LABQUALITY

External Quality Assessment Scheme

Bacteriological staining, direct (Digital pictures) Round 1, 2023

Specimens
Three digital pictures of each of the 3 samples (S001, S002 and S003) in LabScala.

Background information
Sample S001
An 82-year-old man. Peritonitis. A PD fluid sample.

Sample S002
A 73-year-old woman. A tissue sample from infected knee prosthesis.

Sample S003
A 32-year-old woman. Pneumonia? Pleural fluid.

Examination
Interpretation of digital pictures taken from direct bacteriological staining of clinical samples.

Result reporting
Please enter the results via LabScala (www.labscala.com). The Microbe finding is added by pressing the (+) icon in the Add column. You may refine the Microbe finding in the Description column part, which gives you the choice of several options. Multiple microbe findings may be reported by pressing the (+) icon in the Add column. Only the answer in the Microbe finding column will be scored. If you have questions regarding the scheme, please contact the EQA Coordinator.

2023-04-11

INSTRUCTIONS

Product no. 5050
LQ760223011-013/FI

Subcontracting: Digital image services

The results should be reported no later than **May 4, 2023**.

Inquiries
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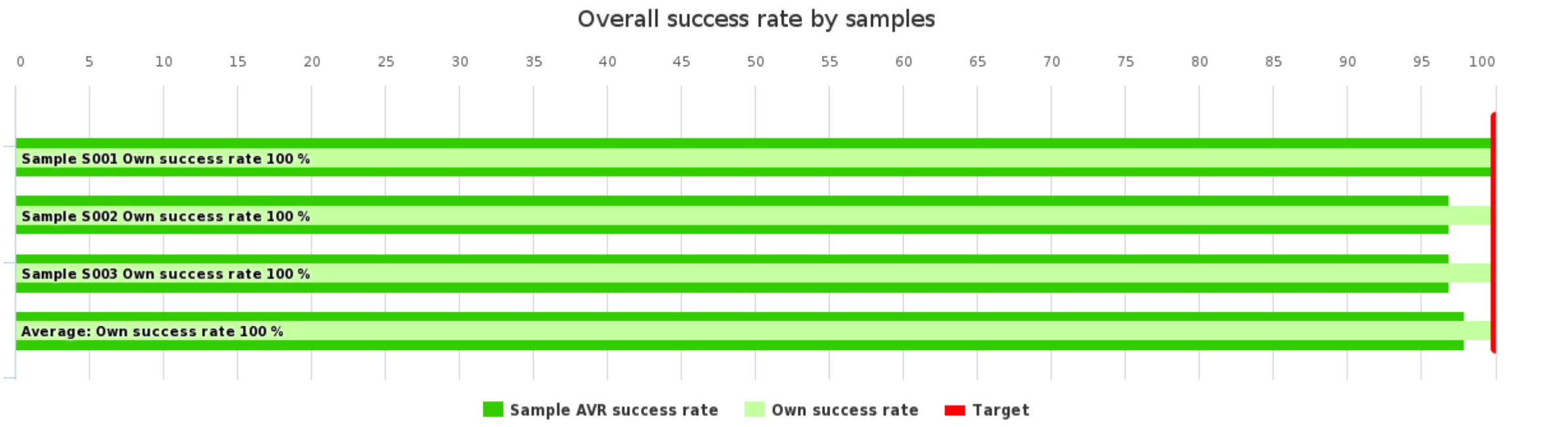
FINAS
Finnish Accreditation Service
PT02 (EN ISO/IEC 17043)

Quality Management
ISO 9001:2015

Client report

	No of participants	No of responded participants	Response percentage
Bacteriological staining, direct, April, 1-2023	63	58	92.1 %

Summary



Summary	Own score	Max score	Own success rate	Difference	AVR success rate
Sample S001	2	2	100 %	0 %	100 %
Sample S002	2	2	100 %	3.1 %	96.9 %
Sample S003	2	2	100 %	3.1 %	96.9 %
Average:			100 %	2.1 %	97.9 %

History	Test nr.	Own success rate	Difference	AVR success rate
History not found				

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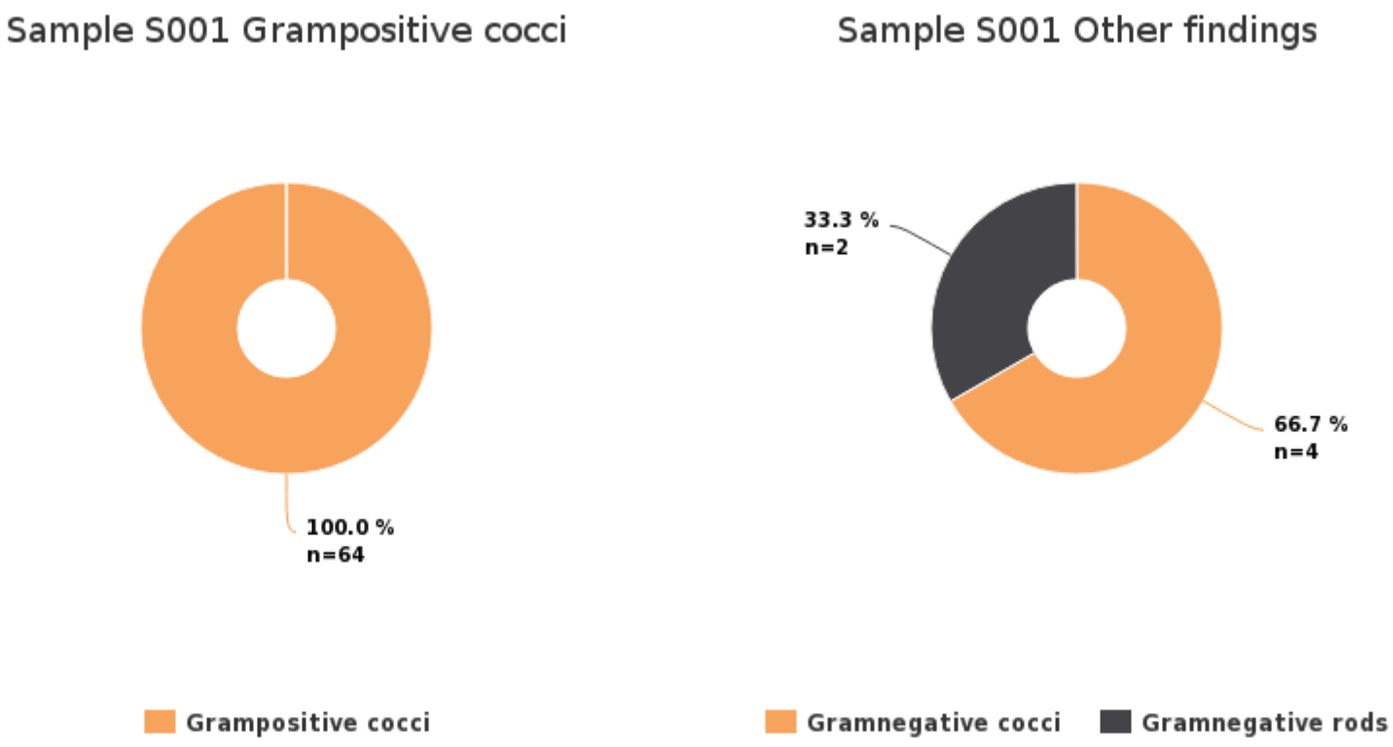
Sample S001 | Expected finding: Grampositive cocci

Sample S001 results	Responded	Own score	Max score	Own success rate	Difference	AVR success rate	Count
	Microbe finding	2	2	100 %	0 %	100 %	70
	Cell finding	-	-	-	-	-	94
	Artefact	-	-	-	-	-	57
Total:		2	2	100 %	0 %	100 %	221



SCORED MICROBE FINDING

Finding group	Finding	Finding count	Own score	Max score	Own success rate	Difference	AVR success rate
Grampositive cocci		**64**	**2**	**2**	**100 %**	**0 %**	**100 %**
	◉ Grampositive cocci	64	2	2	100 %	0 %	
Other findings		**6**	**-**	**-**			**-**
	Gramnegative cocci	4	-				
	Gramnegative rods	2	-				
Total:		70	2	2	100 %	0 %	100 %

DETAILED MICROBE FINDING DESCRIPTIONS

Finding group	Finding	Finding count	Description	Description count
Grampositive cocci		**64**		
	◉ Grampositive cocci	64		
			Cocci in chains	14
			Cocci in tetrads	1
			Coccus (large)	3
			Coccus (mid-size)	6
			◉ Coccus (small)	1
			◉ Diplococci	50
			N/A	1

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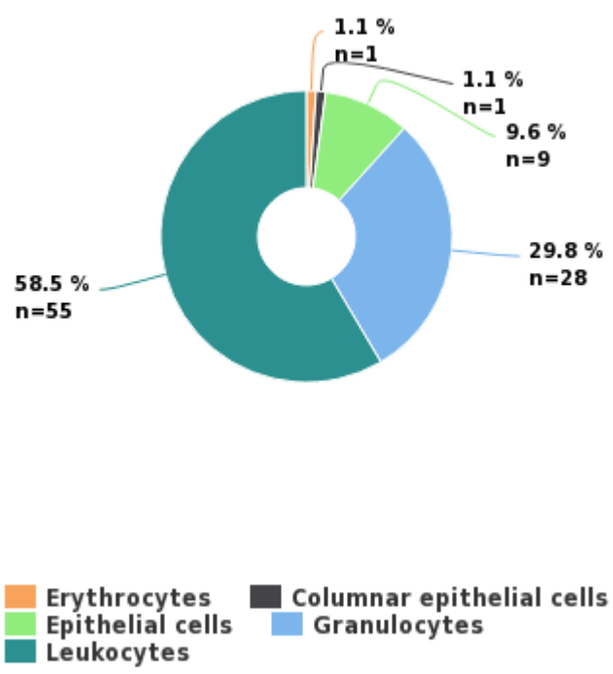
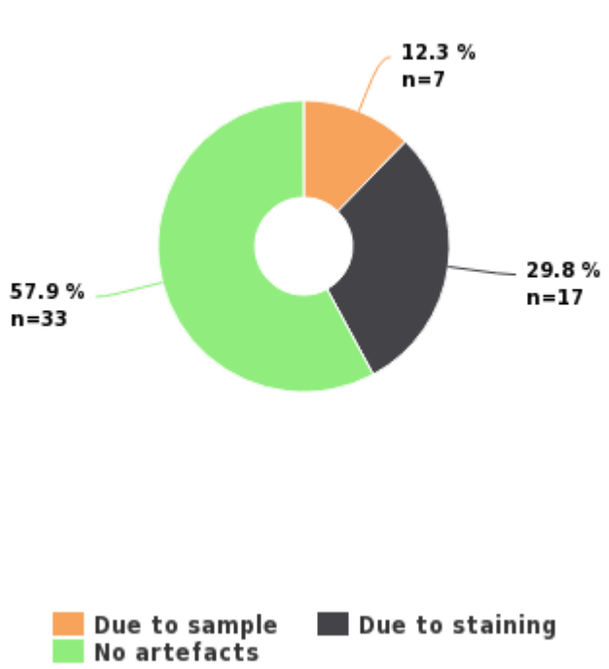
			Variable staining	2
Other findings		**6**		
	Gramnegative cocci	4		
			Cocci in chains	1
			Diplococci	4
	Gramnegative rods	2		
Total:		70		

Sample S001 Cell finding



Sample S001 Artefact



Cell finding	Finding	Finding count
	Erythrocytes	1
	Columnar epithelial cells	1
	Epithelial cells	9
	◉ Granulocytes	28
	◉ Leukocytes	55
	Total:	94

Artefact	Finding	Finding count
	Due to sample	7
	◉ Due to staining	17
	No artefacts	33
	Total:	57

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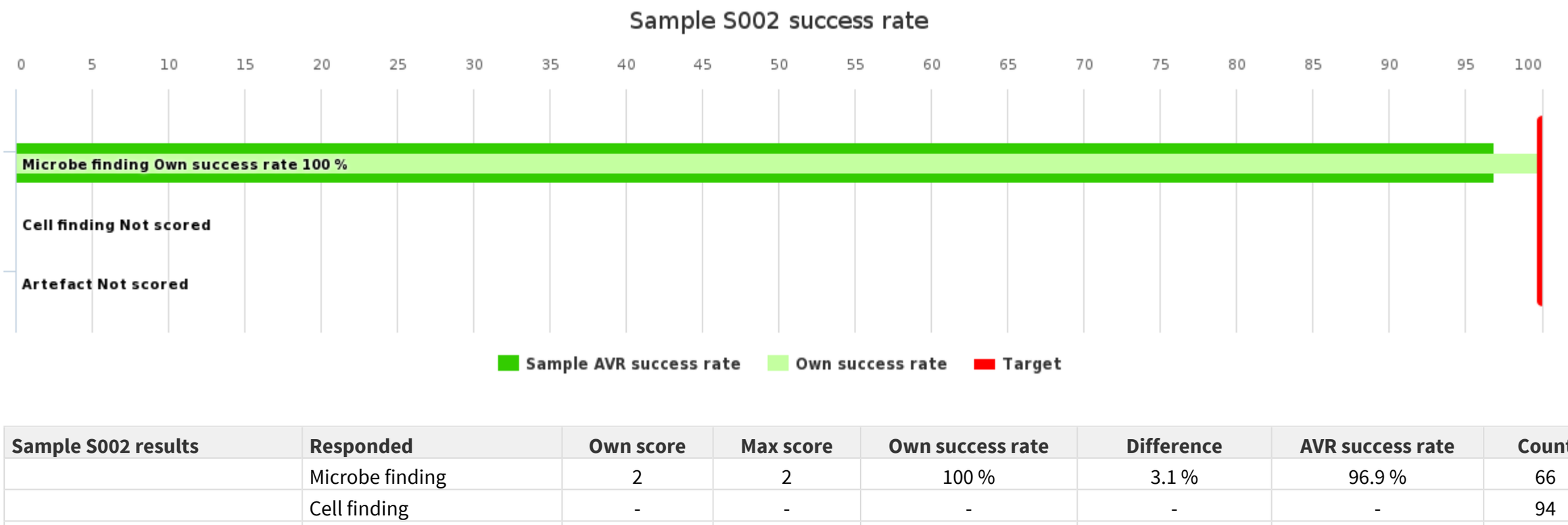
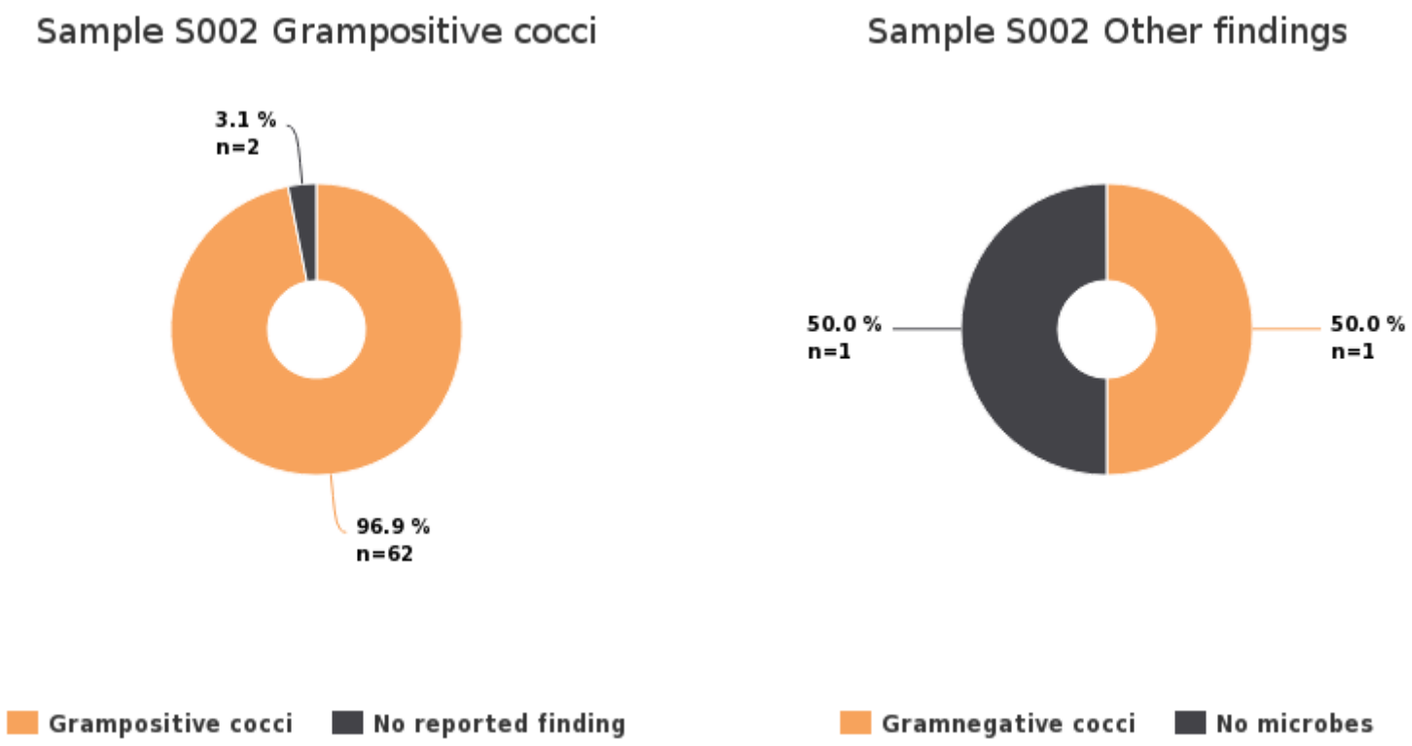
Sample S002 | Expected finding: Grampositive cocci



Sample S002 results	Responded	Own score	Max score	Own success rate	Difference	AVR success rate	Count
	Microbe finding	2	2	100 %	3.1 %	96.9 %	66
	Cell finding	-	-	-	-	-	94
	Artefact	-	-	-	-	-	57
Total:		2	2	100 %	3.1 %	96.9 %	217



SCORED MICROBE FINDING

Finding group	Finding	Finding count	Own score	Max score	Own success rate	Difference	AVR success rate
Grampositive cocci		**64**	**2**	**2**	**100 %**	**3.1 %**	**96.9 %**
	◉ Grampositive cocci	62	2	2	100 %	0 %	
	No reported finding	2	-				
Other findings		**2**	**-**	**-**			**-**
	Gramnegative cocci	1	-				
	No microbes	1	-				
Total:		66	2	2	100 %	3.1 %	96.9 %

DETAILED MICROBE FINDING DESCRIPTIONS

Finding group	Finding	Finding count	Description	Description count
Grampositive cocci		**64**		
	◉ Grampositive cocci	62		
			◉ Cocci in clusters	51
			Cocci in tetrads	10
			Coccus (large)	1
			Coccus (mid-size)	4
			Coccus (small)	3
			Diplococci	11

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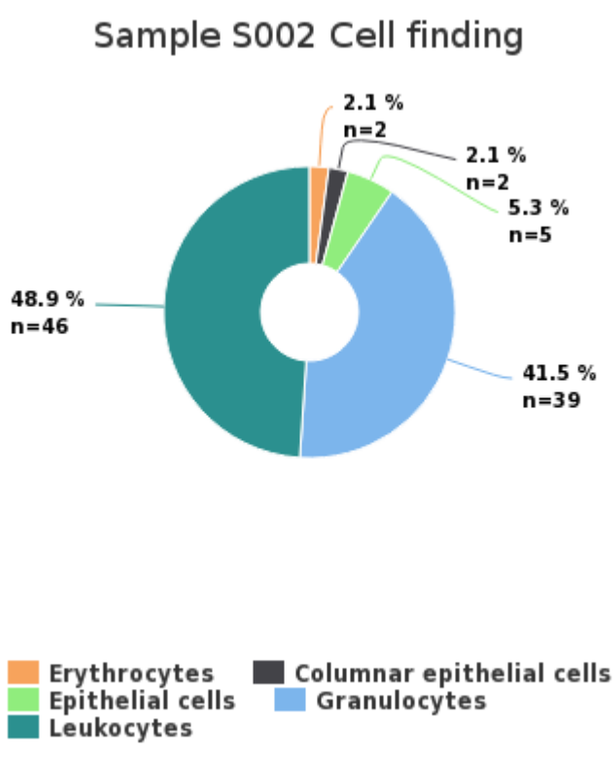
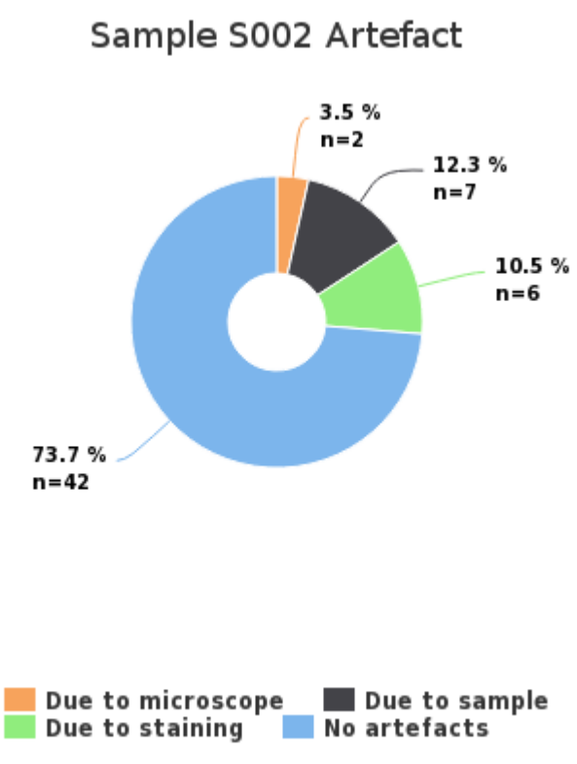
			Intracellular	5
	No reported finding	2		
Other findings		**2**		
	Gramnegative cocci	1		
			Cocci in clusters	1
			Diplococci	1
	No microbes	1		
Total:		66		





Cell finding	Finding	Finding count
	Erythrocytes	2
	Columnar epithelial cells	2
	Epithelial cells	5
	◉ Granulocytes	39
	◉ Leukocytes	46
	Total:	94

Artefact	Finding	Finding count
	Due to microscope	2
	Due to sample	7
	Due to staining	6
	◉ No artefacts	42
	Total:	57

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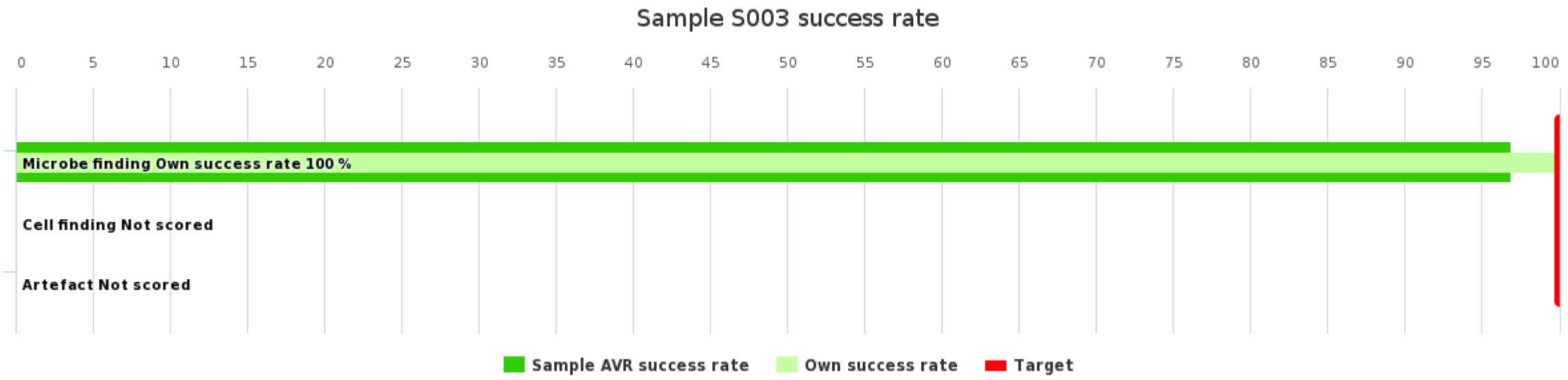
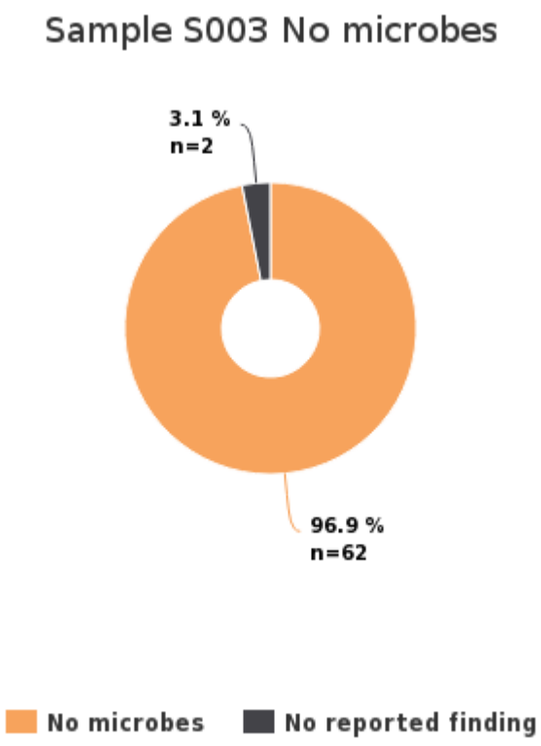
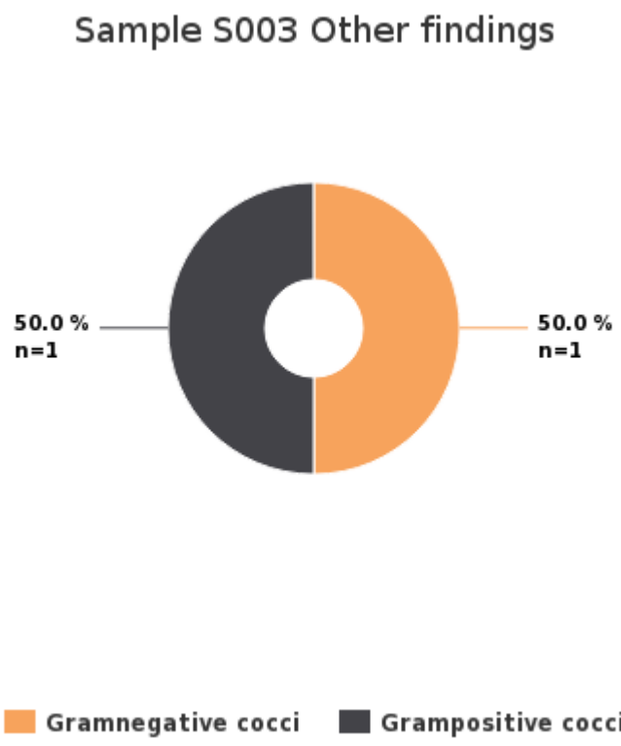
Sample S003 | Expected finding: No microbes



Sample S003 results	Responded	Own score	Max score	Own success rate	Difference	AVR success rate	Count
	Microbe finding	2	2	100 %	3.1 %	96.9 %	66
	Cell finding	-	-	-	-	-	80
	Artefact	-	-	-	-	-	57
Total:		2	2	100 %	3.1 %	96.9 %	203





SCORED MICROBE FINDING

Finding group	Finding	Finding count	Own score	Max score	Own success rate	Difference	AVR success rate
No microbes		**64**	**2**	**2**	**100 %**	**3.1 %**	**96.9 %**
	◉ No microbes	62	2	2	100 %	0 %	
	No reported finding	2	-				
Other findings		**2**	**-**	**-**			**-**
	Gramnegative cocci	1	-				
	Grampositive cocci	1	-				
Total:		66	2	2	100 %	3.1 %	96.9 %

DETAILED MICROBE FINDING DESCRIPTIONS

Finding group	Finding	Finding count	Description	Description count
No microbes		**64**		
	◉ No microbes	62		
			N/A	26
	No reported finding	2		
Other findings		**2**		
	Gramnegative cocci	1		
			Cocci in chains	1
			Coccus (small)	1

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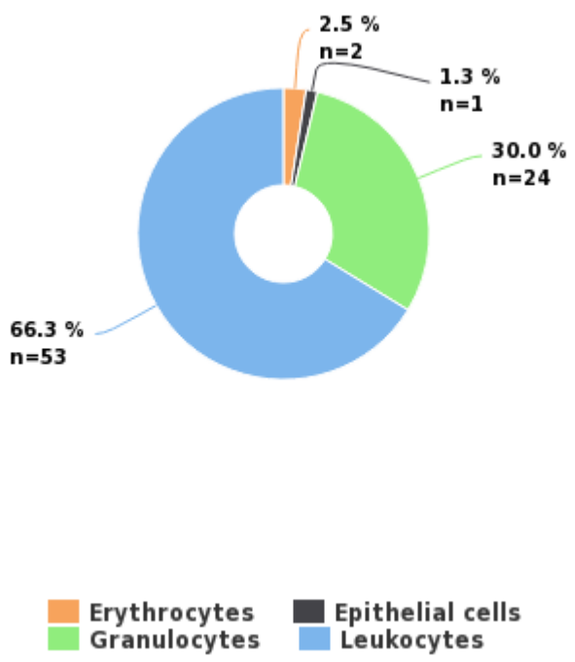
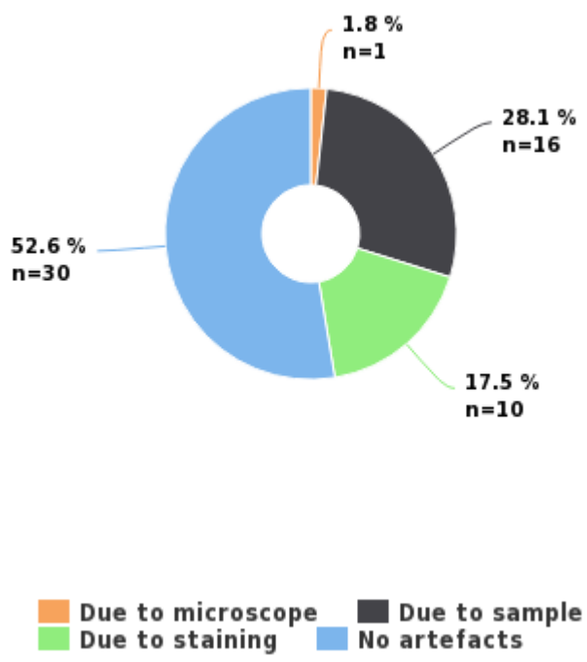
	Grampositive cocci	1		
			Cocci in clusters	1
Total:		66		

Sample S003 Cell finding



Sample S003 Artefact



Cell finding	Finding	Finding count
	Erythrocytes	2
	Epithelial cells	1
	◉ Granulocytes	24
	◉ Leukocytes	53
	Total:	80

Artefact	Finding	Finding count
	Due to microscope	1
	◉ Due to sample	16
	Due to staining	10
	No artefacts	30
	Total:	57

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Report Info

PARTICIPANTS

Altogether 63 laboratories from 12 countries participated in this EQA round.

REPORT INFO

The results are divided into groups according to the microbe findings stated by the laboratory and presented in laboratory-specific tables. Accepted results are marked with green color and laboratory's own result with a black radio button ◉. In the scoring part you will find summaries of overall success rate and sample specific success rates (%). Sample specific interpretations are shown in pie diagrams as percentages and the total interpretation in the tables. If you have not reported any results you will get a note: "You have not responded in time, only global report is available."
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

The round is scored based on microbe findings when 60% or more of the participants report the expected result and when at least three results are reported.
Detailed microbe finding descriptions, cell findings and artefacts are not scored.
The following general rules are applied:

Correct/expected microbe finding 2/2 points
False/deviating microbe finding 0/2 points

The performance of the laboratory is assessed by the Own success rate (%). The target is 100%. The examination-specific scores obtained by the laboratory in the round are converted to Own success rate per sample (scores/maximum scores*100). The Laboratory's Own success rate is the average of the sample success rates.

The success rate for the entire round (AVR success rate) is calculated from the total number of scores given to the results per sample (all scores/maximum scores*100). The AVG success rate of the entire round is the average of the sample success rates. The difference in the Laboratory's Own success rate (%) to the corresponding numbers for the entire round is shown in the table.

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Bacteriological staining, direct, April, 1-2023

GLOBAL REPORT

	No of participants	No of responded participants	Response percentage
Bacteriological staining, direct, April, 1-2023	63	58	92.1 %

Summary

Summary	AVR success rate
Sample S001	100 %
Sample S002	96.9 %
Sample S003	96.9 %
Average:	97.9 %

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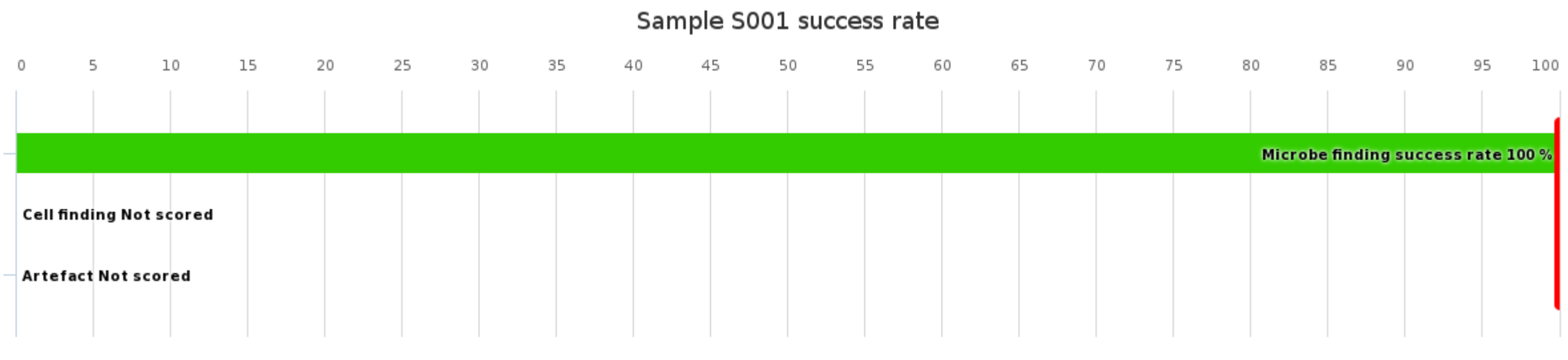
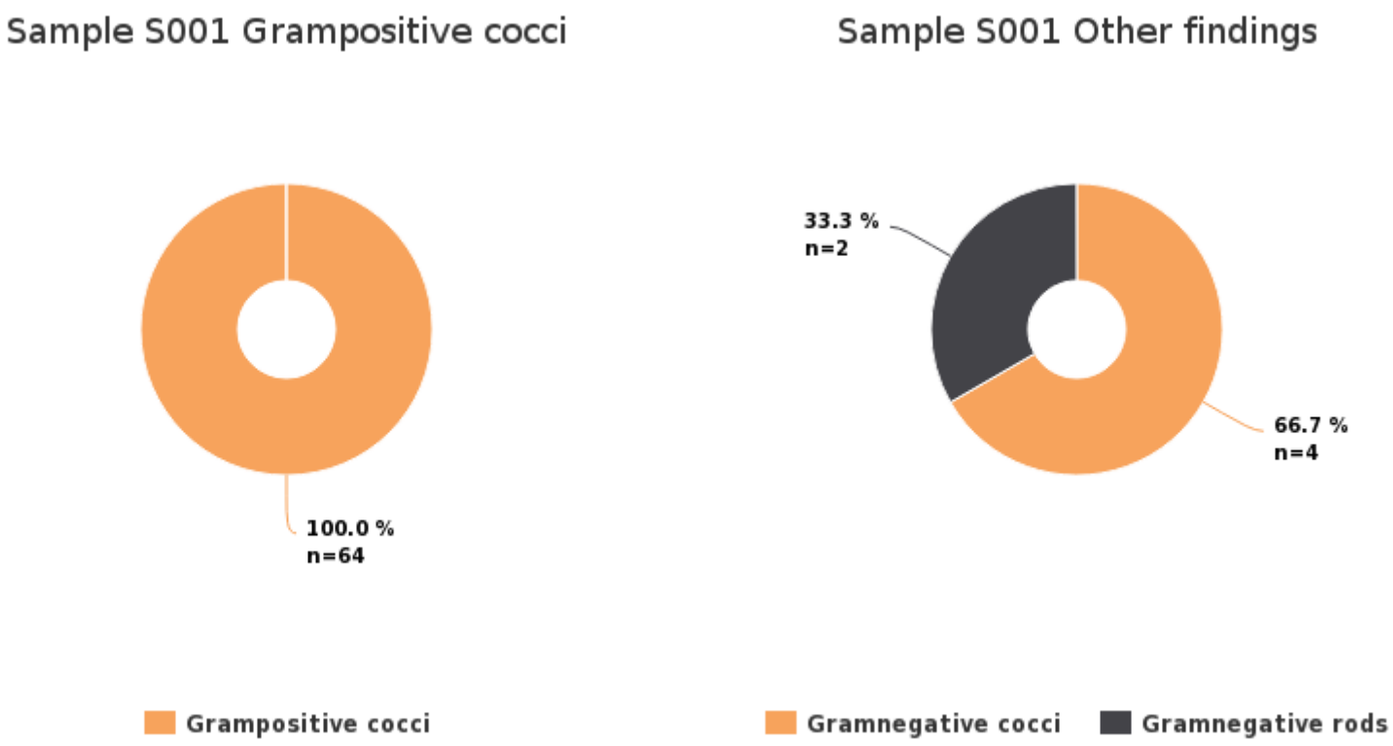
Sample S001 | Expected finding: Grampositive cocci



Sample S001 results	Responded	AVR success rate	Count
	Microbe finding	100 %	70
	Cell finding	-	94
	Artefact	-	57
Total:		100 %	221



SCORED MICROBE FINDING

Finding group	Finding	Finding count	AVR success rate	Finding Score
Grampositive cocci		**64**	**100 %**	
	Grampositive cocci	64		2
Other findings		**6**	**-**	
	Gramnegative cocci	4		-
	Gramnegative rods	2		-
Total:		70	100 %	

DETAILED MICROBE FINDING DESCRIPTIONS

Finding group	Finding	Finding count	Description	Description count
Grampositive cocci		**64**		
	Grampositive cocci	64		
			Cocci in chains	14
			Cocci in tetrads	1
			Coccus (large)	3
			Coccus (mid-size)	6
			Coccus (small)	1
			Diplococci	50
			N/A	1
			Variable staining	2
Other findings		**6**		

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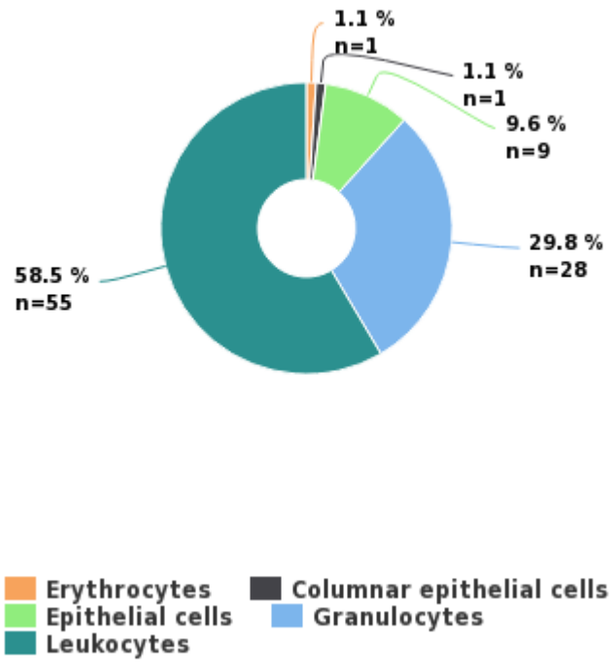
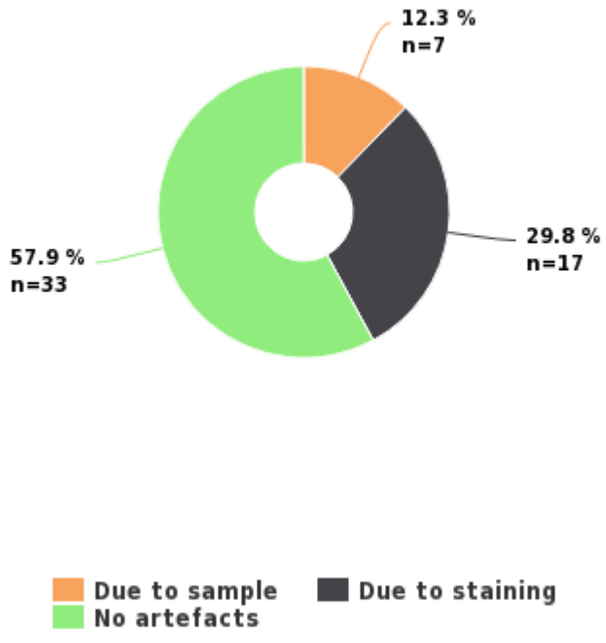
	Gramnegative cocci	4		
			Cocci in chains	1
			Diplococci	4
	Gramnegative rods	2		
Total:		70		

Sample S001 Cell finding



Sample S001 Artefact



Cell finding	Finding	Finding count
	Erythrocytes	1
	Columnar epithelial cells	1
	Epithelial cells	9
	Granulocytes	28
	Leukocytes	55
	Total:	94

Artefact	Finding	Finding count
	Due to sample	7
	Due to staining	17
	No artefacts	33
	Total:	57

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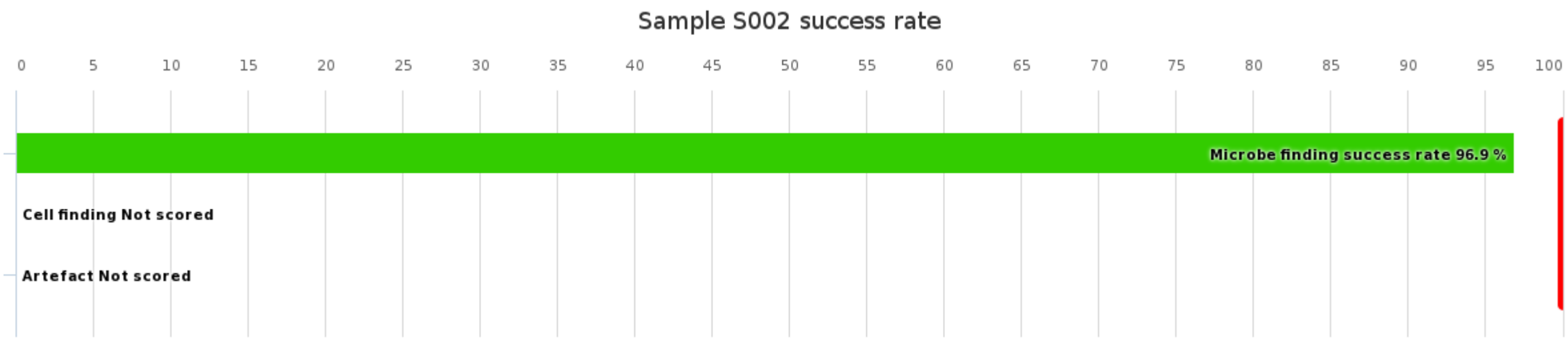
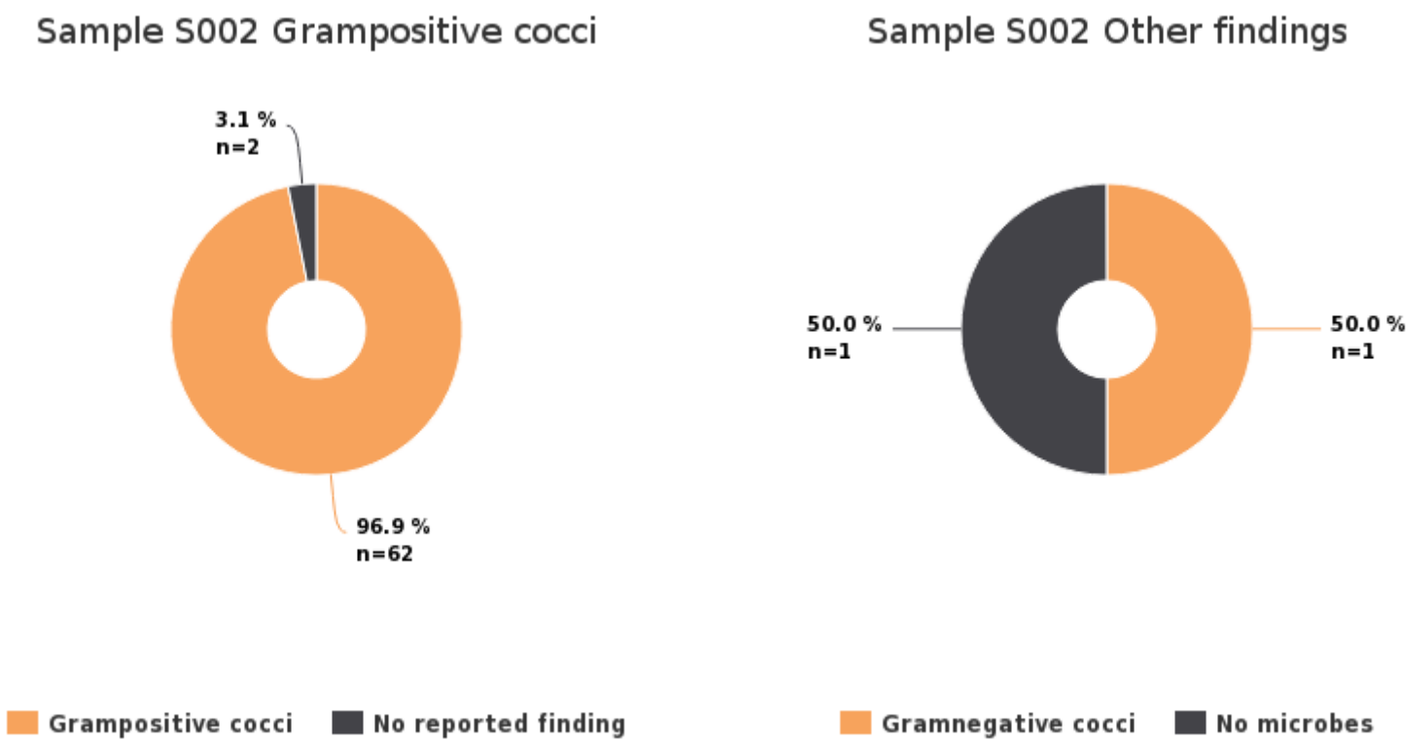
Sample S002 | Expected finding: Grampositive cocci



Sample S002 results	Responded	AVR success rate	Count
	Microbe finding	96.9 %	66
	Cell finding	-	94
	Artefact	-	57
Total:		96.9 %	217



SCORED MICROBE FINDING

Finding group	Finding	Finding count	AVR success rate	Finding Score
Grampositive cocci		**64**	**96.9 %**	
	Grampositive cocci	62		2
	No reported finding	2		0
Other findings		**2**	**-**	
	Gramnegative cocci	1		-
	No microbes	1		-
Total:		66	96.9 %	

DETAILED MICROBE FINDING DESCRIPTIONS

Finding group	Finding	Finding count	Description	Description count
Grampositive cocci		**64**		
	Grampositive cocci	62		
			Cocci in clusters	51
			Cocci in tetrads	10
			Coccus (large)	1
			Coccus (mid-size)	4
			Coccus (small)	3
			Diplococci	11
			Intracellular	5
	No reported finding	2		

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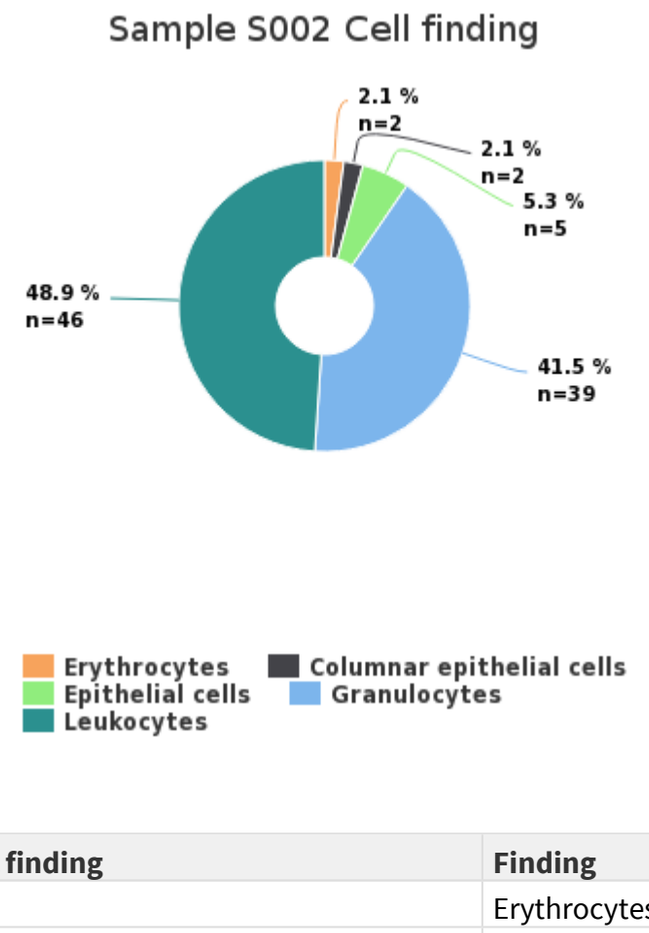
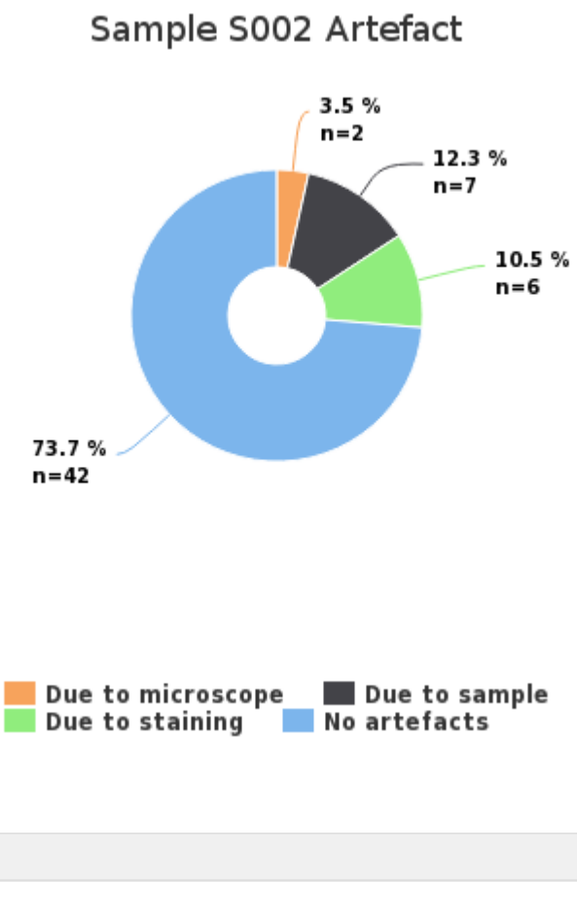
Other findings		**2**		
	Gramnegative cocci	1		
			Cocci in clusters	1
			Diplococci	1
	No microbes	1		
Total:		66		





Cell finding	Finding	Finding count
	Erythrocytes	2
	Columnar epithelial cells	2
	Epithelial cells	5
	Granulocytes	39
	Leukocytes	46
	Total:	94

Artefact	Finding	Finding count
	Due to microscope	2
	Due to sample	7
	Due to staining	6
	No artefacts	42
	Total:	57

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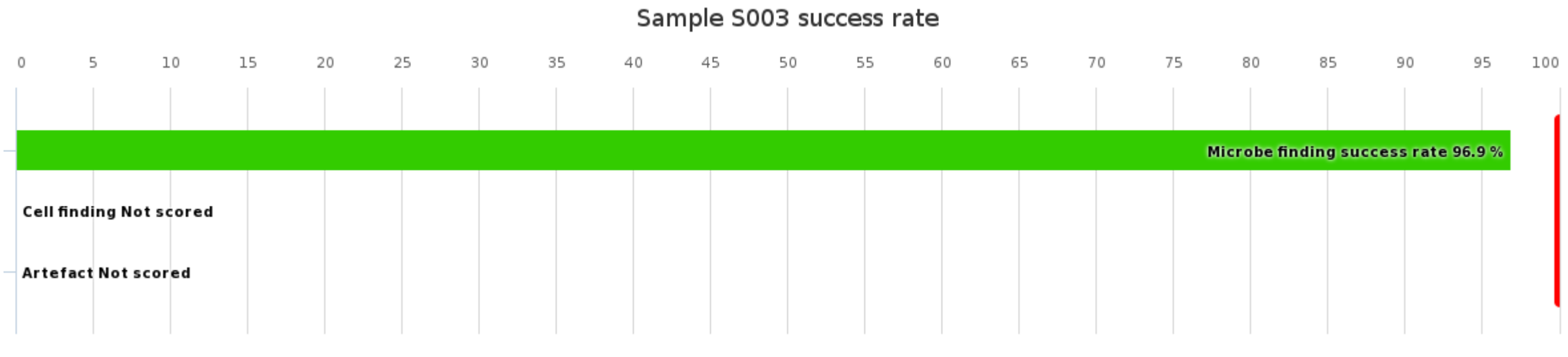
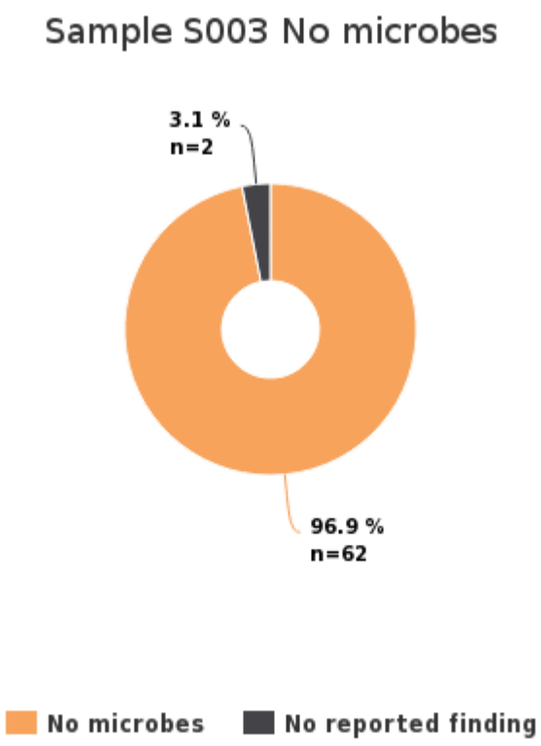
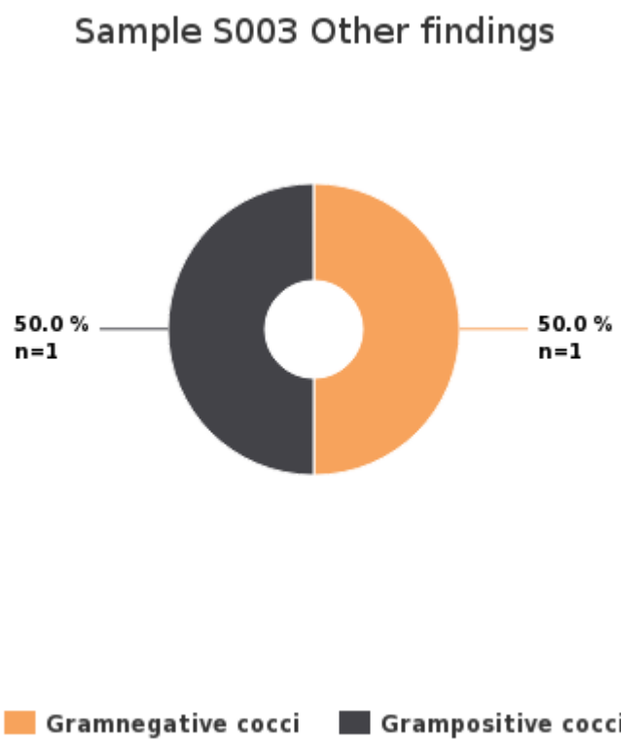
Sample S003 | Expected finding: No microbes



Sample S003 results	Responded	AVR success rate	Count
	Microbe finding	96.9 %	66
	Cell finding	-	80
	Artefact	-	57
Total:		96.9 %	203





SCORED MICROBE FINDING

Finding group	Finding	Finding count	AVR success rate	Finding Score
No microbes		**64**	**96.9 %**	
	No microbes	62		2
	No reported finding	2		0
Other findings		**2**	**-**	
	Gramnegative cocci	1		-
	Grampositive cocci	1		-
Total:		66	96.9 %	

DETAILED MICROBE FINDING DESCRIPTIONS

Finding group	Finding	Finding count	Description	Description count
No microbes		**64**		
	No microbes	62		
			N/A	26
	No reported finding	2		
Other findings		**2**		
	Gramnegative cocci	1		
			Cocci in chains	1
			Coccus (small)	1
	Grampositive cocci	1		
			Cocci in clusters	1
Total:		66		

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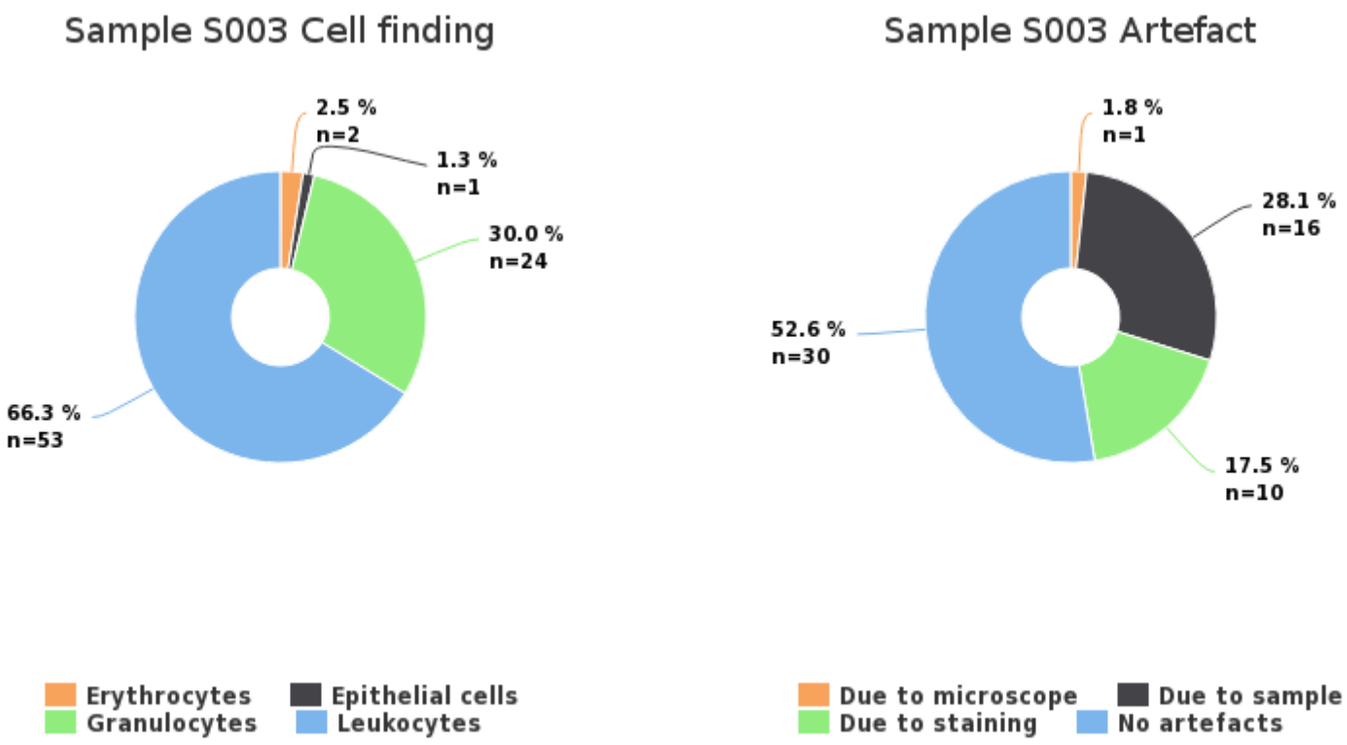
Bacteriological staining, direct, April, 1-2023



Cell finding	Finding	Finding count
	Erythrocytes	2
	Epithelial cells	1
	Granulocytes	24
	Leukocytes	53
	Total:	80

Artefact	Finding	Finding count
	Due to microscope	1
	Due to sample	16
	Due to staining	10
	No artefacts	30
	Total:	57

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REPORT INFO

The results are divided into groups according to the microbe findings stated by the laboratory and presented in laboratory-specific tables. Accepted results are marked with green color and laboratory's own result with a black radio button ◉. In the scoring part you will find summaries of overall success rate and sample specific success rates (%). Sample specific interpretations are shown in pie diagrams as percentages and the total interpretation in the tables. If you have not reported any results you will get a note: "You have not responded in time, only global report is available."
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

The round is scored based on microbe findings when 60% or more of the participants report the expected result and when at least three results are reported.
Detailed microbe finding descriptions, cell findings and artefacts are not scored.
The following general rules are applied:

Correct/expected microbe finding 2/2 points
False/deviating microbe finding 0/2 points

The performance of the laboratory is assessed by the Own success rate (%). The target is 100%. The examination-specific scores obtained by the laboratory in the round are converted to Own success rate per sample (scores/maximum scores*100). The Laboratory's Own success rate is the average of the sample success rates.

The success rate for the entire round (AVR success rate) is calculated from the total number of scores given to the results per sample (all scores/maximum scores*100). The AVG success rate of the entire round is the average of the sample success rates. The difference in the Laboratory's Own success rate (%) to the corresponding numbers for the entire round is shown in the table.

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LABQUALITY

External Quality Assessment Scheme

Bacteriological staining, direct
Round 1, 2023

Specimens
Samples S001-S003 (LQ760223011-013) were digital images in LabScala.

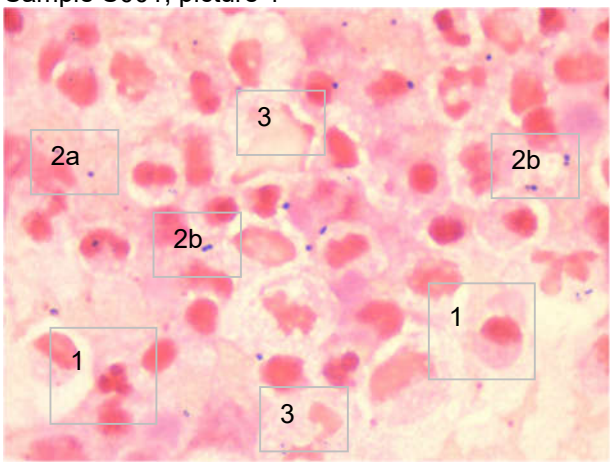
Report info
Please see the description of the data analysis on the last page of the laboratory-specific reports and global reports. It is important to read the Final report first, because it contains important information of the samples and results in each round.

Comments - Expert
An average success rate in this round was 97.9%. The easiest sample was the first sample; success rate was total 100%. The two other samples were almost as easy as the first sample. The average success rate was 96.9% for these two last samples. Of these samples, one laboratory apparently cross-reported the results and one laboratory reported gram-negative cocci in both samples. In this round sample S003 was negative.

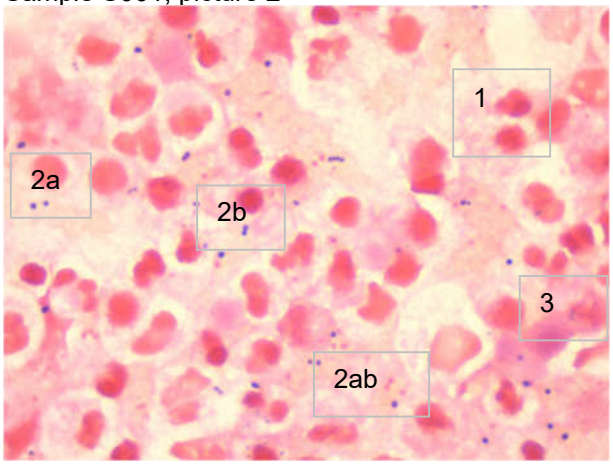
Sample S001 An 82-year-old man. Peritonitis. A PD fluid sample.

Expected results
Microbe findings: Gram-positive cocci (++), (2) occurring singly (2a), in pairs (2b).
Cell findings: Leukocytes (+++), (1).
Artefact: Some artefacts due to the sample and staining (+), (3).

Sample S001, picture 1



Sample S001, picture 2



2023-05-23

FINAL REPORT

Product no. 5050

Subcontracting: Sample preparation (digital images)

Samples sent	2023-04-11
Round closed	2023-05-04
Final report	2023-05-23

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.

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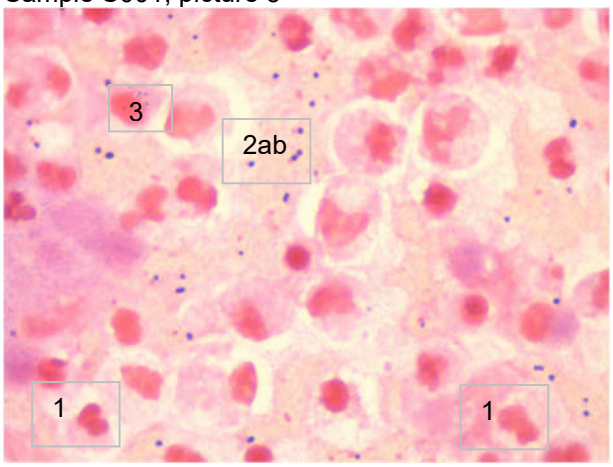
FINAS
Finnish Accreditation Service
PT02 (EN ISO/IEC 17043)

Quality Management
ISO 9001:2015

Sample S001, picture 3



There was a lot of leukocytes (1) in this PD fluid sample indicating inflammation. In addition, there was quite a lot of gram-positive cocci (2), (++) in the sample and the coccus tend to occur in singly (2a) and in pair (2b). This mid-size coccus may occur as gram-negative forms too. The elongated diplococcal arrangement and variable staining could give a hint to some participants that this finding could be pneumococcus.

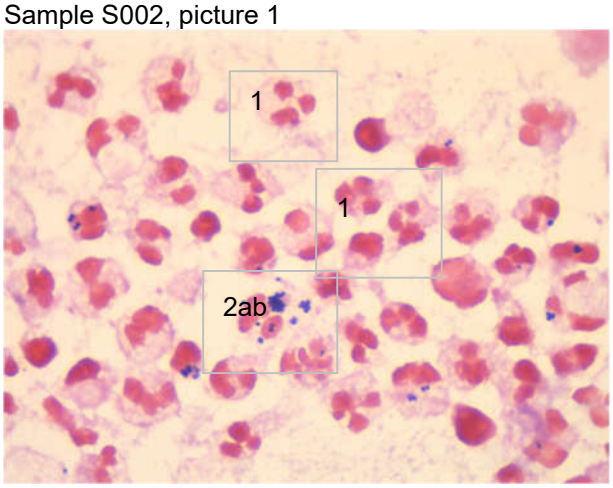
All reported the bacteria finding as gram-positive coccus and >60% reported the arrangement in pairs. Only two laboratories reported an unexpected additional finding: gram-negative rod which was not observed or cultured from this sample. There were some artefacts (3) seen in this sample which is easily caused due to the thick and pyogenic samples.

Streptococcus pneumoniae (++) grew on culture from this PD fluid sample.

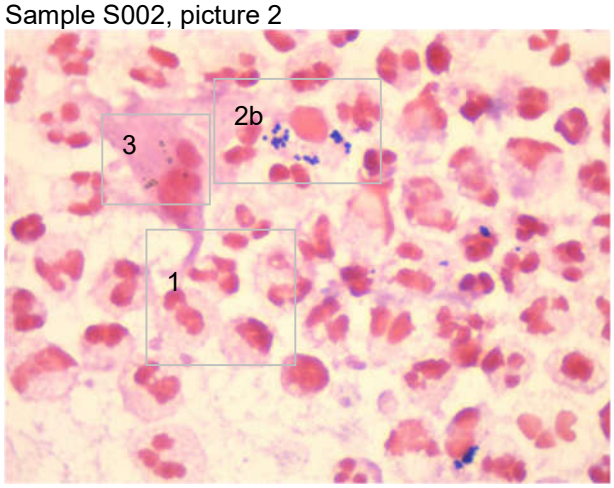
Sample S002: A 73-year-old woman. A tissue sample from infected knee prosthesis.

Expected results
Microbe findings: Gram-positive cocci (+++), (2), singly (2a), in groups/tetrads (2b).
Cell findings: Leukocytes (1) (+++), (1).
Artefact: Some artefacts due to the sample and staining (+), (3).

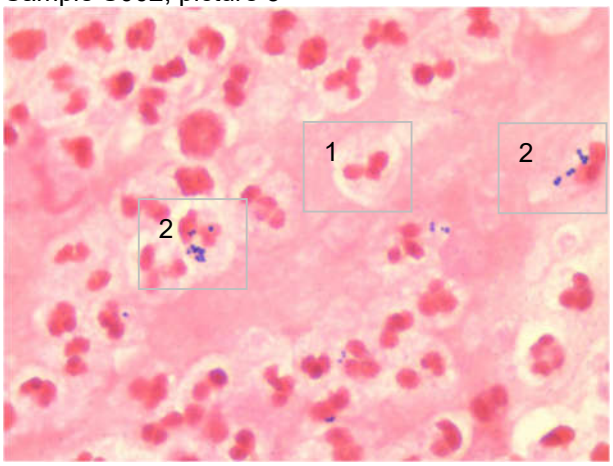
Sample S002, picture 1



Sample S002, picture 2



Sample S002, picture 3



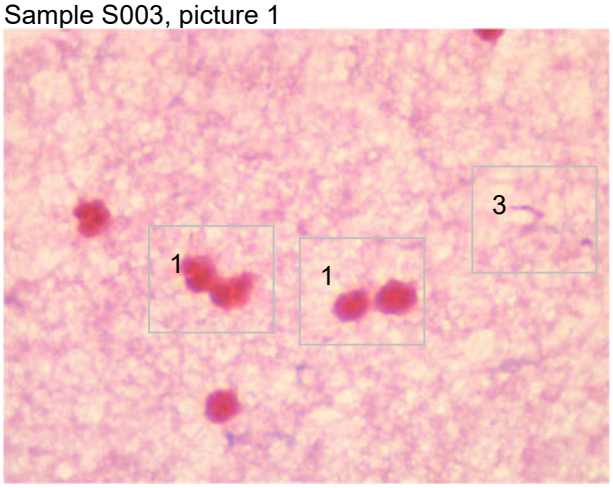
The tissue sample taken from the prosthetic knee joint included a lot of leukocytes (1), (+++) indicating inflammation. There was also a clear bacterial finding, gram-positive coccus, which tend to arrange in groups / tetrads. Notable, the cell was quite small in diameter (ca. 1µm). All except two laboratories reported the correct bacterial finding and >70% of them commented the cell arrangement in groups / tetrads. *Staphylococcus aures* cells are small compared to other staphylococcus species which are typically cultured from clinical samples.

Indeed, *Staphylococcus aureus* (+++) was cultured from this sample.

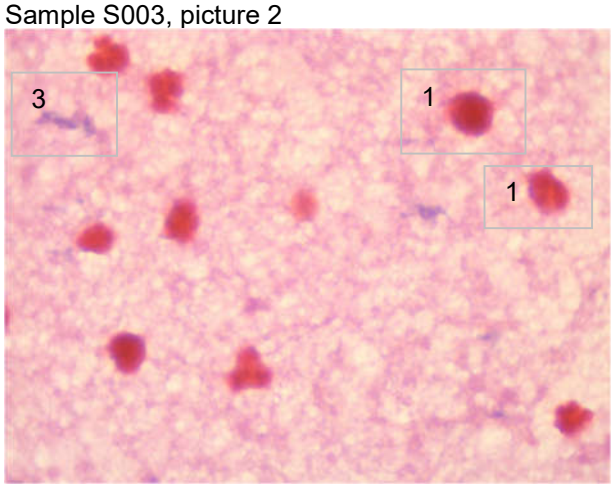
Sample S003: A 32-year-old woman. Pneumonia? Pleural fluid.

Expected results
Microbe findings: No bacteria.
Cell findings: Leukocytes (+++), (1).
Artefact: Some artefacts due to the sample and staining (+), (3).

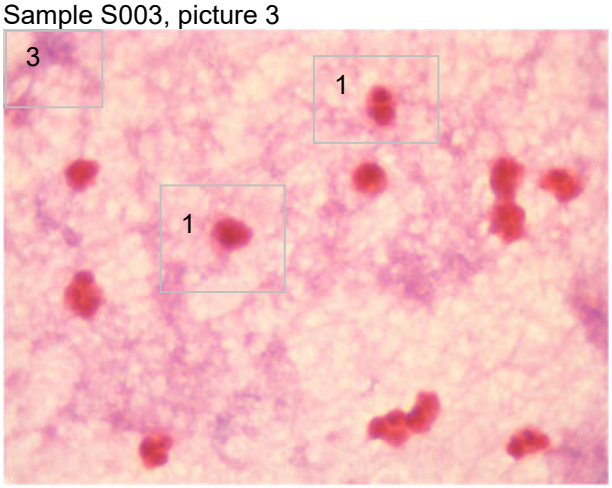
Sample S003, picture 1



Sample S003, picture 2



Sample S003, picture 3



The third sample in this round was pleural fluid sample from a young woman. Even the first glance, it could be concluded that the sample represented pure – not infected – sample preparation. There were only some leukocytes (1), (+) indicating slight inflammation, but no bacteria were seen from this sample. The symptoms were probably caused by some virus instead of bacteria. There were only minor amounts of artefacts in the sample. All except two laboratories (96.9%) reported this sample as negative.

No bacteria grew in the culture either. Not even after a long incubation period.

Exceptions in scoring
No exceptions.

End of report

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