

External Quality Assessment Scheme

Gram stain, blood culture Round 1, 2023

Specimens

The samples S001 and S002 are taken from blood culture bottles and air-fixed on slides.

Caution

The slides are unfixed and unstained and should therefore be handled as infectious materials. Fixing kills the microbes.

Examinations

Gram stain, blood culture

Background information

Sample S001 (without carbon)

An 82-year-old man. Fever. Peritonitis?

Sample S002 (without carbon)

A 73-year-old woman. Fever. Cholangitis?

Storage and use

The slides are unfixed and unstained. After arrival, the slides should be stored at +2...8 °C. The slides should be fixed, stained and examined by microscope. The microbes of the specimens are common in clinical specimens, even though they do not grow on all kinds of media.

Result reporting

Please enter the results and methods via LabScala (www.labscala.com). Gram staining and Finding parts will be scored. In case of yeast only Finding part will be scored.

S001



S002



2023-01-24

INSTRUCTIONS

Product no. 5041
LQ760623011-012/FI
UN3373

Subcontracting: Sample preparation, sample pretesting

If the kit is incomplete or contains damaged specimens, please report immediately to info@labquality.fi.

The results should be reported no later than **February 21, 2023.**

The expected results of the round are published in LabScala in the View Reports section by February 23, 2023.

Inquiries

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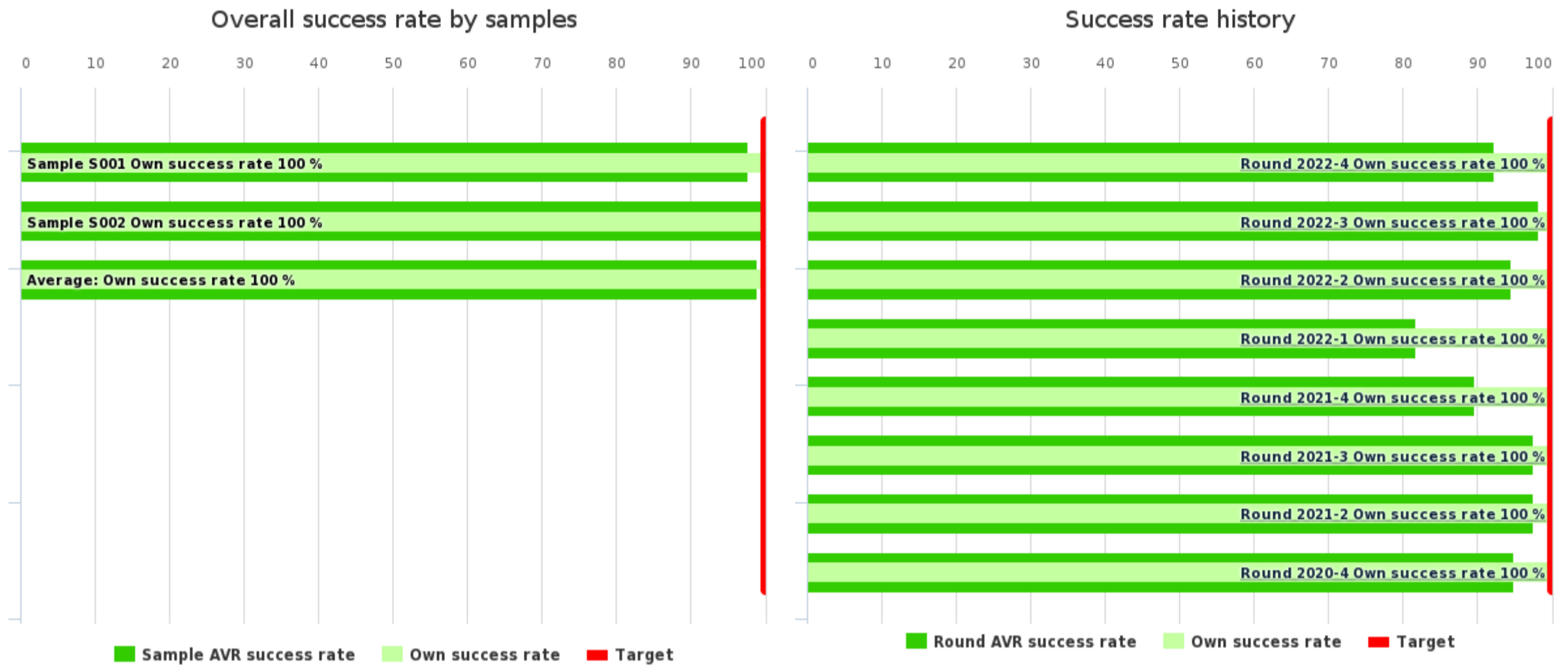
info@labquality.fi
www.labquality.com



Client report

	No of participants	No of responded participants	Response percentage
Gram stain, blood culture, January, 1-2023	108	102	94.4 %

Summary

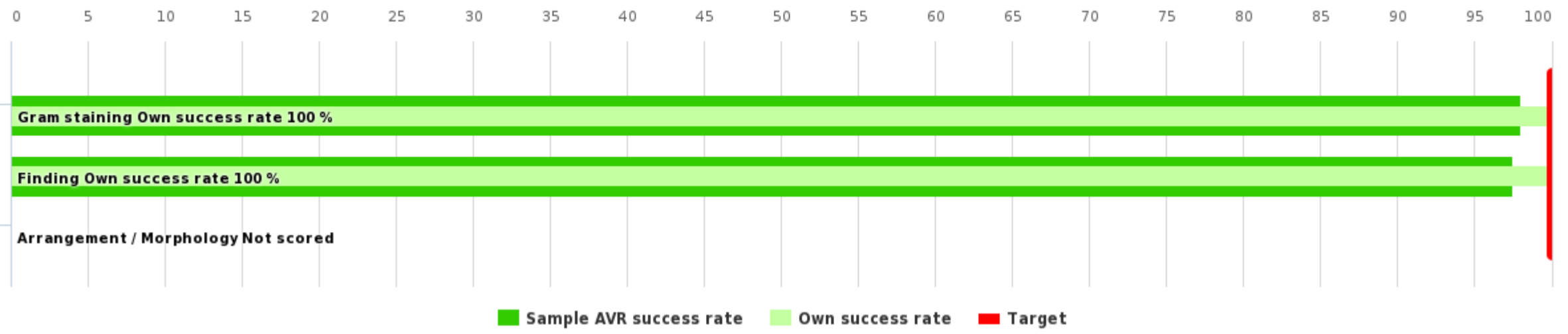


Summary	Own score	Max score	Own success rate	Difference	AVR success rate
Sample S001	6	6	100 %	2.3 %	97.7 %
Sample S002	4	4	100 %	0 %	100 %
Average:			100 %	1.1 %	98.9 %

History	Test nr.	Own success rate	Difference	AVR success rate
Round 2022-4	1	100 %	7.8 %	92.2 %
Round 2022-3	1	100 %	1.7 %	98.3 %
Round 2022-2	1	100 %	5.4 %	94.6 %
Round 2022-1	1	100 %	18.2 %	81.8 %
Round 2021-4	1	100 %	10.4 %	89.6 %
Round 2021-3	1	100 %	2.5 %	97.5 %
Round 2021-2	1	100 %	2.5 %	97.5 %
Round 2020-4	1	100 %	5.1 %	94.9 %

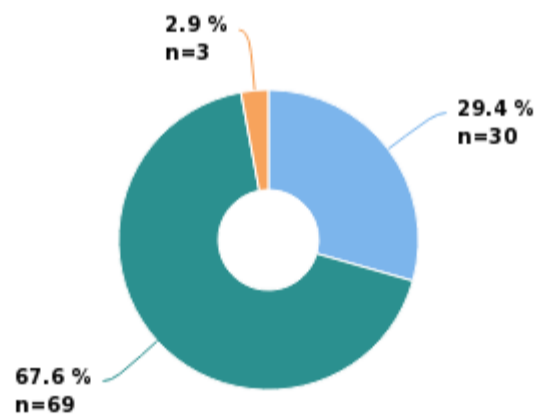
Sample S001 | Candida albicans, Staphylococcus aureus

Sample S001 success rate



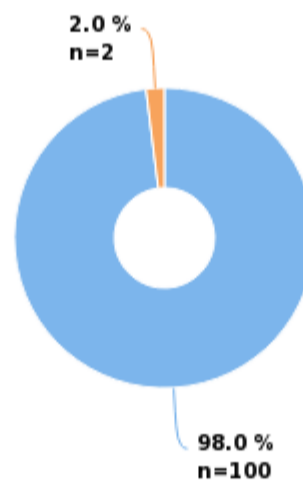
Sample S001 results	Responded	Own score	Max score	Own success rate	Difference	AVR success rate	Count
	Gram staining	2	2	100 %	2 %	98 %	204
	Finding	4	4	100 %	2.5 %	97.5 %	204
	Arrangement / Morphology	-	-	-	-	-	174
	Total:	6	6	100 %	2.3 %	97.7 %	582

Sample S001 Gram staining, Candida albicans



Grampositive Yeast: no staining result
No reported finding

Sample S001 Gram staining, Staphylococcus aureus



Grampositive No reported finding

Sample S001 Finding, Candida albicans



Yeast No reported finding

Sample S001 Finding, Staphylococcus aureus



Cocci No reported finding

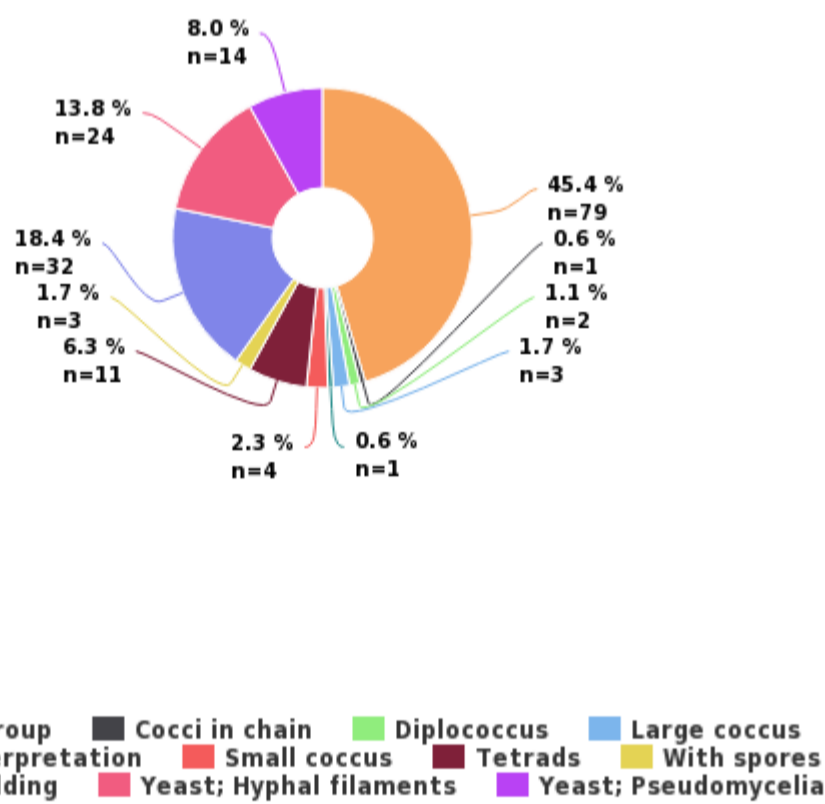
GRAM STAINING

Finding group	Result	Result count	Own score	Max score	Own success rate	Difference	AVR success rate	Result Score
Candida albicans		102	-	-			-	
	<input checked="" type="radio"/> Grampositive	30	-				-	-
	Yeast: no staining result	69	-				-	-
	No reported finding	3	-				-	-
Staphylococcus aureus		102	2	2	100 %	2 %	98 %	
	<input checked="" type="radio"/> Grampositive	100	2	2	100 %	0 %	100 %	2
	No reported finding	2	-				0 %	0
Total:		204	2	2	100 %	2 %	98 %	

FINDING

Finding group	Result	Result count	Own score	Max score	Own success rate	Difference	AVR success rate	Result Score
Candida albicans		102	2	2	100 %	2.9 %	97.1 %	
	<input checked="" type="radio"/> Yeast	99	2	2	100 %	0 %	100 %	2
	No reported finding	3	-				0 %	0
Staphylococcus aureus		102	2	2	100 %	2 %	98 %	
	<input checked="" type="radio"/> Cocci	100	2	2	100 %	0 %	100 %	2
	No reported finding	2	-				0 %	0
Total:		204	4	4	100 %	2.5 %	97.5 %	

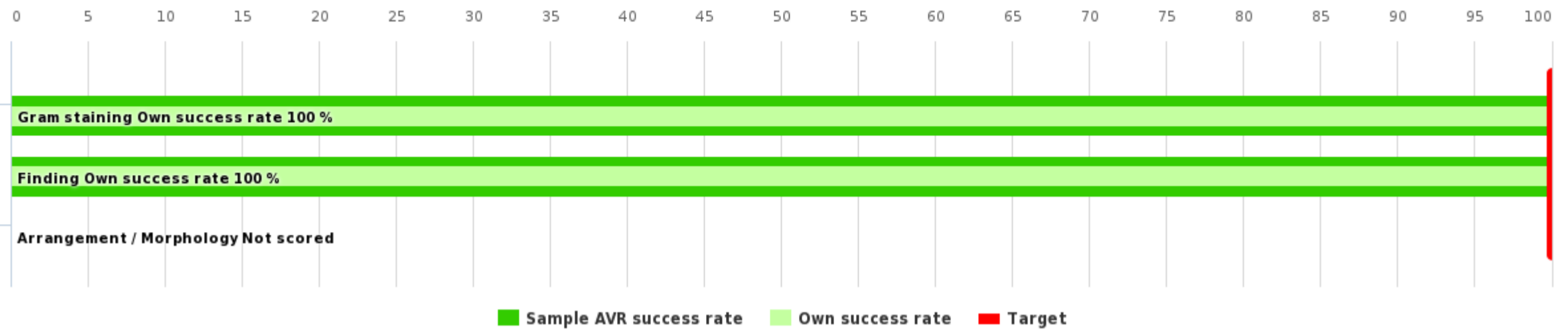
Sample S001 Arrangement / Morphology



Arrangement / Morphology	Result	Result count
	<input checked="" type="radio"/> Cocci by group	79
	Cocci in chain	1
	Diplococcus	2
	<input checked="" type="radio"/> Large coccus	3
	Other interpretation	1
	Small coccus	4
	Tetrads	11
	With spores	3
	<input checked="" type="radio"/> Yeast; Budding	32
	Yeast; Hyphal filaments	24
	Yeast; Pseudomycelia	14
Total:		174

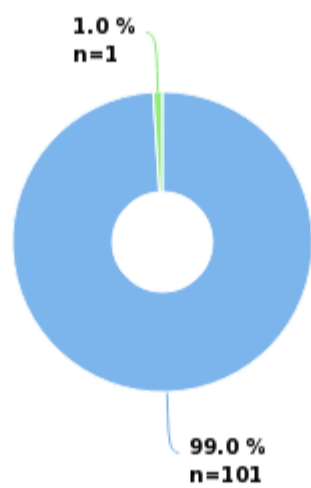
Sample S002 | Enterococcus faecalis

Sample S002 success rate



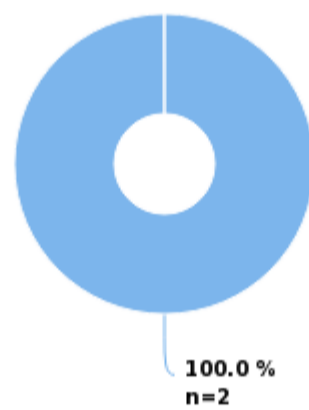
Sample S002 results	Responded	Own score	Max score	Own success rate	Difference	AVR success rate	Count
	Gram staining	2	2	100 %	0 %	100 %	104
	Finding	2	2	100 %	0 %	100 %	104
	Arrangement / Morphology	-	-	-	-	-	114
	Total:	4	4	100 %	0 %	100 %	322

Sample S002 Gram staining, Enterococcus faecalis



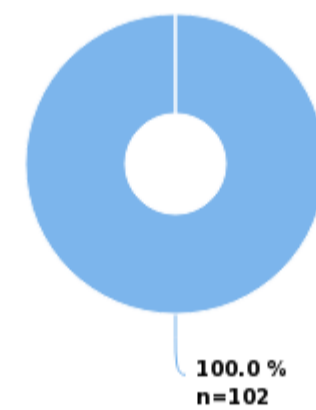
■ Grampositive ■ Grampositive (weak)

Sample S002 Gram staining, Additional finding



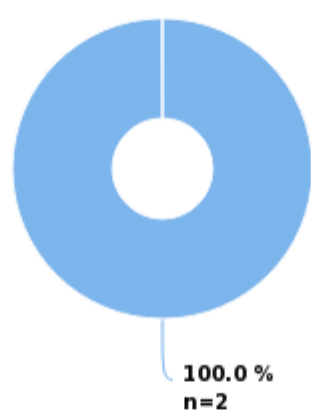
■ Grampositive

Sample S002 Finding, Enterococcus faecalis



■ Cocci

Sample S002 Finding, Additional finding



■ Cocci

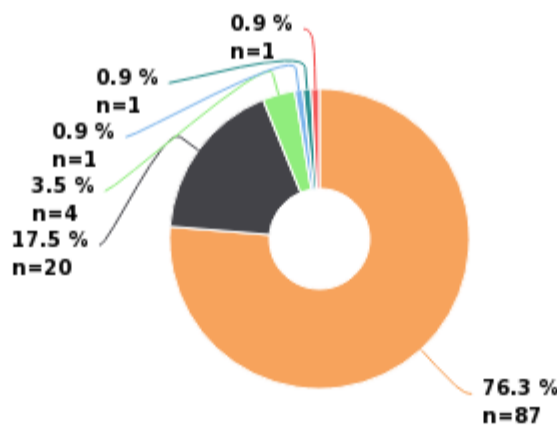
GRAM STAINING

Finding group	Result	Result count	Own score	Max score	Own success rate	Difference	AVR success rate	Result Score
Enterococcus faecalis		102	2	2	100 %	0 %	100 %	
	<input checked="" type="radio"/> Grampositive	101	2	2	100 %	0 %	100 %	2
	Grampositive (weak)	1	-	-			100 %	2
Additional finding		2	-	-			-	
	Grampositive	2	-	-			-	-
Total:		104	2	2	100 %	0 %	100 %	

FINDING

Finding group	Result	Result count	Own score	Max score	Own success rate	Difference	AVR success rate	Result Score
Enterococcus faecalis		102	2	2	100 %	0 %	100 %	
	<input checked="" type="radio"/> Cocci	102	2	2	100 %	0 %	100 %	2
Additional finding		2	-	-			-	
	Cocci	2	-	-			-	-
Total:		104	2	2	100 %	0 %	100 %	

Sample S002 Arrangement / Morphology



■ Cocci in chain
 ■ Diplococcus
 ■ Elongated coccus
 ■ Large coccus
■ Palisade
 ■ Small coccus

Arrangement / Morphology	Result	Result count
	<input checked="" type="radio"/> Cocci in chain	87
	Diplococcus	20
	Elongated coccus	4
	Large coccus	1
	Palisade	1
	Small coccus	1
	Total:	114

Report Info**PARTICIPANTS**

Altogether 108 laboratories from 11 countries participated in this EQA round.

REPORT INFO

On the front page you can see summaries of overall success rate and sample specific success rates which have been calculated from the scores. The reported results and the scores are presented in the same report but in separate tables.

In general, the expected results are marked with green color. Accepted results may also be indicated with yellow color. Laboratory's own results are indicated with a black radio . In the participant specific report there is also a laboratory specific scoring table for each sample, where you can find your own result and the scores given.

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For information on report interpretation and performance evaluation, please see the "EQAS Interpretation guidelines" in LabScala User instructions. In case you have any questions regarding the reports, please contact the EQA Coordinator.

SCORING

Results reported for the Gram staining and Finding parts are scored. In case of yeast only Finding part is scored. Scoring is implemented when at least 60% of the participants have reported the correct/expected result and when there are at least three reported results. Laboratory's scores have been converted to percentage (own success rate, % from maximum scores) with a target at 100%. Own success rate is compared with the success rate of all results.

The following general rules are applied:

2 points is given to results that are correct/accepted regarding the expected result

1 point can be given to results that are partly correct/insufficient regarding the expected result

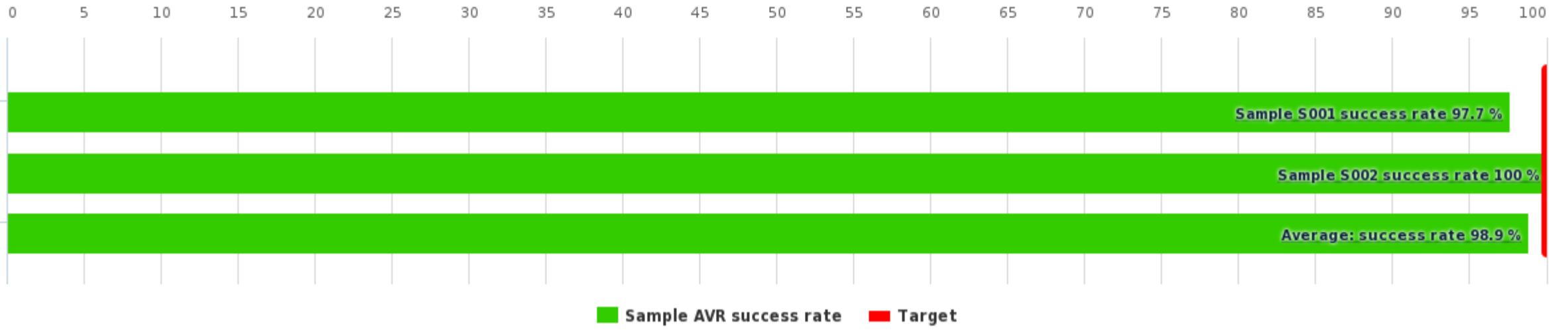
0 point is given to results that are incorrect/false regarding the expected result

GLOBAL REPORT

	No of participants	No of responded participants	Response percentage
Gram stain, blood culture, January, 1-2023	108	102	94.4 %

Summary

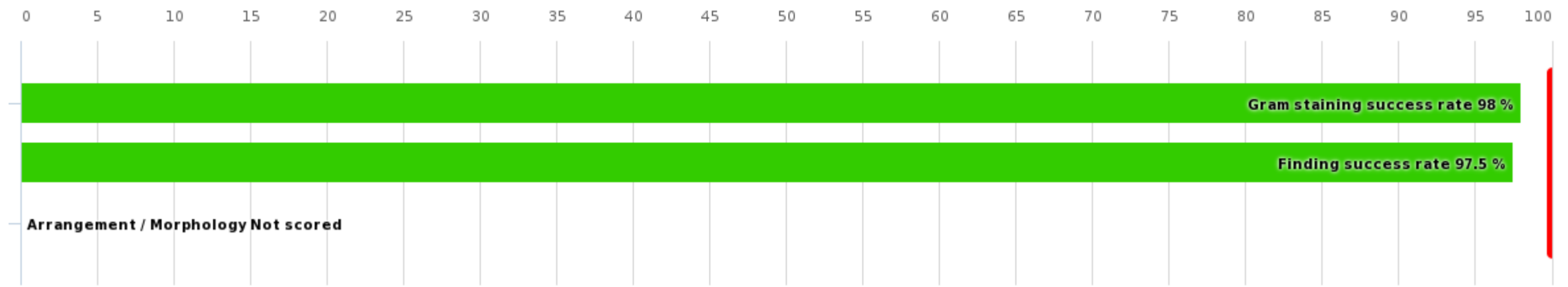
Overall success rate by samples



Summary	AVR success rate
Sample S001	97.7 %
Sample S002	100 %
Average:	98.9 %

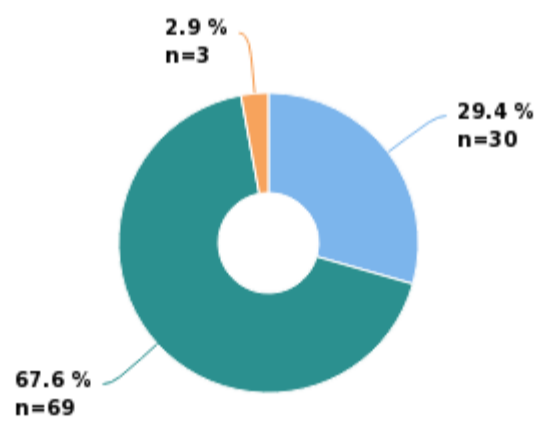
Sample S001 | Candida albicans, Staphylococcus aureus

Sample S001 success rate



Sample S001 results	Responded	AVR success rate	Count
	Gram staining	98 %	204
	Finding	97.5 %	204
	Arrangement / Morphology	-	174
	Total:	97.7 %	582

Sample S001 Gram staining, Candida albicans



■ Grampositive
■ Yeast: no staining result
■ No reported finding

Sample S001 Gram staining, Staphylococcus aureus



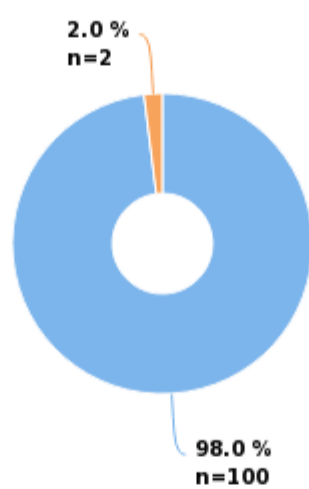
■ Grampositive
■ No reported finding

Sample S001 Finding, Candida albicans



■ Yeast
■ No reported finding

Sample S001 Finding, Staphylococcus aureus



■ Cocci
■ No reported finding

GRAM STAINING

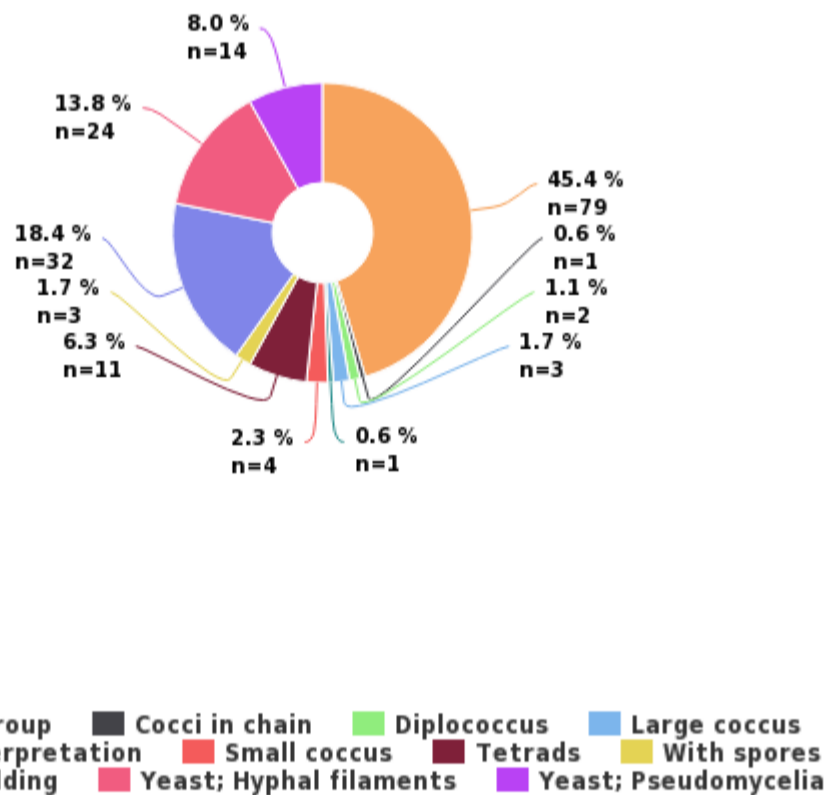
Finding group	Result	Result count	AVR success rate	Result Score
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Candida albicans		102	-	
	Grampositive	30	-	-
	Yeast: no staining result	69	-	-
	No reported finding	3	-	-
Staphylococcus aureus		102	98 %	
	Grampositive	100	100 %	2
	No reported finding	2	0 %	0
Total:		204	98 %	

FINDING

Finding group	Result	Result count	AVR success rate	Result Score
Candida albicans		102	97.1 %	
	Yeast	99	100 %	2
	No reported finding	3	0 %	0
Staphylococcus aureus		102	98 %	
	Cocci	100	100 %	2
	No reported finding	2	0 %	0
Total:		204	97.5 %	

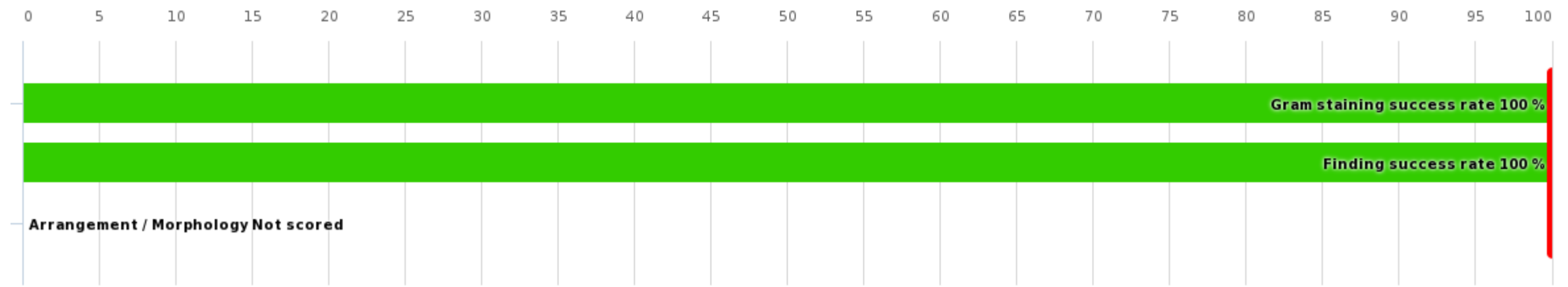
Sample S001 Arrangement / Morphology



Arrangement / Morphology	Result	Result count
	Cocci by group	79
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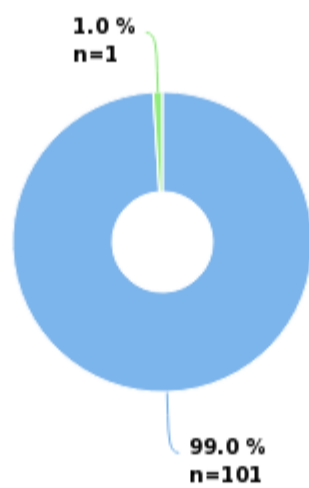
Sample S002 | Enterococcus faecalis

Sample S002 success rate



Sample S002 results	Responded	AVR success rate	Count
	Gram staining	100 %	104
	Finding	100 %	104
	Arrangement / Morphology	-	114
	Total:	100 %	322

Sample S002 Gram staining, Enterococcus faecalis



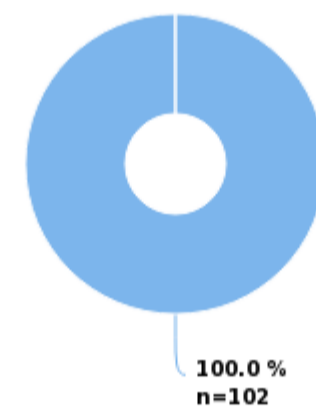
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Sample S002 Gram staining, Additional finding



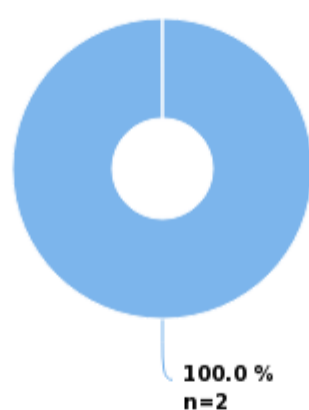
■ Grampositive

Sample S002 Finding, Enterococcus faecalis



■ Cocci

Sample S002 Finding, Additional finding



■ Cocci

GRAM STAINING

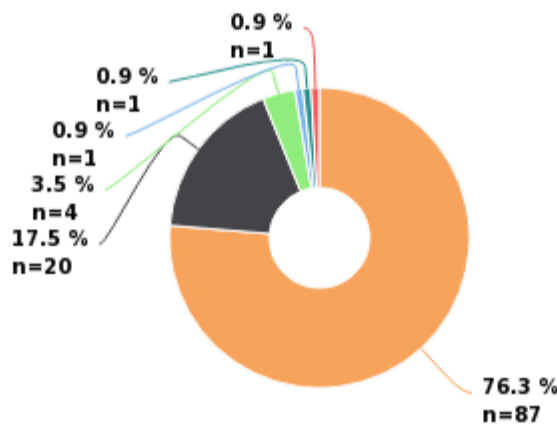
Finding group	Result	Result count	AVR success rate	Result Score
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Enterococcus faecalis		102	100 %	
	Grampositive	101	100 %	2
	Grampositive (weak)	1	100 %	2
Additional finding		2	-	
	Grampositive	2	-	-
Total:		104	100 %	

FINDING

Finding group	Result	Result count	AVR success rate	Result Score
Enterococcus faecalis		102	100 %	
	Cocci	102	100 %	2
Additional finding		2	-	
	Cocci	2	-	-
Total:		104	100 %	

Sample S002 Arrangement / Morphology



■ Cocci in chain
 ■ Diplococcus
 ■ Elongated coccus
 ■ Large coccus
■ Palisade
 ■ Small coccus

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	Cocci in chain	87
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External Quality Assessment Scheme

Gram stain, blood culture Round 1, 2023

Specimens

The samples were three air-fixed microbial suspensions on a slide. The sample lots were tested in an accredited Finnish reference laboratory. Based on the quality controls conducted by the sample material manufacturer, pre-testing and the results obtained in the round, the sample lots are to be considered as homogeneous, stable and suitable for external quality assessment. The materials were sent without temperature control packaging.

The content of the samples was as follows:

Sample S001 (LQ760623011)

Candida albicans, yeast

Staphylococcus aureus, grampositive cocci

Background information: An 82-year-old man. Fever. Peritonitis?

Sample S002 (LQ760623012)

Enterococcus faecalis, grampositive cocci

Background information: A 73-year-old woman. Fever. Cholangitis?

Report info

Please see the description of the data analysis on the last page of the laboratory-specific reports and global reports. It is important to read the Final report first, because it contains important information of the samples and results in each round.

Comments – Expert

Average success rate in this round was 98.9%.

Sample S001 *Candida albicans* and *Staphylococcus aureus*

Candida albicans yeast cells are spherical or ovoid (2.0–7.0 x 3.0–8.5 µm). Yeast cells appear alone or with a budding cell. Many laboratories (41.3%) commented the appearance of the daughter cells. In addition, pseudohyphae form of the cells exist. 97.1% of the participating laboratories reported finding correctly as a yeast.

Along with yeast there was another microbe in the sample. *Staphylococcus aureus* is a grampositive coccus. The cells are small (1 µm in diameter) and spherical. The cells occur in group. 98.0% of the participating laboratories reported grampositive coccus and 79.0% of them commented the arrangement of the cells in groups.

Including both findings, an average success rate for this sample was 97.7%.

Sample S002 *Enterococcus faecalis*

Enterococcus faecalis is a grampositive coccus. The cells are spherical to ovoid 0.5–1.0 µm in diameter. The cells arrange normally in pairs or in short chains. All participating laboratories reported the gramstaining correctly as grampositive coccus. 76.3% of the laboratories commented the arrangement of the cells in chains.

Exceptions in scoring

No exceptions.

2023-03-21

FINAL REPORT

Product no. 5041

Subcontracting: Sample preparation,
Sample pretesting

Samples sent	2023-01-24
Round closed	2023-02-21
Expected results	2023-02-23
Final report	2023-03-21

Request for correction

Typing errors in laboratory's result forms are on laboratory's responsibility. Labquality accepts responsibility only for result processing. Requests must be notified by writing within three weeks from the date of this letter.

Authorized by

EQA Coordinator
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Expert

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Päivi Mähönen,
Vita Laboratories,
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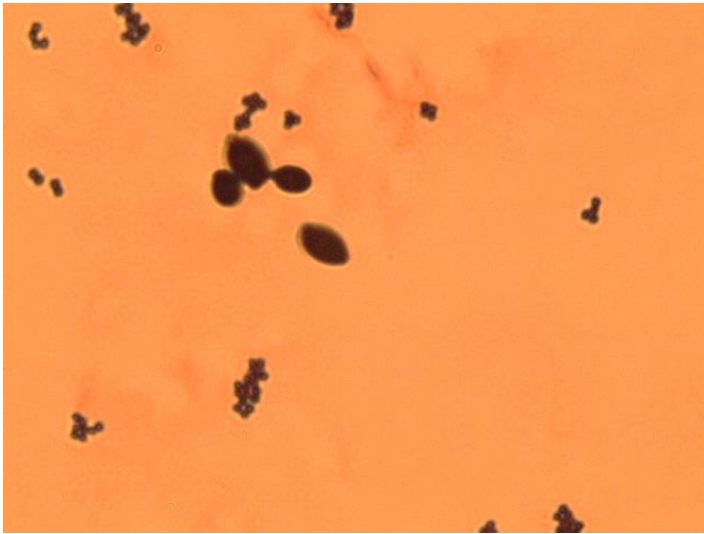


End of report

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5041 Gram stain, blood culture 1, 2023 5041 Gramvärjäys, veriviljely 1, 2023



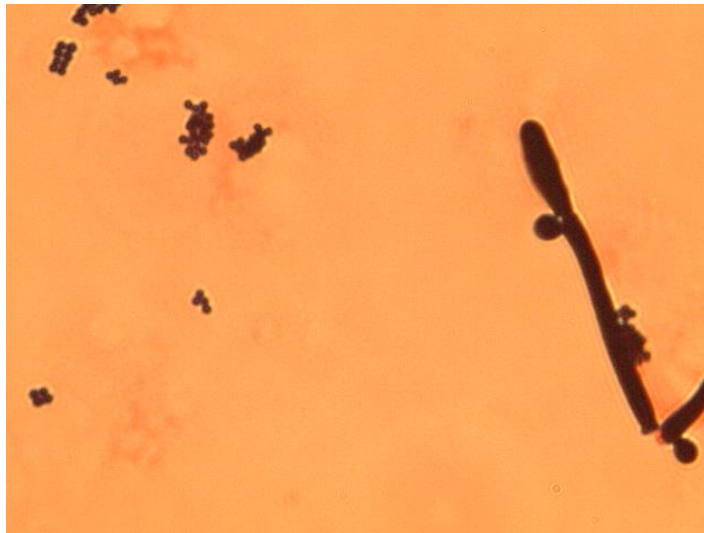
S001 *Candida albicans*

a yeast

Characteristics: small, ovoid yeast cells alone and with a daughter cell, pseudohyphae.

hiiva

Tunnusomaista: pieni, soikea hiivasolu, yksin ja yhdessä tytärsolujen kanssa, valerihmaa.



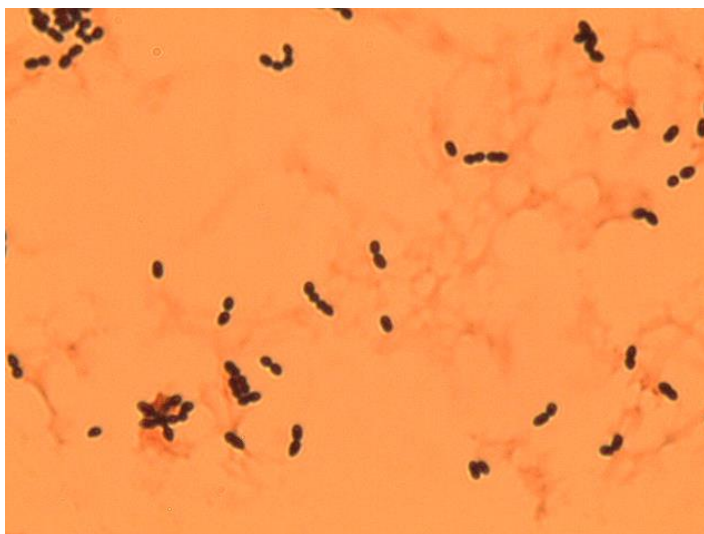
S001 *Staphylococcus aureus*

a grampositive cocci

Characteristics: small coccus in groups.

grampositiivinen kokki

Tunnusomaista: pieniä ryhmäkokkeja.



S002 *Enterococcus faecalis*

a grampositive cocci

Characteristics: spherical or ovoid coccus in short chains and in pairs.

grampositiivinen kokki

Tunnusomaista: pyöreä tai soikea kokki, esiintyy lyhyissä ketjuissa ja pareittain.