ReSCape

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IFU-57S02/TB/V02

Culture reagent kit for C-PGNB on rectal swab for the detection of carbapenemases with the RESIST kits

FOR IN VITRO DIAGNOSTIC USE **EN**
FOR PROFESSIONAL USE ONLY
Reference: S-1002
Reagents for 20 tests: 20x CProBE MEDIUM tubes, 2x Selective Mix vials and 2x Water vials

(EN) For Instructions for use in your language : (FR) Pour obtenir les notices dans la langue de votre choix : (ES) Para las instrucciones de uso en su idioma : (PT) Para Instruçoes de Uso na sua lingua : (IT) Per le Istruzioni di Uso nella sua lingua : (DE) Für Gebrauchsanleitungen in Ihrer Sprache : (NL) Voor Gebruiksaanwijzing in uw eigen taal :	
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I. INTRODUCTION

Antibiotic resistance of Gram-negative bacilli, particularly in Enterobacteriaceae, is a worldwide public health concern for both hospital and community-acquired infections. The priority is to limit their spread through the use of new therapeutic agents and/or new strategies.
Rapid detection of colonisation of the digestive tract by carbapenemase-producing Gram-negative bacilli (C-PGNB) is of utmost importance in order to limit as much as possible the selective pressure of carbapenems in patients with proven intestinal carriage of C-PGNB. Some methods using selective culture media allow the majority of C-PGNB in the microbiota to be cultured.
A new procedure has been developed that allows the use of RESIST tests from rectal specimens. It can be performed in any microbiology laboratory to help clinicians rapidly identify patients carrying C-PGNB for better management.

II. PRINCIPLE OF THE KIT

The reagents of the kit are intended for the rapid culture of Gram-negative bacteria collected with a rectal swab.
The purpose of the kit is to enrich C-PGNB by rapid selective culture from the rectal swab specimens to obtain a bacterial extract directly suitable for carbapenemases detection with tests from the RESIST range of kits (Coris BioConcept).
It can be used with all RESIST rapid test kits for the analysis of OXA-48, KPC, NDM and VIM carbapenemases from rectal swabs (not validated for IMP, OXA-163 and OXA-23).

III. REAGENTS AND MATERIALS

1. **CProBE MEDIUM (20)**

20 individual tubes containing 3-mL of enrichment broth

2. **Selective Mix (2)**

Lyophilised solution of concentrated selective agents (100x). Before use, one vial must be rehydrated with 0.50 mL of water provided in the kit. Once rehydrated it can be used within 30 days if stored at 2-8 °C. Use one vial of Selective Mix for 10 tests.

3. **Water (2)**

Water (1mL vials)

4. **Instruction for use (1)**

IV. SPECIAL PRECAUTIONS

- All operations linked to the use of the test must be performed in accordance with Good Laboratory Practices (GLP).
- All reagents are for *in vitro* diagnostic use only.
- Vials must be opened with care.
- Avoid touching liquids with your fingers.
- Wear gloves when handling samples.
- Never use reagents from another kit.
- The technician performing the test must be familiar with handling the provided reagents.
- The quality of the reagents cannot be guaranteed beyond their shelf-life dates or if reagents are not stored under the required conditions as indicated in the IFU.

V. WASTE DISPOSAL

- Dispose of used gloves, safety glasses and devices in accordance with GLP.
- Each user is responsible for the management of any waste produced, that must be disposed of in accordance with the applicable legislation.

VI. STORAGE

- Any reagent in the kit must be kept at between 2 °C and 8 °C and used until the shelf-life date indicated on the packaging.
- Once rehydrated, the vial of **Selective Mix** can be used for up to 30 days provided it is stored between 2 °C and 8 °C.
- Avoid freezing the reagents.

VII. SPECIMEN HANDLING AND COLLECTION

Rectal swabs specimens to be tested should be obtained and handled by standard clinical methods.
Specimens must be tested as soon as possible after collection (within 24 hours).
If they are not used immediately, they must be stored at -20 °C for longer periods of time. If the rectal swab has been previously frozen, perform gentle thawing steps: 30 min at 5 +/- 3 °C, followed by 30 min at room temperature and 15 min at 37 °C in a water bath.
Coris BioConcept recommends using a rectal swab intended for patient stool collection to guarantee the test performances. All clinical validations have been performed with eSwab™. The efficiency of other specimen types has not been established with this ReSCape kit.

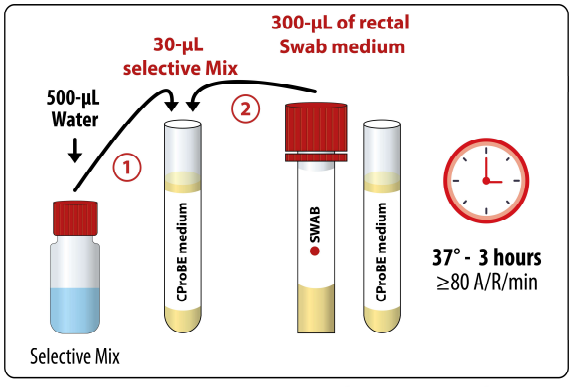
VIII. PROCEDURE

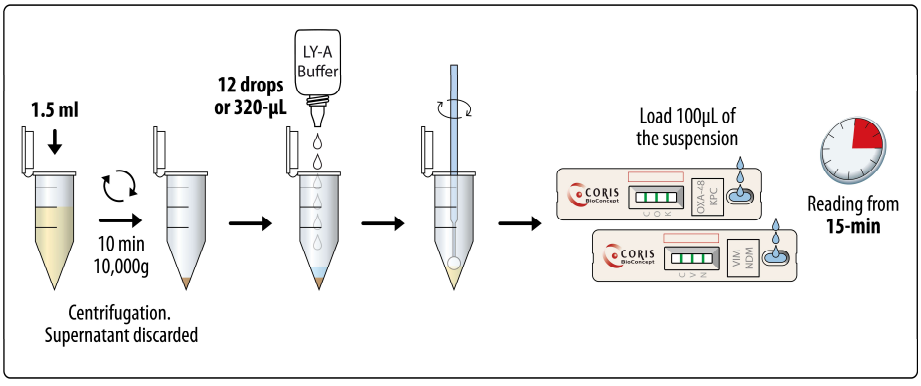
PREPARATION OF THE TEST:

CProBE MEDIUM could form a precipitate at the recommended storage temperature.
Allow CProBE MEDIUM tubes, in unopened packaging, and specimens to reach an incubation temperature of 37 °C before performing the test.
Operations must be carried out in an appropriate environment dedicated for microbiological cultures
Indicate the patient's name or specimen number on the CProBE MEDIUM tube (one tube per sample).

SPECIMEN PREPARATION PROCEDURE:

1. Add **500 µL** of water to the Selective Mix vial to rehydrate the lyophilised pellet. Discard the remaining water from the opened tube. Keep rehydrated Selective Mix at 5 °C +/- 3 °C
2. Transfer **30 µL** from the vial of rehydrated Selective Mix to a CProBE tube containing 3 mL of broth**.**
3. Take **300 µL** of the patient's rectal swab transport medium and add to the tube containing CProBE broth with Selective Mix, close the tube and vortex briefly to homogenise.
4. Incubate the tube in a stirring water bath at 37 °C with stirring (≥80 A/R/min.) for 3 hours.
5. After incubation for 3 hours, transfer **1.5-mL** of the culture broth to a microcentrifuge tube (not provided).
6. Centrifuge for 10 min at 10,000 g.
7. Discard the supernatant and add **12 drops** or **320 µL** of LY-A buffer (provided in the RESIST rapid test kits) to the pellet.
8. Resuspend the pellet and pipette **100 µL** to perform each RESIST test according to the manufacturer's recommendations.
   Allow to react for 15 minutes maximum and read the result.





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IX. RESULTS INTERPRETATION

The results have to be interpreted as indicated in the instruction for use of the Coris BioConcept RESIST rapid test kits.

X. PERFORMANCE

A. Detection Limit

The detection limit determined with 4 representative Enterobacteriaceae strains for OXA-48, KPC, NDM and VIM have been evaluated at 2.10^2 CFU/mL. Detection limit determined with 2 ml of culture medium and a centrifugation of 5 min (step 5 and 6)

B. Prospective study based on RESIST-4 O.K.N.V. K-SeT

The ReSCape kit was evaluated on a collection of 266 rectal swabs from patients with C-PGNB digestive colonisation (n=88) and controls (n=178) collected from January 2017 to July 2019 by comparison with reference molecular methods in the Bacteriology laboratory (APHP, GHU Paris-Est, DMU BIO-GEM, France) and in the Department of Microbiology (Cliniques Universitaires Saint-Luc, UCL, Belgium).
Results of the protocol combining rapid selective enrichment and RESIST-4 test on the 88 samples containing C-PGNB:

Bacterium	No of strains	Carbapenemase Enzyme type	No. of Positive results
E. coli	24	19 OXA-48 5NDM	17/19 5/5
K. pneumoniae	40	18 OXA-48 3 NDM 19 KPC	18/18 2/3 18/19
C. freundii	10	9 OXA-48 1 NDM	9/9 1/1
E. cloacae	6	9 OXA-48 3 NDM 2 VIM	1/1 3/3 1/2
K. oxytoca	2	2 OXA-48	2/2
K. aerogenes	2	2 OXA-48	2/2
A. baumannii	2	2NDM	1/2
P. aeruginosa	5	5 VIM	5/5
Total	91*		85/91

*: 3 samples contained 2 C-PGNB strains each (OXA-48-producing GNB + 1 NDM producing GNB)

Molecular methods RESIST-4 O.K.N.V. *K*-SeT	Positive	Negative	Total
Positive	82	0	82
Negative	6	178	184
Total	88	178	266

		95% Confidence Interval [1]
Sensitivity:	93.2%	(85.2 to 97.2%)
Specificity:	100%	(97.4 to 100%)
Positive Predictive value:	100%	(94.4 to 100%)
Negative predictive value:	96.7%	(92.7 to 98.7%)
Agreement:	97.7%	(260/266)

C. Repeatability and reproducibility:

To check intra-batch accuracy (repeatability), three positive samples were processed 3 times on the same production batch of the Selective Mix under the same experimental conditions. All the observed results were confirmed as expected.
To check inter-batch accuracy (reproducibility), one positive sample was processed on kits from three different production batches. One strain was tested on three batches of Selective Mix in triplicate. All the results were confirmed as expected.

Cross-reactivity and interference: refer to RESIST rapid test kits.

XI. LIMITS OF THE KIT

This ReSCape Kit should be used with one of the Coris BioConcept rapid test kits. It is an aid in the rapid identification of carbapenemase-resistant bacterial carriage.
The RESIST rapid tests are qualitative and cannot predict the quantity of enzymes present in the sample. The results of other tests must be taken into consideration to establish the diagnosis. A positive test does not rule out the possibility of other mechanisms of antibiotic resistance.

XII. TECHNICAL PROBLEMS / COMPLAINTS

If you face a technical problem or if the performance does not correspond to that indicated in this package insert:

1. Record the batch number of the kit concerned.
2. If possible, keep the sample in the appropriate storage conditions during claim handling.
3. Contact Coris BioConcept (client.care@corisbio.com) or your local distributor.

[1] Newcombe, Robert G. "Two-Sided Confidence Intervals for the Single Proportion: Comparison of Seven Methods," *Statistics in Medicine*, **17**, 857-872 (1998).

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Last update 23 NOVEMBER 2021

REF	Catalogue number		Manufacturer
IVD	*In vitro* diagnostic medical device		Temperature limits
	Contains sufficient for <n> tests	LOT	Batch code
	Consult instructions for use		Do not reuse
	Keep dry		Use by
		CONT ProClin	Contains Proclin300

Danger

H317; H334; H340; H412; P201; P202; P261; P272; P273; P280; P284; P302 +P352; P308 + P313; P333+P313; P362+P364; P304 + P340; P342 + P311; P305+P351+P338;
P310; P405; P501;

May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause genetic defects. Harmful to aquatic life with long lasting effects. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust/fume/gas/mist/vapours. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/eye protection. In case of inadequate ventilation wear respiratory protection. IF ON SKIN: Wash with plenty of water. IF exposed or concerned: Get medical advice/ attention. If skin irritation occurs: Get medical advice/ attention. Take off contaminated clothing and wash it before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER/doctor. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor if ingested. Store locked up. Dispose of contents/container in accordance with local/regional/national/international regulations.