



a PerkinElmer Company

truCOLLECT®
DNA Extraction Kit (96)
(PN 520409KIT)

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Revision History

Part Number	Revision	Date	Description of Change
010720	A	Feb 2026	Initial Release
010720	B	Mar 2026	Revisions to initial release
010720	C	Apr 2026	Website link correction

Introduction

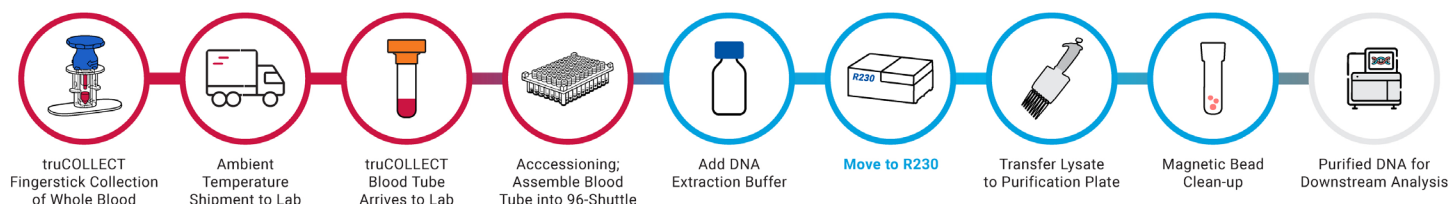
The truCOLLECT® DNA Extraction Kit (96) enables extraction of high-quality, purified genomic DNA from a small volume (50 µL) of whole blood, self-collected via the truCOLLECT Whole Blood Collection Kit (PN 520332). The truCOLLECT Solution is a novel blood collection, transport and storage system that eliminates the need for phlebotomy, dried blood spots (DBS), and saliva-based collection methods while maintaining sample integrity during ambient shipping and storage. Fifty (50) µL of whole blood is collected from a fingerstick via an EDTA-coated capillary, immobilized onto a matrix and actively desiccated to enable transport at ambient temperature.

The truCOLLECT DNA Extraction Kit provides the process required for rehydration of the desiccated truCOLLECT blood sample, cell lysis, extraction, and magnetic bead-based purification of high-quality genomic DNA. DNA extraction is performed using a manual or automated Adaptive Focused Acoustics® (AFA®)-enabled workflow using a Covaris R230 Focused-ultrasonicator ([PN 500620](#)).

Purification of the genomic DNA is performed using an automated IsoPure™ Mini Instrument (Accuris PN AP1016), supporting reproducible recovery of DNA with high purity and integrity suitable for downstream molecular applications, such as DNA library construction and NGS.

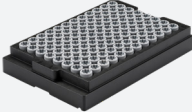
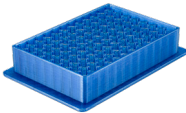
NOTE: Due to the inherent nature of human blood, DNA yields depend on the concentration of mononuclear peripheral blood cells but are typically between 1–3 µg per sample (average 1.2 µg). The genomic DNA extracted is of high quality (>30 kb in average) and purity (260 nm/280 nm absorbance ratios) and can be directly used for NGS library preparation, qPCR analysis etc.

Workflow



Kit Contents

Kit Component	Part Number	Box	Volume (mL)	Storage Temperature
Proteinase K Solution	191037	A	5	2–8°C
Magnetic Bead Suspension	191039	A	3	2–8°C
Buffer BB2	191038	B	30	Room Temperature
Buffer WB2	191040	B	80	Room Temperature
Buffer WB5	191041	B	80	Room Temperature
Buffer BE	191042	B	20	Room Temperature
Tissue Lysis Buffer Plus	191036	B	50	Room Temperature

Kit Component	Part Number	Quantity	Photo
truCOLLECT 0.75 mL 96 Shuttle (Referred to in protocol as 96 Shuttle)	520370	1	
truCOLLECT 96 Home Rack with lid (Referred to in protocol as 96 Home Rack)	520369	1	
truCOLLECT Cap Rack (Referred to in protocol as Cap Rack)	520426	1	
truCOLLECT Desiccant Cap Disposal Rack (Referred to in protocol as Disposal Rack)	520427	1	

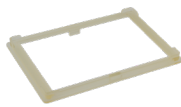
Additional Materials for Reagent Preparation Provided by User:

- 100% Ethanol, molecular biology grade (e.g., SIGMA, PN I9516)
- 100% Isopropanol, molecular biology grade (e.g., SIGMA, PN E7023)
- OmniPur WFI Quality Water (e.g., Millipore, PN 486505.1000 or equivalent)

Required Instrumentation and Accessories

- The following instruments, consumables, & accessories are required for use of this kit and have to be purchased separately.
- This kit was developed and validated using the IsoPure Mini, Automated Magnetic Bead-Based Purification System, (16 samples) which is available for purchase from Accuris Instruments. For use with alternative IsoPure instruments or other automated purification platforms, please contact Covaris for guidance and compatibility recommendations.
- For optimal workflow efficiency, use of a manual or automated capper/decapper is recommended.
- Plate definitions and method files for the R230 are available on the [Covaris website](#).

NOTE: Please contact Covaris for recommended capper/decapper compatible models.

Kit Component	Part Number	Instrument or Accessory	Photo
R230 Focused-ultrasonicator	500620	Instrument (not included in kit)	
truCOLLECT Hardware Accessory Kit - truCOLLECT 96 Tube Retainer (top image) - truCOLLECT PSU R230 Rack (bottom image)	520431	Accessory Kit (not included in kit)	
			
IsoPure Mini, Automated Magnetic Bead-Based Purification System	N/A Non-Covaris Part	Purchased from Vendor Not sold by Covaris	
Manual Decapper	N/A Non-Covaris Part	Purchased from Vendor Not sold by Covaris	

NOTE: Decapping/capper needs to be compatible with truCOLLECT Blood Tube caps.

Required Equipment and Consumables for DNA Purification when using the IsoPure Mini

Scan with IsoPure barcode scanner to download optimized protocol to IsoPure Instrument.

- IsoPure Mini, Automated Purification System, AP1016
- IsoPure Mini Purification Plate, (AP1096-DWP, 96 deep well plates for IsoPure)
- IsoPure Mini Combs, (AP1016-MC, 8-place magnetic tip combs)
- Vortex Mixer
- 1.5 mL DNA LoBind tubes (e.g., Eppendorf Safe-Lock Tubes, PN 022431021)



[www.accuris-usa.com/
Products/isopure-mini/](http://www.accuris-usa.com/Products/isopure-mini/)

Instrument Setup

1. **R230 Focused-ultrasonicator:** Refer to the R230 Instrument Manual (https://www.covaris.com/wp/wp-content/uploads/pn_010528.pdf) and R230 User Guide (https://www.covaris.com/wp/wp-content/uploads/pn_010480.pdf) for complete setup.
2. Turn on R230 Focused-ultrasonicator prior to starting reagent preparation step. Install truCOLLECT PSU R230 Rack (PN 500862) into the R230 with the label "RFID" facing into the instrument, see **Appendix A** for details. Press down on the PSU Rack until it clicks into place.

NOTE: See *Appendix* for further instructions.

3. Current versions of SonoLab can be found at <https://www.covaris.com/r-series/>.
4. SonoLab version 10.0.3 is the required software to utilize and run this kit.
5. Visit <https://www.covaris.com/r-series/> to select the appropriate plate method and plate definition files. Installation instructions can be found at the link provided above.
 - **Plate Definition:** R230_520409_520370_truCOLLECT 0.75mL 96 Shuttle
 - **Method File:** truCOLLECT_520409_Rehydration
6. Once installed, select the "truCOLLECT_520409_Rehydration" method from the drop-down menu, fill the water bath and allow for temperature to equilibrate.
7. The Splash Guard is required when running less than 96 samples to prevent water splashing onto the Blood Tubes during the AFA treatment. The Splash Guard can be purchased as part of the truCOLLECT Consumable Expansion Kit (PN 520425). When racking the Blood Tubes, begin filling in Column 1 from Row A to H. Rack subsequent tubes in the same orientation. Insert the Splash Guard into the empty Column directly after the last full Column. Please refer to **Appendix A** for additional details.

Table 1. Detailed method file for truCOLLECT_520409_Rehydration.

Peak Incident Power (Watts)	Duty Factor (%)	Cycles per Burst	Condition	Scan Speed (mm/second)	Iterations	Bath Temp. (°C)
200	45	1000	Scanning, direction forward	1.1	35	20

NOTE: See *Appendix* for Blood Tube alignment and selection of "Positions to Treat".

Additional Information

- Safety Data Sheets (www.covaris.com/product-documents/safety-data-sheets/)
- Application Support (ApplicationSupport@covaris.com)

Preparation Prior to Starting Experiment

- **80% Ethanol:** Freshly prepare 80% ethanol by mixing 4 parts of 100% ethanol with 1 part of OmniPur WFI Quality water (Millipore, PN 486505.1000) or equivalent.

NOTE: Processing 1 sample requires 1.2 mL of 80% ethanol.

- **Buffer WB2:** Before first use of the kit, add 54 mL 100% Isopropanol directly into the Bottle labelled “Buffer WB2”, close the bottle tightly and mix by inverting the bottle 5 times. Store at Room Temperature (RT).
- **Buffer WB5:** Before first use of the kit, add 54 mL 100% Isopropanol directly to the bottle labelled “Buffer WB5”, close the bottle tightly and mix by inverting the bottle 5 times. Store at RT.
- **Tube Accessioning:** Each truCOLLECT Blood Tube is printed with a unique 2D barcode on the bottom surface to support accurate sample tracking and accessioning. Use your established system for tube accessioning.

DNA Extraction

1. Prepare a mixture of Tissue Lysis Buffer Plus (TLB Plus) and Proteinase K (PK).

IMPORTANT: Before first use, visually check for a white precipitate that may form in the Tissue Lysis Buffer Plus Bottle during storage. If a precipitate is visible incubate the TLB Plus at 50–60°C for 5–10 minutes to dissolve it. Let cool to RT before proceeding.

Table 2. Tissue Lysis Buffer/PK Mix. *Calculations include 10% excess in final volume.

Reagent	Volume (1 Sample)	Volume for N Samples*
Tissue Lysis Buffer Plus	380 µL	$N \times 1.1 \times 380 \text{ µL}$
Proteinase K Solution	20 µL	$N \times 1.1 \times 20 \text{ µL}$

2. Place the Blood Tubes containing the desiccated blood sample into the 96 Shuttle positioned on top of the 96 Home Rack.
3. When loading Blood Tubes, start with Column 1 which is the closest to the barcode on the 96 Shuttle.

NOTE: A minimum of 8 samples must be processed at a time. Please see **Appendix** for use of Splash Guard.

4. Remove the Desiccant Caps from the Blood Tubes with the decapper and transfer the Desiccant Caps for discard into the Disposal Rack.
5. Add 400 µL of the Tissue Lysis Buffer Plus/PK mix to the desiccated blood sample and close the Blood Tubes with new caps from the provided Cap Rack.
6. Place the truCOLLECT Tube Retainer on top of the Blood Tubes; then transfer the 96 Shuttle with the Blood Tubes and the Tube Retainer onto the PSU Rack on the R230 sample arm.
7. Ensure that Column 1 is the Column closest to the RFID reader in the R230.
8. Refer to software **Appendix** for selecting Columns to treat.
9. Start the AFA method on the R230.
10. At program completion (60 minutes) transfer the 96 Shuttle/Tube Retainer assembly back into the 96 Home Rack.
11. Remove the Tube Retainer and continue with the DNA purification protocol on the IsoPure Mini or alternative system.

DNA Purification using the IsoPure Mini for 1–16 Samples (See Appendix for Photos)

- Decap the Blood Tubes and mix the AFA treated blood lysate in the Blood Tubes by pipetting up and down 15 times. Carefully mix using a single or multichannel pipet up to 350 μ L.
- Transfer 400 μ L of the homogenized lysate into the purification plate. Columns 1 and/or 7 (up to 8 samples can be processed in each Column) of the IsoPure Mini purification plate. Keep note of sample location in purification plate for sample tracking purposes.
- Add 190 μ L BB2 to the lysate on the purification plate (no pipette mixing required).
- Prepare the Magnetic Bead/Isopropanol Mix. Mix well by vortexing for 10 seconds.

Table 3. Magnetic Beads/Isopropanol Mix. *Calculations include 10% excess in final volume.

Reagent	Volume (1 Sample)	Volume for N Samples*
Isopropanol	400 μ L	$N \times 1.1 \times 400 \mu\text{L}$
Magnetic Bead Suspension	10 μ L	$N \times 1.1 \times 10 \mu\text{L}$

- Add 410 μ L of the Magnetic Bead/Isopropanol Mix to the Lysate + BB2 in Column 1 and 7 (no pipette mixing required).
- Fill the remaining wells in Column 2–6 (for up to 8 samples) and 8–12 (for up to 16 samples) of the purification plate according to the Table below.

Table 4. Plate Layout for IsoPure Mini Purification.

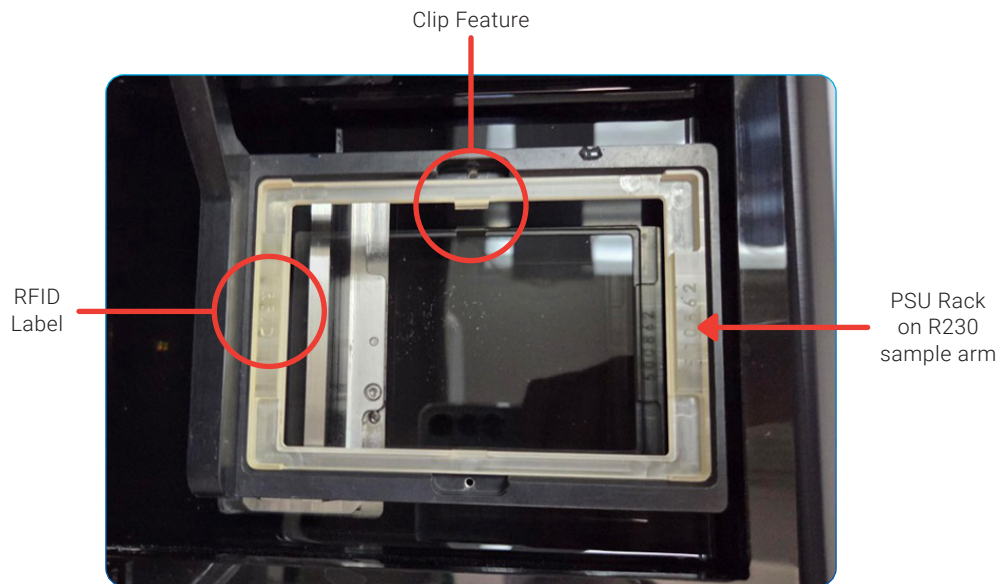
Column	Reagent	Volume (μ L)
1	<i>Lysate + Bind Mix up to 8 samples</i>	1000
2	WB2	800
3	WB5	800
4	80% Ethanol	800
5	80% Ethanol	400
6	Elution: Buffer BE	105
7	<i>Lysate + Bind Mix up to 8 samples</i>	1000
8	WB2	800
9	WB5	800
10	80% Ethanol	800
11	80% Ethanol	400
12	Elution: Buffer BE	105

- Place IsoPure 8-Tip Combs in the designated slots on the IsoPure Mini.
- Place the purification plate into the IsoPure Mini, lining up the A1 position of the purification plate with the A1 position marked on the instrument and start the “truCOLLECT DNA” purification program.
- To avoid contamination with dried magnetic beads, remove the purification plate from the IsoPure immediately after run completion.
- Transfer the purified DNA solution in Columns 6 and 12 into a DNA LoBind tube or plate and store DNA at -20°C until downstream processing.

Appendix A

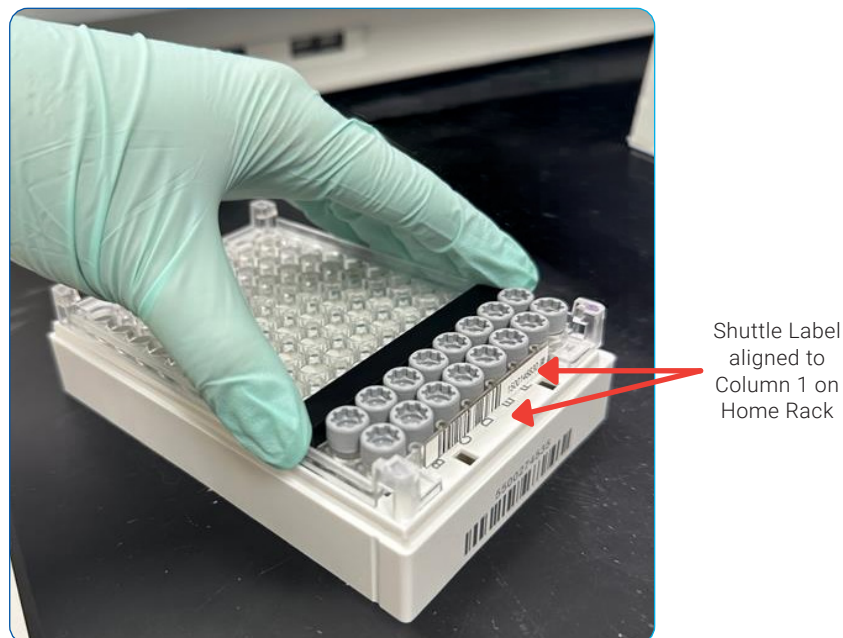
truCOLLECT PSU R230 Rack (PN 500862)

1. The truCOLLECT PSU R230 Rack has Clip Features that allow it to snap into the Covaris R230.
2. Once installed in the R230 this PSU R230 Rack will remain in place for all steps in the protocol.
3. Clip features should face down into the water bath and the "RFID" label should face into the instrument. Gently push the PSU R230 Rack into the sample arm of the instrument until the clips engage with the sample arm holding the PSU R230 Rack in place.

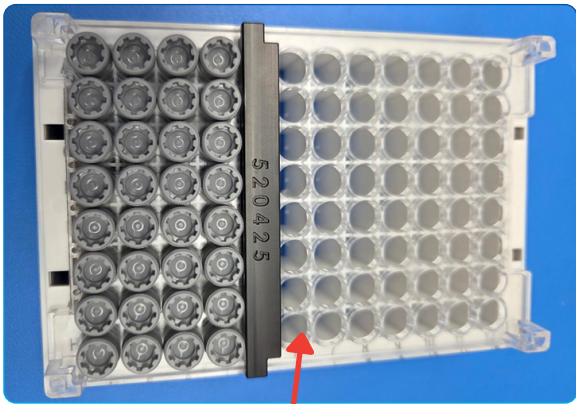


Splash Guard

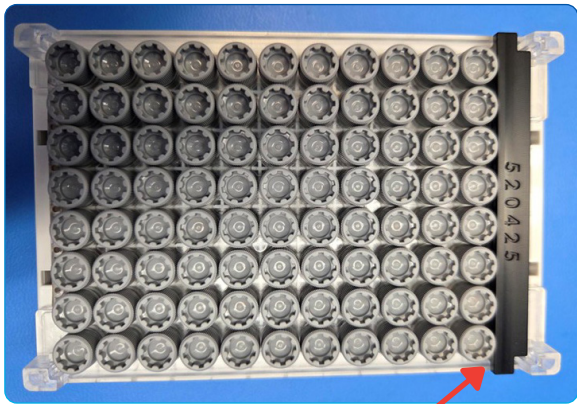
The Splash Guard is required when running less than 96 samples to prevent water splashing onto the Blood Tubes during the AFA treatment. The Splash Guard can be purchased as a part of the truCOLLECT Consumable Expansion Kit (PN 520425). When racking the Blood Tubes, ensure the shuttle label is in Column 1, begin filling in Column 1 from Row A to H. Rack subsequent tubes in the same orientation.



Insert the Splash Guard into the empty Column directly after the last full Column, if using the Splash Guard in Column 12, ensure the flat side of the Splash Guard faces the Blood Tubes. Columns to the right of the Splash Guard can remain empty as long as the Columns to be treated have been selected in SonoLab (see “Positions to Treat”) In Method Options.



Empty Columns to the right of Splash Guard

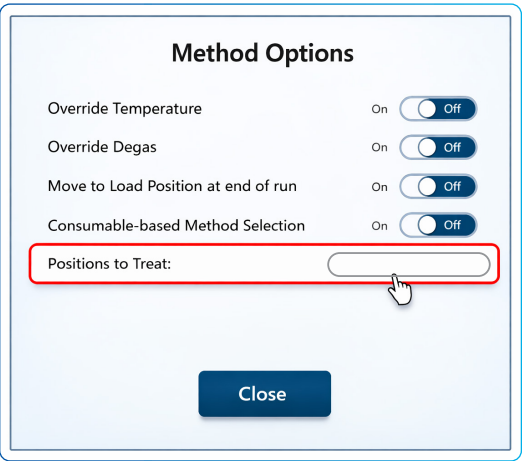


Flat edge faces Blood Tubes

Once the Splash Guard is inserted, place the Tube Retainer on top of the 96 Shuttle and transfer the assembly onto the PSU R230 Rack on the R230 sample arm.



SonoLab Screenshots



Support and Technical Assistance

Tech Support: Ongoing assistance with the operation or application of the equipment and/or troubleshooting is provided via:

- **Telephone:**
 - US & APAC: +1 781.932.3959, during the hours of 8:30 a.m. to 5:00 p.m. (EST), Monday through Friday
 - EU: +44 (0)845 872 0100, during the hours of 9:00 a.m. to 5:00 p.m. (GMT), Monday through Friday
- **E-mail:**
 - US Customer Service: customerservice@covaris.com
 - EU/UK Customer Service: emeacustomerservice@covaris.com
 - APAC Customer Service: APACcustomerservice@covaris.com
 - Service and Instrumentation: techsupport@covaris.com
 - Applications: applicationsupport@covaris.com

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