Instructions for use
PSP® Spin Skin DNA Kit

INVITEK diagnostics

Language: EN

nUO

REF 1035300200
1035300300

Σ 50 preparations
250 preparations

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Zona Industrial de Tondela, ZIM II,
Lote 6, 3460-070 Tondela
Portugal

Important notes

Thank you for purchasing the **PSP® Spin Skin DNA Kit** from Invitek Diagnostics.

In combination with the **DermaSwab DNA Collection Kit**, the product is used for the manual isolation of stabilised microbial DNA from skin swab samples using Spin Column technology.

Improper handling and use for purposes other than the intended use can cause danger and damage. For this reason, please read these instructions for use carefully and follow them precisely. Always keep them within easy reach. To avoid personal injury, please also observe the safety instructions.

All versions of the instructions for use can be found on our website for download or can be requested at: www.invitek.com

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1. Product information

1.1 Kit contents

	50 preparations	250 preparations
Catalogue number	1035300200	1035300300
Lysis Buffer HLT	15 ml/bottle	60 ml/bottle
Binding Solution (add 99.7% isopropanol)	empty bottle (final volume 40 ml)	empty bottle (final volume 200 ml)
Lysozyme	1 vial for 0.6 ml working solution	2 vials for 2 x 1.5 ml working solution
Proteinase K	1 vial for 1.5 ml working solution	5 vials for 5 x 1.5 ml working solution
Carrier RNA	1 vial for 2 ml working solution	4 vials for 4 x 2 ml working solution
Wash Buffer HLT	30 ml/bottle (final volume 50 ml)	105 ml/bottle (final volume 175 ml)
Wash Buffer	2 x 18 ml/bottle (final volume 2 x 60 ml)	2 x 60 ml/bottle (final volume 2 x 200 ml)
Elution Buffer M	15 ml/bottle	30 ml/bottle
RTA Spin Filter Set	50 units	250 units
RTA Receiver Tubes	50 units	250 units
1.5 ml Receiver Tubes	50 units	250 units
RNase Free Water	15 ml/bottle	15 ml/bottle
Short protocol	1 leaflet	1 leaflet

1.2 Symbols used on the product and labelling


Manufacturer

Batch number

Research Use Only

Catalogue number


Expiry date


See instruction manual


Temperature limitation


Do not reuse


Number of sample preparations

The **PSP® Spin Skin DNA Kit** is optimised for the isolation of nucleic acids from samples collected with the **DermaSwab DNA Collection Kit**, which must be purchased separately from Invitek Diagnostics. Ordering information is provided in Chapter 5.3.

1.3 Reagents and equipment to be supplied by the user

Laboratory equipment:

- Microcentrifuge
- Thermo shaker
- Graduated beaker (250 ml)
- Disposable gloves
- Pipette and pipette tips
- Vortex mixer
- Safe-Lock reaction tubes (2.0 ml)

For collecting and stabilising samples:

Product	Package size	Catalogue number
DermaSwab DNA Collection Kit	50 units	1035241100

This product is not included and must be purchased separately from Invitek Diagnostics. Ordering information is provided in Chapter 5.3.

Liquids and solvents:

- Ethanol 96-100% (undenatured)
- Isopropanol 99.7% (molecular biology grade)

1.4 Storage, appearance, and expiry date

Shelf life: All buffers and kit components should be stored at room temperature, unless otherwise stated, and have a shelf life as indicated on the outer label of the kit packaging.

After opening, the individual components of the kit, as well as the components prepared accordingly before first use, have a shelf life of 3 months.

Before each use, make sure that all components are at room temperature. If there are temperature-related precipitates in the solutions, dissolve them by careful heating (up to 30°C).

Room temperature (RT) is defined as a range of 15-30°C.

Wash Buffer: after adding ethanol to the bottle, the bottle should be tightly closed and stored at room temperature.

Wash Buffer HLT: after adding isopropanol to the bottle, the bottle should be tightly closed and stored at room temperature.

Binding Solution: after adding isopropanol to the bottle, it should be tightly closed and stored at room temperature.

Carrier RNA: once dissolved in **RNase Free Water**, Carrier RNA should be stored at -20°C.

Proteinase K: once dissolved in **RNase Free Water**, Proteinase K can be stored at 2-8 °C for a maximum of two months. For longer storage, keep at -20 °C, and freeze-thaw only once.

Lysozyme: lyophilised lysozyme should be stored at 2-8°C. Dissolved lysozyme should be stored at -20°C in aliquots.

1.5 Intended use

The **PSP® Spin Skin DNA Kit** is a nucleic acid extraction kit based on Spin Column technology, designed for the isolation and purification of microbial DNA from skin samples collected using the **DermaSwab DNA Collection Kit**.

This kit is intended for use by qualified professionals only, including laboratory technicians, physicians, and biologists trained in molecular biology. Use by untrained personnel may compromise procedure performance and result integrity.

1.6 Product information and specifications

Specification	
Downstream application	PCR-based assays, NGS, 16S rRNA gene sequencing, shotgun metagenomic sequencing, and hybridization-based microbial profiling techniques.
Target nucleic acid	Bacterial DNA
Starting material	DermaSwab DNA Collection Kit: 500 µl stabilised sample
Yield	Depending on sample*
Quality	Quality High-quality DNA/RNA ready for applications like PCR and NGS
Preparation time	Approx. 30 min (incl. lysis)
Elution Volume	20 µl
Technology	Spin column
Certification	RUO

** For yield determination, please note that nucleic acids purified with this kit contain Carrier RNA (7.5 µg per sample). Photometric quantification will therefore be inaccurate, since the Carrier RNA will also be measured. Quantitative PCR or fluorometric measurement (e.g. Qubit) are recommended for yield determination.*

2. Nucleic acid extraction with the PSP® Spin Skin DNA Kit

2.1 Before starting a protocol

When using the kit for the first time, make sure that all buffers and reagents are prepared as indicated:

Buffer preparations before first use: 50 preparations
Binding Solution (empty bottle): Add 40 ml of 99.7% isopropanol (molecular biology grade) to the bottle. Keep the bottle tightly closed at all times.
Carrier RNA: Lyophilized Carrier RNA is reconstituted as follows: add 1 ml of RNase Free Water to the vial and mix thoroughly until completely dissolved (at least 1 minute). Then add an additional 1 ml of **RNase Free Water** and mix well.
Proteinase K: Resuspend in 1.5 ml of **RNase Free Water**. Mix well until completely dissolved.
Lysozyme: Reconstitute the lyophilized lysozyme by adding 600 µl of **Elution Buffer M** to the vial. Mix well until completely dissolved. Prepare the solution prior to the first extraction and use the freshly prepared solution. After reconstitution, aliquot the solution and store at −20 °C until use.
Wash Buffer HLT: Add 20 ml of 99.7 % isopropanol to the bottle**.** Mix well, keep the bottle tightly closed.
Wash Buffer: Add 42 ml of 96-100% ethanol to the bottle. Mix well, keep the bottle tightly closed
Buffer preparations before first use: 250 preparations
Binding Buffer (empty bottle): Add 200 ml of 99.7% isopropanol (molecular biology grade) to the bottle. Keep the bottle tightly closed at all times.
Carrier RNA: Each vial of lyophilized Carrier RNA is reconstituted as follows: add 1 ml of **RNase Free Water** to the vial and mix thoroughly until completely dissolved (at least 1 minute). Then add an additional 1 ml of **RNase Free Water** and mix well.
Proteinase K: Resuspend each tube in 1.5 ml of **RNase Free Water**. Mix well until completely dissolved.
Lysozyme: Reconstitute each vial lyophilized lysozyme by adding 1.5 ml of **Elution Buffer M** to the vial. Mix well until completely dissolved. Prepare the solution prior to the first extraction and use the freshly prepared solution. After reconstitution, aliquot the solution and store at −20 °C until use.
Wash Buffer HLT: Add 70 ml of 99.7 % isopropanol to the bottle. Mix well, keeping the bottle tightly closed at all times.
Wash Buffer: Add 140 ml of 96-100% ethanol to the bottle. Mix well, keeping the bottle tightly closed.

- Set thermo shakers to 37°C, 56°C, and 95°C.
- Heat the required amount of **Elution Buffer M** to 56°C (20 µl of **Elution Buffer M** are required per sample).
- Determine the number of reactions required, including controls, and label the required amount of RTA Spin Filters (lid) and the required amount of 1.5 ml Receiver Tubes (per sample: 1 Receiver Tube is required).

2.2 Sampling and storage of starting material

The **PSP® Spin Skin DNA** Kit is intended for use in combination with the **DermaSwab DNA Collection Kit**. For instructions on skin sample collection, refer to the Instructions for Use of the **DermaSwab DNA Collection Kit**.

Samples collected using the **DermaSwab DNA Collection Kit** may be stored at room temperature for up to 6 months. For longer storage periods, samples may be stored at −20 °C. Remove the swab from the collection tube prior to freezing.

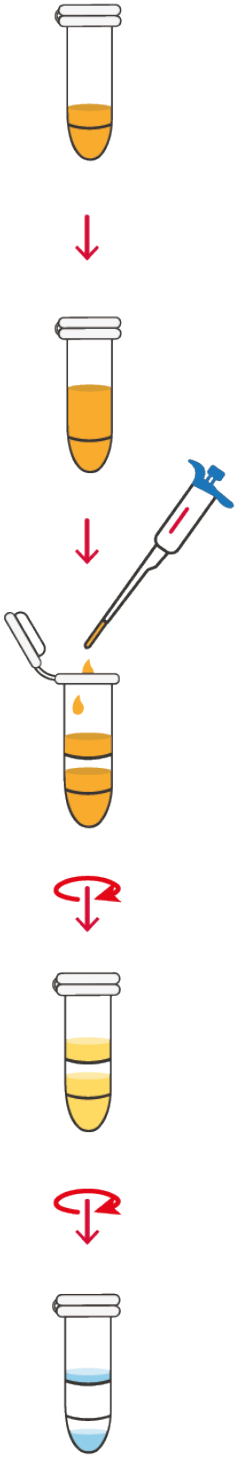
Repeated freeze–thaw cycles should be avoided, as they may result in degradation of nucleic acids.

2.3 Preparation of starting materials

Samples collected with the **DermaSwab DNA Collection Kit** may be used directly used for microbial DNA extraction with the **PSP® Spin Skin DNA Kit**. Use 500 µl of the stabilised sample as starting material.

2.4 Short protocol PSP® Spin Skin DNA Kit

Refer to chapter 2.3 "Preparation of starting materials" for sample specific pre-treatment.



Lyse Samples

1. Transfer 500 µl stabilised sample into a 2.0 ml Safe-Lock Tube (not provided).
   Add 10 µl **Lysozyme**, mix thoroughly by vortexing.
   Incubate for 10 min at 37°C.
2. Add 20 µl **Proteinase K**, mix thoroughly by vortexing.
   Add 200 µl **Lysis Buffer HLT**, mix thoroughly by vortexing.
   Incubate for 10 min at 56°C, continuously shaking at 1,200 rpm.
   Incubate for 10 min at 95°C, continuously shaking at 1,200 rpm.
3. Add 30 µl of **Carrier RNA**, mix thoroughly by vortexing.

Bind DNA

4. Add 700 µl **Binding Solution,** mix thoroughly by vortexing.
   Briefly centrifuge.
5. Transfer 700 µl of the mixture to an RTA Spin Filter Set.
   Close RTA Spin Filter and incubate for 1 min at RT.
   Centrifuge 2 min at 11,000 x g.
   Discard filtrate and place RTA Spin Filter **back to** the 2.0 ml RTA Receiver Tube.
6. Repeat the steps for the remaining sample volume.
   Discard filtrate and place RTA Spin Filter **back to** the 2.0 ml RTA Receiver Tube.

Wash to remove residual contaminations

7. Add 600 µl **Wash Buffer HLT.**
   Centrifuge 1 min at 11,000 x g.
   Discard filtrate and place RTA Spin Filter to **a new** 2.0 ml RTA Receiver Tube.
8. Add 700 µl **Wash Buffer**, centrifuge 1 min at 11,000 x g.
   Discard filtrate and place RTA Spin Filter **back to** the 2.0 ml RTA Receiver Tube.
9. Add 700 µl **Wash Buffer**, centrifuge 1 min at 11,000 x g.
   Discard filtrate and place RTA Spin Filter **back to** the 2.0 ml RTA Receiver Tube.
10. Centrifuge 4 min at maximum speed to remove ethanol completely.
    Discard the RTA Receiver Tube.

Elute DNA

11. Place the RTA Spin Filter into a 1.5 ml Receiver Tube.
    Add 20 µl of preheated (56°C) **Elution Buffer M**.
    Incubate 1 min at RT.
    Centrifuge 1 min at 11,000 x g to elute DNA.
    Discard RTA Spin Filter.
    Use DNA directly or store at -20°C for later use.

2.5 Protocol: Isolation of DNA from stabilised skin samples

1. Transfer 500 µl of the stabilised sample into a 2.0 ml Safe-Lock Tube (not provided).
Add 10 µl **Lysozyme**, mix thoroughly by vortexing.
Incubate for 10 min at 37°C.

2. Add 20 µl **Proteinase K**, mix thoroughly by vortexing.
Add 200 µl **Lysis Buffer HLT**, mix thoroughly by vortexing.
Incubate for 10 min at 56°C, continuously shaking at 1,200 rpm.
Incubate for 10 min at 95°C, continuously shaking at 1,200 rpm.

3. Add 30 µl of **Carrier RNA**, mix thoroughly by vortexing.

4. Add 700 µl **Binding Solution**, mix thoroughly by vortexing.
Briefly centrifuge.

5. Transfer 700 µl of the mixture to an RTA Spin Filter Set.
Close the RTA Spin Filter and incubate for 1 min at RT.
Centrifuge 2 min at 11,000 x g.
Discard the filtrate and place the RTA Spin Filter **back to** the 2.0 ml RTA Receiver Tube.

6. Repeat the steps for the remaining sample volume.
Discard the filtrate and place the RTA Spin Filter **back to** the 2.0 ml RTA Receiver Tube.

7. Add 600 µl **Wash Buffer HLT**.
Centrifuge 1 min at 11,000 x g.
Discard the filtrate and place the RTA Spin Filter to a new 2.0 ml RTA Receiver Tube.

8. Add 700 µl **Wash Buffer**, centrifuge 1 min at 11,000 x g.
Discard the filtrate and place the RTA Spin Filter **back to** the 2.0 ml RTA Receiver Tube.

9. Add 700 µl **Wash Buffer**, centrifuge 1 min at 11,000 x g.
Discard the filtrate and place the RTA Spin Filter **back to** the 2.0 ml RTA Receiver Tube.

10. Centrifuge 4 min at maximum speed to remove the ethanol completely.

11. Place the RTA Spin Filter into a 1.5 ml Receiver Tube.
Add 20 µl of the preheated (56°C) **Elution Buffer M**.
Incubate 1 min at RT.
Centrifuge 1 min at 11,000 x g to elute DNA.
Discard the RTA Spin Filter.
Use DNA directly or store at -20°C for later use.

3. Warranty

Invitek Diagnostics guarantees the correct functioning of the kit for the applications described in this manual and in accordance with its intended use. In accordance with the Invitek Diagnostics Quality Management System, certified to EN ISO 13485 and ISO 9001, the performance of all kit components has been tested to ensure product quality. Any problems, incidents or defects should be reported to Invitek Diagnostics immediately as soon as they are detected. Upon receipt, inspect the product to ensure that it is complete and intact. In the event of any discrepancies, the user must immediately inform Invitek Diagnostics in writing. Modifications to the kit and protocols, as well as uses that deviate from the original purpose, are not covered by any warranty. Invitek Diagnostics reserves the right to change, alter or modify any product to improve its performance and design at any time. Invitek Diagnostics warrants the products as set out in the General Terms and Conditions available at www.invitek.com. If you have any questions, please contact techsupport@invitek.com.

4. Safety instructions

Ensure that anyone using this product has been instructed in general safety practices for laboratories, as well as the safety information provided in this document.

- Always wear protective clothing, disposable gloves, and safety glasses when handling chemicals.
- Replace pipette tips every time liquids are transferred, preferably with an aerosol barrier, to avoid cross-contamination.
- Do not reuse consumables.
- Discard contaminated gloves.
- Do not combine components from different kits.
- Avoid microbial contamination of reagents.
- Handle samples in a laminar flow chamber until lysis to reduce the risk of infection from potentially infectious materials.

Before handling chemicals, read and understand all applicable Safety Data Sheets (SDS). These are available at www.invitek.com.

Dispose of kit waste and residual fluids in accordance with your country's regulations and consult the SDS again. Invitek Diagnostics has not tested the liquid waste generated by the kit for residual infectious materials. Although contamination of the liquid waste with residual infectious materials is highly unlikely, it cannot be completely excluded. Therefore, the liquid waste must be considered infectious and must be handled and disposed of in accordance with the applicable safety regulations.

The European Community risk and safety phrases described below refer exclusively to the components of the **PSP® Spin Skin DNA Kit**. All safety information is described in detail in the Safety Data Sheets (SDS) and in the product instructions. The qualitative and quantitative composition of the reagents, as well as their respective risks, is shown in the table below.

4.1 Reagent Specifications and Hazard Classification

Kit components	Main Composition	Pictogram and Hazard Class GSH[1]	Hazard Warnings[1]	Precautionary statements
Lysozyme	Lyophilised lysozyme			
Lysis Buffer HLT	50% - 70% Guanidinium chloride	 GHS07 **Caution**	H302; H315; H319	P264; P270; P280 P301+P312; P302+P352; P305+P351+P338; P321; P330; P332+P313; P337+P313; P362+P364; P501.
Carrier RNA	1% - 10% Trehalose dehydrate 0.1% - 1% Poly (A)			
Proteinase K	≥70% Proteinase K (lyophilised powder)	 GHS07 GHS08 **Danger**	H315; H319; H334; H335.	P261; P264; P271; P280; P284; P302+P352; P304+P340; P305+P351+P338; P312; P501.
Wash Buffer HLT	5% - 10% Guanidinium chloride			
Wash Buffer	0.5% - 5% Sodium chloride 0.1% - 1% Tris Base			
Elution Buffer M	0.01% - 0.1% Ethoxylated sorbitan monolaurate			

[1]Classification and labelling in accordance with Regulation (EC) No 1272/2008 [CLP]; GHS: Globally Harmonised System of Classification and Labelling of Chemicals

Emergency medical information can be obtained 24 hours a day from infotrac, www.infotrac.net:
outside the USA: 1 - 352 - 323 - 3500
in the USA: 1 - 800 - 535 - 5053

4.1 List of Hazard Warnings and Precautionary Statements

Codes	Hazard Warning/Precautionary Statement
H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes severe eye irritation.
H334	When inhaled, may cause allergy or asthma symptoms or breathing difficulties.
H335	May cause irritation of the respiratory tract.
H410	Very toxic to aquatic organisms with long-lasting effects.
P261	Avoid breathing dust/fumes/gas/mist/vapours/aerosols.
P264	Wash hands, forearms and face thoroughly after handling.
P270	Do not eat, drink or smoke while using this product.
P271	Use only outdoors or in well-ventilated areas.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P284	Wear respiratory protection.
P301+P312	IN CASE OF INGESTION: If you feel unwell, contact a POISON CENTRE or doctor.
P302+P352	IF ON SKIN: rinse thoroughly with water.
P304+P340	IN CASE OF INHALATION: Remove person to fresh air and keep in a position that does not hinder breathing.
P305+P351+P338	IF IN EYES: Rinse thoroughly with water for several minutes. If you wear contact lenses, remove them if possible. Continue rinsing.
P312	If you feel unwell, contact a POISON CENTRE or doctor.
P321	Specific treatment (see supplementary first aid instructions on this label).
P330	Rinse mouth.
P332+P313	In case of skin irritation: seek medical advice.
P337+P313	If eye irritation persists: seek medical advice.
P362+P364	Remove contaminated clothing and wash before reuse.
P391	Collect spilt product.
P501	Dispose of contents/container at a hazardous or special waste collection point in accordance with local, regional, national and/or international regulations.

5. Appendix

5.1 Troubleshooting

Problem	Possible cause	Recommendation
RTA Spin Clogged filter	Insufficient cell lysis and/or too much starting material	Increase lysis time. Increase centrifugation time and/or speed. Reduce the amount of starting material.
Low amount of DNA	Insufficient cell lysis	Increase lysis time. Reduce the amount of starting material to avoid overloading the column.
	Incomplete elution	Increase incubation time with pre-warmed **Elution Buffer M** to 5-10 min.
	Low concentration of nucleic acid in the sample	Repeat skin sample collection. Increase area of skin sample collection. Increase sampling time to 60 seconds. Ensure applying pressure during skin sample collection.
	Decreased **Proteinase K** activity	Repeat the DNA purification procedure with a new sample and a freshly prepared **Proteinase K** stock solution. Make sure that the stock solution is stored at -20°C.
	The buffers have been prepared incorrectly; the wrong alcohol has been used	Ensure that the correct amount of ethanol/isopropanol is added to the buffers and that all solutions are stored tightly closed.
	Insufficient mixing of the sample with the Binding Solution	Mix the sample correctly with a pipette before transferring it to the RTA Spin Filter membrane. Use the correct amount of Binding Solution.
Degraded nucleic acids/low A_{260}/A_{280} ratio	Old sample material, repeated freeze-thaw cycles	Avoid repeated thawing and freezing of the material.
	Decreased **Proteinase K** activity	See above.
Nucleic acids do not perform well in downstream applications (e.g. real-time PCR or NGS)	Ethanol residues in the eluted DNA	Check the correct centrifugation time. If necessary, increase the centrifugation time to remove the ethanol.
	Salt in the eluate	Store the Wash Buffers at room temperature and check for salt precipitates. If there are precipitates, dissolve them by carefully heating to 30°C.
	Low concentration of nucleic acid in the sample	Repeat skin sample collection. Increase area of skin sample collection. Increase sampling time to 60 seconds. Ensure applying pressure during skin sample collection.
	Reduced sensitivity of the amplification reaction	Adjust the volume/concentration of DNA for the amplification reaction.

5.2 Other documents and further information

Visit www.invitek.com for more information on:

- FAQs and troubleshooting tips
- Manuals in different languages
- Safety Data Sheets (SDS)
- Web support
- Product videos

If, despite carefully reading the instruction manual and other information, you still need assistance, please contact us at techsupport@invitek.com or the distributor responsible for you.

5.3 Ordering information

For DNA extraction:

Product	Package size	Catalogue number
PSP® Spin Skin DNA Kit	50 preparations	1035300200
PSP® Spin Skin DNA Kit	250 preparations	1035300300

For skin sample collection and DNA stabilisation:

Product	Package size	Catalogue number
DermaSwab DNA Collection Kit	50 units	1035241100

Revision history

Revision	Date	Description
DE 662.01_EN	2026-04-22	New document

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