but only until the kit expiration date.

Note: Always mix reconstituted Buffers AW1 and AW2 by shaking before starting the purification procedure.

^{*} Contains a chaotropic salt. Take appropriate laboratory safety measures and wear gloves when handling. Not compatible with disinfectants containing bleach. See page 7 for Safety Information.

Preparation of Buffer RDW

Add the required volume of isopropanol (96–100%) to Buffer RDW concentrate, as described on the bottle. Tick the checkbox on the label to indicate that isopropanol has been added. Store reconstituted Buffer RDW at room temperature (15–25°C). Reconstituted Buffer RDW is stable for up to 1 year when stored at room temperature, but only until the kit expiration date.

Note: Always mix reconstituted Buffer RDW by shaking before starting the purification procedure.

Working with the QIAasprint Connect

Procedure on the QIAasprint Connect

1. Turn on the QIAasprint Connect instrument and log in.
2. Navigate to the Protocols screen with the tab in the upper part of the home screen.
3. Locate the desired protocol for the DNA blood application, and press  and  **Run protocol** .
Optional: Enter run information in the Run details screen. This information will be displayed in the run report.
4. Close the hood and press **Confirm** to get to the loading screen.

5. With the plate hotels located on the lab bench, insert the plates according to the screen instructions into the hotels.
 - The QIAAsprint Prep Cover must be located in the metal prep cover frame.

Note: If desired, use the QIAAsprint Frame Shield to minimize adhesions of beads to the QIAAsprint Prep Cover Frame. For this, place QIAAsprint Frame Shield into the QIAAsprint Prep Cover Frame before loading the QIAAsprint Prep Cover. After the run, discard the QIAAsprint Frame Shield.
 - All QIAAsprint Prep Plates need to sit firmly in their metal frames.
 - The QR codes need to face the user.
6. Open the hood and place the hotels on their platforms, taking care not to mix up the left and right hotels.
7. **Optional:** If you have heating or cooling steps during your protocol run and the thermal adapter is not already located on the heater-cooler, place the thermal adapter in one of the slots of the thermal adapter platform with the QR code facing the user. The instrument will install it automatically during the run.
8. Press **Start run** to start the run.
9. After the end of the run, remove the plate hotels from the instrument. Store the elution plate safely or use it directly in your downstream applications.

Protocol: Purification of gDNA from 200 μ L Blood

Important points before starting

- If using the QIAprint DNA Blood PrepSet and QIAprint Essential Kit A for the first time, read “Important Notes”.
- After receiving the QIAprint DNA Blood PrepSet and QIAprint Essential Kit A, check the kit and components for damage. If any kit components are damaged, contact QIAGEN Technical Support or your local distributor. In the case of liquid spillage, refer to the Safety Information. Do not use damaged PrepSet and essential kit components because their use may lead to poor performance.

Things to do before starting

- Buffers AL and AW1 contain guanidine salt and are therefore not compatible with disinfecting reagents containing bleach.
- If necessary, redissolve any precipitate in Buffer AL by warming.
- Equilibrate buffers to room temperature.
- All steps should be performed at room temperature. Work quickly.
- Add ethanol (96–100%) to Buffer AW1 and AW2 concentrates before use (see the bottle label for volume).
- Add isopropanol to Buffer RDW concentrates before use (see the bottle label for volume).
- Prepare or thaw and equilibrate up to 96 fresh or frozen whole blood samples at room temperature (15–25°C).

Procedure

Homogenization and lysis of blood samples

1. Pipet 15 μL QIAGEN Proteinase K into the bottom of a well of the prep plate insert. Add 200 μL blood to the Proteinase K.

Note: It is possible to add QIAGEN Proteinase K to samples that have already been dispensed into the QIAprint Prep Plate Insert. In this case, ensure proper mixing after adding the enzyme.

RNA might be co-purified in parallel if present in the sample. RNA may inhibit some downstream enzymatic reactions. If RNA-free genomic DNA is required, 4 μL RNase A (20 mg/mL) should be added to the sample prior to the addition of Buffer AL in step 2.

2. Add 200 μL Buffer AL and mix thoroughly either by vortexing for 20 s (in this case, seal the prep plate insert with a tape sheet) or by pipetting up and down at least 10 times. To ensure efficient lysis, it is essential that the sample and Buffer AL are mixed thoroughly to yield a homogeneous solution.

Note: Do not add QIAGEN Proteinase K directly to Buffer AL.

3. Prepare a master mix (x + 10% samples) containing 200 μL isopropanol and 20 μL MagG Bead Suspension per sample.
4. Add 220 μL isopropanol/bead mix to the blood samples.

Plates preparation

5. Prepare the plate as described in the table below:

Plate	Content	Volume (µL)
Lysate Plate	Proteinase K	15
	Blood	200
	Buffer AL	200
	Isopropanol 100%	200
	MagG Bead Suspension	20
Wash Plate 1	Buffer AW1	650
Wash Plate 2	Buffer RDW	500
Wash Plate 3	Buffer AW2	500
Elution Plate	RNase-free water	100

Elution volume is set to 100 µL to receive approximately 80 µL. Volume can be adjusted. Recommended range is 50–200 µL.

Note: Residual adhesive can lead to instrument crash. If you cover plates with adhesive foil after plate preparation, ensure that no adhesive remains on the plate surface after removal of the foil.

6. Proceed with the procedure on the QIA Sprint Connect (page 16) and the respective purification protocol (QIA Sprint DNA Blood 80 µL).

Troubleshooting Guide

This troubleshooting guide may be helpful in solving any problems that may arise. For more information, see also the Frequently Asked Questions page at our Technical Support Center: www.qiagen.com/FAQ/FAQList.aspx (for contact information, visit support.qiagen.com).

Comments and suggestions	
Low DNA yield	
Mixing after addition of Buffer AL not sufficient	Make sure to mix thoroughly after adding Buffer AL, either by vortexing or by pipetting up and down. The lysate should turn dark red completely and no different phases should be visible.
Magnetic particles not completely resuspended	Ensure that you resuspend the magnetic particles either by thoroughly vortexing or by shaking until no precipitate is visible at the bottom of the bottle.
Frozen samples were not mixed properly after thawing	Thaw frozen blood or buffy coat samples at room temperature, with mild agitation to ensure thorough mixing.
Blood sample is clotted	Ensure that the tubes used to collect and store whole blood contain EDTA, ACD, or heparin as anticoagulant. Follow the instructions of the collection tube provider. Fresh blood can be stored at 2–8°C for up to 10 days. Frozen blood should be in tubes containing EDTA. It can keep for more than 10 days if stored at –70°C to –80°C.
DNA does not perform well in downstream applications	
Insufficient DNA used in downstream application	Quantify the purified DNA by spectrophotometric measurement of the absorbance at 260 nm.
Excess DNA used in downstream application	Excess DNA can inhibit some enzymatic reactions. Quantify the purified DNA by spectrophotometric measurement of the absorbance at 260 nm.
Inhibition of downstream application	Downstream applications may show superior performance if an 80% ethanol wash is performed instead of washes using buffers in the reagent cartridges.

Comments and suggestions

Poor storage conditions led to poor-quality DNA	For storage of up to 10 days, collect blood in tubes with EDTA as anticoagulant, and store the tubes at 2–8°C. However, for applications requiring maximum fragment size, such as Southern blotting, we recommend storage at 2–8°C for up to 3 days only, because low levels of DNA degradation will occur after this time. For storage longer than 10 days, collect blood in tubes containing a standard anticoagulant (preferably EDTA, if high-molecular-weight DNA is required), and store the tubes at –70°C to –80°C. Do not use blood that shows signs of coagulation. Fresher blood samples may yield better results. Follow the collection tube provider’s instructions.
DNA contaminated with RNA	Repeat the purification procedure with new samples and include an RNase A treatment in step 2.

Low A_{260}/A_{280} ratio for purified nucleic acids

Absorbance reading at 320 nm not subtracted from the absorbance readings obtained at 260 and 280 nm	To correct for the presence of magnetic particles in the eluate, an absorbance reading at 320 nm should be taken and subtracted from the absorbance readings obtained at 260 and 280 nm.
---	---

Low DNA yield from buffy coat

Clogging due to sample overload	Reduce the amount of sample. The maximum recommended amount of cells to use as starting material is 5×10^6.
Poor buffy coat preparation	Ensure that the leukocyte fraction is harvested efficiently.
Low leukocyte count in the whole blood sample	Increase whole blood amount and keep the volume of leukocytes harvested constant.

Beads in eluate

Too much input material used	Adhere to the instructions regarding sample material, and carry out initial tests with lower amounts. Too much material may increase viscosity of the sample that can impact bead handling throughout the protocol.
------------------------------	--

Contact Information

For technical assistance and more information, please see our Technical Support Center at www.qiagen.com/Support or contact one of the QIAGEN Technical Service Departments or local distributors (visit support.qiagen.com).

Ordering Information

Product	Contents	Cat. no.
QIAasprint DNA Blood PrepSet (384)	For processing 384 blood samples: Buffer AL, Proteinase K, Nuclease-free water, and Buffer RDW	585459
QIAasprint Essential Kit A (384)	For 384 preps for purification of nucleic acids: MagG Bead Suspension, Buffer AW1, Buffer AW2, and nuclease-free water	585009
QIAasprint Prep Cover (8)	Set of 8 prep covers for use with QIAasprint Connect	582103
QIAasprint Prep Plate Insert (32)	Set of 32 prep plate inserts for use with QIAasprint Connect	582226
QIAasprint Elution Plate (10)	Set of 10 elution plates for use with QIAasprint Connect	583204
Related products		
QIAasprint Connect	Benchtop instrument for automated isolation of nucleic acids; includes 1 year warranty on parts and labor	9001234
QIAasprint Frame Shield (100)	Set of 100 frame shields for use with QIAasprint Connect	580010
QIAasprint Prep Cover Frame (2)	Set of 2 prep cover frames for use with QIAasprint Connect	582111
RNAse A (17,500 U)	2.5 mL solution for removal of RNA	19101

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at www.qiagen.com or can be requested from QIAGEN Technical Support or your local distributor.

Document Revision History

Date	Description
03/2026	Initial release

Limited License Agreement for QIAasprint DNA Blood PrepSet

Use of this product signifies the agreement of any purchaser or user of the product to the following terms:

1. The product may be used solely in accordance with the protocols provided with the product and this Instructions for Use and for use with components contained in the kit only. QIAGEN grants no license under any of its intellectual property to use or incorporate the enclosed components of this panel with any components not included within this panel except as described in the protocols provided with the product, this Instructions for Use, and additional protocols available at www.qiagen.com. Some of these additional protocols have been provided by QIAGEN users for QIAGEN users. These protocols have not been thoroughly tested or optimized by QIAGEN. QIAGEN neither guarantees them nor warrants that they do not infringe the rights of third-parties.
2. Other than expressly stated licenses, QIAGEN makes no warranty that this panel and/or its use(s) do not infringe the rights of third-parties.
3. This panel and its components are licensed for one-time use and may not be reused, refurbished, or resold.
4. QIAGEN specifically disclaims any other licenses, expressed or implied other than those expressly stated.
5. The purchaser and user of the panel agree not to take or permit anyone else to take any steps that could lead to or facilitate any acts prohibited above. QIAGEN may enforce the prohibitions of this Limited License Agreement in any Court, and shall recover all its investigative and Court costs, including attorney fees, in any action to enforce this Limited License Agreement or any of its intellectual property rights relating to the panel and/or its components.

For updated license terms, see www.qiagen.com.

Trademarks: QIAGEN®, Sample to Insight®, QIAasprint® (QIAGEN Group). Registered names, trademarks, etc. used in this document, even when not specifically marked as such, are not to be considered unprotected by law.

03/2026 HB-3712-001 © 2026 QIAGEN, all rights reserved.

This page intentionally left blank

