

External Quality Assessment Scheme

## Dengue virus, antibodies and antigen detection Round 2, 2023

### Specimens

Please find enclosed 3 human plasma or serum samples S001, S002 and S003, each 0.5 mL.

### Caution

Quality control specimens derived from human blood must be handled with the same care as patient samples, i.e. as potential transmitters of serious diseases. The specimens are found to be HBsAg, HCVAb and HIVAgAb negative when tested with licensed reagents, but no known test method can offer complete assurance that the specimens will not transmit these or other infectious diseases. The specimens have not been inactivated.

### Examinations

Dengue virus antigen (NS1)  
Dengue virus IgG antibodies  
Dengue virus IgM antibodies  
Clinical interpretation

### Storage and use

After arrival, the samples should be stored at +2...8 °C, and used as soon as possible, preferably within a week. The samples are ready for use. Analyse as patient samples.

### Result reporting

Please enter the results and methods via LabScala (www.labscala.com). If you cannot find your instrument or reagent from the registry, please contact the EQA Coordinator. All reported examinations will be scored.

S001



S002



S003



2023-05-23

### INSTRUCTIONS

Product no. 5635  
LQ775323021-023/FI  
UN3373

Subcontracting: Sample pretesting

If the kit is incomplete or contains damaged specimens, please report immediately to [info@labquality.fi](mailto:info@labquality.fi).

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The results should be reported no later than **June 15, 2023**.

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The expected results of the round are published in LabScala in the View Reports section by June 20, 2023.

### Inquiries

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### Labquality Oy

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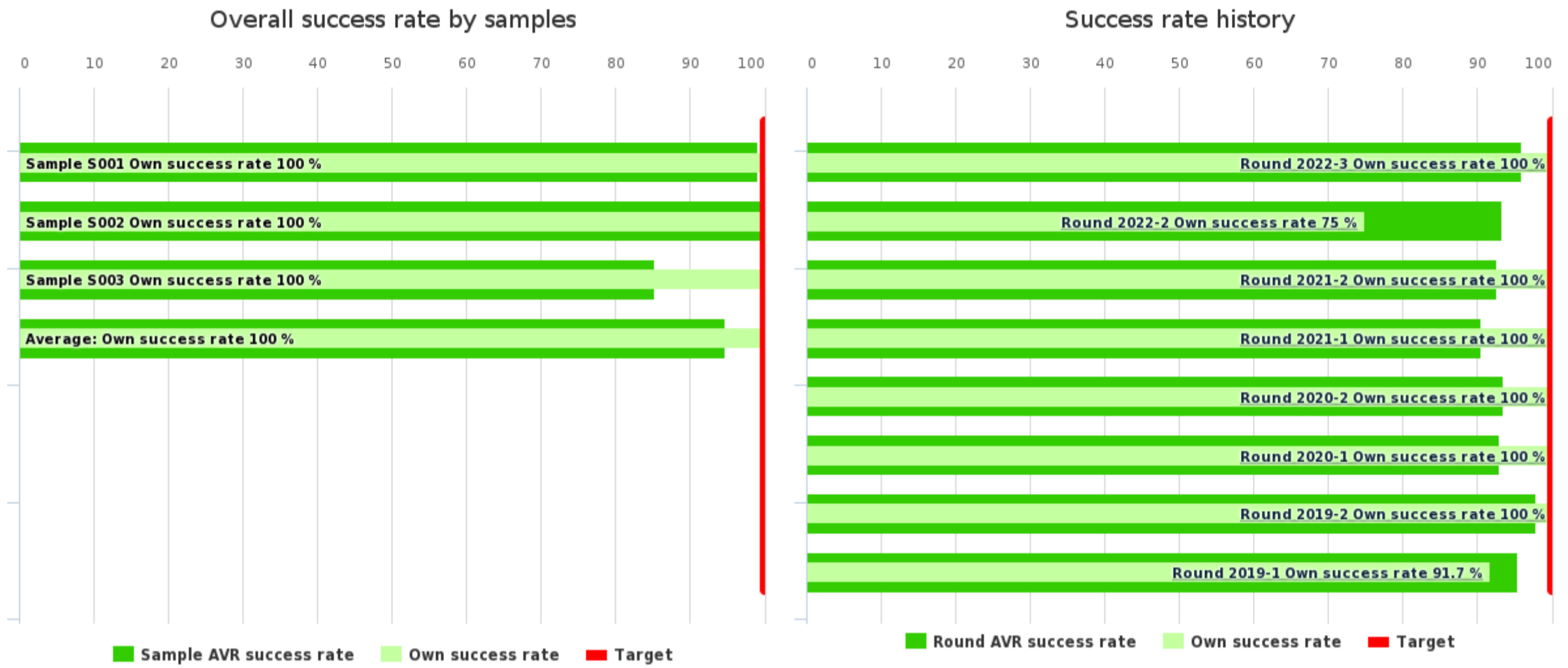
[info@labquality.fi](mailto:info@labquality.fi)  
[www.labquality.com](http://www.labquality.com)



Client report

	No of participants	No of responded participants	Response percentage
Dengue virus, antibodies and antigen detection, June, 2-2023	27	26	96.3 %

Summary

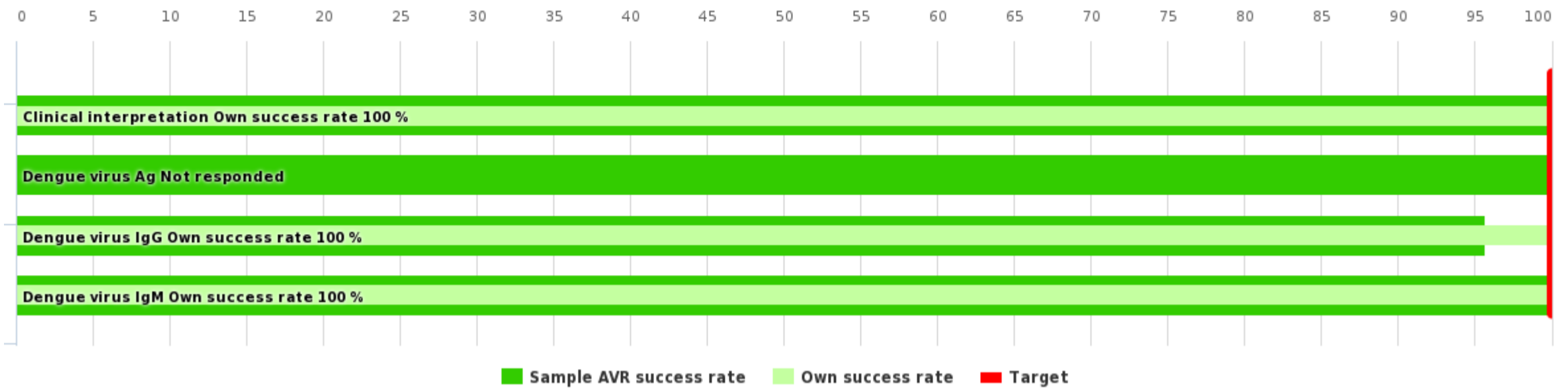


Summary	Own score	Max score	Own success rate	Difference	AVR success rate
Sample S001	8	8	100 %	0.9 %	99.1 %
Sample S002	8	8	100 %	0 %	100 %
Sample S003	8	8	100 %	14.8 %	85.2 %
Average:			100 %	5.2 %	94.8 %

History	Test nr.	Own success rate	Difference	AVR success rate
Round 2022-3	1-1	100 %	4 %	96 %
Round 2022-2	1-1	75 %	-18.3 %	93.3 %
Round 2021-2	1-1	100 %	7.3 %	92.7 %
Round 2021-1	1-1	100 %	9.5 %	90.5 %
Round 2020-2	1-1	100 %	6.5 %	93.5 %
Round 2020-1	1-1	100 %	7.1 %	92.9 %
Round 2019-2	1-1	100 %	2.1 %	97.9 %
Round 2019-1	1-1	91.7 %	-3.7 %	95.4 %

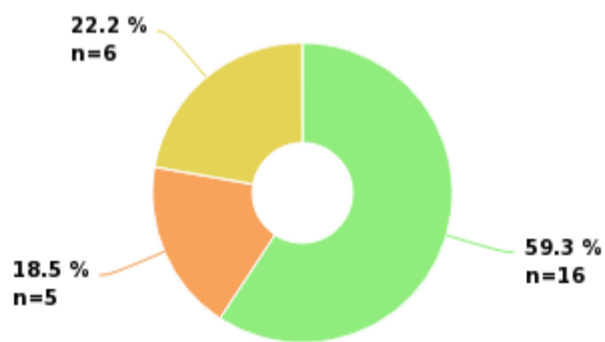
Sample S001

Sample S001 success rate



Sample S001 results	Responded	Own score	Max score	Own success rate	Difference	AVR success rate	Count
	Clinical interpretation	4	4	100 %	0 %	100 %	27
	Dengue virus Ag	-	-	-	-	100 %	23
	Dengue virus IgG	2	2	100 %	4.3 %	95.7 %	23
	Dengue virus IgM	2	2	100 %	0 %	100 %	23
	Total:	8	8	100 %	0.9 %	99.1 %	96

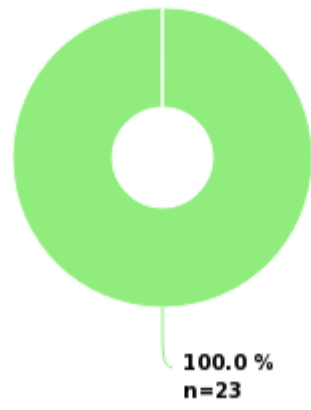
Sample S001 Clinical interpretation



■ Acute/recent infection  
■ No detectable antibodies  
■ Laboratory does not give interpretation

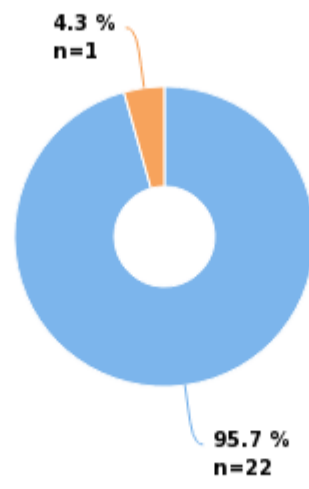
Clinical interpretation	Clinical interpretation	Further handling	Clinical interpretation count	Further handling count	Own score	Max score	Own success rate	Difference	AVR success rate
	Acute/recent infection		16		-				100 %
		New sample requested		1					
		Would be referred to another laboratory for further examination		4					
	<input checked="" type="radio"/> No detectable antibodies		5		4	4	100 %	0 %	100 %
		New sample requested		3					
	Laboratory does not give interpretation		6		-				-
		New sample requested		1					
		Would be referred to another laboratory for further examination		1					
	Total:		27		4	4	100 %	0 %	100 %

Sample S001 Dengue virus Ag



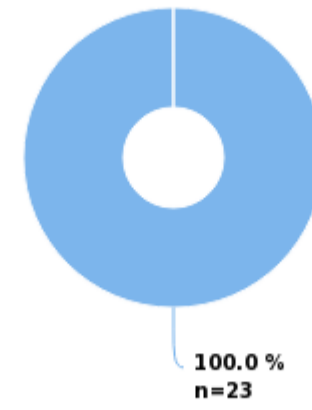
Positive

Sample S001 Dengue virus IgG



Negative Borderline

Sample S001 Dengue virus IgM



Negative

Dengue virus Ag	Result	Methodics	Result count	Methodics count	Own score	Max score	Own success rate	Difference	AVR success rate
	Positive		23		-				100 %
		Abbott Panbio Dengue Early Rapid		1					
		Abbott/Standard Diagnostics BIOLINE Dengue Duo		7					
		Acro Biotech Dengue IgG/IgM and NS1 Combo		1					
		bioMerieux VIDAS Dengue panel		1					
		Biorad Dengue NS1 Ag		1					
		Biorad EIA Platelia Dengue NS1 Ag		2					
		CTKBiotech Dengue Ag Rapid Test		1					
		CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		5					
		In-house method		1					
		nal von Minden NADAL Dengue Ag Test		1					
		SD Biosensor STANDARD F Dengue NS1 Ag		1					
		SD Biosensor STANDARD Q Dengue Duo		1					
	Total:		23		-	-	-	-	100 %

OWN DEVICE: IMMUNOMAT 1

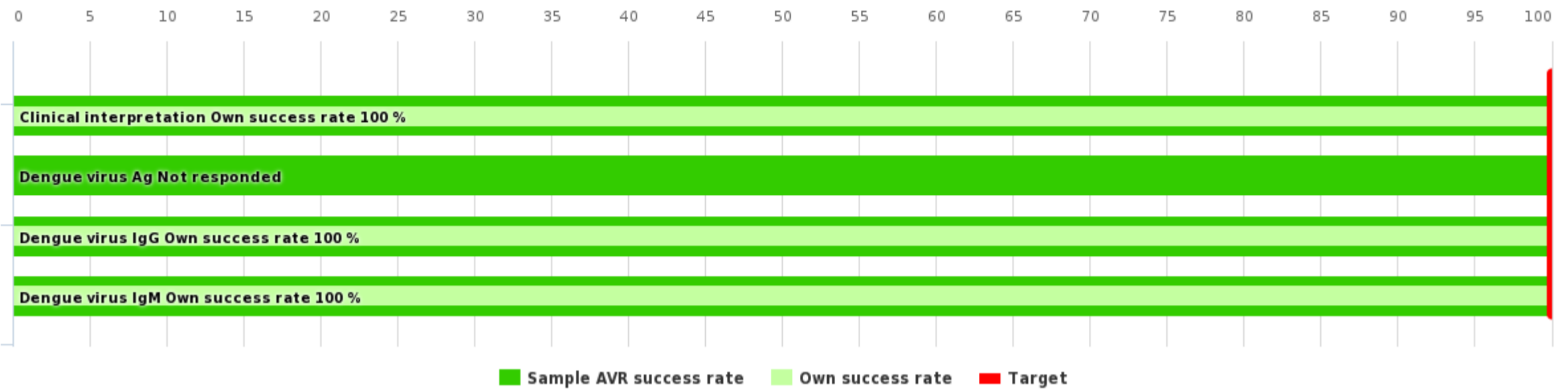
Dengue virus IgG	Result	Methodics	Result count	Methodics count	Own score	Max score	Own success rate	Difference	AVR success rate
	<input checked="" type="radio"/> Negative		22		2	2	100 %	0 %	100 %
		Abbott Panbio Dengue Duo Cassette		1					
		Abbott/Standard Diagnostics BIOLINE Dengue Duo		5					
		Acro Biotech Dengue IgG/IgM and NS1 Combo		1					
		bioMerieux VIDAS Dengue panel		1					
		CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		5					
		Euroimmun Anti-dengue virus IIFT		1					
		Euroimmun Dengue Virus IgG ELISA		2					
		Novatec Dengue Virus IgG ELISA		2					
		SD Biosensor STANDARD F Dengue IgM/IgG FIA		1					
		SD Biosensor STANDARD Q Dengue Duo		1					
		<input checked="" type="radio"/> Serion Dengue Virus IgG		1					
		Vircell Dengue Virclia IgG		1					
	Borderline		1		-				0 %
		Vircell Dengue Virclia IgG		1					
	Total:		23		2	2	100 %	4.3 %	95.7 %

OWN DEVICE: IMMUNOMAT 1

Dengue virus IgM	Result	Methodics	Result count	Methodics count	Own score	Max score	Own success rate	Difference	AVR success rate
	<input checked="" type="radio"/> Negative		23		2	2	100 %	0 %	100 %
		Abbott Panbio Dengue Duo Cassette		1					
		Abbott/Standard Diagnostics BIOLINE Dengue Duo		5					
		Acro Biotech Dengue IgG/IgM and NS1 Combo		1					
		bioMerieux VIDAS Dengue panel		1					
		CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		5					
		Euroimmun Anti-dengue virus IIFT		1					
		Euroimmun Dengue Virus IgM ELISA		1					
		Focus Diagnostics Dengue IgM DxSelect		1					
		Novatec Dengue Virus IgM ELISA		2					
		SD Biosensor STANDARD F Dengue IgM/IgG FIA		1					
		SD Biosensor STANDARD Q Dengue Duo		1					
		<input checked="" type="radio"/> Serion Dengue Virus IgM		1					
		Vircell Dengue Virclia IgM		2					
	Total:		23		2	2	100 %	0 %	100 %

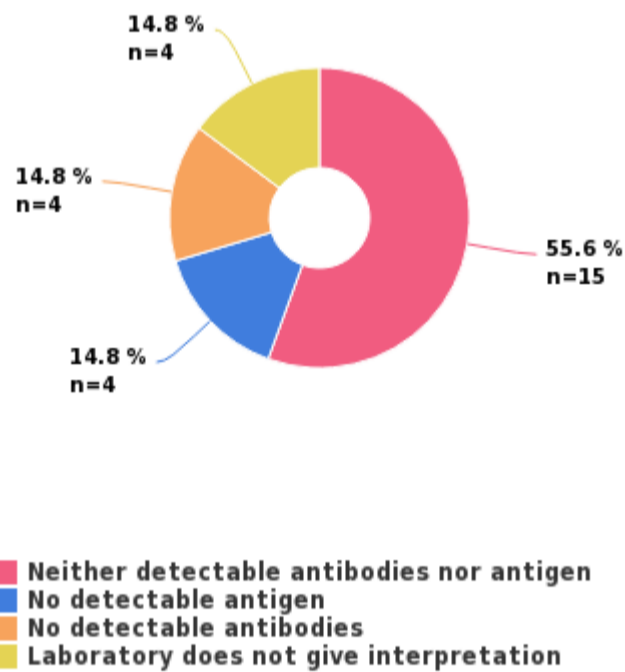
Sample S002

Sample S002 success rate



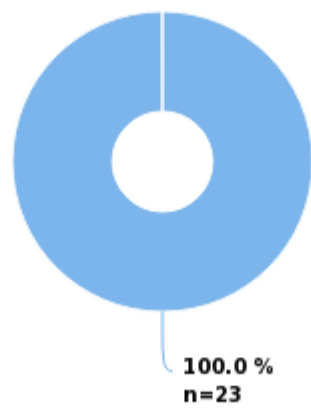
Sample S002 results	Responded	Own score	Max score	Own success rate	Difference	AVR success rate	Count
	Clinical interpretation	4	4	100 %	0 %	100 %	27
	Dengue virus Ag	-	-	-	-	100 %	23
	Dengue virus IgG	2	2	100 %	0 %	100 %	23
	Dengue virus IgM	2	2	100 %	0 %	100 %	23
	Total:	8	8	100 %	0 %	100 %	96

Sample S002 Clinical interpretation



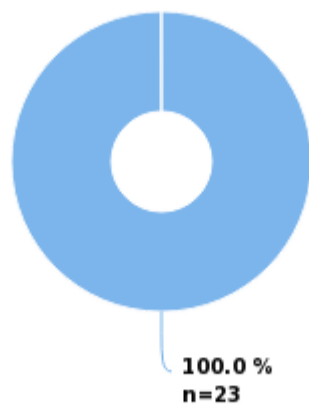
Clinical interpretation	Clinical interpretation	Further handling	Clinical interpretation count	Further handling count	Own score	Max score	Own success rate	Difference	AVR success rate
	Neither detectable antibodies nor antigen		15		-				100 %
		Would be referred to another laboratory for further examination		2					
	No detectable antigen		4		-				100 %
		New sample requested		1					
		Would be referred to another laboratory for further examination		2					
	<input checked="" type="radio"/> No detectable antibodies		4		4	4	100 %	0 %	100 %
		New sample requested		1					
	Laboratory does not give interpretation		4		-				-
	Total:		27		4	4	100 %	0 %	100 %

Sample S002 Dengue virus Ag



■ Negative

Sample S002 Dengue virus IgG



■ Negative

Sample S002 Dengue virus IgM



■ Negative

Dengue virus Ag	Result	Methodics	Result count	Methodics count	Own score	Max score	Own success rate	Difference	AVR success rate
	Negative		23		-				100 %
		Abbott Panbio Dengue Early Rapid		1					
		Abbott/Standard Diagnostics BIOLINE Dengue Duo		7					
		Acro Biotech Dengue IgG/IgM and NS1 Combo		1					
		bioMerieux VIDAS Dengue panel		1					
		Biorad Dengue NS1 Ag		1					
		Biorad EIA Platelia Dengue NS1 Ag		2					
		CTKBiotech Dengue Ag Rapid Test		1					
		CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		5					
		In-house method		1					
		nal von Minden NADAL Dengue Ag Test		1					
		SD Biosensor STANDARD F Dengue NS1 Ag		1					
		SD Biosensor STANDARD Q Dengue Duo		1					
	Total:		23		-	-	-	-	100 %

OWN DEVICE: IMMUNOMAT 1

Dengue virus IgG	Result	Methodics	Result count	Methodics count	Own score	Max score	Own success rate	Difference	AVR success rate
	<input checked="" type="radio"/> Negative		23		2	2	100 %	0 %	100 %
		Abbott Panbio Dengue Duo Cassette		1					
		Abbott/Standard Diagnostics BIOLINE Dengue Duo		5					
		Acro Biotech Dengue IgG/IgM and NS1 Combo		1					
		bioMerieux VIDAS Dengue panel		1					
		CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		5					
		Euroimmun Anti-dengue virus IIFT		1					
		Euroimmun Dengue Virus IgG ELISA		2					
		Novatec Dengue Virus IgG ELISA		2					
		SD Biosensor STANDARD F Dengue IgM/IgG FIA		1					
		SD Biosensor STANDARD Q Dengue Duo		1					
		<input checked="" type="radio"/> Serion Dengue Virus IgG		1					
		Vircell Dengue Virclia IgG		2					
	Total:		23		2	2	100 %	0 %	100 %

OWN DEVICE: IMMUNOMAT 1

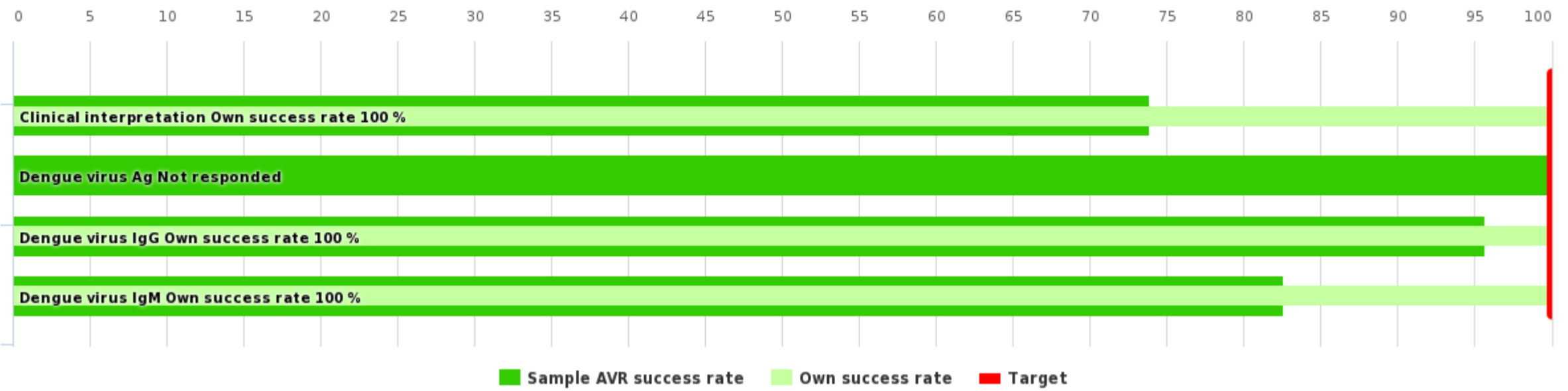
Dengue virus IgM	Result	Methodics	Result count	Methodics count	Own score	Max score	Own success rate	Difference	AVR success rate
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<input checked="" type="radio"/> Negative		23		2	2	100 %	0 %	100 %
	Abbott Panbio Dengue Duo Cassette		1					
	Abbott/Standard Diagnostics BIOLINE Dengue Duo		5					
	Acro Biotech Dengue IgG/IgM and NS1 Combo		1					
	bioMerieux VIDAS Dengue panel		1					
	CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		5					
	Euroimmun Anti-dengue virus IIFT		1					
	Euroimmun Dengue Virus IgM ELISA		1					
	Focus Diagnostics Dengue IgM DxSelect		1					
	Novatec Dengue Virus IgM ELISA		2					
	SD Biosensor STANDARD F Dengue IgM/IgG FIA		1					
	SD Biosensor STANDARD Q Dengue Duo		1					
	<input checked="" type="radio"/> Serion Dengue Virus IgM		1					
	Vircell Dengue Virclia IgM		2					
Total:		23		2	2	100 %	0 %	100 %



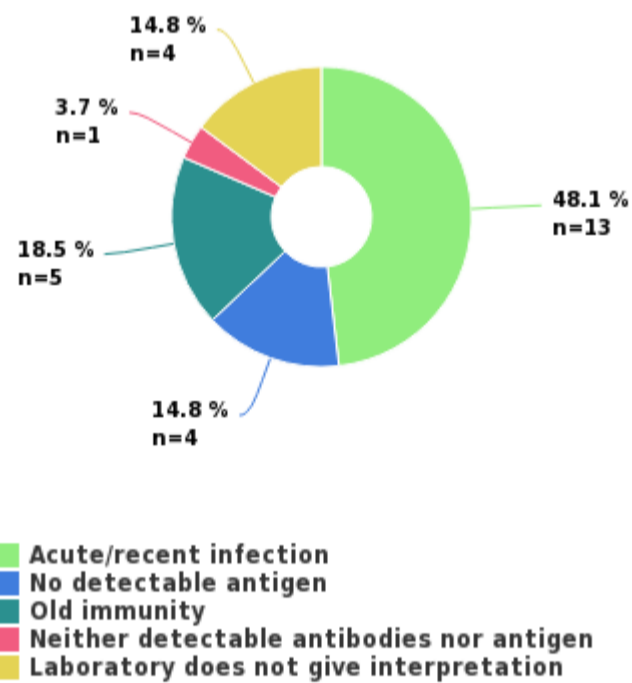
Sample S003

Sample S003 success rate



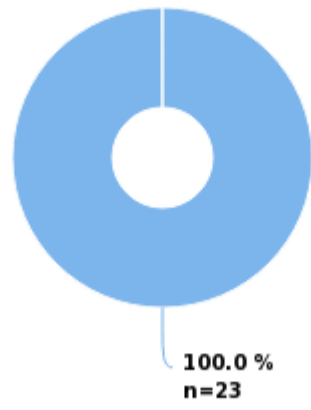
Sample S003 results	Responded	Own score	Max score	Own success rate	Difference	AVR success rate	Count
	Clinical interpretation	4	4	100 %	26.1 %	73.9 %	27
	Dengue virus Ag	-	-	-	-	100 %	23
	Dengue virus IgG	2	2	100 %	4.3 %	95.7 %	23
	Dengue virus IgM	2	2	100 %	17.4 %	82.6 %	23
	Total:	8	8	100 %	14.8 %	85.2 %	96

Sample S003 Clinical interpretation



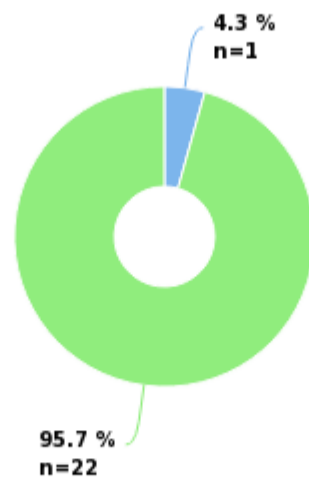
Clinical interpretation	Clinical interpretation	Further handling	Clinical interpretation count	Further handling count	Own score	Max score	Own success rate	Difference	AVR success rate
	<input checked="" type="radio"/> Acute/recent infection		13		4	4	100 %	0 %	100 %
		New sample requested		2					
		Would be referred to another laboratory for further examination		2					
	No detectable antigen		4		-				100 %
		New sample requested		1					
		Would be referred to another laboratory for further examination		2					
	Old immunity		5		-				0 %
	Neither detectable antibodies nor antigen		1		-				0 %
	Laboratory does not give interpretation		4		-				-
	Total:		27		4	4	100 %	26.1 %	73.9 %

Sample S003 Dengue virus Ag



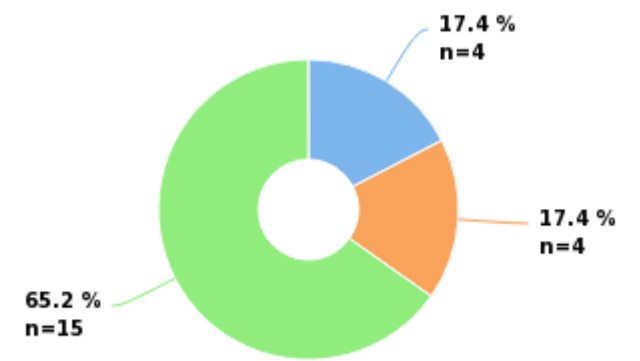
■ Negative

Sample S003 Dengue virus IgG



■ Negative ■ Positive

Sample S003 Dengue virus IgM



■ Negative ■ Borderline ■ Positive

Dengue virus Ag	Result	Methodics	Result count	Methodics count	Own score	Max score	Own success rate	Difference	AVR success rate
	Negative		23		-				100 %
		Abbott Panbio Dengue Early Rapid		1					
		Abbott/Standard Diagnostics BIOLINE Dengue Duo		7					
		Acro Biotech Dengue IgG/IgM and NS1 Combo		1					
		bioMerieux VIDAS Dengue panel		1					
		Biorad Dengue NS1 Ag		1					
		Biorad EIA Platelia Dengue NS1 Ag		2					
		CTKBiotech Dengue Ag Rapid Test		1					
		CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		5					
		In-house method		1					
		nal von Minden NADAL Dengue Ag Test		1					
		SD Biosensor STANDARD F Dengue NS1 Ag		1					
		SD Biosensor STANDARD Q Dengue Duo		1					
	Total:		23		-	-	-	-	100 %

OWN DEVICE: IMMUNOMAT 1

Dengue virus IgG	Result	Methodics	Result count	Methodics count	Own score	Max score	Own success rate	Difference	AVR success rate
	Negative		1		-				0 %
		CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		1					
	<input checked="" type="radio"/> Positive		22		2	2	100 %	0 %	100 %
		Abbott Panbio Dengue Duo Cassette		1					
		Abbott/Standard Diagnostics BIOLINE Dengue Duo		5					
		Acro Biotech Dengue IgG/IgM and NS1 Combo		1					
		bioMerieux VIDAS Dengue panel		1					
		CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		4					
		Euroimmun Anti-dengue virus IIFT		1					
		Euroimmun Dengue Virus IgG ELISA		2					
		Novatec Dengue Virus IgG ELISA		2					
		SD Biosensor STANDARD F Dengue IgM/IgG FIA		1					
		SD Biosensor STANDARD Q Dengue Duo		1					
		<input checked="" type="radio"/> Serion Dengue Virus IgG		1					
		Vircell Dengue Virclia IgG		2					
	Total:		23		2	2	100 %	4.3 %	95.7 %

OWN DEVICE: IMMUNOMAT 1

Dengue virus IgM	Result	Methodics	Result count	Methodics count	Own score	Max score	Own success rate	Difference	AVR success rate
	Negative		4		-				0 %
		CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		2					
		Novatec Dengue Virus IgM ELISA		1					
		SD Biosensor STANDARD Q Dengue Duo		1					
	Borderline		4		-				100 %
		Abbott/Standard Diagnostics BIOLINE Dengue Duo		2					
		Acro Biotech Dengue IgG/IgM and NS1 Combo		1					
		SD Biosensor STANDARD F Dengue IgM/IgG FIA		1					
	<input checked="" type="radio"/> Positive		15		2	2	100 %	0 %	100 %
		Abbott Panbio Dengue Duo Cassette		1					
		Abbott/Standard Diagnostics BIOLINE Dengue Duo		3					
		bioMerieux VIDAS Dengue panel		1					
		CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		3					
		Euroimmun Anti-dengue virus IIFT		1					
		Euroimmun Dengue Virus IgM ELISA		1					
		Focus Diagnostics Dengue IgM DxSelect		1					
		Novatec Dengue Virus IgM ELISA		1					
		<input checked="" type="radio"/> Serion Dengue Virus IgM		1					
		Vircell Dengue Virclia IgM		2					
	Total:		23		2	2	100 %	17.4 %	82.6 %

**Report Info****PARTICIPANTS**

Altogether 27 laboratories from 14 countries participated in this EQA round.

**REPORT INFO**

The results are divided into groups according to the method 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 report 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 and methodic counts 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 test results and clinical interpretations when 60% or more of the participants report the expected result and when at least three results are reported.

The following general rules are applied:

Correct/expected test result 2/2 points  
False/deviating test result 0/2 points  
Correct/expected clinical interpretation 4/4 points  
False/deviating clinical interpretation 0/4 points

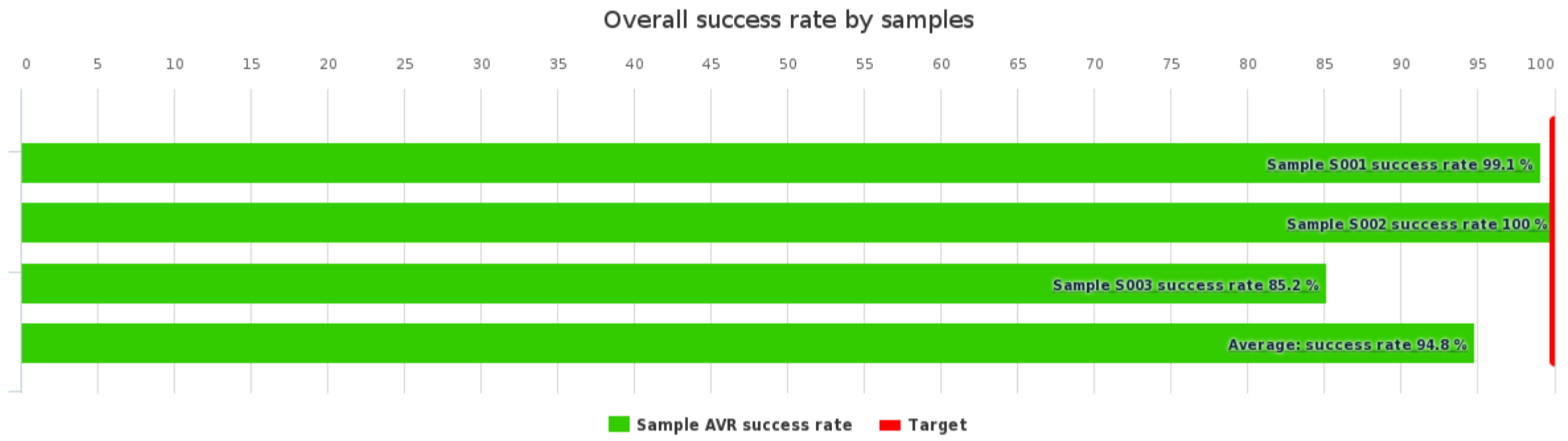
The performance of the laboratory is assessed by the Own success rate (%). The target is 100%. The examination-specific scores obtained by the laboratory in the round are converted to Own success rate per sample (scores/maximum scores\*100). The Laboratory's Own success rate is the average of the sample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

## GLOBAL REPORT

	No of participants	No of responded participants	Response percentage
Dengue virus, antibodies and antigen detection, June, 2-2023	27	26	96.3 %

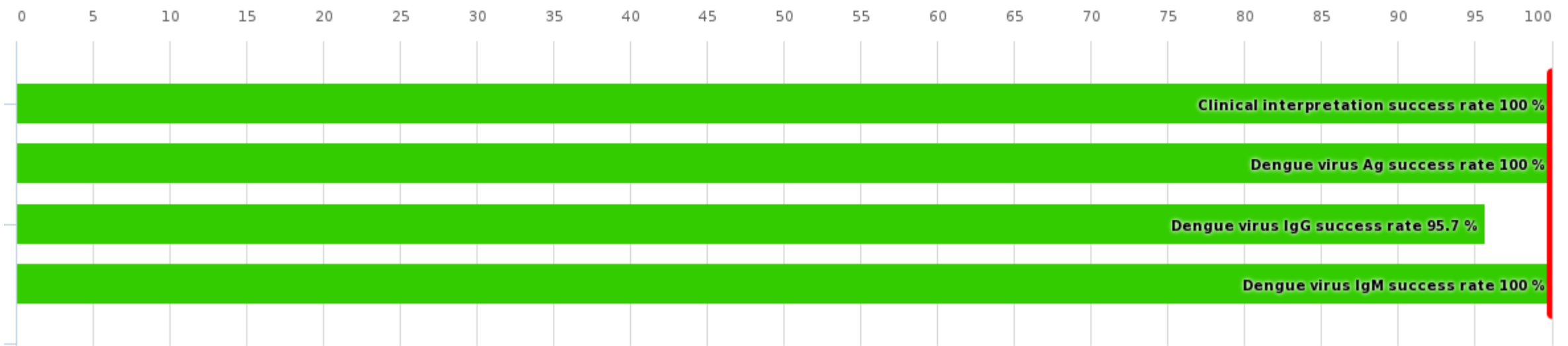
### Summary



Summary	AVR success rate
Sample S001	99.1 %
Sample S002	100 %
Sample S003	85.2 %
Average:	94.8 %

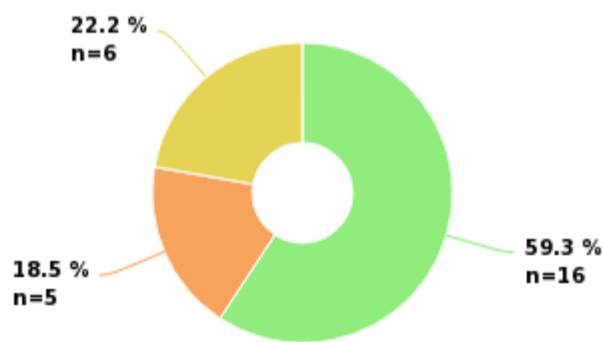
## Sample S001

Sample S001 success rate



Sample S001 results	Responded	AVR success rate	Count
	Clinical interpretation	100 %	27
	Dengue virus Ag	100 %	23
	Dengue virus IgG	95.7 %	23
	Dengue virus IgM	100 %	23
	Total:	99.1 %	96

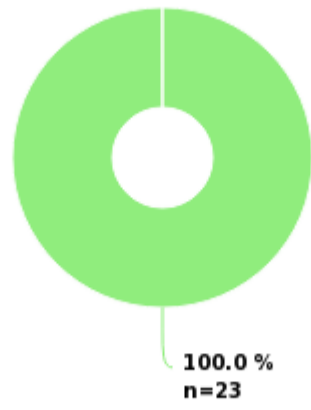
## Sample S001 Clinical interpretation



■ Acute/recent infection  
■ No detectable antibodies  
■ Laboratory does not give interpretation

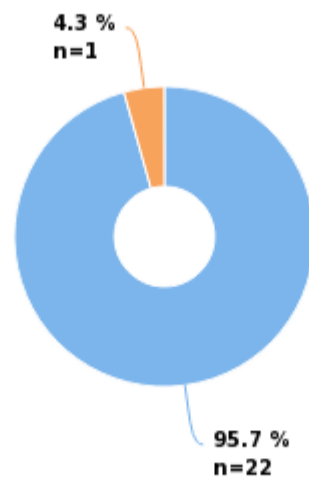
Clinical interpretation	Clinical interpretation	Further handling	Clinical interpretation count	Further handling count	AVR success rate	Clinical interpretation Score
	Acute/recent infection		16		100 %	4
		New sample requested		1		
		Would be referred to another laboratory for further examination		4		
	No detectable antibodies		5		100 %	4
		New sample requested		3		
	Laboratory does not give interpretation		6		-	-
		New sample requested		1		
		Would be referred to another laboratory for further examination		1		
	Total:		27		100 %	

Sample S001 Dengue virus Ag



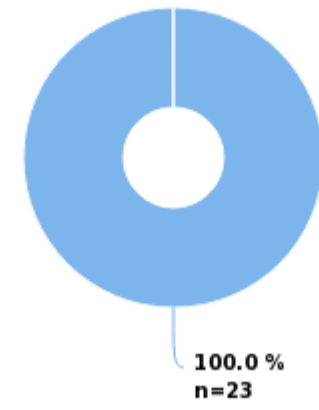
Positive

Sample S001 Dengue virus IgG



Negative Borderline

Sample S001 Dengue virus IgM



Negative

Dengue virus Ag	Result	Methodics	Result count	Methodics count	AVR success rate	Result Score
	Positive		23		100 %	2
		Abbott Panbio Dengue Early Rapid		1		
		Abbott/Standard Diagnostics BIOLINE Dengue Duo		7		
		Acro Biotech Dengue IgG/IgM and NS1 Combo		1		
		bioMerieux VIDAS Dengue panel		1		
		Biorad Dengue NS1 Ag		1		
		Biorad EIA Platelia Dengue NS1 Ag		2		
		CTKBiotech Dengue Ag Rapid Test		1		
		CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		5		
		In-house method		1		
		nal von Minden NADAL Dengue Ag Test		1		
		SD Biosensor STANDARD F Dengue NS1 Ag		1		
		SD Biosensor STANDARD Q Dengue Duo		1		
	Total:		23		100 %	

Dengue virus IgG	Result	Methodics	Result count	Methodics count	AVR success rate	Result Score
	Negative		22		100 %	2
		Abbott Panbio Dengue Duo Cassette		1		
		Abbott/Standard Diagnostics BIOLINE Dengue Duo		5		
		Acro Biotech Dengue IgG/IgM and NS1 Combo		1		
		bioMerieux VIDAS Dengue panel		1		
		CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		5		
		Euroimmun Anti-dengue virus IIFT		1		
		Euroimmun Dengue Virus IgG ELISA		2		
		Novatec Dengue Virus IgG ELISA		2		
		SD Biosensor STANDARD F Dengue IgM/IgG FIA		1		
		SD Biosensor STANDARD Q Dengue Duo		1		
		Serion Dengue Virus IgG		1		
		Vircell Dengue Virclia IgG		1		
	Borderline		1		0 %	0
		Vircell Dengue Virclia IgG		1		
	Total:		23		95.7 %	

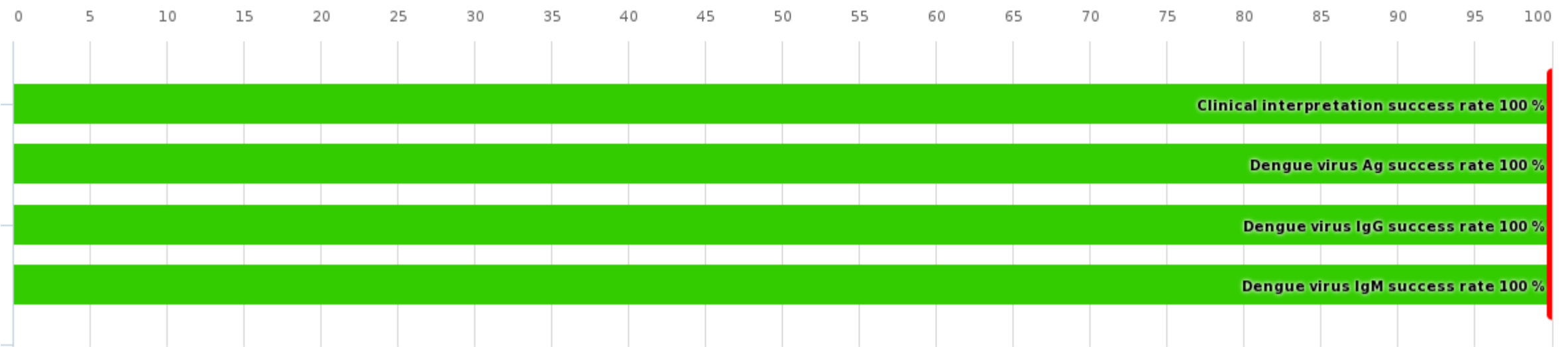
Dengue virus IgM	Result	Methodics	Result count	Methodics count	AVR success rate	Result Score
	Negative		23		100 %	2
		Abbott Panbio Dengue Duo Cassette		1		
		Abbott/Standard Diagnostics BIOLINE Dengue Duo		5		
		Acro Biotech Dengue IgG/IgM and NS1 Combo		1		
		bioMerieux VIDAS Dengue panel		1		
		CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		5		
		Euroimmun Anti-dengue virus IIFT		1		
		Euroimmun Dengue Virus IgM ELISA		1		

		Focus Diagnostics Dengue IgM DxSelect		1		
		Novatec Dengue Virus IgM ELISA		2		
		SD Biosensor STANDARD F Dengue IgM/IgG FIA		1		
		SD Biosensor STANDARD Q Dengue Duo		1		
		Serion Dengue Virus IgM		1		
		Vircell Dengue Virclia IgM		2		
	Total:		23		100 %	



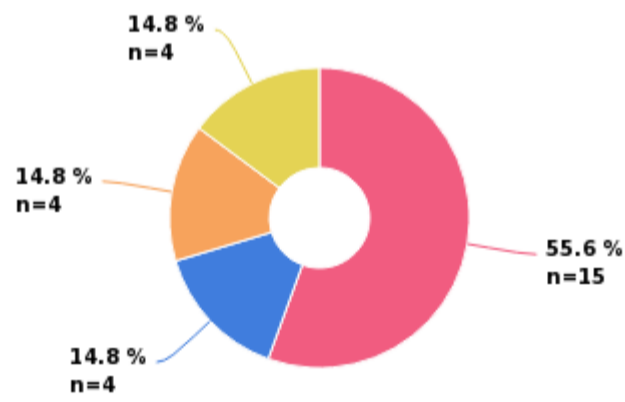
**Sample S002**

Sample S002 success rate



Sample S002 results	Responded	AVR success rate	Count
	Clinical interpretation	100 %	27
	Dengue virus Ag	100 %	23
	Dengue virus IgG	100 %	23
	Dengue virus IgM	100 %	23
	Total:	100 %	96

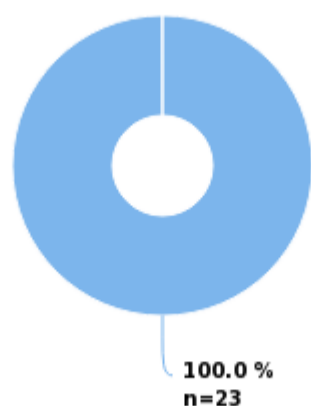
Sample S002 Clinical interpretation



- Neither detectable antibodies nor antigen
- No detectable antigen
- No detectable antibodies
- Laboratory does not give interpretation

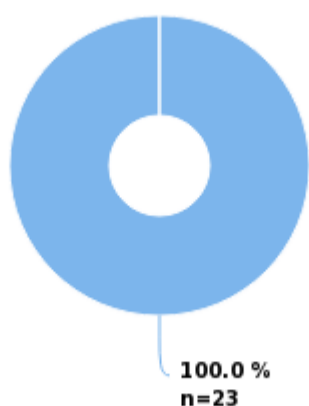
Clinical interpretation	Clinical interpretation	Further handling	Clinical interpretation count	Further handling count	AVR success rate	Clinical interpretation Score
	Neither detectable antibodies nor antigen		15		100 %	4
		Would be referred to another laboratory for further examination		2		
	No detectable antigen		4		100 %	4
		New sample requested		1		
		Would be referred to another laboratory for further examination		2		
	No detectable antibodies		4		100 %	4
		New sample requested		1		
	Laboratory does not give interpretation		4		-	-
	Total:		27		100 %	

Sample S002 Dengue virus Ag



■ Negative

Sample S002 Dengue virus IgG



■ Negative

Sample S002 Dengue virus IgM



■ Negative

Dengue virus Ag	Result	Methodics	Result count	Methodics count	AVR success rate	Result Score
	Negative		23		100 %	2
		Abbott Panbio Dengue Early Rapid		1		
		Abbott/Standard Diagnostics BIOLINE Dengue Duo		7		
		Acro Biotech Dengue IgG/IgM and NS1 Combo		1		
		bioMerieux VIDAS Dengue panel		1		
		Biorad Dengue NS1 Ag		1		
		Biorad EIA Platelia Dengue NS1 Ag		2		
		CTKBiotech Dengue Ag Rapid Test		1		
		CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		5		
		In-house method		1		
		nal von Minden NADAL Dengue Ag Test		1		
		SD Biosensor STANDARD F Dengue NS1 Ag		1		
		SD Biosensor STANDARD Q Dengue Duo		1		
	Total:		23		100 %	

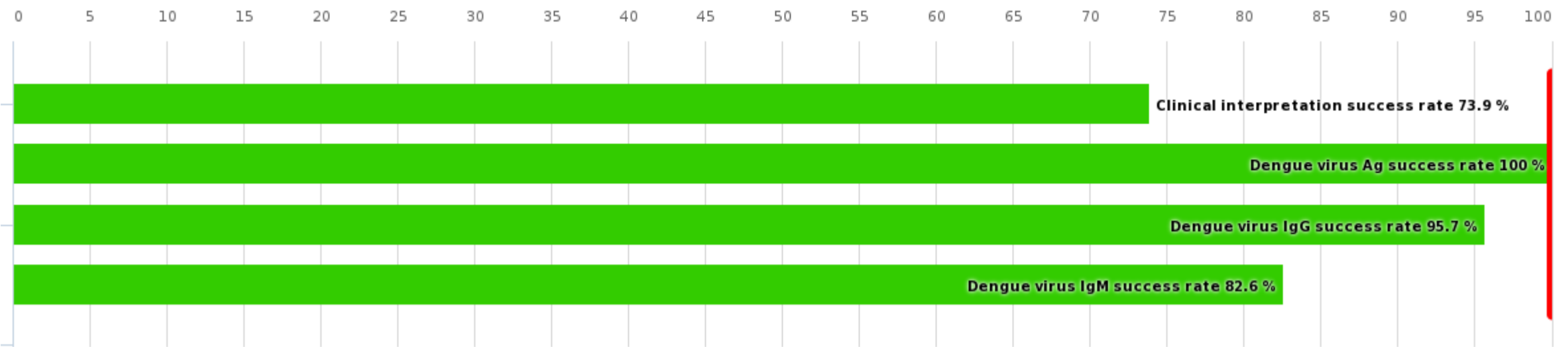
Dengue virus IgG	Result	Methodics	Result count	Methodics count	AVR success rate	Result Score
	Negative		23		100 %	2
		Abbott Panbio Dengue Duo Cassette		1		
		Abbott/Standard Diagnostics BIOLINE Dengue Duo		5		
		Acro Biotech Dengue IgG/IgM and NS1 Combo		1		
		bioMerieux VIDAS Dengue panel		1		
		CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		5		
		Euroimmun Anti-dengue virus IIFT		1		
		Euroimmun Dengue Virus IgG ELISA		2		
		Novatec Dengue Virus IgG ELISA		2		
		SD Biosensor STANDARD F Dengue IgM/IgG FIA		1		
		SD Biosensor STANDARD Q Dengue Duo		1		
		Serion Dengue Virus IgG		1		
		Vircell Dengue Virclia IgG		2		
	Total:		23		100 %	

Dengue virus IgM	Result	Methodics	Result count	Methodics count	AVR success rate	Result Score
	Negative		23		100 %	2
		Abbott Panbio Dengue Duo Cassette		1		
		Abbott/Standard Diagnostics BIOLINE Dengue Duo		5		
		Acro Biotech Dengue IgG/IgM and NS1 Combo		1		
		bioMerieux VIDAS Dengue panel		1		
		CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		5		
		Euroimmun Anti-dengue virus IIFT		1		
		Euroimmun Dengue Virus IgM ELISA		1		
		Focus Diagnostics Dengue IgM DxSelect		1		
		Novatec Dengue Virus IgM ELISA		2		

		SD Biosensor STANDARD F Dengue IgM/IgG FIA		1		
		SD Biosensor STANDARD Q Dengue Duo		1		
		Serion Dengue Virus IgM		1		
		Vircell Dengue Virclia IgM		2		
	Total:		23		100 %	

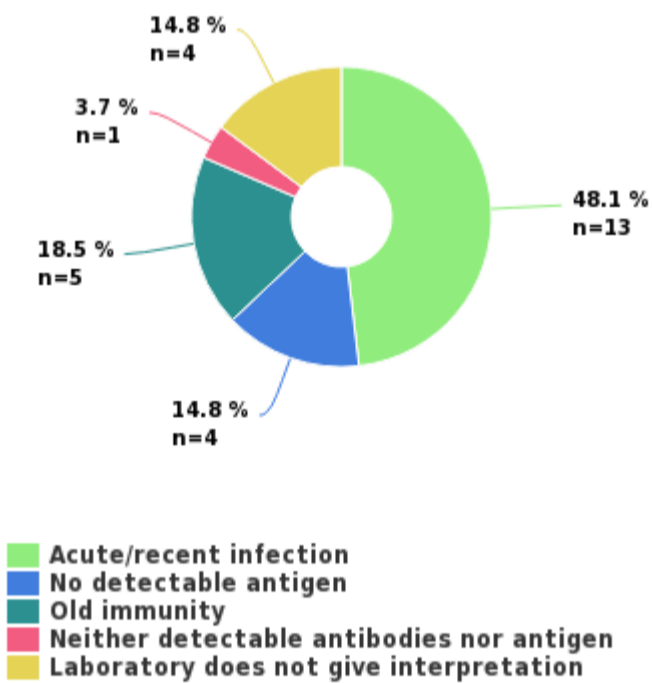
## Sample S003

Sample S003 success rate



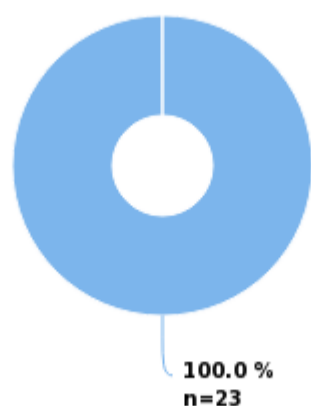
Sample S003 results	Responded	AVR success rate	Count
	Clinical interpretation	73.9 %	27
	Dengue virus Ag	100 %	23
	Dengue virus IgG	95.7 %	23
	Dengue virus IgM	82.6 %	23
	Total:	85.2 %	96

Sample S003 Clinical interpretation



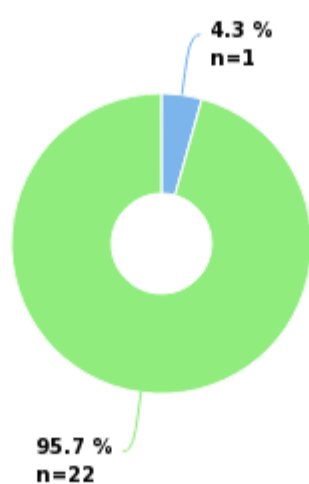
Clinical interpretation	Clinical interpretation	Further handling	Clinical interpretation count	Further handling count	AVR success rate	Clinical interpretation Score
	Acute/recent infection		13		100 %	4
		New sample requested		2		
		Would be referred to another laboratory for further examination		2		
	No detectable antigen		4		100 %	4
		New sample requested		1		
		Would be referred to another laboratory for further examination		2		
	Old immunity		5		0 %	0
	Neither detectable antibodies nor antigen		1		0 %	0
	Laboratory does not give interpretation		4		-	-
	Total:		27		73.9 %	

Sample S003 Dengue virus Ag



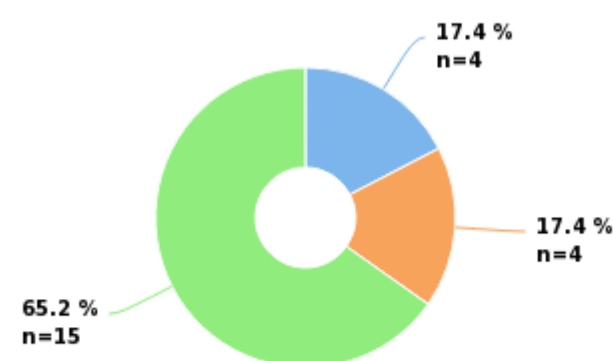
■ Negative

Sample S003 Dengue virus IgG



■ Negative ■ Positive

Sample S003 Dengue virus IgM



■ Negative ■ Borderline ■ Positive

Dengue virus Ag	Result	Methodics	Result count	Methodics count	AVR success rate	Result Score
	Negative		23		100 %	2
		Abbott Panbio Dengue Early Rapid		1		
		Abbott/Standard Diagnostics BIOLINE Dengue Duo		7		
		Acro Biotech Dengue IgG/IgM and NS1 Combo		1		
		bioMerieux VIDAS Dengue panel		1		
		Biorad Dengue NS1 Ag		1		
		Biorad EIA Platelia Dengue NS1 Ag		2		
		CTKBiotech Dengue Ag Rapid Test		1		
		CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		5		
		In-house method		1		
		nal von Minden NADAL Dengue Ag Test		1		
		SD Biosensor STANDARD F Dengue NS1 Ag		1		
		SD Biosensor STANDARD Q Dengue Duo		1		
	Total:		23		100 %	

Dengue virus IgG	Result	Methodics	Result count	Methodics count	AVR success rate	Result Score
	Negative		1		0 %	0
		CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		1		
	Positive		22		100 %	2
		Abbott Panbio Dengue Duo Cassette		1		
		Abbott/Standard Diagnostics BIOLINE Dengue Duo		5		
		Acro Biotech Dengue IgG/IgM and NS1 Combo		1		
		bioMerieux VIDAS Dengue panel		1		
		CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		4		
		Euroimmun Anti-dengue virus IIFT		1		
		Euroimmun Dengue Virus IgG ELISA		2		
		Novatec Dengue Virus IgG ELISA		2		
		SD Biosensor STANDARD F Dengue IgM/IgG FIA		1		
		SD Biosensor STANDARD Q Dengue Duo		1		
		Serion Dengue Virus IgG		1		
		Vircell Dengue Virclia IgG		2		
	Total:		23		95.7 %	

Dengue virus IgM	Result	Methodics	Result count	Methodics count	AVR success rate	Result Score
	Negative		4		0 %	0
		CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		2		
		Novatec Dengue Virus IgM ELISA		1		
		SD Biosensor STANDARD Q Dengue Duo		1		
	Borderline		4		100 %	2
		Abbott/Standard Diagnostics BIOLINE Dengue Duo		2		
		Acro Biotech Dengue IgG/IgM and NS1 Combo		1		
		SD Biosensor STANDARD F Dengue IgM/IgG FIA		1		

Positive		15		100 %	2
	Abbott Panbio Dengue Duo Cassette		1		
	Abbott/Standard Diagnostics BIOLINE Dengue Duo		3		
	bioMerieux VIDAS Dengue panel		1		
	CTKBiotech Duo Dengue Ag-IgG/IgM Rapid Test		3		
	Euroimmun Anti-dengue virus IIFT		1		
	Euroimmun Dengue Virus IgM ELISA		1		
	Focus Diagnostics Dengue IgM DxSelect		1		
	Novatec Dengue Virus IgM ELISA		1		
	Serion Dengue Virus IgM		1		
	Vircell Dengue Virclia IgM		2		
Total:		23		82.6 %	

## Report Info

### PARTICIPANTS

Altogether 27 laboratories from 14 countries participated in this EQA round.

### REPORT INFO

The results are divided into groups according to the method 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 report 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 and methodic counts 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 test results and clinical interpretations when 60% or more of the participants report the expected result and when at least three results are reported.

The following general rules are applied:

Correct/expected test result 2/2 points  
False/deviating test result 0/2 points  
Correct/expected clinical interpretation 4/4 points  
False/deviating clinical interpretation 0/4 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.

External Quality Assessment Scheme

## Dengue virus, antibodies and antigen detection

### Round 2, 2023

#### Specimens

Samples of this EQA round were human plasma or serum, each of which originated from a single donor. The antigen positive sample S001 contained recombinant dengue NS1 antigen. Based on the pre-testing and the results obtained in the round, the samples were homogeneous, stable and suitable for the external quality assessment scheme. The materials were sent without temperature control packaging.

The expected results were as follows:

#### Sample S001 (LQ775323021)

Dengue virus Ag	Positive
Dengue virus IgG	Negative
Dengue virus IgM	Negative
Clinical interpretation	Acute infection, no detectable antibodies

#### Sample S002 (LQ775323022)

Dengue virus Ag	Negative
Dengue virus IgG	Negative
Dengue virus IgM	Negative
Clinical interpretation	No detectable antibodies or antigen

#### Sample S003 (LQ775323023)

Dengue virus Ag	Negative
Dengue virus IgG	Positive
Dengue virus IgM	Positive
Clinical interpretation	Acute infection

Pre-test methods: Dengue IgG IFA In-house, EUROIMMUN Anti-Dengue Virus type 1-4 ELISA (IgM), NADAL® Dengue NS1 Ag+IgG/IgM.

#### 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 – Experts

The second dengue virus EQA round this year went perfectly for NS1 antigen assays as all reported laboratory results were as expected. On the other hand, some variation on the performance of antibody assays was seen. For the first acute infection sample (S001) one borderline IgG result was reported. For the negative sample (S002) all reported laboratory results as well as clinical interpretations were as expected. For the second acute (recent) infection sample (S003) one false negative IgG result and four false negative IgM results were reported. In addition, four borderline IgM results were reported as well. The false negative laboratory results led also to false clinical interpretations. In addition, one false clinical interpretation stating old immunity was reported regardless of correct laboratory results. The laboratories reporting false results would benefit from re-evaluating the performance of the antibody assays used, especially on sensitivities.

2023-06-22

#### FINAL REPORT

Product no. 5635

Subcontracting: Sample preparation, sample pretesting

Samples sent	2023-05-23
Round closed	2023-06-15
Expected results	2023-06-20
Final report	2023-06-22

#### 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

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#### Experts

Clinical microbiologist, Adjunct professor Hannimari Kallio-Kokko, HUS Diagnostic Center, Helsinki, Finland

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Best diagnostic coverage for dengue virus infection will be obtained by combining results from both antigen and antibody detection. In dengue fever, NS1 antigen can be detected already during the first days after the onset of symptoms even before detectable antibodies. The antigen levels decline as the IgG and IgM antibody levels start to rise.

**Exceptions in scoring**

No exceptions.

**End of report**

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