

System for the identification of yeasts

SUMMARY AND EXPLANATION

API Candida is a standardized system for the identification in 18-24 hours of yeasts, notably those most frequently encountered in clinical microbiology. The species which can be identified by the system are indicated in the Identification Table at the end of this package insert.

PRINCIPLE

The API Candida strip consists of 10 tubes containing dehydrated substrates, which enable the performance of 12 identification tests (sugar acidification or enzymatic reactions).

The reactions produced during incubation are revealed by spontaneous color changes.

The reactions are read visually according to the Reading Table and identification is obtained by consulting the list of profiles in this package insert or using the identification software.

CONTENT OF THE KIT (Kit for 10 tests)

- 10 API Candida strips
- 10 ampules of API NaCl 0.85 % Medium (2 ml)
- 10 incubation boxes
- 10 result sheets
- 1 package insert provided in the kit or downloadable from www.biomerieux.com/techlib

COMPOSITION

Strip

The composition of the API Candida strip is given in the Reading Table of this package insert.

Medium

API NaCl 0.85 % Medium 2 ml	Sodium chloride	8.5 g
	Demineralized water	1000 ml

REAGENTS AND MATERIAL REQUIRED BUT NOT PROVIDED

Reagents / Instrumentation

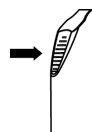
- McFarland Standard (ref. 70 900), point 3 on the scale
- Mineral oil (ref. 70 100)
- **apiweb™** identification software (Ref. 40 011), (consult bioMérieux)

Material

- Pipettes or PSipettes
- Ampule protector
- Ampule rack
- Swabs
- General microbiology laboratory equipment

WARNINGS AND PRECAUTIONS

- **For *in vitro* diagnostic use and microbiological control.**
- **For professional use only.**
- All specimens, yeast cultures and inoculated products should be considered infectious and handled appropriately. Aseptic technique and usual precautions for handling yeasts should be observed throughout this procedure. Refer to "CLSI® M29-A, *Protection of Laboratory Workers from Occupationally Acquired Infections; Approved Guideline - Current revision*". For additional handling precautions, refer to "Biosafety in Microbiological and Biomedical Laboratories - CDC/NIH - Latest edition", or to the regulations currently in use in each country.
- Do not use reagents past the expiry date.
- Before use, check that the packaging and components are intact.
- Do not use strips which have been damaged : cupules deformed, desiccant sachet open, etc.
- Allow media to come to room temperature before use.
- Open ampules carefully as follows :
 - Place the ampule in the ampule protector.
 - Hold the protected ampule in one hand in a vertical position (white plastic cap uppermost).
 - Press the cap down as far as possible.
 - Position the thumb tip on the striated part of the cap and press forward to snap off the top of the ampule.
 - Take the ampule out of the ampule protector and put the protector aside for subsequent use.
 - Carefully remove the cap.
- The performance data presented were obtained using the procedure indicated in this package insert. Any change or modification in the procedure may affect the results.
- Interpretation of the test results should be made taking into consideration the patient history, the source of the specimen, colonial and microscopic morphology of the strain and, if necessary, the results of any other tests performed.



STORAGE CONDITIONS

Strips

The strips should be stored at 2-8°C until the expiry date indicated on the packaging.

Media

The media may be stored at 2-30°C until the expiry date indicated on the packaging.

SPECIMENS (COLLECTION AND PREPARATION)

API Candida is not for use directly with clinical or other specimens.

The microorganisms to be identified must first be isolated on a suitable culture medium according to standard microbiological techniques.

INSTRUCTIONS FOR USE

Selection of colonies

Exam the strain to be studied under a microscope to check that it is indeed a yeast.

The colonies may be isolated on the following media before using the API Candida strip :

- Sabouraud 2 agar (with or without antibiotic) ;
- Albicans ID 2 agar ;
- Blood agar ;
- If other media are used to isolate the colonies, perform a subculture on one of the media mentioned above.

Preparation of the strip

- Prepare the incubation box (tray and lid) and distribute about 5 ml of water [demineralized or distilled water, or any water without additives or chemicals which may release gases (e.g. Cl₂, CO₂, etc.)] into the honey-combed wells of the tray to create a humid atmosphere.
- Record the strain reference on the elongated flap of the tray.
- Remove the strip from its individual packaging.
- Place the strip in the incubation box.
- Discard the desiccant sachet.

Preparation of the inoculum

- Open an ampule of API NaCl 0.85 % Medium (2 ml) as indicated in the paragraph "Warnings and Precautions".
- Using a pipette or swab, take one or several well-isolated, identical colonies and prepare a suspension with a turbidity equivalent to 3 McFarland : compare with a turbidity control or measure using a densitometer. It is recommended to use young cultures (18-24 hours old).
- Homogenize the yeast suspension. This suspension must be used immediately after preparation.

Inoculation of the strip

- Distribute the prepared yeast suspension into the tubes only, avoiding the formation of bubbles (tilt the incubation box slightly forward and position the pipette or PSIpette on the edge of the cupule).
- Cover the first 5 tests (GLU to RAF) and the last test (URE) with mineral oil (underlined tests) immediately after inoculating the strip.

NOTE : The quality of the filling is very important : tubes which are insufficiently or excessively full may cause false positive or false negative results.

- Close the incubation box.
- Incubate for 18-24 hours at 36°C ± 2°C in **aerobic conditions**.

READING AND INTERPRETATION

Reading the strip

After the 18-24-hours of incubation :

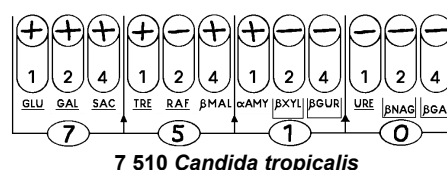
- Read the reactions by referring to the reading table in this package insert and record them as + or – on the result sheet.

Warning : Tubes 8 and 9 are bi-functional and enable 2 reactions to be performed in the same tube :

- Tube 8 : βXYL (test no. 8) / βNAG (test no. 11).
- Tube 9 : βGUR (test no. 9) / βGAL (test no. 12).

Interpretation

- Code the reactions obtained into a **numerical profile** : on the result sheet, the tests are separated into groups of three and a number 1, 2 or 4 is assigned to each one. By adding together the numbers corresponding to positive reactions within each group, a 4-digit numerical profile is obtained.
- Identification :
This is performed using the database (V 2.1)
* with the numerical profile :
- Look up the profile in the list in this package insert.
* with the **apiweb™** identification software :
- Enter the 4-digit numerical profile manually via the keyboard.
- If there is low discrimination between several species, complementary tests are indicated (see tables at the end of this package insert) to separate them. The results of these tests are taken from literature (or the ID 32 C database).



QUALITY CONTROL

The strips and media are systematically quality controlled at various stages of their manufacture. For those users who wish to perform their own quality control tests with the strip, it is preferable to use the strain 1. **Candida kefyr ATCC® 4135** or else one of the following strains :

- | | | | |
|---------------------------------|------|---------|--|
| 2. <i>Trichosporon mucoides</i> | ATCC | 201382* | ATCC : American Type Culture Collection,
10801 University Boulevard, Manassas,
VA 20110-2209, USA. |
| 3. <i>Candida glabrata</i> | ATCC | 2001 | |

	<u>GLU</u>	<u>GAL</u>	<u>SAC</u>	<u>TRE</u>	<u>RAF</u>	β MAL	α AMY	β XYL	β GUR	<u>URE</u>	β NAG	β GAL
1.	+	+	+	-	+	-	-	+	-	-	-	+
2.	+	+	+	-	V	+	+	-	+	+	+	-
3.	+	-	-	+	-	-	-	-	-	-	-	-

Profiles obtained after culture of the strains on Sabouraud agar.

* *Trichosporon mucoides* identified as *Trichosporon* spp 1 with API Candida.

It is the responsibility of the user to perform Quality Control in accordance with any local applicable regulations.

LIMITATIONS OF THE METHOD

- The API Candida system is designed uniquely for the identification of the species included in the database (see Identification Table at the end of this package insert) i.e. those belonging to the genera *Candida*, *Cryptococcus*, *Geotrichum*, *Saccharomyces* and *Trichosporon*. It cannot be used to identify any other microorganisms or to exclude their presence.
- Only pure cultures of a single organism should be used.

RANGE OF EXPECTED RESULTS

Consult the Identification Table at the end of this package insert for the range of expected results for the various biochemical reactions.

PERFORMANCE

- 646 collection strains and strains of various origins belonging to species included in the database were tested:
 - 97.99 % of the strains were correctly identified (with or without supplementary tests).
 - 0.46 % of the strains were not identified.
 - 1.55 % of the strains were misidentified.

WASTE DISPOSAL

Unused reagents may be considered as non hazardous waste and disposed of accordingly.

Dispose of all used reagents as well as any other contaminated disposable materials following procedures for infectious or potentially infectious products.

It is the responsibility of each laboratory to handle waste and effluents produced according to their type and degree of hazardousness and to treat and dispose of them (or have them treated and disposed of) in accordance with any applicable regulations.

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READING TABLE

TESTS	ACTIVE INGREDIENTS	QTY (mg/cup.)	REACTIONS/ENZYMES	RESULTS	
				NEGATIVE	POSITIVE
1) <u>GLU</u>	D-glucose	1.4	Acidification (GLUcose)	violet grey-violet	yellow green / grey
2) <u>GAL</u>	D-galactose	1.4	Acidification (GALactose)		
3) <u>SAC</u>	D-saccharose	1.4	Acidification (SACcharose)		
4) <u>TRE</u>	D-trehalose	1.4	Acidification (TREhalose)		
5) <u>RAF</u>	D-raffinose	1.4	Acidification (RAFfinose)		
6) β MAL	4-nitrophenyl- β D-maltopyranoside	0.08	β -MALtosidase	colorless	pale yellow-bright yellow
7) α AMY	2-chloro-4-nitrophenyl- α D-maltotrioside	0.168	α -AMYlase	colorless	pale yellow-bright yellow
8) β XYL	4-nitrophenyl- β D-xylopyranoside	0.095	β -XYLosidase	colorless-very pale yellow / blue / green **	pale yellow-bright yellow
9) β GUR	4-nitrophenyl- β D-glucuronide	0.063	β -GIUcuRonidase	colorless / blue / green	pale yellow-bright yellow
10) <u>URE</u>	urea	1.68	UREase	yellow-pale orange	red
11) β NAG (in tube no. 8) *	5-bromo-4-chloro-3-indoxyl-N-acetyl- β D-glucosaminide	0.09	N-Acetyl- β -Glucosaminidase	colorless / yellow	blue / green **
12) β GAL (in tube no. 9) *	5-bromo-4-chloro-3-indolyl- β D-galactopyranoside	0.0815	β -GALactosidase	colorless / yellow	blue / green

* Tubes 8 and 9 are bi-functional : tube 8 : β XYL (test no. 8) / β NAG (test no. 11)
tube 9 : β GUR (test no. 9) / β GAL (test no. 12)

** Any trace of green in cupule 8 = β XYL (-) β NAG (+)

- The quantities indicated may be adjusted depending on the titer of the raw materials used.

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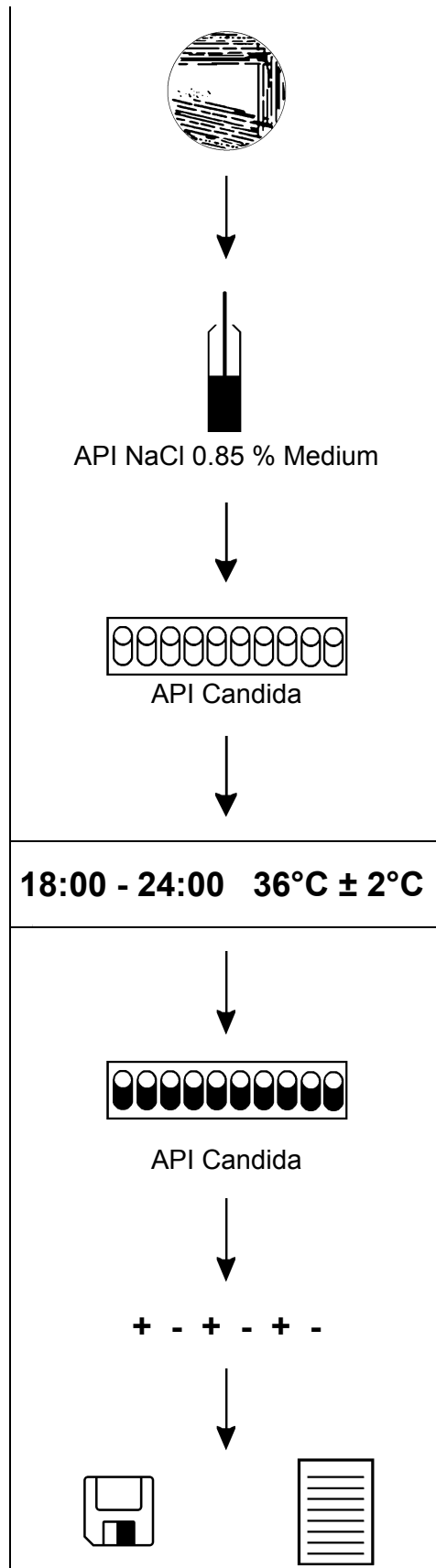


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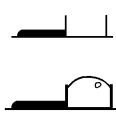
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**METHODOLOGIE / PROCEDURE / METHODIK / TECNICA / PROCEDIMENTO /
ΔΙΑΔΙΚΑΣΙΑ / METOD / METODYKA**



3 McF



GLU → URE

GLU → RAF, URE

**LISTE DES PROFILS NUMÉRIQUES / LIST OF NUMERICAL PROFILES / LISTE DER NUMERISCHEN PROFILE /
 LISTA DE PERFILES NUMÉRICOS / LISTA DEI PROFILI NUMERICI / LISTA DE PERFIS NUMÉRICOS /
 ΚΑΤΑΛΟΓΟΣ ΑΡΙΘΜΗΤΙΚΩΝ ΠΡΟΦΙΛ / LISTA ÖVER NUMERISKA PROFILER /
 LISTE OVER NUMERISKE PROFILER / LISTA PROFILI NUMERYCZNYCH**

0 403 <i>Trichosporon</i> spp 2		7 043 <i>Cryptococcus neoformans</i> 2	
0 412 <i>Trichosporon</i> spp 2		7 051 <i>C. neoformans</i> 2 / <i>C. neoformans</i> 1	
0 413 <i>Trichosporon</i> spp 2		7 053 <i>C. neoformans</i> 2 / <i>Trichosporon</i> spp 1 /	
0 417 <i>Trichosporon</i> spp 2		<i>Cryptococcus neoformans</i> 1	(1)
1 000 <i>Candida krusei</i> *	(2)	7 100 <i>Candida famata</i>	
1 010 <i>Candida krusei</i> *	(2)	7 102 <i>Candida albicans</i>	
1 100 <i>Candida glabrata</i>		7 104 <i>Candida famata</i>	
1 300 <i>Candida glabrata</i>		7 110 <i>Candida tropicalis</i> / <i>Candida albicans</i>	(5)
1 402 <i>Trichosporon</i> spp 2		7 112 <i>Candida albicans</i>	
1 403 <i>Trichosporon</i> spp 2		7 120 <i>Candida lusitaniae</i> / <i>Candida famata</i> /	
1 407 <i>Trichosporon</i> spp 2		<i>Candida guilliermondii</i>	(6)
1 412 <i>Trichosporon</i> spp 2		7 200 <i>Saccharomyces cerevisiae</i>	
1 413 <i>Trichosporon</i> spp 2		7 204 <i>Candida kefyri</i>	
1 416 <i>Trichosporon</i> spp 2		7 213 <i>Trichosporon</i> spp 1 / <i>C. neoformans</i> 1	(1)
1 417 <i>Trichosporon</i> spp 2		7 220 <i>Candida guilliermondii</i> **	(6)
1 443 <i>Trichosporon</i> spp 2		7 224 <i>Candida kefyri</i>	
1 453 <i>Trichosporon</i> spp 2		7 241 <i>Cryptococcus neoformans</i> 1	
2 403 <i>Trichosporon</i> spp 2		7 243 <i>C. neoformans</i> 1 / <i>C. neoformans</i> 2 /	
2 412 <i>Trichosporon</i> spp 2		<i>Trichosporon</i> spp 1	(1)
2 413 <i>Trichosporon</i> spp 2		7 251 <i>Cryptococcus neoformans</i> 1	
2 417 <i>Trichosporon</i> spp 2		7 253 <i>C. neoformans</i> 1 / <i>Trichosporon</i> spp 1	(1)
3 000 <i>Geotrichum</i> spp / <i>Candida parapsilosis</i> /		7 300 <i>Saccharomyces cerevisiae</i>	
<i>Candida krusei</i> *	(2)	7 310 <i>Saccharomyces cerevisiae</i>	
3 001 <i>Cryptococcus neoformans</i> 2		7 312 <i>Candida albicans</i>	
3 003 <i>C. neoformans</i> 2 / <i>Trichosporon</i> spp 2	(1)	7 320 <i>Candida guilliermondii</i> **	(6)
3 020 <i>Geotrichum</i> spp	(2)	7 324 <i>Candida kefyri</i>	
3 041 <i>Cryptococcus neoformans</i> 2		7 341 <i>Cryptococcus neoformans</i> 1	
3 043 <i>Cryptococcus neoformans</i> 2		7 351 <i>Cryptococcus neoformans</i> 1	
3 051 <i>Cryptococcus neoformans</i> 2		7 413 <i>Trichosporon</i> spp 1 / <i>Trichosporon</i> spp 2	
3 053 <i>Cryptococcus neoformans</i> 2		7 417 <i>Trichosporon</i> spp 1 / <i>Trichosporon</i> spp 2	
3 100 <i>Candida famata</i> / <i>Candida glabrata</i> /		7 420 <i>Candida lusitaniae</i> / <i>Candida guilliermondii</i>	(6)
<i>Geotrichum</i> spp	(3)	7 441 <i>C. neoformans</i> 1 / <i>C. neoformans</i> 2	
3 241 <i>C. neoformans</i> 1 / <i>C. neoformans</i> 2		7 453 <i>Trichosporon</i> spp 1	
3 251 <i>Cryptococcus neoformans</i> 1		7 457 <i>Trichosporon</i> spp 1	
3 402 <i>Trichosporon</i> spp 2		7 500 <i>Candida lusitaniae</i> / <i>Candida tropicalis</i> /	
3 403 <i>Trichosporon</i> spp 2		<i>Candida famata</i>	(6)
3 407 <i>Trichosporon</i> spp 2		7 510 <i>Candida tropicalis</i>	
3 412 <i>Trichosporon</i> spp 2		7 512 <i>Candida albicans</i>	
3 413 <i>Trichosporon</i> spp 2		7 513 <i>Trichosporon</i> spp 1	
3 416 <i>Trichosporon</i> spp 2		7 520 <i>Candida lusitaniae</i>	
3 417 <i>Trichosporon</i> spp 2		7 530 <i>Candida tropicalis</i>	
3 443 <i>Trichosporon</i> spp 2 / <i>C. neoformans</i> 2	(1)	7 553 <i>Trichosporon</i> spp 1	
3 453 <i>Trichosporon</i> spp 2		7 557 <i>Trichosporon</i> spp 1	
3 641 <i>Cryptococcus neoformans</i> 1		7 600 <i>Candida guilliermondii</i> **	(6)
3 651 <i>Cryptococcus neoformans</i> 1		7 603 <i>Trichosporon</i> spp 1 / <i>C. neoformans</i> 1	(1)
3 653 <i>Trichosporon</i> spp 1 / <i>C. neoformans</i> 1 /		7 611 <i>Trichosporon</i> spp 1 / <i>C. neoformans</i> 1	(1)
<i>Trichosporon</i> spp 2	(1)	7 613 <i>Trichosporon</i> spp 1	
5 000 <i>Candida famata</i> / <i>Candida parapsilosis</i>	(3)	7 617 <i>Trichosporon</i> spp 1	
5 100 <i>Candida famata</i>		7 620 <i>Candida guilliermondii</i> **	(6)
5 104 <i>Candida famata</i>		7 641 <i>Cryptococcus neoformans</i> 1	
5 200 <i>Saccharomyces cerevisiae</i>		7 643 <i>C. neoformans</i> 1 / <i>Trichosporon</i> spp 1	(1)
5 241 <i>Cryptococcus neoformans</i> 1		7 647 <i>Trichosporon</i> spp 1	
5 243 <i>Cryptococcus neoformans</i> 1		7 651 <i>C. neoformans</i> 1 / <i>Trichosporon</i> spp 1	(1)
5 251 <i>Cryptococcus neoformans</i> 1		7 652 <i>Trichosporon</i> spp 1	
5 253 <i>C. neoformans</i> 1 / <i>Trichosporon</i> spp 1	(1)	7 653 <i>Trichosporon</i> spp 1 / <i>C. neoformans</i> 1	(1)
5 300 <i>Saccharomyces cerevisiae</i> / <i>Candida famata</i>	(4)	7 657 <i>Trichosporon</i> spp 1	
5 641 <i>Cryptococcus neoformans</i> 1		7 671 <i>C. neoformans</i> 1 / <i>Trichosporon</i> spp 1	(1)
5 651 <i>Cryptococcus neoformans</i> 1		7 700 <i>Candida guilliermondii</i> **	(6)
5 653 <i>Trichosporon</i> spp 1 / <i>C. neoformans</i> 1	(1)	7 713 <i>Trichosporon</i> spp 1	
6 653 <i>Trichosporon</i> spp 1		7 717 <i>Trichosporon</i> spp 1	
7 000 <i>Candida parapsilosis</i>		7 720 <i>Candida guilliermondii</i> **	(6)
7 001 <i>Cryptococcus neoformans</i> 2		7 741 <i>Cryptococcus neoformans</i> 1	
7 002 <i>Candida albicans</i>		7 751 <i>C. neoformans</i> 1 / <i>Trichosporon</i> spp 1	(1)
7 003 <i>Cryptococcus neoformans</i> 2		7 753 <i>Trichosporon</i> spp 1	
7 012 <i>Candida albicans</i>		7 757 <i>Trichosporon</i> spp 1	
7 041 <i>C. neoformans</i> 2 / <i>C. neoformans</i> 1			

* *Candida inconspicua* / *Candida norvegensis* possible / möglich / posible / possibile / possível / πιθανόν / möglich / mulig / możliwość

** *Candida famata* possible / möglich / posible / possibile / possível / πιθανόν / möglich / mulig / możliwość

- (1) cf Table 1 / siehe Tabelle 1 / cf Tabla 1 / cf Tabella 1 / cfr. Quadro 1 / cf Πίνακας 1 / se Tabell 1 / Se Tabel 1 / patrz Tabla 1
 (2) cf Table 2 / siehe Tabelle 2 / cf Tabla 2 / cf Tabella 2 / cfr. Quadro 2 / cf Πίνακας 2 / se Tabell 2 / Se Tabel 2 / patrz Tabla 2
 (3) cf Table 3 / siehe Tabelle 3 / cf Tabla 3 / cf Tabella 3 / cfr. Quadro 3 / cf Πίνακας 3 / se Tabell 3 / Se Tabel 3 / patrz Tabla 3
 (4) cf Table 4 / siehe Tabelle 4 / cf Tabla 4 / cf Tabella 4 / cfr. Quadro 4 / cf Πίνακας 4 / se Tabell 4 / Se Tabel 4 / patrz Tabla 4
 (5) cf Table 5 / siehe Tabelle 5 / cf Tabla 5 / cf Tabella 5 / cfr. Quadro 5 / cf Πίνακας 5 / se Tabell 5 / Se Tabel 5 / patrz Tabla 5
 (6) cf Table 6 / siehe Tabelle 6 / cf Tabla 6 / cf Tabella 6 / cfr. Quadro 6 / cf Πίνακας 6 / se Tabell 6 / Se Tabel 6 / patrz Tabla 6

TABLES / TABELLEN / TABLAS / TABELLE / TABELAS / ΠΙΝΑΚΕΣ / TABELLER / TABELLE

TABLE / TABELLE / TABLA / TABELLA / TABELA / ΠΙΝΑΚΑΣ / TABELL / TABEL 1

	HYPH / PH	ART
<i>Trichosporon</i> spp	+	+
<i>Cryptococcus neoformans</i>	-	-

TABLE / TABELLE / TABLA / TABELLA / TABELA / ΠΙΝΑΚΑΣ / TABELL / TABEL 2

	ART	NAGas	SORBITOLas	HYPH / PH	37°C
<i>Geotrichum candidum</i>	+	-	+	+	-
<i>Geotrichum capitatum</i>	+	-	-	+	+
<i>Candida parapsilosis</i>	-	+	+	+	+
<i>Candida inconspicua</i>	-	-	-	-	+
<i>Candida norvegensis</i>	-	-	-	+	+
<i>Candida krusei</i>	-	+	-	+	+

TABLE / TABELLE / TABLA / TABELLA / TABELA / ΠΙΝΑΚΑΣ / TABELL / TABEL 3

	HYPH / PH	SORBITOLas	ART
<i>Candida famata</i>	-	+	-
<i>Candida glabrata</i>	-	-	-
<i>Geotrichum candidum</i>	+	+	+
<i>Geotrichum capitatum</i>	+	-	+
<i>Candida parapsilosis</i>	+	+	-

TABLE / TABELLE / TABLA / TABELLA / TABELA / ΠΙΝΑΚΑΣ / TABELL / TABEL 4

	NAGas	SORBITOLas	MLZas	SORBOSEas
<i>Saccharomyces cerevisiae</i>	-	-	- (+)	-
<i>Candida famata</i>	+	+	+	+ (-)

TABLE / TABELLE / TABLA / TABELLA / TABELA / ΠΙΝΑΚΑΣ / TABELL / TABEL 5

	CHL	MLZas
<i>Candida tropicalis</i>	-	+
<i>Candida albicans</i>	+	-

TABLE / TABELLE / TABLA / TABELLA / TABELA / ΠΙΝΑΚΑΣ / TABELL / TABEL 6

	RAFas	HYPH / PH	SORBOSEas
<i>Candida lusitanae</i>	-	+	+
<i>Candida famata</i>	+	-	+ (-)
<i>Candida guilliermondii</i>	+	∇	+ (-)
<i>Candida tropicalis</i>	-	+	-

LEGENDE / KEY / LEGENDE / LEYENDA / LEGENDA / ΕΠΕΞΗΓΗΣΗ / NYCKEL / FORKLARING

	% de réactions positives / % of positive reactions / positive Reaktionen % / % de reacciones positivas / % di reazioni positive / % de reacções positivas / % θετικών αντιδράσεων / % av positiva reaktioner / % af positive reaktioner / % reakcji pozytywnych
+	> 90 %
+ (-)	70 - 90 %
∇	31 - 69 %
- (+)	10 - 30 %
-	< 10 %

Les résultats de ces tests complémentaires sont issus de la littérature ou de la base de données ID 32 C /

The results of these complementary tests are taken from literature or the ID 32 C database /

Die Ergebnisse dieser Zusatztests sind der Literatur oder der Datenbasis ID 32 C entnommen /

Los resultados de estos tests complementarios están extraídos de la literatura o de la base de datos ID 32 C /

I risultati di questi tests complementari sono ottenuti dalla letteratura o dalla base dei dati ID 32 C /

Os resultados destes testes complementares foram extraídos da literatura ou da base de dados ID 32 C /

Τα αποτελέσματα από αυτές τις συμπληρωματικές εξετάσεις λαμβάνονται από την αρθρογραφία ή τη βάση δεδομένων ID 32 C /

Resultaten av dessa kompletterande tester har hämtats från litteraturen eller från databasen ID 32 C /

Resultaterne af disse supplerende tests er taget fra litteraturen eller ID 32 C databasen /

Wyniki tych testów uzupełniających zostały zaczerpnięte z piśmiennictwa oraz bazy danych dla ID 32 C.

HYPH / PH	Production de Pseudohyphae/hyphae sur gélose RAT / Production of Pseudohyphae/hyphae on RAT medium / Bildung von Pseudohyphen/Hyphen auf RAT Medium / Producción de Pseudohifas/hifas sobre medio RAT / Produzione di Pseudoife/ife su agar RAT / Produção de Pseudohifas em meio de RAT / Παραγωγή Ψευδοϋφών/υφών σε υλικό RAT / Bildning av pseudohyfer/hyfer på RAT medium / Produktion af Pseudohyphae/hyphae på RAT-medium / Wytwarzanie pseudostrzępek / strzępek na podłożu RAT	① ②
CHL	Production de Chlamydospores sur gélose RAT / Production of Chlamydospores on RAT medium / Bildung von Chlamydosporen auf RAT Medium / Producción de Clamidosporas en medio RAT / Produzione di Clamidospore su agar RAT / Produção de Clamidosporos em meio de RAT / Παραγωγή Χλαμυδοσπορίων σε υλικό RAT / Bildning av klamydosporer på RAT medium / Produktion af Chlamydosporer på RAT-medium / Wytwarzanie chlamydospor na podłożu RAT	① ②
ART	Production d'Arthrospores sur gélose RAT / Production of Arthrospores on RAT medium / Bildung von Arthrosporen auf RAT Medium / Producción de Artrosporas en medio RAT / Produzione di Artrospore su agar RAT / Produção de Artrosporos em meio de RAT / Παραγωγή Αρθροσπορίων σε υλικό RAT / Bildning av artrosporer på RAT medium / Produktion af Arthrosporer på RAT-medium / Wytwarzanie artrospor na podłożu RAT	① ②
37°C	Croissance à 37°C sur gélose Sabouraud / Growth at 37°C on Sabouraud agar / Wachstum bei 37°C auf Sabouraud-Agar / Crecimiento a 37°C en agar Sabouraud / Crescita a 37°C su agar Sabouraud / Crescimento a 37°C em gelose Sabouraud / Ανάπτυξη στους 37°C σε άγαρ Sabouraud / Tillväxt vid 37°C på Sabouraudagar / Dyrkning ved 37°C på Sabouraud-agar / Wzrost na agarze Sabouraud w 37°C	①
NAGas	N-Acetyl-Glucosamine Assimilation / N-Acetyl-Glucosamine Assimilation / N-Acetyl-Glucosamin Assimilation / N-Acetyl-Glucosamina Asimilación / N-Acetyl-Glucosamina Assimilazione / N-Acetyl-Glucosamina Assimilação / Αφομοίωση Ν-Ακετυλο-Γλυκοζαμίνης / N-Acetyl-glucosamin assimilation / N-Acetyl-Glucosamin-Assimilation / Asymilacja N-acetylo-glukozaminy	③
RAFas	Raffinose Assimilation / Rafinosa Asimilación / Raffinosio Assimilazione / Rafinose Assimilação / Αφομοίωση Ραφφινόζης / Raffinosassimilation / Rafinose-Assimilation / Asymilacja rafinozy	③
SORBITOLas	Sorbitol Assimilation / Sorbit Assimilation / Sorbitol Asimilación / Sorbitolo Assimilazione / Sorbitol Assimilação / Αφομοίωση Σορβιτόλης / Sorbitolassimilation / Sorbitol-Assimilation / Asymilacja sorbitolu	③
MLZas	Mélezitose Assimilation / Melezitose Assimilation / Melezitosa Asimilación / Melezitosio Assimilazione / Melezitose Assimilação / Αφομοίωση Μελεζίτοζης / Melezitosassimilation / Melezitose-Assimilation / Asymilacja melezytozy	③
SORBOSEas	Sorbose Assimilation / Sorbosa Asimilación / Sorbosio Assimilazione / Sorbose Assimilação / Αφομοίωση Σορβόζης / Sorbosassimilation / Sorbose-Assimilation / Asymilacja sorbozy	③

① KREGER VAN RIJ N.J.W. The Yeasts : A Taxonomic Study. (1984) Elsevier, Amsterdam.

② BARNETT J.A., PAYNE R.W., YARROW D. Yeasts : Characteristics and Identification. (1990) Cambridge University Press, London.

③ Base de données ID 32 C / ID 32 C database / Datenbasis ID 32 C / Base de datos ID 32 C / Base dei dati ID 32 C /
Base de dados ID 32 C / Βάση δεδομένων ID 32 C / Datenbasen ID 32 C / Database ID 32 C / Baza danych dla ID 32 C.

**TABLEAU D'IDENTIFICATION / IDENTIFICATION TABLE / PROZENTTABELLE /
TABLA DE IDENTIFICACION / TABELLA DI IDENTIFICAZIONE / QUADRO DE IDENTIFICAÇÃO /
ΠΙΝΑΚΑΣ ΤΑΥΤΟΠΟΙΗΣΗΣ / IDENTIFIERINGSTABELL / IDENTIFIKATIONSTABEL /
TABELA IDENTYFIKACYJNA**

% de réactions positives après 18-24 h à 36°C ± 2°C / % of positive reactions after 18-24 hrs. at 36°C ± 2°C /

% der positiven Reaktionen nach 18-24 h bei 36°C ± 2°C /

% de las reacciones positivas después de 18-24 H a 36°C ± 2°C / % di reazioni positive dopo 18-24 ore a 36°C ± 2°C /

% de reacções positivas após 18-24 h a 36° C ± 2° C / % θετικών αντιδράσεων

μετά από 18-24 ώρες στους 36°C ± 2°C / % positiva reaktioner efter 18-24 timmar vid 36°C ± 2°C /

% af positive reaktioner efter 18-24 timer ved 36°C ± 2°C / % pozytywnych reakcji po 18-24 godzinach w 36°C ± 2°C

API CANDIDA V2.1	GLU	GAL	SAC	TRE	RAF	βMAL	αAMY	βXYL	βGUR	URE	βNAG	βGAL
<i>Candida albicans</i>	100	100	100	90	3	3	90	0	0	0	99	0
<i>Candida famata</i>	100	70	96	93	1	1	0	1	0	0	0	5
<i>Candida glabrata</i>	100	1	0	100	1	0	0	0	0	0	0	0
<i>Candida guilliermondii</i> **	100	100	100	35	99	93	0	99	0	0	0	0
<i>Candida kefyr</i>	100	100	100	3	100	0	0	88	0	0	0	100
<i>Candida krusei</i> *	100	5	0	0	0	0	1	0	0	0	0	0
<i>Candida lusitanae</i>	100	100	100	98	0	99	0	99	0	0	0	0
<i>Candida parapsilosis</i>	100	99	90	0	0	0	0	0	0	0	0	0
<i>Candida tropicalis</i>	100	100	100	100	0	94	99	1	0	0	1	0
<i>Cryptococcus neoformans</i> 1	100	82	96	9	97	50	35	1	99	100	10	0
<i>Cryptococcus neoformans</i> 2	100	99	47	1	1	1	5	1	98	100	52	0
<i>Geotrichum</i> spp ***	100	100	1	1	1	0	0	1	0	0	0	0
<i>Saccharomyces cerevisiae</i>	100	96	100	66	98	0	1	0	0	0	0	0
<i>Trichosporon</i> spp 1	99	99	99	15	80	99	95	1	70	99	99	30
<i>Trichosporon</i> spp 2	85	50	1	1	1	99	75	1	9	80	99	20

* *Candida inconspicua* / *Candida norvegensis* possible / möglich / posible / possibile / possível / πιθανόν / möglich / mulig / możliwość

** *Candida famata* possible / möglich / posible / possibile / possível / πιθανόν / möglich / mulig / możliwość

*** *Geotrichum candidum* / *Geotrichum capitatum*

A noter les morphologies caractéristiques suivantes /
 The following morphological characteristics should be noted /
 Notieren Sie folgende morphologische Charakteristika /
 Anotar las morfologías características siguientes /
 Prendere nota delle seguenti caratteristiche morfologiche /
 Tomar nota das seguintes morfologias características /
 Τα παρακάτω μορφολογικά χαρακτηριστικά θα πρέπει να σημειωθούν /
 Lägga märke till följande morfologiska kännetecken /
 Bemærk følgende morfologiske karakteristika /
 Należy odnotować następujące cechy morfologiczne
 (Larone, 1995, Warren, 1995) :









<i>Candida albicans</i>	<ul style="list-style-type: none"> • Chlamydospores / Chlamydosporen / Clamidosporas / Clamidospore / Clamidosporos / Χλαμυδοσπόρια / Klamydosporer / Chlamydosporer / Chlamydospory
<i>Candida guilliermondii</i>	<ul style="list-style-type: none"> • Petites colonies plates, blanches ou de couleur crème qui peuvent devenir roses en vieillissant / Small, flat, white or cream-colored colonies, which may turn pink with age / Kleine flache Kolonien, weiß oder cremefarben, ältere Kulturen zeigen ein rosa Pigment / Pequeñas colonias planas, blancas o de color crema que pueden volverse rosas cuando envejecen / Piccole colonie piatte, di color bianco o crema, che possono diventare rosa invecchiando / Pequenas colónias achatadas, brancas ou cremes que podem virar a rosa com o passar do tempo / Μικρές, επίπεδες, λευκού ή κρεμ χρώματος αποικίες, οι οποίες μπορεί να γίνουν ρόδινες με τον καιρό / Små flata, vita eller krämfärgade kolonier, äldre kulturer kan vara rosa / Små, flade, hvide eller cremefarvede kolonier, der kan blive lyserøde med alderen / Małe, płaskie, białe lub kremowe kolonie, które mogą wraz z wiekiem stawać się różowe
<i>Cryptococcus neoformans</i>	<ul style="list-style-type: none"> • Présence de capsules (test à l'encre de Chine) / Presence of capsules (India ink test) / Anwesenheit von Kapseln (Tuschetest) / Presencia de capsulas (test de tinta china) / Presenza di capsule (test all'inchostro di China) / Presença de cápsulas (teste com tinta da china) / Παρουσία καψουλών (εξέταση India ink) / Närvaro av kapslar (Tuschfärgning) / Tilstedeværelse af kapsler (Tuschtest) / Obecność otoczki (Test z tuszem indyjskim) • Colonies blanches à ocre, souvent muqueuses / White to ochre colonies, often mucoid / Weiße, ockerfarbene Kolonien, oft schleimig / Colonias de blancas a ocre, frecuentemente mucosas / Colonie di color dal bianco all'ocra, spesso mucose / Colónias brancas a ocre, frequentemente mucosas / Λευκές έως ωχρές αποικίες, συχνά βλεννώδεις / Vita till ockrafärgade kolonier, ofta slemmiga / Hvide til okkerfarvede kolonier, ofte mucoid / Kolonie w kolorze białym do ochry, często śluzowe
<i>Geotrichum spp</i>	<ul style="list-style-type: none"> • Mycélium vrai + arthrospores / True mycelium + arthrospores / Echtes Mycel + Arthrosporen / Micelio + artrosporas / Vero micelio + artrospore / Micélio verdadeiro + artrosporos / Αμιγές μυκήλιο + αρθροσπόρια / Ākta mycel + artrosporer / Ægte mycelium + artrosporer / Prawdziwa grzybnia + artrospory • Colonies blanches, généralement "cotonneuses" ou "duveteuses" (mycélium aérien) / White colonies, generally "downy" or "fluffy" (aerial mycelium) / Weiße Kolonien, im Allgemeinen "wollig" oder "flaumig" (Luftmycel) / Colonias blancas, generalmente algodonosas o esponjosas (micelio aereo) / Colonie blanche, généralement "cotonose" o "lanuginose" (micelio aereo) / Colónias brancas, geralmente algodonadas ou esponjosas (micelio aéreo) / Λευκές αποικίες, γενικά "απαλές" ή "χνουδωτές" (αέριο μυκήλιο) / Vita kolonier, vanligen "luddiga" eller "fluffiga" (luftmycel) / Hvide kolonier, generelt "uldne" eller "dunede" / Białe kolonie, zazwyczaj puszyste lub "pokryte meszkiem" (grzybnia powietrzna)
<i>Trichosporon spp</i>	<ul style="list-style-type: none"> • Mycélium vrai + pseudomycélium + arthrospores + blastospores / True mycelium + pseudomycelium + arthrospores + blastospores / Echtes Mycel + Pseudomycel + Arthrosporen + Blastosporen / Micelio + pseudomicelio + artrosporas + blastosporas / Vero micelio + pseudomicelio + artrospore + blastospore / Micélio verdadeiro + pseudomicélio + artrosporos + blastosporos / Αμιγές μυκήλιο + ψευδομυκήλιο + αρθροσπόρια + βλαστοσπόρια / Ākta mycel + pseudomycel + artrosporer + blastosporer / Ægte mycelium + pseudomycelium + artrosporer + blastosporer / Prawdziwa grzybnia + pseudogrzybnia + artrospory + blastosporory • Colonies parfois ridées et adhérentes à la gélose / Colonies occasionally wrinkled in texture which adhere to the agar / Kolonien, manchmal gefaltet und am Agar haftend / Colonias rugosas y adherentes al agar / Colonie talvolta rugose ed aderenti all'agar / Colónias por vezes rugosas ou aderentes à gelose / Αποικίες περιστασιακά ζαρωμένες στην υφή οι οποίες προσκολλώνται στο άγαρ / Kolonier, ibland med skrynklig yta som fäster vid agarn / Kolonier, sommetider rynkede og klæbende til agaren / Kolonie czasami o strukturze pomarszczonej, przylegające do agaru
<i>Rhodotorula spp</i> *	<ul style="list-style-type: none"> • Colonies roses à rouges, souvent muqueuses / Pink to red colonies, often mucoid / Rosafarbene oder rote Kolonien, oft schleimig / Colonias de rosas a rojas, frecuentemente mucosas / Colonie dal rosa al rosso, spesso mucose / Colónias rosa a vermelho, frequentemente mucosas / Ρόδινες έως ερυθρές αποικίες, συχνά βλεννώδεις / Rosa till röda kolonier, ofta slemmiga / Lyserøde til røde kolonier, ofte mucoid / Różowe do czerwonych kolonie, często śluzowe

* absent de la base de données / not included in the database / nicht in der Datenbasis enthalten / no incluido en la base de datos / non incluso nella base dei dati / não incluído na base de dados / δεν συμπεριλαμβάνονται στη βάση δεδομένων / Finns inte i databasen / ikke inkluderet i databasen / nie włączony do bazy danych.

**BIBLIOGRAPHIE / LITERATURE REFERENCES / LITERATUR / BIBLIOGRAFIA /
ΑΝΑΦΟΡΕΣ ΑΡΘΡΟΓΡΑΦΙΩΝ / REFERENSLITTERATUR / LITTERATURHENVISNINGER /
PIŚMIENICTWO**

1. BARNETT J.A., PAYNE R.W., YARROW D.
Yeasts : Characteristics and Identification.
(1990) Cambridge University Press, London.
2. BERNAL S., MARTIN MAZUELOS E., CHAVEZ M.,
CORONILLA J., VALVERDE A.
Evaluation of the new API Candida system for identification
of the most clinically important yeast species.
(1998) Diagn. Microbiol. Infect. Dis., 32, 3, 217-221.
3. DURUSSEL C., BILLE J.
API Candida, a New Simplified 12 Tests Rapid Identification
System for Yeasts.
(1996) 96th ASM General Meeting, New Orleans, Louisiana,
F-78.
4. FRICKER-HIDALGO H., VANDAPEL O., DUCHESNE M.A.,
MAZOYER M.A., MONGET D., LARDY B., LEBEAU B.,
FRENEY J., AMBROISE-THOMAS P., GRILLOT R.
Comparison of the New API Candida System to the ID 32C
System for the Identification of Clinically Important Yeast
Species.
(1996) J. Clin. Microbiol., 34, 1846-1848.
5. KREGER VAN RIJ N.J.W.
The Yeasts : A Taxonomic Study.
(1984) Elsevier, Amsterdam.
6. LARONE D.H.
Medically Important Fungi. A Guide to Identification.
Third Edition.
(1995) A.S.M., Washington, D.C.
7. MCGINNIS M.R. and al.
Taxonomic and Nomenclatural Evaluation of the genera
Candida and *Torulopsis*.
(1984) J. Clin. Microbiol., 20, 813-814.
8. MONGET D., DUCHESNE M.A., CANIAUX I.
api Candida, A New Identification System for Yeasts.
(1995) 7th E.C.C.M.I.D., Vienna, 26-30 March 1995.
9. HOWELL S.A., HAZEN K.C.
Candida, *Cryptococcus*, and Other Yeasts of Medical
Importance in Manual of Clinical Microbiology.
10th Edition.
(2011) A.S.M., Washington, D.C., 95, 1793-1821.

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SYMBOLFORTEGNELSE / TABELA SYMBOLI**

Symbole / Symbol Símbolo / Simbolo Σύμβολο	Signification / Meaning / Bedeutung Significado / Significato / Επεξήγηση Betydelse / Betydning / Znaczenie
	Référence du catalogue Catalogue number (GB) / Catalog number (US) Bestellnummer / Número de catálogo / Numero di catalogo Referência de catálogo / Αριθμός καταλόγου Katalognummer / Katalognummer / Numer katalogowy
	Dispositif médical de diagnostic in vitro In Vitro Diagnostic Medical Device / In Vitro Diagnostikum Producto sanitario para diagnóstico in vitro Dispositivo medico-diagnostico in vitro Dispositivo médico para diagnóstico in vitro In Vitro Διαγνωστικό Ιατροτεχνολογικό προϊόν Medicintekniska produkter för in vitro diagnostik Medicinsk udstyr til in vitro-diagnostik Wyrób do diagnostyki In Vitro
	Fabricant / Manufacturer / Hersteller / Fabricante Fabbicante / Κατασκευαστής / Tillverkare / Producent
	Limites de température / Temperature limitation Temperaturbegrenzung / Limite de temperatura Limiti di temperatura / Limites de temperatura Περιορισμοί θερμοκρασίας / Temperaturbegränsning Temperaturbegrænsning / Przestrzegać zakresu temperatury
	Utiliser jusque / Use by / Verwendbar bis Fecha de caducidad / Utilizzare entro / Prazo de validade Ημερομηνία λήξης / Använd före / Holdbar til / Użyć przed
	Code du lot / Batch code / Chargenbezeichnung Código de lote / Codice del lotto / Código do lote Αριθμός Παρτίδας / Lot nummer / Lotnummer / Kod partii
	Consulter les instructions d'utilisation Consult Instructions for Use / Gebrauchsanweisung beachten Consulte las instrucciones de uso Consultare le istruzioni per l'uso Consulte as instruções de utilização Συμβουλευτείτε τις οδηγίες χρήσης Se handhavandebeskrivningen / Se brugsanvisning Sprawdź w instrukcji obsługi
	Contenu suffisant pour "n" tests Contains sufficient for <n> tests Inhalt ausreichend für <n> Prüfungen Contenido suficiente para <n> ensayos Contenuto sufficiente per "n" saggi Conteúdo suficiente para "n" ensaios Περιεχόμενο επαρκές για «n» εξετάσεις Räcker till "n" antal tester Indeholder tilstrækkeligt til "n" test Wystarczy na wykonanie <n> testów