

## Quick-Start Protocol

# Investigator<sup>®</sup> STAR Lyse&Prep Kit

The Investigator STAR Lyse&Prep Kit (cat. no. 931447) is shipped at ambient temperature. All buffers and reagents can be stored at room temperature (15–25°C). Do not freeze the reagent cartridges. When stored properly, the reagents are stable until the expiration date on the Q-Card. Lyophilized carrier RNA is stable until the expiration date on the Q-Card, when stored at room temperature. The ready-to-use Proteinase K solution is stable for up to 1 year after delivery, when stored at room temperature.

### Further information

- *Investigator STAR Lyse&Prep Kit Handbook*: [www.qiagen.com/HB-1983](http://www.qiagen.com/HB-1983)
- Safety Data Sheets: [www.qiagen.com/safety](http://www.qiagen.com/safety)
- Technical assistance: [support.qiagen.com](http://support.qiagen.com)

### Notes before starting

- This protocol is designed for isolation of total DNA (genomic and mitochondrial) from various types of casework and reference samples, using automated open liquid handling instruments. The protocol describes the preliminary lysis using Proteinase K. Guidance for establishing automated protocols is provided in the *Investigator STAR Lyse&Prep Kit Handbook*.
- We recommend using the Investigator Lyse&Spin Basket Kit (cat. no. 19597 or 19598), when solid sample materials have to be removed from the lysate. If using this kit, please follow the Pretreatment protocol under “Procedure using the Investigator Lyse&Spin Basket Kit”, in the *Investigator STAR Lyse&Prep Kit Handbook*. The Lyse&Spin Basket Kit collection tubes can be used as sample tubes.
- Heat a thermomixer to 56°C for the Proteinase K digest in step 3.

## Procedure using 300 µl lysis volume

1. Place the sample in a sample tube or deep-well block.
2. Set up the Proteinase K digest according to information given in Table 1. Mix sample thoroughly by vortexing for 10 s.

**Table 1. Protocol information for different sample types**

Sample type	Sample amount	Buffer ATL	Proteinase K	DTT (1 M)
Blood/saliva	Up to 50 µl	280 µl/475 µl*	20 µl/25 µl*	–
Surface swabs	1 swab	280 µl/475 µl*	20 µl/25 µl*	–
Chewing gum	Up to 40 mg	280 µl/475 µl*	20 µl/25 µl*	–
Cigarette butts	1 cm <sup>2</sup>	280 µl/475 µl*	20 µl/25 µl*	–
Paper/similar materials	0.5–2.5 cm <sup>2</sup>	280 µl/475 µl*	20 µl/25 µl*	–
Nail scrapings	Up to 40 mg	260 µl/455 µl*	20 µl/25 µl*	20 µl
Nail clippings	1	260 µl/455 µl*	20 µl/25 µl*	20 µl
Hair	0.5–1 cm	260 µl/455 µl*	20 µl/25 µl*	20 µl
Tissues	Up to 10 mg	280 µl/475 µl*	20 µl/25 µl*	–
Blood or saliva stains	0.5 cm <sup>2</sup>	280 µl/475 µl*	20 µl/25 µl*	–
Semen stains	0.5 cm <sup>2</sup>	260 µl/455 µl*	20 µl/25 µl*	20 µl
Buccal swabs	1 swab	280 µl/475 µl*	20 µl/25 µl*	–

\* If using the Investigator Lyse&Spin Basket Kit.

3. Incubate at 56°C for 15 min to overnight, in a thermomixer shaking at 900 rpm.  
Incubation for 15 min may be sufficient to recover adequate DNA for STR typing from samples containing abundant DNA. More than 1 h is recommended where a low amount of DNA is expected. When using in a deep-well block, ensure proper sealing with an adhesive tape.
4. After incubation, perform a brief centrifugation to collect liquid at the bottom of the tubes or the S-Block.
5. Transfer 300 µl lysate to a new tube or deep-well block.

**Note:** Take care not to transfer any solid sample materials. See Table 2 for suitable labware.

**Table 2. Labware examples for sample input and elution**

Manufacturer	Type	Catalog no.	Use
Treff*	2 ml	96.09329.9.01	Sample input/elution
Eppendorf®	1.5 ml Safe-Lock	0017 010.417-03/1109	Sample input/elution
Eppendorf	2 ml Safe-Lock	0017 010.425-03/1109	Sample input/elution
Sarstedt®	1.5 ml Safe-Lock	72.706	Sample input/elution
Sarstedt	2 ml Safe-Lock	72.695.500	Sample input/elution
Sarstedt	1.5 ml	72.690.001	Sample input/elution
Sarstedt	2 ml	72.691	Sample input/elution
VWR®	96-Well-Plate, 2.2 ml	732-0585	Sample input

\* Collection tube of the Investigator Lyse&Spin Basket Kit.

6. Continue with automated DNA Purification.

### Procedure using the Lyse&Spin Basket Kit

1. Place the stained material in the Investigator Lyse&Spin Basket placed within a 2 ml microcentrifuge tube (provided).
2. Set up the Proteinase K digest according to the information provided in Table 2. Mix the sample thoroughly by vortexing for 10 s.  
**Note:** The Lyse&Spin Basket requires 500 µl lysate volume.
3. Incubate at 56°C for 1 hour to overnight in a thermomixer, shaking at 900 rpm.
4. Centrifuge for 1 min at a minimum of 10,000 x *g*.  
**Note:** Keep the lid closed during centrifugation.  
**Note:** Up to 20,000 x *g* can be used for centrifugation.  
**Note:** Make sure that no liquid remains in the basket after centrifugation. If necessary, repeat the centrifugation until all liquid has passed through the membrane. If larger pieces of chewing gum are processed, clogging of the basket can be avoided by pressing the chewing gum against the sides of the basket.
5. Discard the basket, including the solid sample substrate.
6. Continue with the automated DNA Purification.

## Document Revision History

Date	Changes
05/2022	Added the procedure using the Lyse&Spin Basket Kit. Mentioned the (250) variant of the Investigator Lyse&Spin Basket Kit (cat. no. 19598). Adjusted wording to agnostic use of the kit for open liquid handler platforms. Editorial and layout changes.



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