

External Quality Assessment Scheme

Tumour Markers Round 1, 2023

Specimens

Please find enclosed 2 samples S001 and S002, each 2 mL. Samples are liquid human serum-plasma pools without added preservatives.

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.

Examinations

Please see page 2.

Storage and use

Samples are ready for use. Unfortunately, sometimes clots occur in samples. Please centrifuge or otherwise removed the disturbing agent before analysing. Please analyse the samples as soon as possible after arrival. If you analyse the samples later than on the day of the arrival, please divide the samples into aliquots for the determinations and freeze immediately (-20 °C). Please, avoid several freeze-thaw cycles. A little before analysing thaw and mix the samples well. 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 Coordinator.

S001



S002



2023-02-13

INSTRUCTIONS

Product no. 2700, 2700S
LQ741223011-012 /FI

Subcontracting: Sample
preparation

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

The results should be
reported no later than
March 7, 2023.

Inquiries

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Labquality Oy

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Tel. + 358 9 8566 8200
Fax + 358 9 8566 8280

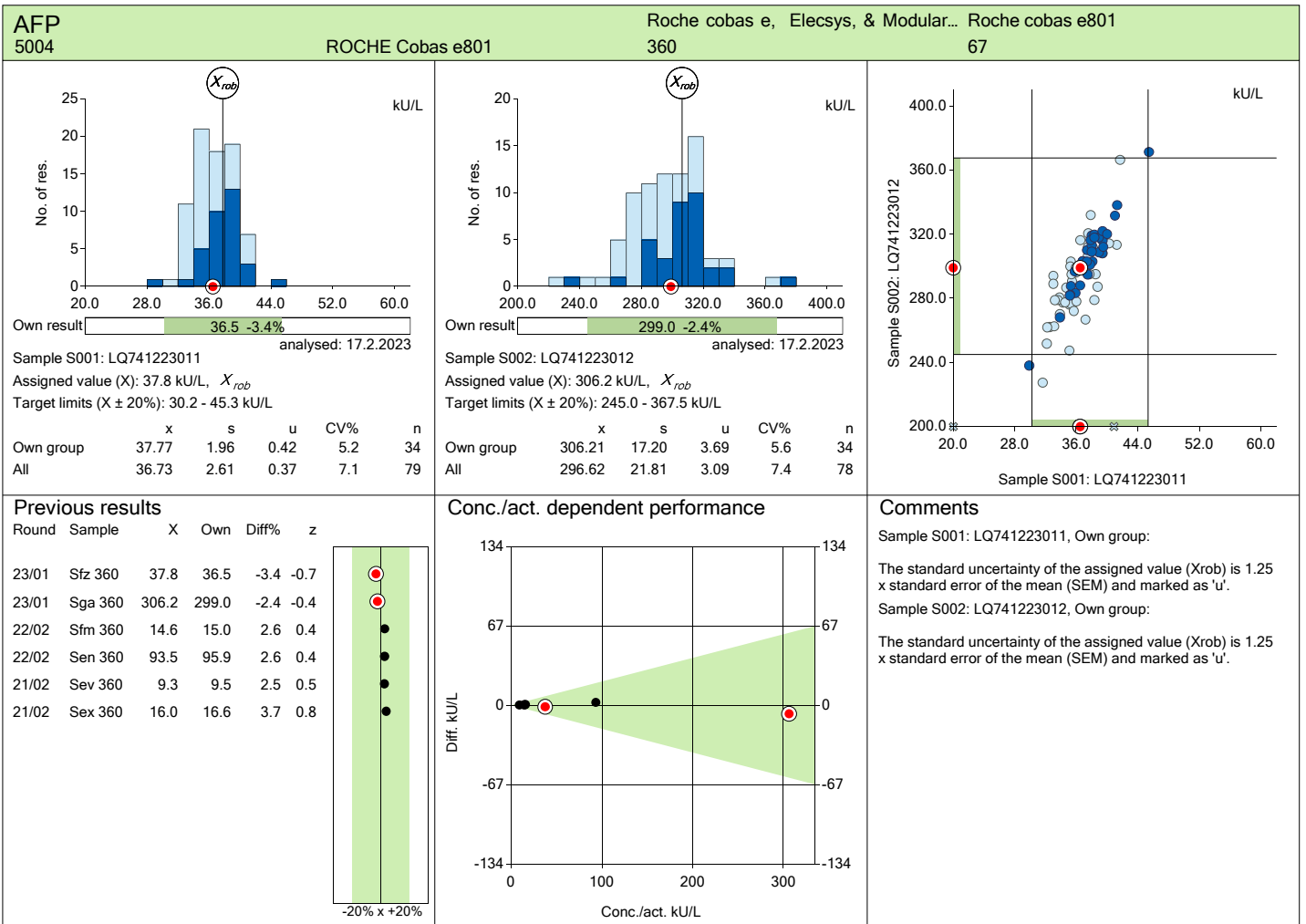
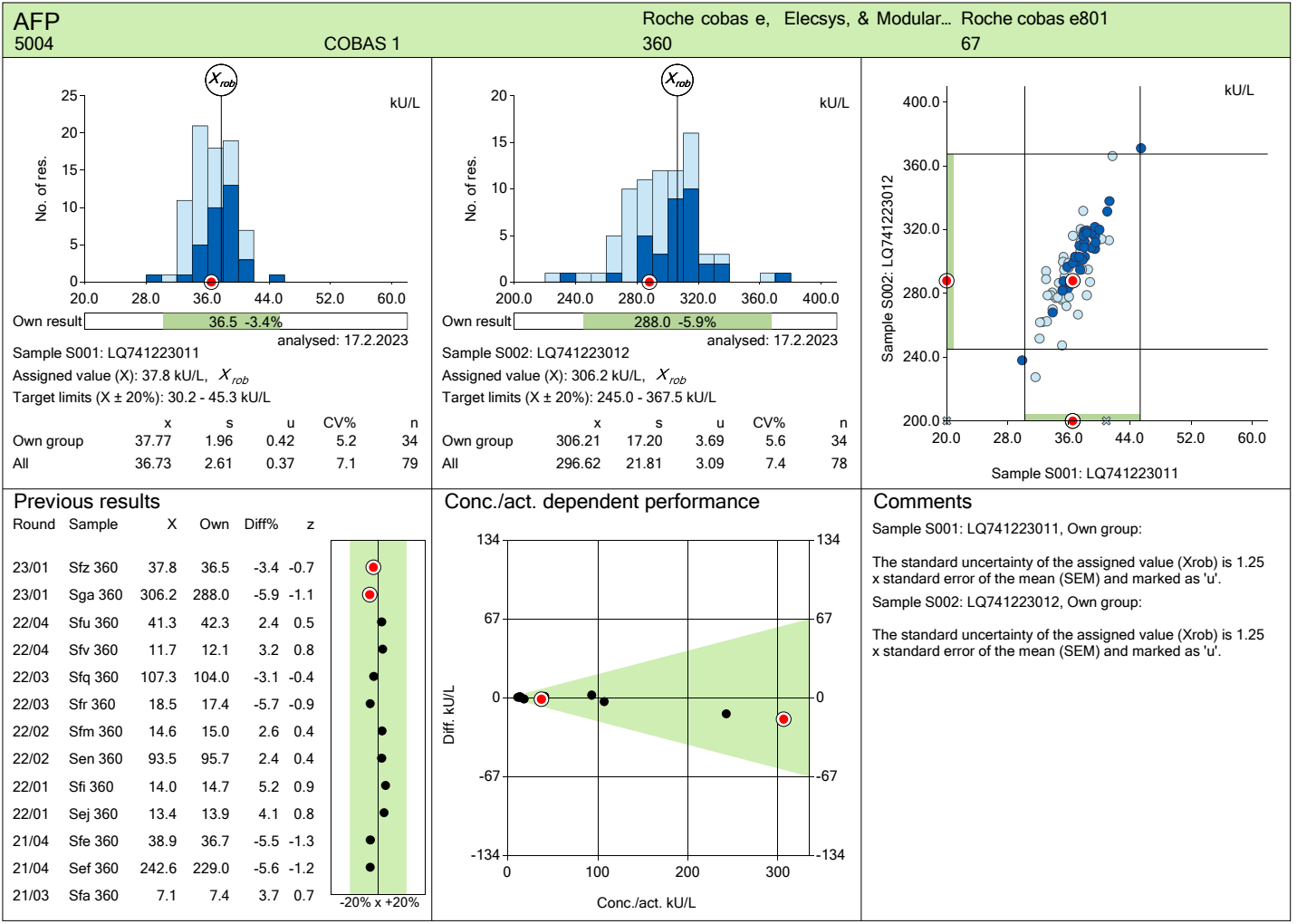
info@labquality.fi
www.labquality.com

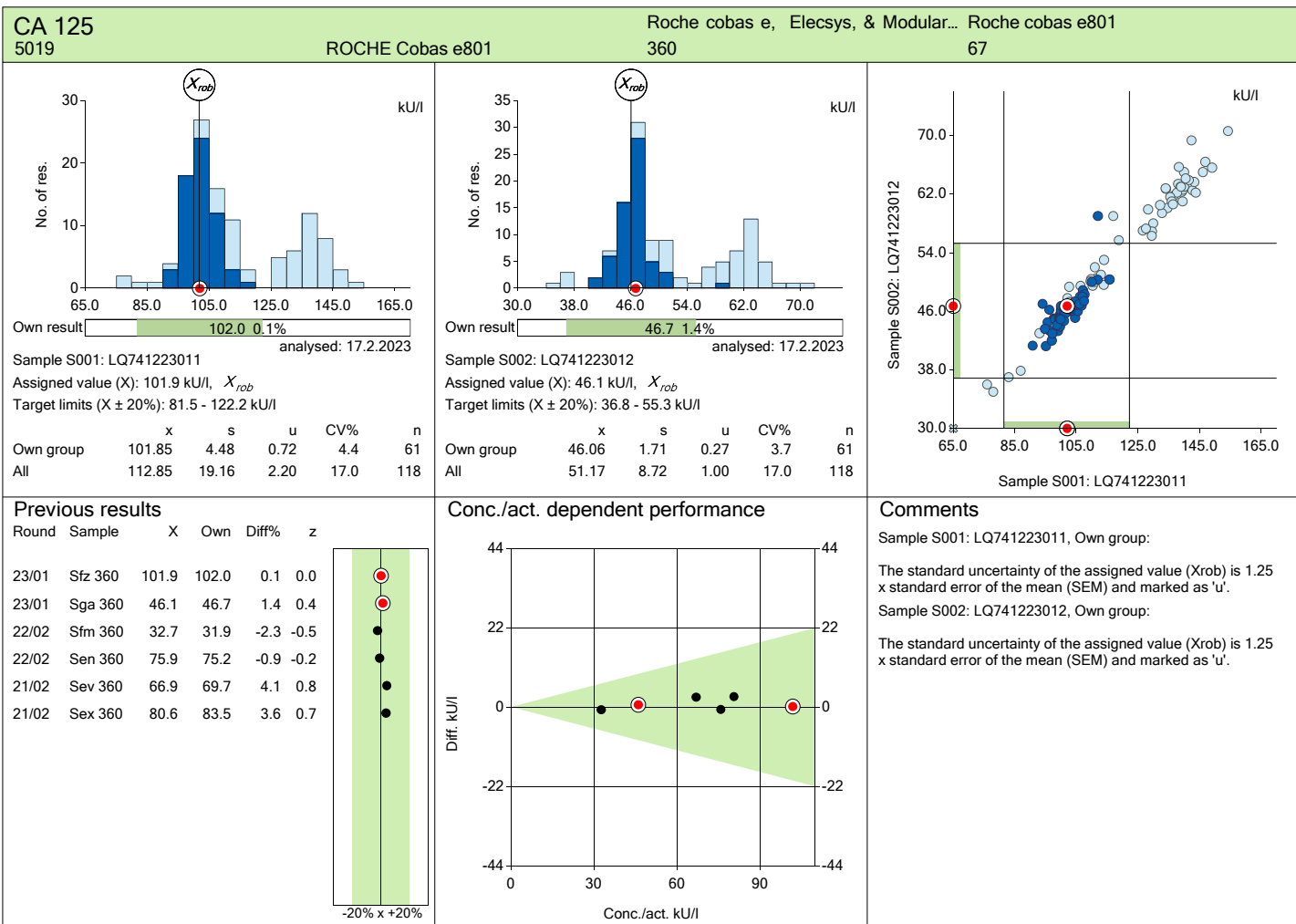
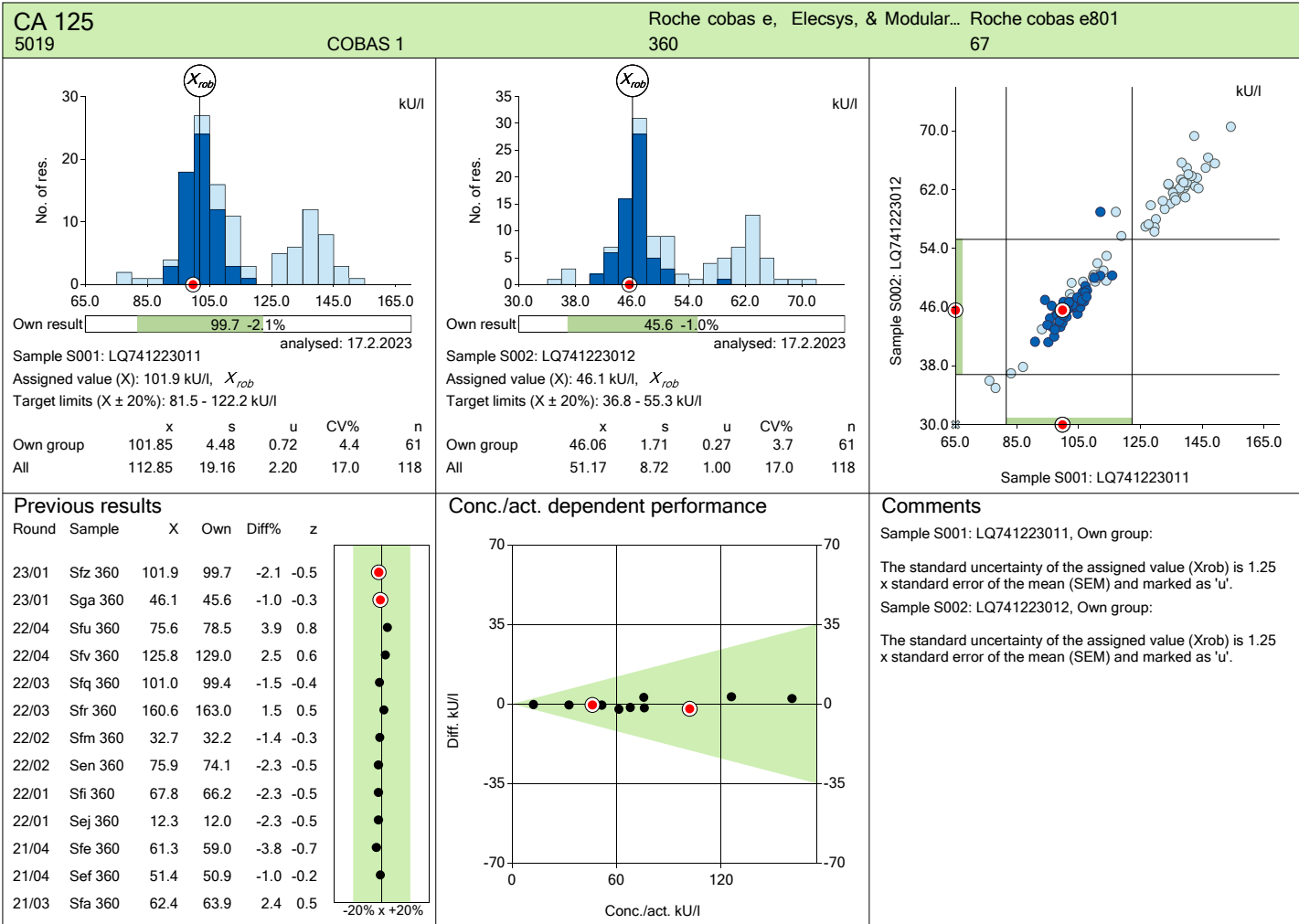


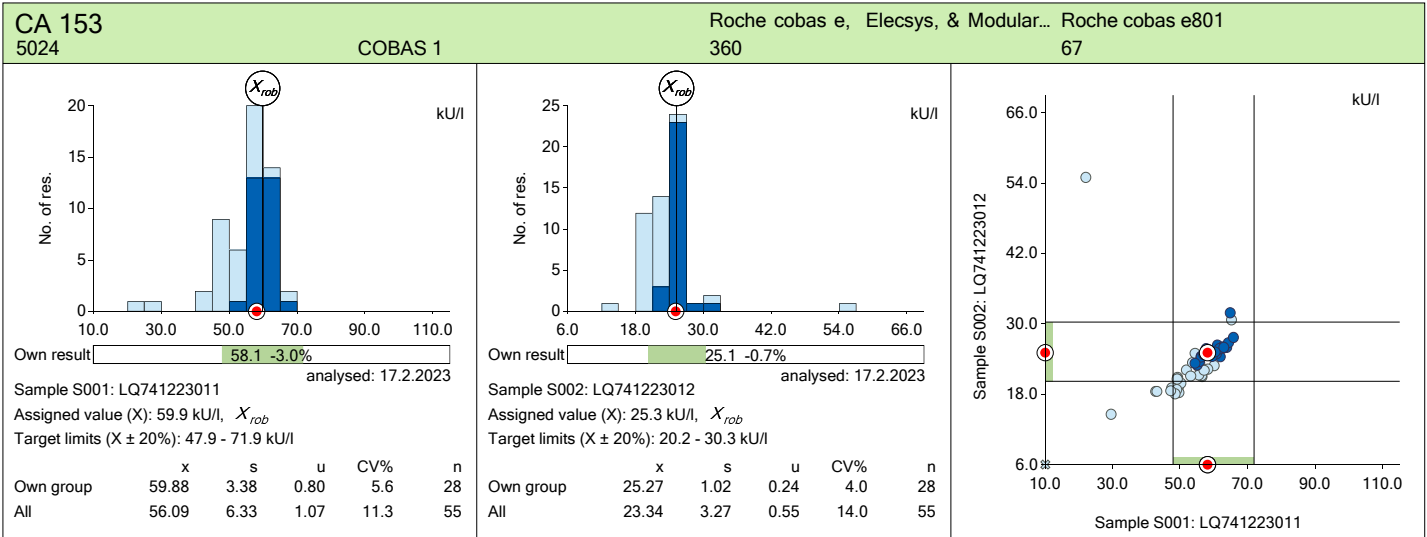
Tumour Markers

Examinations

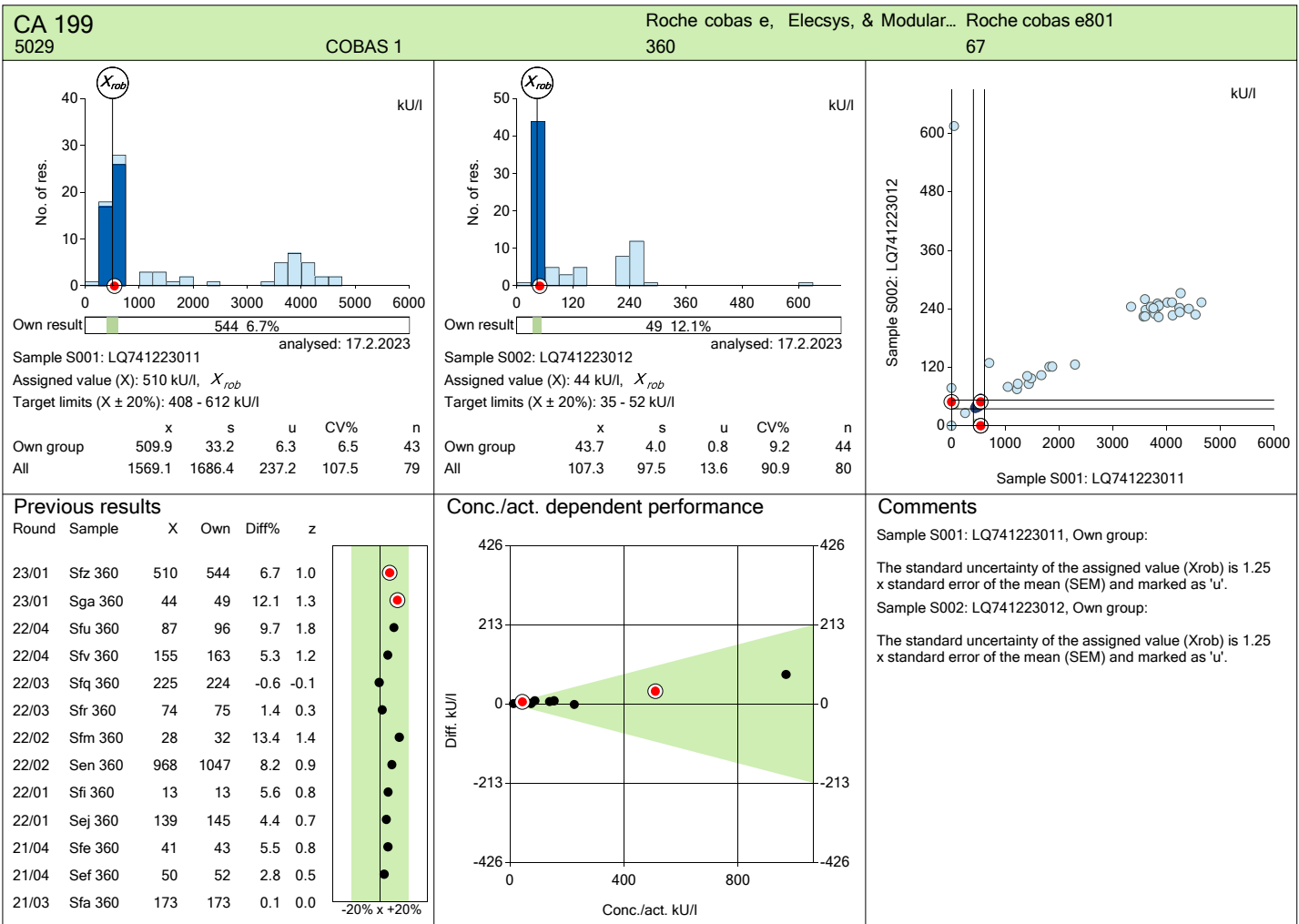
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B2-microglobulin
Ovary antigen (CA 125)
Breast antigen (CA 153)
Gut antigen (CA 199)
CEA
Enolase (neuron specific)
Ferritin
hCG total (free+intact)
hCG intact
hCG free β subunit
HE-4
PSA total
PSA, complexed
PSA free
PSA free/total ratio
Thyroglobulin
Thyroglobulin antibodies

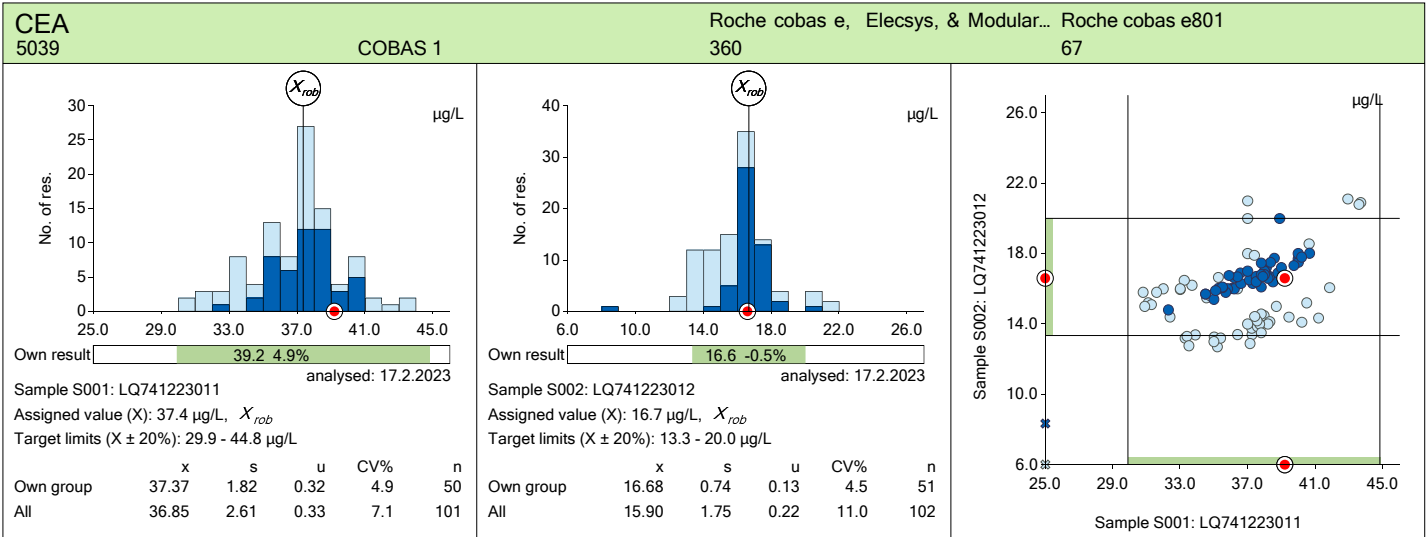




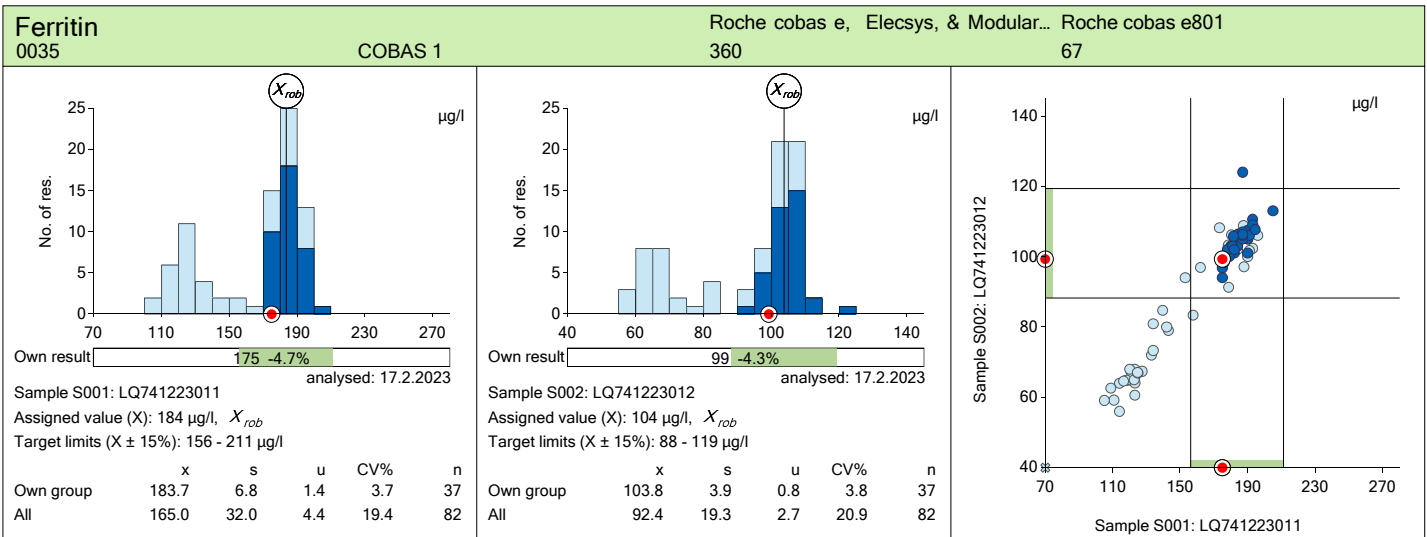


<p>Previous results</p> <table border="1"> <thead> <tr> <th>Round</th> <th>Sample</th> <th>X</th> <th>Own</th> <th>Diff%</th> <th>z</th> </tr> </thead> <tbody> <tr><td>23/01</td><td>Sfz 360</td><td>59.9</td><td>58.1</td><td>-3.0</td><td>-0.5</td></tr> <tr><td>23/01</td><td>Sga 360</td><td>25.3</td><td>25.1</td><td>-0.7</td><td>-0.2</td></tr> <tr><td>22/04</td><td>Sfu 360</td><td>34.7</td><td>34.7</td><td>0.0</td><td>0.0</td></tr> <tr><td>22/04</td><td>Sfv 360</td><td>66.0</td><td>66.7</td><td>1.1</td><td>0.3</td></tr> <tr><td>22/03</td><td>Sfq 360</td><td>84.3</td><td>83.5</td><td>-1.0</td><td>-0.2</td></tr> <tr><td>22/03</td><td>Sfr 360</td><td>41.7</td><td>40.5</td><td>-2.8</td><td>-0.6</td></tr> <tr><td>22/02</td><td>Sfm 360</td><td>21.4</td><td>20.4</td><td>-4.7</td><td>-0.9</td></tr> <tr><td>22/02</td><td>Sen 360</td><td>44.2</td><td>43.6</td><td>-1.3</td><td>-0.2</td></tr> <tr><td>22/01</td><td>Sfi 360</td><td>34.0</td><td>34.1</td><td>0.3</td><td>0.1</td></tr> <tr><td>22/01</td><td>Sej 360</td><td>16.0</td><td>16.8</td><td>4.7</td><td>0.9</td></tr> <tr><td>21/04</td><td>Sfe 360</td><td>46.7</td><td>47.3</td><td>1.3</td><td>0.2</td></tr> <tr><td>21/04</td><td>Sef 360</td><td>17.8</td><td>17.9</td><td>0.5</td><td>0.1</td></tr> <tr><td>21/03</td><td>Sfa 360</td><td>24.6</td><td>26.4</td><td>7.2</td><td>1.2</td></tr> </tbody> </table>	Round	Sample	X	Own	Diff%	z	23/01	Sfz 360	59.9	58.1	-3.0	-0.5	23/01	Sga 360	25.3	25.1	-0.7	-0.2	22/04	Sfu 360	34.7	34.7	0.0	0.0	22/04	Sfv 360	66.0	66.7	1.1	0.3	22/03	Sfq 360	84.3	83.5	-1.0	-0.2	22/03	Sfr 360	41.7	40.5	-2.8	-0.6	22/02	Sfm 360	21.4	20.4	-4.7	-0.9	22/02	Sen 360	44.2	43.6	-1.3	-0.2	22/01	Sfi 360	34.0	34.1	0.3	0.1	22/01	Sej 360	16.0	16.8	4.7	0.9	21/04	Sfe 360	46.7	47.3	1.3	0.2	21/04	Sef 360	17.8	17.9	0.5	0.1	21/03	Sfa 360	24.6	26.4	7.2	1.2	<p>Conc./act. dependent performance</p>	<p>Comments</p> <p>Sample S001: LQ741223011, Own group: The standard uncertainty of the assigned value (X_{rob}) is 1.25 x standard error of the mean (SEM) and marked as 'u'.</p> <p>Sample S002: LQ741223012, Own group: The standard uncertainty of the assigned value (X_{rob}) is 1.25 x standard error of the mean (SEM) and marked as 'u'.</p>
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22/02	Sfm 360	21.4	20.4	-4.7	-0.9																																																																																	
22/02	Sen 360	44.2	43.6	-1.3	-0.2																																																																																	
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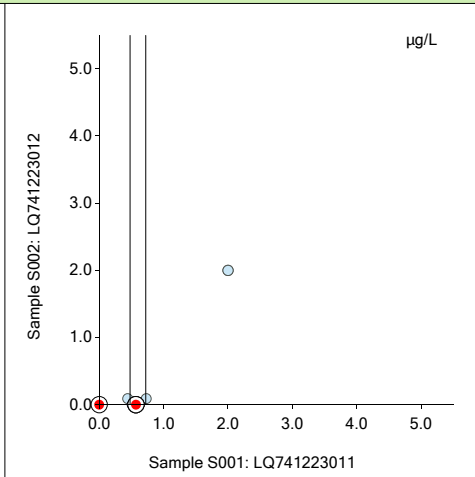
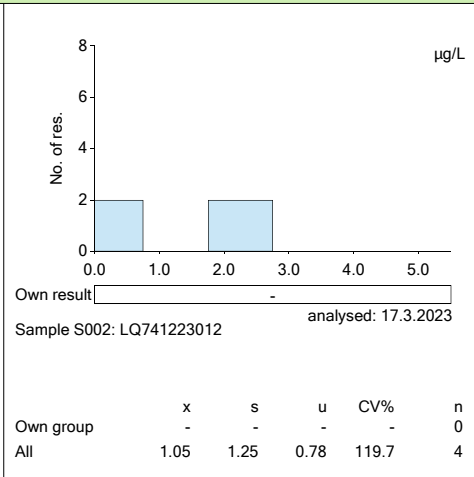
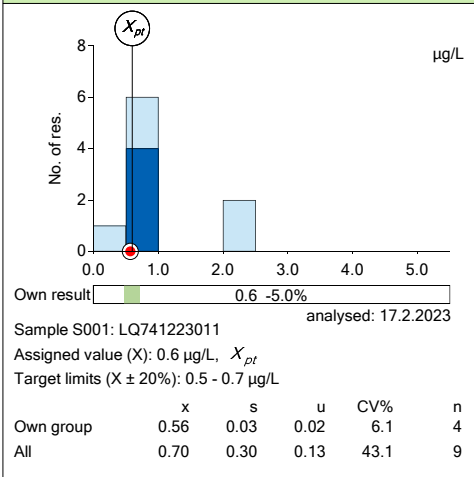


Previous results							Conc./act. dependent performance		Comments
Round	Sample	X	Own	Diff%	z		Diff. µg/L		
23/01	Sfz 360	37.4	39.2	4.9	1.0			<p>Sample S001: LQ741223011, Own group: The standard uncertainty of the assigned value (X_{rob}) is 1.25 x standard error of the mean (SEM) and marked as 'u'. Sample S002: LQ741223012, Own group: The standard uncertainty of the assigned value (X_{rob}) is 1.25 x standard error of the mean (SEM) and marked as 'u'.</p>	
23/01	Sga 360	16.7	16.6	-0.5	-0.1				
22/04	Sfu 360	16.2	15.6	-3.8	-0.9				
22/04	Sfv 360	47.1	45.8	-2.7	-0.6				
22/03	Sfq 360	57.2	56.3	-1.6	-0.4				
22/03	Sfr 360	24.7	23.8	-3.5	-1.1				
22/02	Sfm 360	9.7	9.4	-2.9	-0.7				
22/02	Sen 360	80.5	82.5	2.4	0.5				
22/01	Sfi 360	10.0	10.0	-0.1	0.0				
22/01	Sej 360	3.7	3.7	-0.2	0.0				
21/04	Sfe 360	19.1	19.1	-0.2	-0.1				
21/04	Sef 360	13.7	13.6	-0.9	-0.2				
21/03	Sfa 360	45.7	47.0	2.8	0.8				



Previous results							Conc./act. dependent performance		Comments
Round	Sample	X	Own	Diff%	z		Diff. µg/l		
23/01	Sfz 360	184	175	-4.7	-1.3			<p>Sample S001: LQ741223011, Own group: The standard uncertainty of the assigned value (X_{rob}) is 1.25 x standard error of the mean (SEM) and marked as 'u'. Sample S002: LQ741223012, Own group: The standard uncertainty of the assigned value (X_{rob}) is 1.25 x standard error of the mean (SEM) and marked as 'u'.</p>	
23/01	Sga 360	104	99	-4.3	-1.1				
22/04	Sfu 360	94	98	3.6	1.2				
22/04	Sfv 360	217	220	1.6	0.6				
22/03	Sfq 360	128	124	-3.3	-0.8				
22/03	Sfr 360	339	336	-0.8	-0.2				
22/02	Sfm 360	104	107	2.7	0.7				
22/02	Sen 360	272	290	6.5	1.5				
22/01	Sfi 360	227	229	1.0	0.2				
22/01	Sej 360	69	70	0.7	0.2				
21/04	Sfe 360	173	174	0.4	0.1				
21/04	Sef 360	191	194	1.4	0.4				
21/03	Sfa 360	141	142	0.9	0.3				

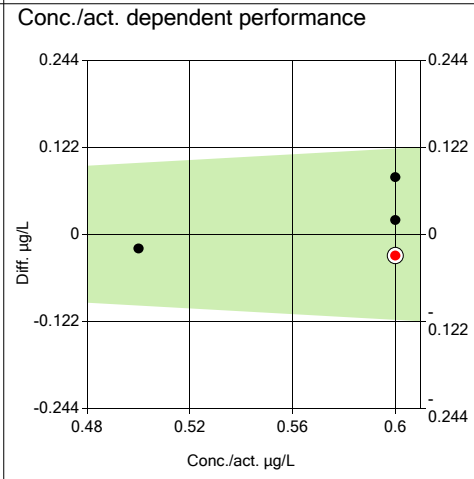
hCG free beta 0644 COBAS 1 Roche cobas e, Elecsys, & Modular... 360 Roche cobas e801 67



Previous results

Round	Sample	X	Own	Diff%	z
23/01	Sfz 360	0.6	0.6	-5.0	-
22/04	Sfv 360	0.6	0.6	3.3	-
22/03	Sfr 360	0.5	0.5	-4.0	-
21/04	Sef 360	0.6	0.7	13.3	-

-20% x +20%

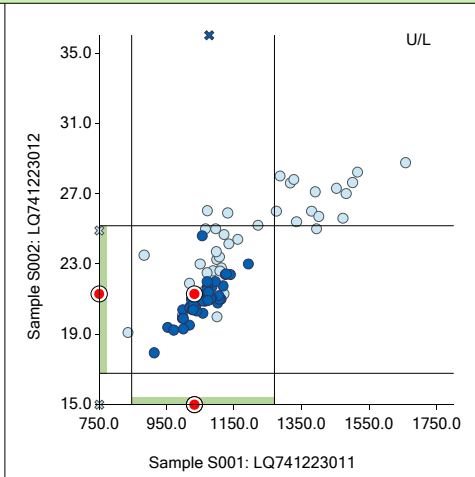
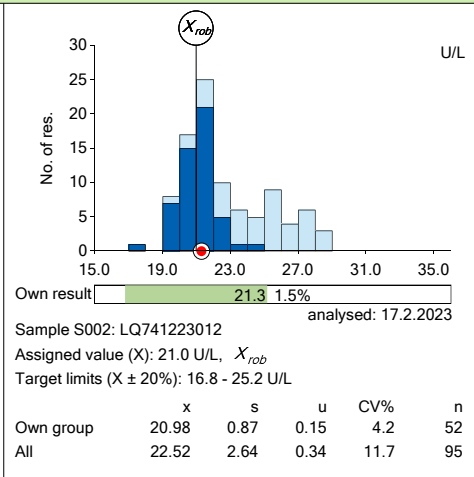
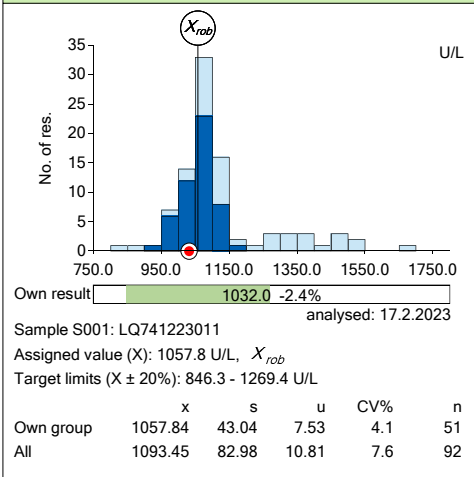


Comments

Sample S002: LQ741223012, Own group:
Your result for S002 <3.0 ng/mL.
The assigned value (X_{ref}) is the reference method value and its uncertainty is given in the report letter.

Sample S001: LQ741223011, Own group:
The standard measurement uncertainty (u) of the assigned value (X_{pt}) is the standard error of the mean (SEM).
The uncertainty (u) of the assigned value is not negligible, and evaluations could be affected. Due to the small number of results, the z score is not calculated.

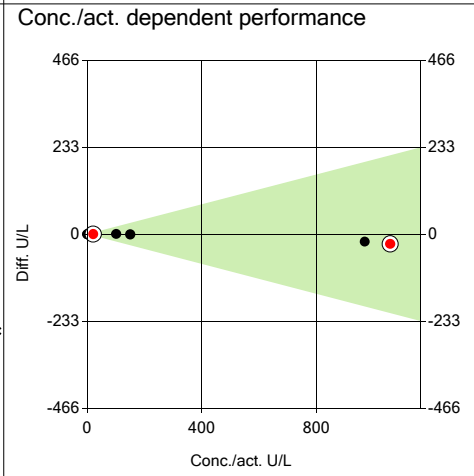
hCG total 0640 COBAS 1 Roche cobas e, Elecsys, & Modular... 360 Roche cobas e801 67



Previous results

Round	Sample	X	Own	Diff%	z
23/01	Sfz 360	1057.8	1032.0	-2.4	-0.6
23/01	Sga 360	21.0	21.3	1.5	0.4
22/04	Sfu 360	7.7	7.7	0.2	0.0
22/04	Sfv 360	968.8	949.0	-2.0	-0.4
22/03	Sfr 360	101.2	102.0	0.8	0.2
22/02	Sfm 360	19.0	19.8	4.5	0.9
22/02	Sen 360	0.6	0.6	9.6	0.5
22/01	Sej 360	2.0	2.3	14.3	2.5
21/04	Sfe 360	0.2	0.3	45.2	1.0
21/04	Sef 360	150.3	150.0	-0.2	0.0
21/03	Sfa 360	24.9	26.5	6.4	1.6
21/03	Seb 360	5.4	6.0	10.7	1.7

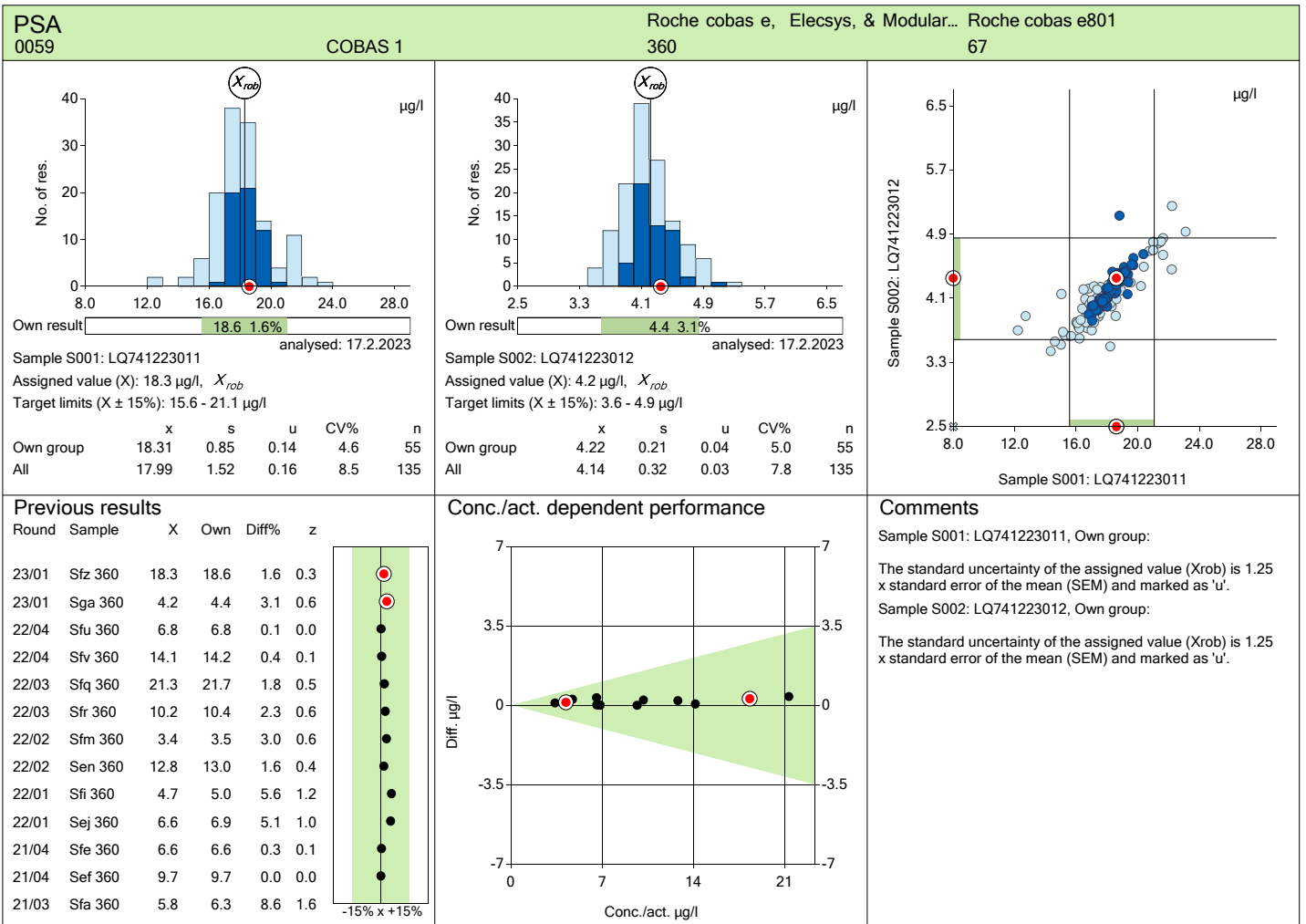
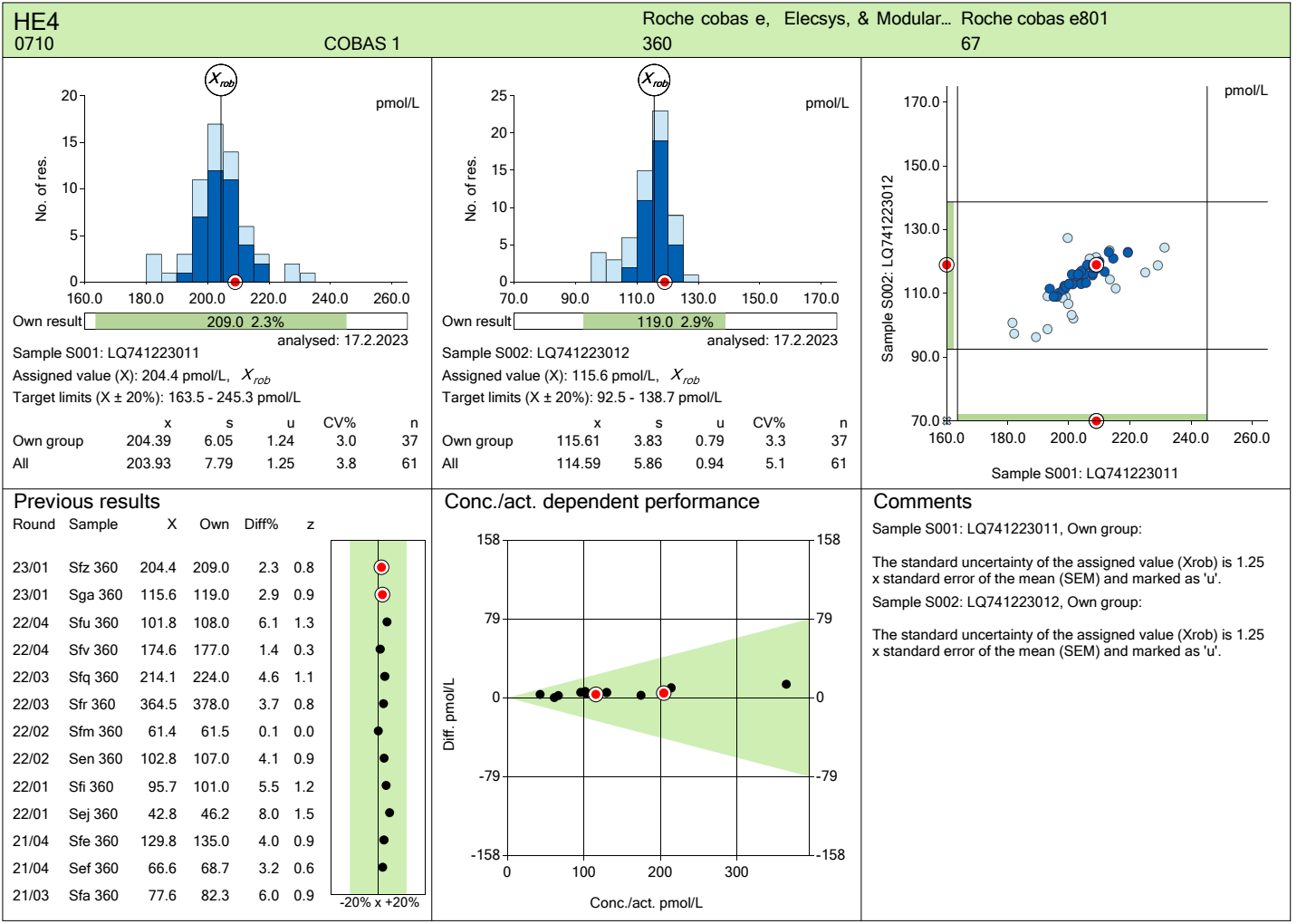
-20% x +20%

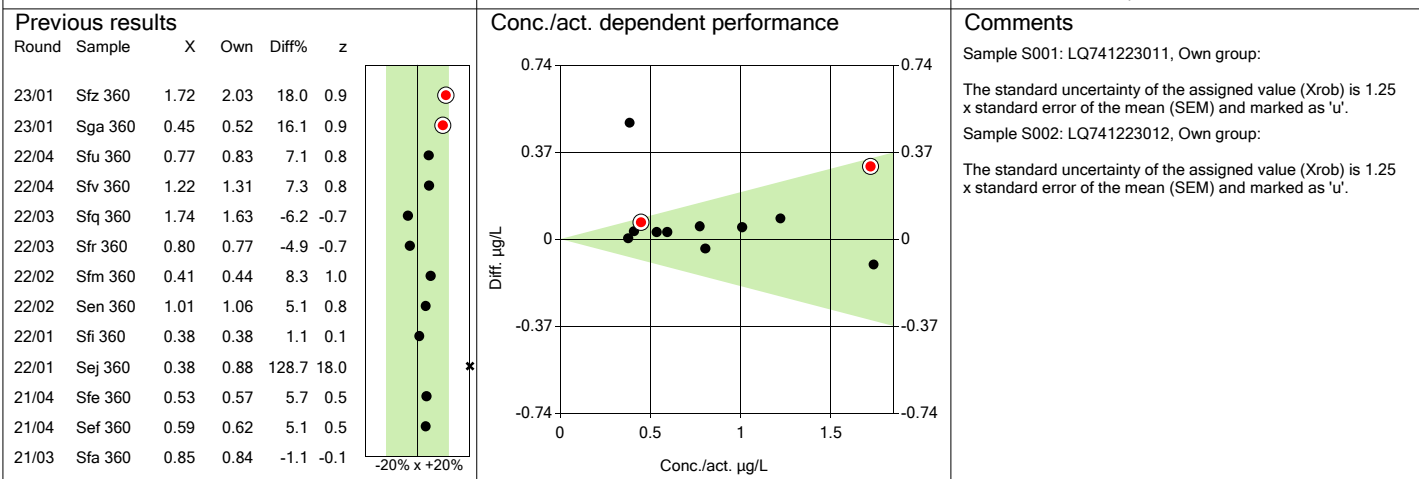
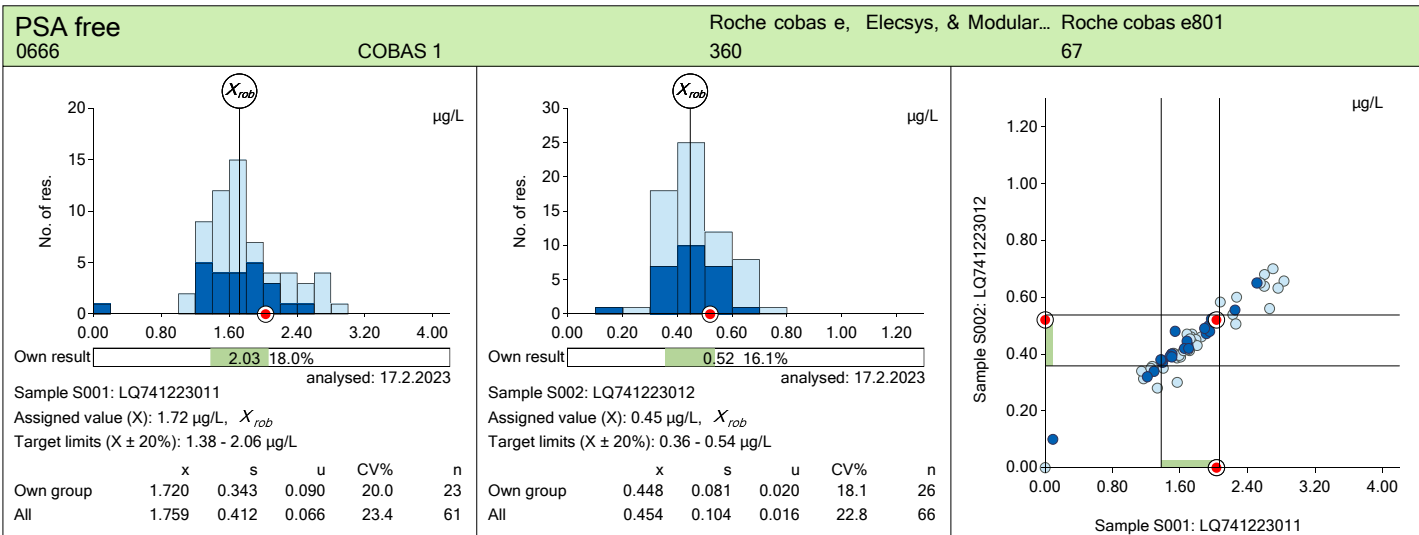
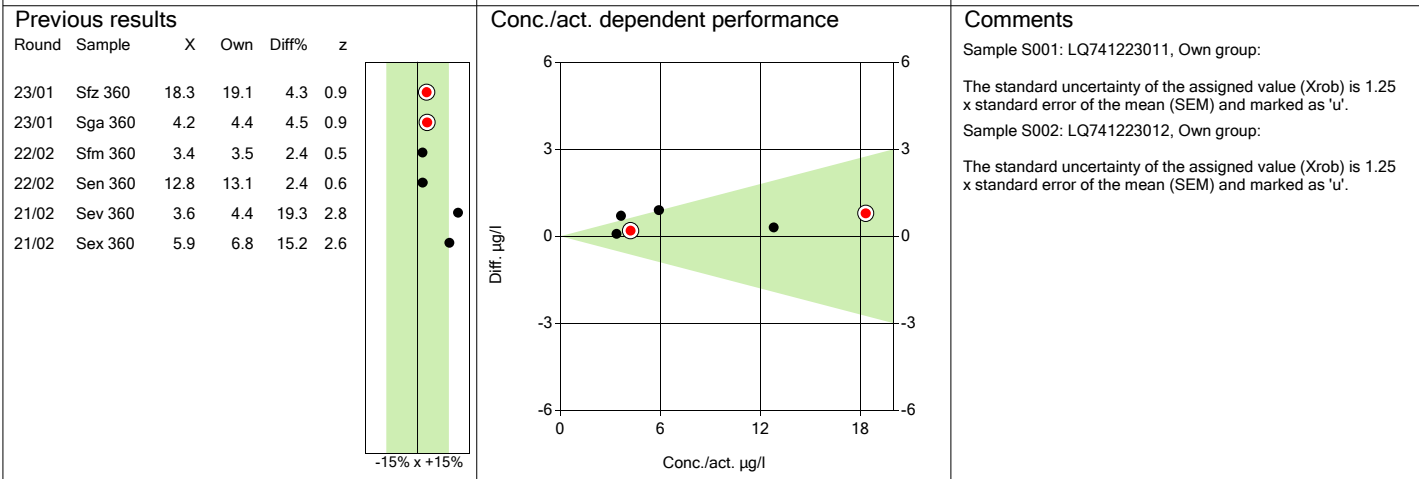
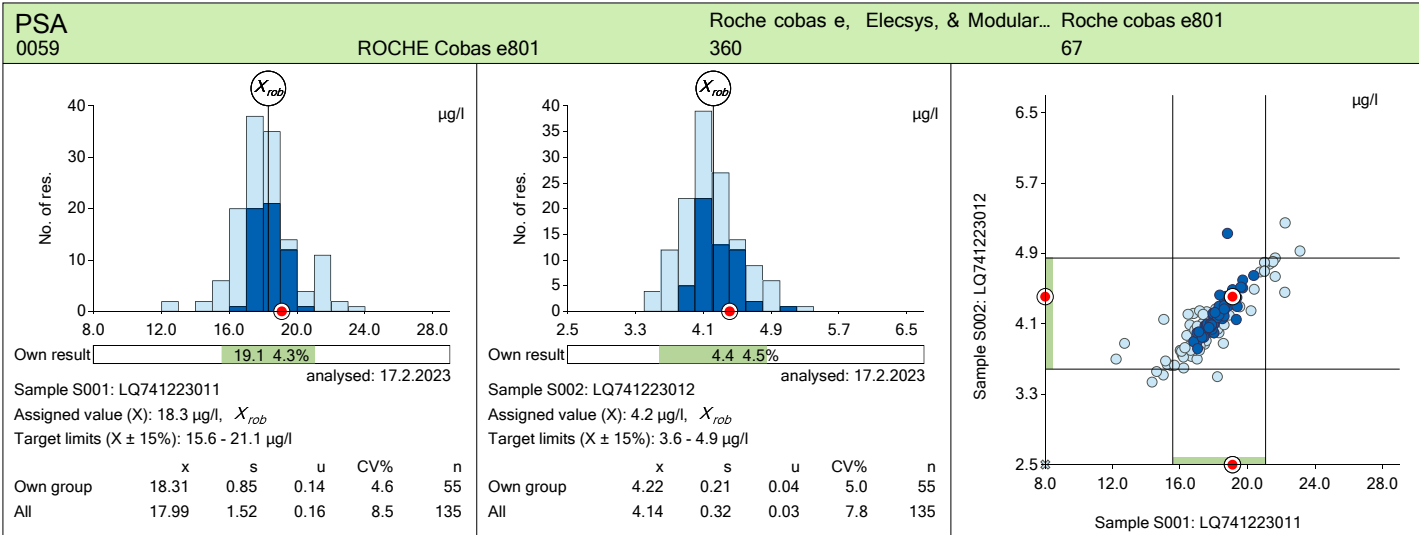


Comments

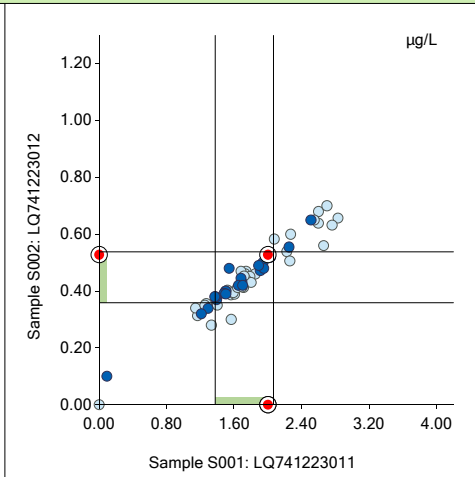
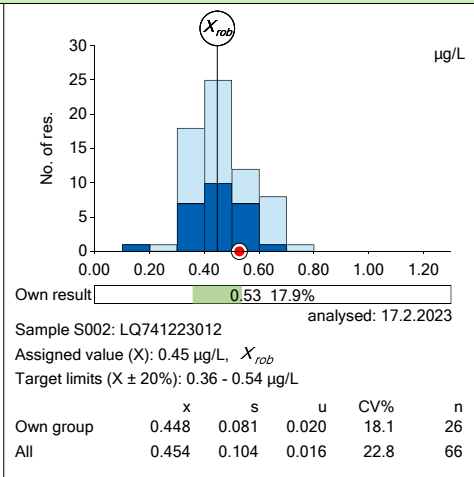
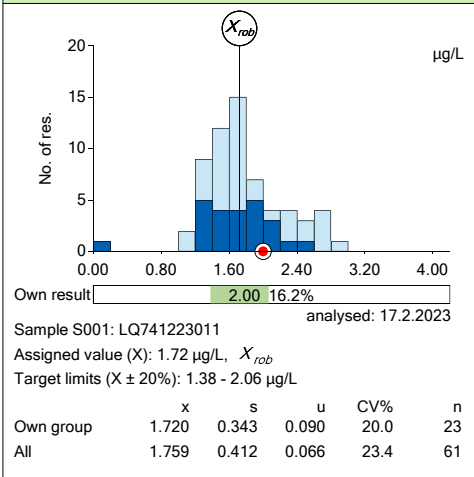
Sample S001: LQ741223011, Own group:
The standard uncertainty of the assigned value (X_{rob}) is 1.25 x standard error of the mean (SEM) and marked as 'u'.

Sample S002: LQ741223012, Own group:
The standard uncertainty of the assigned value (X_{rob}) is 1.25 x standard error of the mean (SEM) and marked as 'u'.



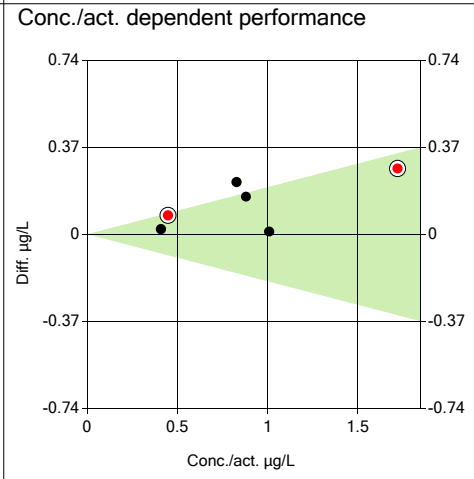


PSA free 0666 ROCHE Cobas e801 Roche cobas e, Elecsys, & Modular... Roche cobas e801 360 67



Previous results

Round	Sample	X	Own	Diff%	z
23/01	Sfz 360	1.72	2.00	16.2	0.8
23/01	Sga 360	0.45	0.53	17.9	1.0
22/02	Sfm 360	0.41	0.43	5.4	0.6
22/02	Sen 360	1.01	1.02	1.1	0.2
21/02	Sev 360	0.83	1.05	26.8	1.3
21/02	Sex 360	0.88	1.04	18.2	1.1

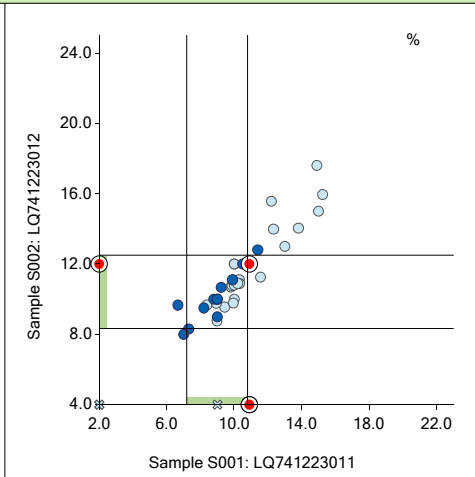
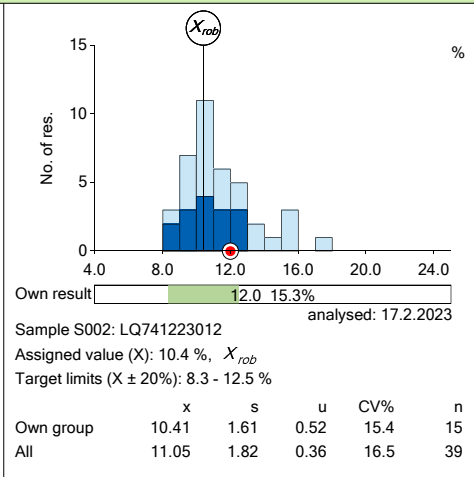
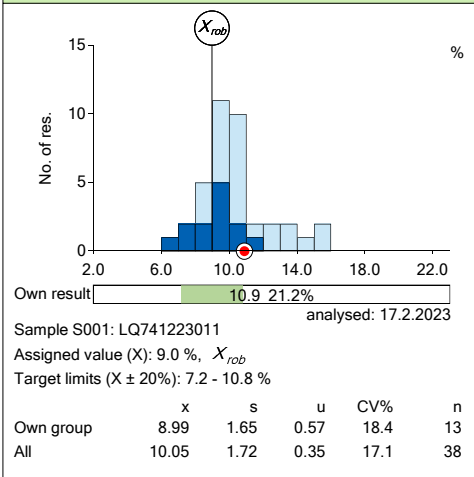


Comments

Sample S001: LQ741223011, Own group:
The standard uncertainty of the assigned value (X_{rob}) is 1.25 x standard error of the mean (SEM) and marked as 'u'.

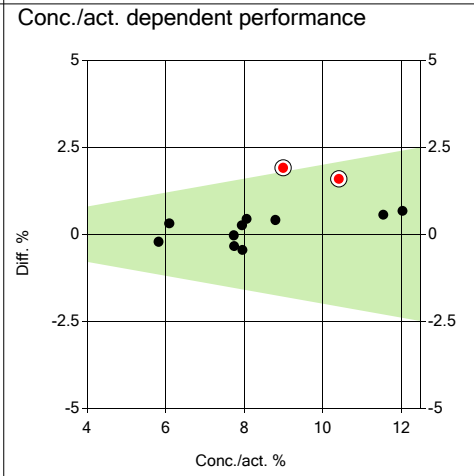
Sample S002: LQ741223012, Own group:
The standard uncertainty of the assigned value (X_{rob}) is 1.25 x standard error of the mean (SEM) and marked as 'u'.

PSA free/total 0667 COBAS 1 Roche cobas e, Elecsys, & Modular... Roche cobas e801 360 67



Previous results

Round	Sample	X	Own	Diff%	z
23/01	Sfz 360	9.0	10.9	21.2	1.2
23/01	Sga 360	10.4	12.0	15.3	1.0
22/04	Sfu 360	11.5	12.1	4.9	0.5
22/04	Sfv 360	8.8	9.2	4.6	0.5
22/03	Sfq 360	8.0	7.5	-5.7	-0.6
22/03	Sfr 360	7.7	7.4	-4.4	-0.6
22/02	Sfm 360	12.0	12.7	5.6	0.8
22/02	Sen 360	7.9	8.2	3.3	0.4
22/01	Sfi 360	7.7	7.7	-0.4	0.0
22/01	Sej 360	5.8	5.6	-3.7	-0.5
21/04	Sfe 360	8.1	8.5	5.5	0.5
21/04	Sef 360	6.1	6.4	5.1	0.5
21/03	Sfa 360	14.0	13.4	-4.0	-0.3

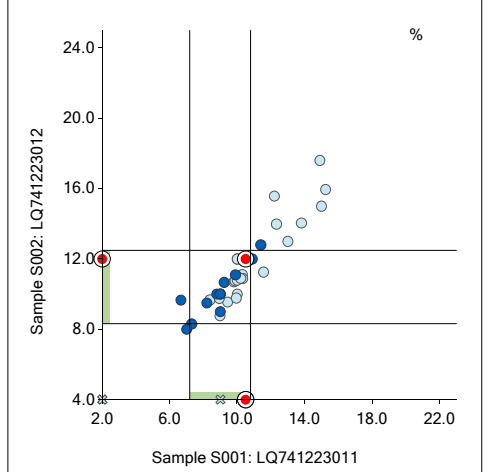
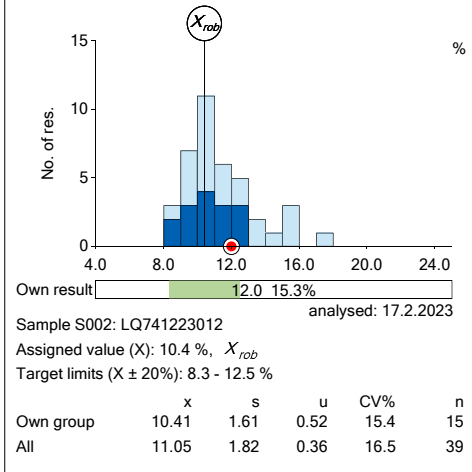
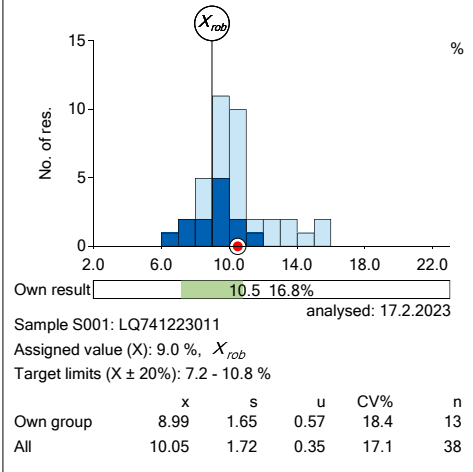


Comments

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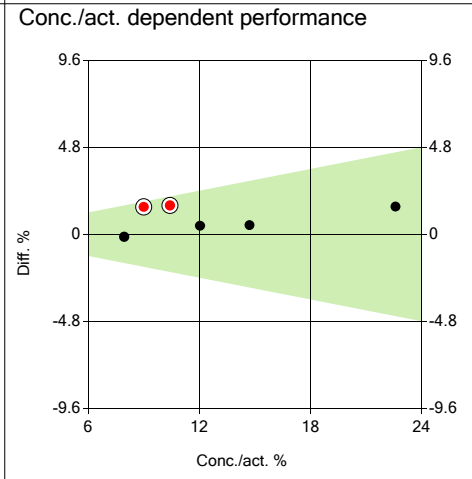
Sample S002: LQ741223012, Own group:
The standard uncertainty of the assigned value (X_{rob}) is 1.25 x standard error of the mean (SEM) and marked as 'u'.

PSA free/total
 0667 ROCHE Cobas e801 Roche cobas e, Elecsys, & Modular... Roche cobas e801
 360 67



Previous results

Round	Sample	X	Own	Diff%	z
23/01	Sfz 360	9.0	10.5	16.8	0.9
23/01	Sga 360	10.4	12.0	15.3	1.0
22/02	Sfm 360	12.0	12.5	3.9	0.5
22/02	Sen 360	7.9	7.8	-1.8	-0.2
21/02	Sev 360	22.6	24.1	6.8	0.6
21/02	Sex 360	14.7	15.2	3.4	0.3

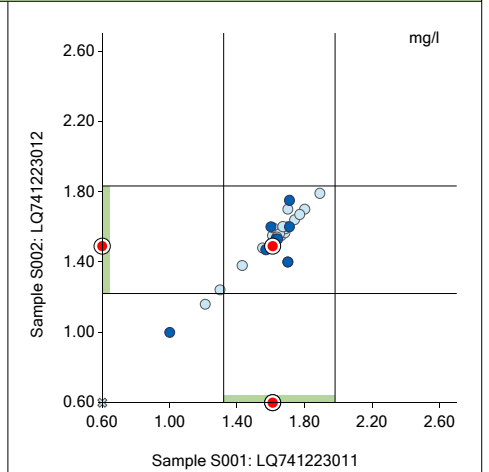
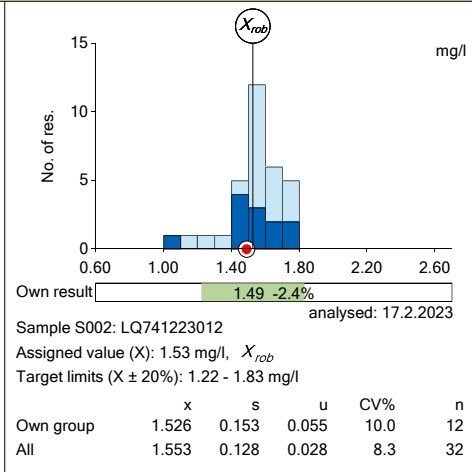
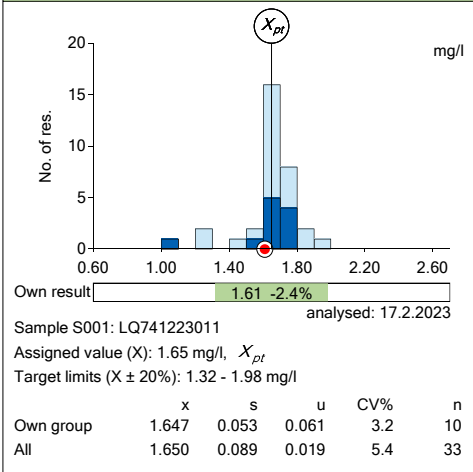


Comments

Sample S001: LQ741223011, Own group:
 The standard uncertainty of the assigned value (X_{rob}) is 1.25 x standard error of the mean (SEM) and marked as 'u'.

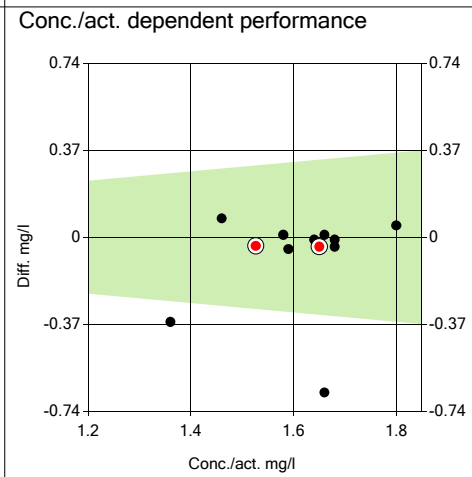
Sample S002: LQ741223012, Own group:
 The standard uncertainty of the assigned value (X_{rob}) is 1.25 x standard error of the mean (SEM) and marked as 'u'.

β-2-Microglob.
 5014 BN II Siemens nephelometry Siemens BN II
 22 627



Previous results

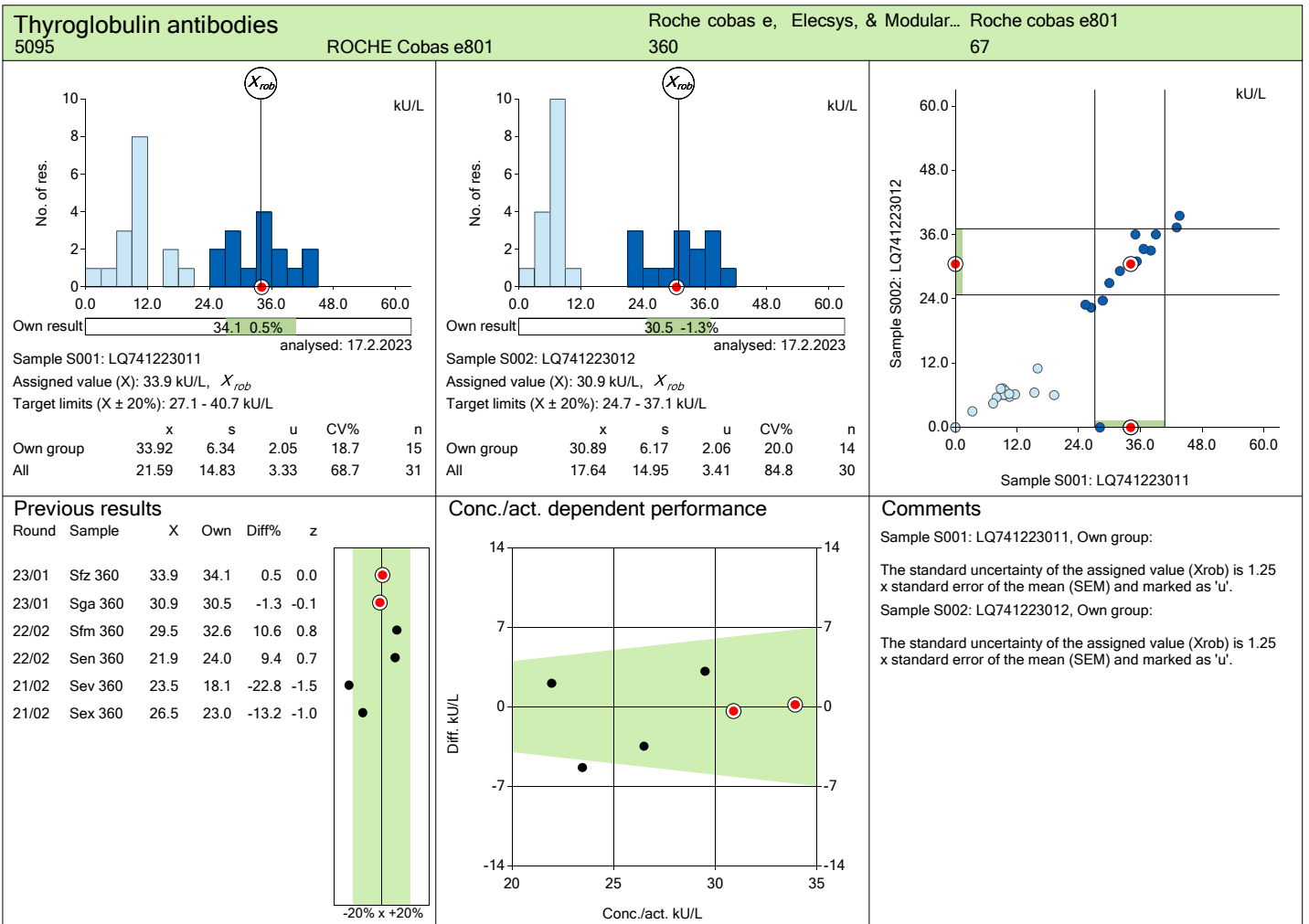
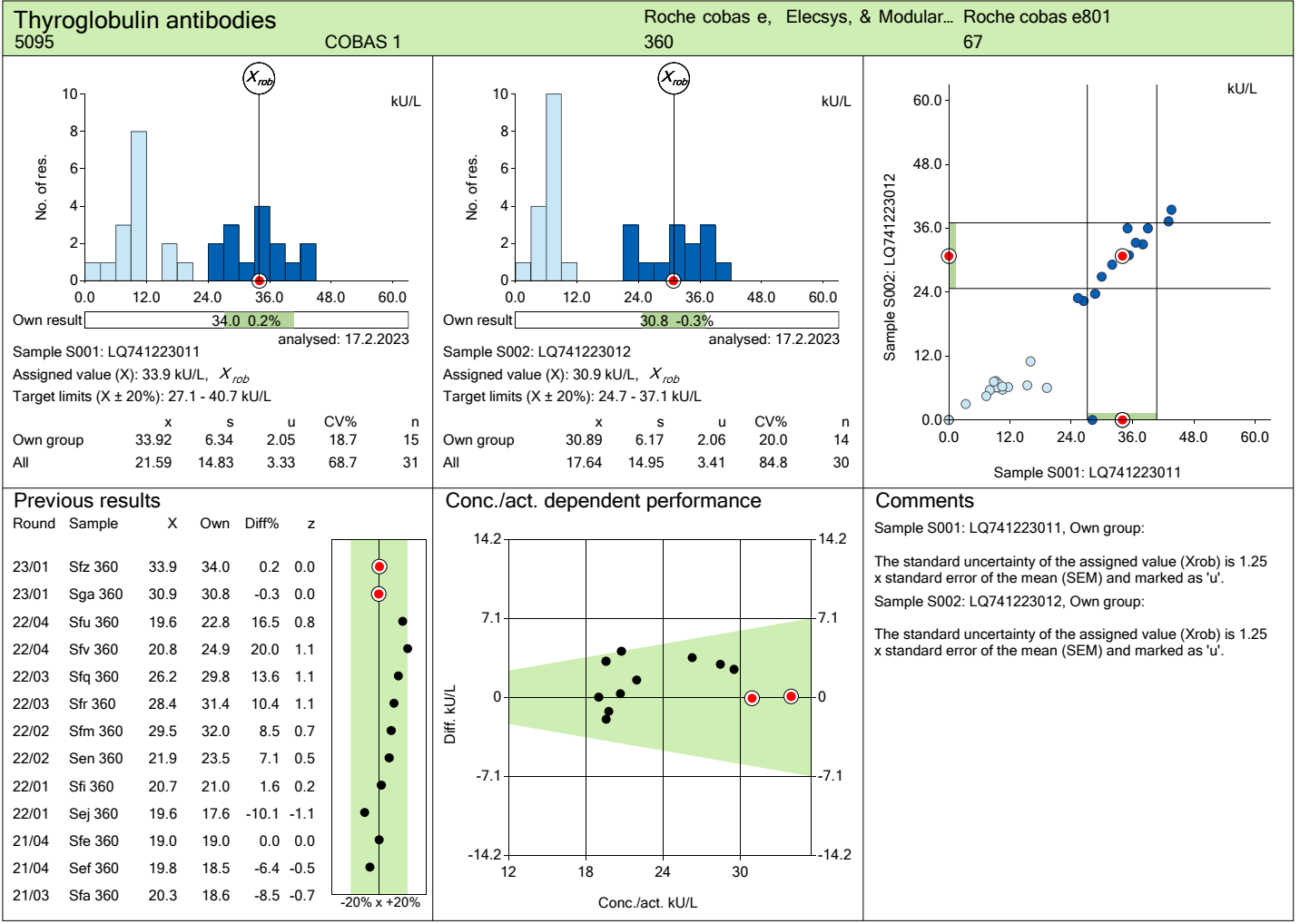
Round	Sample	X	Own	Diff%	z
23/01	Sfz 22	1.65	1.61	-2.4	-0.7
23/01	Sga 22	1.53	1.49	-2.4	-0.2
22/04	Sfu 22	1.64	1.63	-0.6	-0.1
22/04	Sfv 22	1.68	1.67	-0.6	-0.1
22/03	Sfq 22	1.58	1.59	0.6	0.1
22/03	Sfr 22	1.80	1.85	2.8	0.4
22/02	Sfm 22	1.36	1.00	-26.5	-2.3
22/02	Sen 22	1.66	1.00	-39.8	-9.2
22/01	Sfi 22	1.66	1.67	0.6	0.1
22/01	Sej 22	1.46	1.54	5.5	0.6
21/04	Sfe 22	1.68	1.64	-2.4	-0.6
21/04	Sef 22	1.59	1.54	-3.1	-0.7
21/03	Sfa 22	1.74	1.59	-8.6	-0.6



Comments

Sample S001: LQ741223011, Own group:
 The standard measurement uncertainty (u) of the assigned value (X_{pt}) is the standard error of the mean (SEM). The uncertainty (u) of the assigned value is not negligible, and evaluations could be affected. Z score is uncertain due to the small number of observations.

Sample S002: LQ741223012, Own group:
 The standard uncertainty of the assigned value (X_{rob}) is 1.25 x standard error of the mean (SEM) and marked as 'u'.



Report info

Assigned value (target value) calculation and its uncertainty

Your own result should be compared to others using the same method.

The assigned values (X_{rob}) are calculated according to the robust procedure described in the standard ISO 13528 (Statistical methods for use in proficiency testing by interlaboratory comparisons, Annex C, Algorithm A).

The standard uncertainty of the assigned value is expressed as $1.25 \times$ the standard error of mean (SEM) and marked as "u" in numerical summary. Due to its iterative mode algorithm A adds the uncertainty of the assigned value and with this factor we want to adjust uncertainty accordingly.

In case there are 2-12 results in a method group, the robust calculation is not used but assigned values (X_{pt}) are means of the results where results deviating more than $\pm 3 \times$ standard deviation from the median are removed. The standard uncertainty (u) of the assigned value is reported as standard error of the mean (SEM). Additionally, if the measurement uncertainty of the target value is too large ($u > 0.1 \times$ maximum allowable error) an automatic text is printed on the report: "The uncertainty of the assigned value is not negligible, and evaluations could be affected."

Please notice also that for groups that have only 1 result only the client's own result is shown. No target value (except for reference method values) is calculated, no target areas are shown.

Z score

In case there are 2-5 results in a method group, no z-score is calculated, and a text is printed on the report: "Due to the small number of results, the z score is not calculated." In case there are 6-12 results, the report has a text: "Z score is uncertain due to the small number of observations."

Results reported with $< \text{tai} >$ -signs cannot be included in the statistics.

For information on report interpretation and performance evaluation, please see the "EQAS Interpretation guidelines" in LabScala User instructions (top right corner ?Help link).

NUMERICAL SUMMARY
Tumour markers 2023/01

Analyte	Method group	x	med	s	CV%	u	Min	Max	Number
Sample S001: LQ741223011									
AFP, kU/L									
	Abbott Alinity & Architect	35.52	35.4	1.83	5.1	0.52	32.2	41.7	19
	Beckman Coulter Access & Unicel	37.19	37.2	-	-	-	-	-	1
	Brahms Kryptor	35.27	35.3	3.86	11.0	2.73	32.5	38.0	2
	Perkin Elmer Delfia/Auto Delfia	32.83	33.1	0.55	1.7	0.32	32.2	33.2	3
	Roche cobas e, Elecsys, & Modular E	37.77	37.9	1.96	5.2	0.42	29.9	45.4	34
	Siemens Advia Centaur & Atellica	36.87	37.0	1.80	4.9	0.65	34.7	41.3	12
	Siemens Dimension & Vista	33.00	33.0	-	-	-	-	-	1
	Siemens Immulite 1000, 2000, 2500	36.85	38.1	3.70	10.0	1.51	31.6	40.9	6
	Tosoh AIA	35.36	35.4	-	-	-	-	-	1
	All	36.73	36.8	2.61	7.1	0.29	29.9	45.4	79
CA 125, kU/l									
	Abbott Alinity & Architect	137.07	138.1	6.11	4.5	1.33	118.8	149.1	33
	Beckman Coulter Access & Unicel	136.65	136.7	10.11	7.4	7.15	129.5	143.8	2
	bioMerieux Vidas	86.87	86.9	-	-	-	-	-	1
	Roche cobas e, Elecsys, & Modular E	101.85	101.3	4.48	4.4	0.72	90.8	115.8	61
	Siemens Advia Centaur & Atellica	109.12	110.3	5.51	5.1	1.67	93.0	117.0	17
	Siemens Dimension & Vista	79.00	78.0	3.61	4.6	2.08	76.0	83.0	3
	Tosoh AIA	154.30	154.3	-	-	-	-	-	1
	All	112.85	106.1	19.16	17.0	1.76	76.0	154.3	118
CA 153, kU/l									
	Abbott Alinity & Architect	52.65	51.6	4.86	9.2	1.52	47.2	60.1	16
	Beckman Coulter Access & Unicel	29.50	29.5	-	-	-	-	-	1
	Brahms Diagnostica RIA	22.00	22.0	-	-	-	-	-	1
	Perkin Elmer Delfia/Auto Delfia	54.40	54.4	-	-	-	-	-	1
	Roche cobas e, Elecsys, & Modular E	59.88	59.7	3.38	5.6	0.80	54.4	65.8	28
	Siemens Advia Centaur & Atellica	49.37	49.4	4.98	10.1	1.88	42.7	55.8	7
	Siemens Immulite 1000, 2000, 2500	65.20	65.2	-	-	-	-	-	1
	All	56.09	56.5	6.33	11.3	0.85	22.0	65.8	55
CA 199, kU/l									
	Abbott Alinity & Architect	3,937.8	3,857	354.9	9.0	94.6	3,341	4,653	22
	Beckman Coulter Access & Unicel	1,166.5	1,217	102.3	8.8	59.1	1,049	1,234	3
	Brahms Kryptor	47.4	47	-	-	-	-	-	1
	Roche cobas e, Elecsys, & Modular E	509.9	510	33.2	6.5	6.3	440	562	43
	Siemens Advia Centaur & Atellica	1,469.2	1,484	559.4	38.1	186.5	526	2,299	9
	Tosoh AIA	253.5	254	-	-	-	-	-	1
	All	1,569.1	541	1,686.4	107.5	189.7	47	4,653	79
CEA, µg/L									
	Abbott Alinity & Architect	37.18	37.5	2.47	6.7	0.58	33.3	41.9	28
	Beckman Coulter Access & Unicel	41.15	41.8	2.80	6.8	1.40	37.4	43.6	4
	Roche cobas e, Elecsys, & Modular E	37.37	37.6	1.82	4.9	0.32	18.0	40.7	50
	Siemens Advia Centaur & Atellica	33.14	33.0	2.11	6.4	0.66	30.8	37.0	16
	Siemens Dimension & Vista	37.00	37.0	0.00	0.0	0.00	37.0	37.0	2
	Tosoh AIA	43.70	43.7	-	-	-	-	-	1
	All	36.85	37.3	2.61	7.1	0.26	18.0	43.7	101
Ferritin, µg/l									
	Abbott Alinity & Architect	182.6	183	9.1	5.0	2.7	140	196	18
	Beckman Coulter Access & Unicel	121.6	114	17.8	14.7	10.3	109	142	3
	Beckman Coulter AU instruments	153.0	153	-	-	-	-	-	1

NUMERICAL SUMMARY Tumour markers 2023/01, Sample S001: LQ741223011

Analyte	Method group	x	med	s	CV%	u	Min	Max	Number
Ferritin, µg/l									
	bioMerieux Vidas	157.7	158	-	-	-	-	-	1
	Roche cobas e, Elecsys, & Modular E	183.7	184	6.8	3.7	1.4	174	205	37
	Roche Tina-quant	184.0	184	-	-	-	-	-	1
	Siemens Advia Centaur & Atellica	121.8	123	5.3	4.4	1.6	111	134	18
	Siemens Immulite 1000, 2000, 2500	148.0	148	19.8	13.4	14.0	134	162	2
	Vitros Systems	105.0	105	-	-	-	-	-	1
	All	165.0	179	32.0	19.4	3.5	105	205	82
hCG free beta, µg/L									
	Beckman Coulter Immunotech	0.44	0.4	-	-	-	-	-	1
	Brahms Kryptor	0.59	0.6	-	-	-	-	-	1
	Perkin Elmer Delfia/Auto Delfia	0.73	0.7	-	-	-	-	-	1
	Roche cobas e, Elecsys, & Modular E	0.56	0.6	0.03	6.1	0.02	0.5	0.6	4
	Siemens Immulite 1000, 2000, 2500	2.00	2.0	0.00	0.0	0.00	2.0	2.0	2
	All	0.70	0.6	0.30	43.1	0.10	0.4	2.0	9
hCG intact, U/L									
	Roche cobas e, Elecsys, & Modular E	1,062.67	1,070.0	19.09	1.8	11.02	1,041.0	1,077.0	3
	All	1,062.67	1,070.0	21.65	2.0	12.50	1,041.0	1,077.0	3
hCG total, U/L									
	Abbott Alinity & Architect	1,090.53	1,096.5	28.49	2.6	8.39	1,017.5	1,134.0	18
	Beckman Coulter Access & Unicel	1,504.30	1,501.0	98.18	6.5	43.91	1,394.0	1,658.0	5
	DiaSorin Liaison	997.10	997.1	-	-	-	-	-	1
	Roche cobas e, Elecsys, & Modular E	1,057.84	1,065.0	43.04	4.1	7.53	912.7	1,192.0	51
	Siemens Advia Centaur & Atellica	1,317.43	1,321.5	117.10	8.9	39.12	1,130.7	1,482.0	14
	Siemens Immulite 1000, 2000, 2500	938.33	883.0	139.49	14.9	80.53	835.0	1,097.0	3
	All	1,093.45	1,075.5	82.98	7.6	8.65	835.0	1,658.0	92
HE4, pmol/L									
	Abbott Alinity & Architect	203.84	202.7	13.35	6.5	3.56	181.5	231.3	22
	DiaSorin Liaison	183.80	183.8	-	-	-	-	-	1
	Roche cobas e, Elecsys, & Modular E	204.39	204.0	6.05	3.0	1.24	193.7	219.3	37
	Siemens Advia Centaur & Atellica	202.00	202.0	-	-	-	-	-	1
	All	203.93	204.0	7.79	3.8	1.00	181.5	231.3	61
NSE, µg/L									
	DiaSorin Liaison	10.93	10.9	0.95	8.7	0.67	10.3	11.6	2
	Roche cobas e, Elecsys, & Modular E	6.80	6.8	0.75	11.1	0.19	5.5	8.3	25
	Snibe Diagnostic Maglumi	13.50	13.5	-	-	-	-	-	1
	All	6.98	6.9	0.95	13.5	0.18	5.5	13.5	28
PSA, µg/l									
	Abbott Alinity & Architect	17.43	17.2	1.05	6.0	0.21	12.7	20.4	39
	Beckman Coulter PSA, Hybritech calibration	21.40	21.4	0.28	1.3	0.14	21.1	21.6	4
	Beckman Coulter PSA, WHO calibration	16.18	16.2	0.14	0.9	0.10	16.1	16.3	2
	bioMerieux Vidas	21.48	21.5	1.05	4.9	0.74	20.7	22.2	2
	DiaSorin Liaison	22.28	22.3	1.17	5.2	0.83	21.5	23.1	2
	Roche cobas e, Elecsys, & Modular E	18.31	18.3	0.85	4.6	0.14	16.8	20.4	55
	Siemens Advia Centaur & Atellica	16.58	16.6	1.35	8.1	0.36	14.3	19.2	22
	Siemens Dimension & Vista	21.08	21.0	0.20	1.0	0.08	21.0	21.5	6
	Siemens Immulite 1000, 2000, 2500	17.20	17.2	7.07	41.1	5.00	12.2	22.2	2
	Tosoh AIA	17.51	17.5	-	-	-	-	-	1

NUMERICAL SUMMARY Tumour markers 2023/01, Sample S001: LQ741223011

Analyte	Method group	x	med	s	CV%	u	Min	Max	Number
PSA, µg/l									
All		17.99	18.0	1.52	8.5	0.13	12.2	23.1	135
PSA free, µg/L									
Abbott Alinity & Architect		1.808	1.72	0.469	25.9	0.117	1.14	2.83	25
Beckman Coulter Access & Unicel		2.760	2.76	-	-	-	-	-	1
DiaSorin Liaison		1.448	1.45	0.166	11.5	0.118	1.33	1.57	2
Roche cobas e, Elecsys, & Modular E		1.720	1.69	0.343	20.0	0.090	1.21	2.51	23
Siemens Advia Centaur & Atellica		1.858	1.74	0.575	31.0	0.218	1.17	2.70	7
Siemens Dimension & Vista		1.450	1.45	0.071	4.9	0.050	1.40	1.50	2
Siemens Immulite 1000, 2000, 2500		2.260	2.26	-	-	-	-	-	1
All		1.759	1.70	0.412	23.4	0.053	1.14	2.83	61
PSA free/total, %									
Abbott Alinity & Architect		10.45	10.0	1.57	15.0	0.46	8.4	15.2	18
Beckman Coulter Access & Unicel		13.00	13.0	-	-	-	-	-	1
Calculated		10.67	10.7	2.35	22.1	1.67	9.0	12.3	2
Roche cobas e, Elecsys, & Modular E		8.99	9.0	1.65	18.4	0.57	6.7	11.4	13
Siemens Advia Centaur & Atellica		11.05	10.2	2.63	23.8	1.31	9.0	14.9	4
All		10.05	10.0	1.72	17.1	0.28	6.7	15.2	38
β-2-Microglob., mg/l									
Abbott Alinity & Architect		1.658	1.67	0.032	1.9	0.013	1.61	1.69	6
Beckman Coulter AU instruments		1.490	1.49	0.085	5.7	0.060	1.43	1.55	2
Biosystems reagents		1.210	1.21	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E		1.700	1.70	-	-	-	-	-	1
Roche Tina-quant		1.732	1.72	0.086	5.0	0.030	1.64	1.89	8
Siemens Advia Centaur & Atellica		1.600	1.60	-	-	-	-	-	1
Siemens Immulite 1000, 2000, 2500		1.455	1.46	0.222	15.3	0.157	1.30	1.61	2
Siemens nephelometry		1.647	1.64	0.053	3.2	0.061	1.00	1.71	10
The Binding Site Optilite		1.930	1.93	-	-	-	-	-	1
All		1.650	1.65	0.089	5.4	0.016	1.00	1.93	33
Thyroglobulin, µg/L									
Abbott Alinity & Architect		9.49	9.8	3.06	32.3	1.53	5.5	12.9	4
DiaSorin Liaison		22.84	22.8	-	-	-	-	-	1
Perkin Elmer Delfia/Auto Delfia		4.36	4.4	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E		19.64	19.1	4.21	21.5	1.28	12.1	25.8	17
Siemens Immulite 1000, 2000, 2500		14.28	13.3	4.45	31.1	1.57	9.5	19.8	8
All		16.68	18.0	6.14	36.8	1.10	4.4	25.8	31
Thyroglobulin antibodies, kU/L									
Abbott Alinity & Architect		9.83	9.5	2.41	24.5	0.84	2.9	19.2	13
bioMerieux Vidas		8.80	8.8	-	-	-	-	-	1
Brahms Kryptor		16.00	16.0	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E		33.92	34.1	6.34	18.7	2.05	25.3	43.6	15
Siemens Advia Centaur & Atellica		3.30	3.3	-	-	-	-	-	1
All		21.59	19.2	14.83	68.7	2.66	2.9	43.6	31
Sample S002: LQ741223012									
AFP, kU/L									
Abbott Alinity & Architect		284.05	278.9	19.37	6.8	5.55	247.4	366.3	19
Beckman Coulter Access & Unicel		266.75	266.8	-	-	-	-	-	1
Brahms Kryptor		286.02	286.0	33.92	11.9	23.98	262.0	310.0	2
Perkin Elmer Delfia/Auto Delfia		267.73	262.5	9.59	3.6	5.54	261.9	278.8	3
Roche cobas e, Elecsys, & Modular E		306.21	308.4	17.20	5.6	3.69	238.0	371.2	34

NUMERICAL SUMMARY **Tumour markers 2023/01, Sample S002: LQ741223012**

Analyte	Method group	x	med	s	CV%	u	Min	Max	Number
AFP, kU/L									
	Siemens Advia Centaur & Atellica	303.68	304.7	17.75	5.8	6.41	276.0	331.9	12
	Siemens Dimension & Vista	289.00	289.0	-	-	-	-	-	1
	Siemens Immulite 1000, 2000, 2500	283.88	295.0	32.09	11.3	14.35	227.4	308.0	5
	Tosoh AIA	294.90	294.9	-	-	-	-	-	1
	All	296.62	297.9	21.81	7.4	2.47	227.4	371.2	78
CA 125, kU/l									
	Abbott Alinity & Architect	62.06	62.5	2.93	4.7	0.64	55.7	69.3	33
	Beckman Coulter Access & Unicel	59.25	59.3	4.17	7.0	2.95	56.3	62.2	2
	bioMerieux Vidas	37.87	37.9	-	-	-	-	-	1
	Roche cobas e, Elecsys, & Modular E	46.06	46.2	1.71	3.7	0.27	41.2	59.0	61
	Siemens Advia Centaur & Atellica	49.79	50.0	2.17	4.4	0.66	43.0	59.0	17
	Siemens Dimension & Vista	36.00	36.0	1.00	2.8	0.58	35.0	37.0	3
	Tosoh AIA	70.60	70.6	-	-	-	-	-	1
	All	51.17	47.6	8.72	17.0	0.80	35.0	70.6	118
CA 153, kU/l									
	Abbott Alinity & Architect	20.54	20.8	1.80	8.7	0.56	18.1	22.9	16
	Beckman Coulter Access & Unicel	14.60	14.6	-	-	-	-	-	1
	Brahms Diagnostica RIA	55.00	55.0	-	-	-	-	-	1
	Perkin Elmer Delfia/Auto Delfia	25.00	25.0	-	-	-	-	-	1
	Roche cobas e, Elecsys, & Modular E	25.27	25.1	1.02	4.0	0.24	23.0	31.9	28
	Siemens Advia Centaur & Atellica	20.85	20.9	2.16	10.4	0.82	18.5	23.4	7
	Siemens Immulite 1000, 2000, 2500	30.70	30.7	-	-	-	-	-	1
	All	23.34	24.3	3.27	14.0	0.44	14.6	55.0	55
CA 199, kU/l									
	Abbott Alinity & Architect	240.8	242	13.5	5.6	3.7	223	272	21
	Beckman Coulter Access & Unicel	80.3	80	5.6	7.0	3.2	75	86	3
	Brahms Kryptor	615.0	615	-	-	-	-	-	1
	Roche cobas e, Elecsys, & Modular E	43.7	43	4.0	9.2	0.8	36	56	44
	Siemens Advia Centaur & Atellica	108.8	112	18.1	16.7	5.7	78	129	10
	Tosoh AIA	26.1	26	-	-	-	-	-	1
	All	107.3	49	97.5	90.9	10.9	26	615	80
CEA, µg/L									
	Abbott Alinity & Architect	13.82	13.9	0.76	5.5	0.18	12.7	16.1	28
	Beckman Coulter Access & Unicel	19.59	19.7	1.60	8.2	0.80	17.9	21.1	4
	Roche cobas e, Elecsys, & Modular E	16.68	16.7	0.74	4.5	0.13	8.3	20.0	51
	Siemens Advia Centaur & Atellica	15.81	15.9	0.66	4.2	0.21	14.4	18.0	16
	Siemens Dimension & Vista	20.50	20.5	0.71	3.4	0.50	20.0	21.0	2
	Tosoh AIA	20.90	20.9	-	-	-	-	-	1
	All	15.90	16.1	1.75	11.0	0.17	8.3	21.1	102
Ferritin, µg/l									
	Abbott Alinity & Architect	101.5	102	5.5	5.4	1.6	79	109	18
	Beckman Coulter Access & Unicel	66.2	63	12.4	18.7	7.2	56	80	3
	Beckman Coulter AU instruments	94.0	94	-	-	-	-	-	1
	bioMerieux Vidas	83.3	83	-	-	-	-	-	1
	Roche cobas e, Elecsys, & Modular E	103.8	103	3.9	3.8	0.8	94	124	37
	Roche Tina-quant	105.5	106	-	-	-	-	-	1
	Siemens Advia Centaur & Atellica	65.9	65	2.6	3.9	0.8	59	73	18
	Siemens Immulite 1000, 2000, 2500	88.9	89	11.3	12.7	8.0	81	97	2
	Vitros Systems	59.1	59	-	-	-	-	-	1
	All	92.4	101	19.3	20.9	2.1	56	124	82

NUMERICAL SUMMARY Tumour markers 2023/01, Sample S002: LQ741223012

Analyte	Method group	x	med	s	CV%	u	Min	Max	Number
hCG free beta, µg/L									
hCG free beta, µg/L									
	Beckman Coulter Immunotech	0.09	0.1	-	-	-	-	-	1
	Perkin Elmer Delfia/Auto Delfia	0.09	0.1	-	-	-	-	-	1
	Siemens Immulite 1000, 2000, 2500	2.00	2.0	0.00	0.0	0.00	2.0	2.0	2
	All	1.05	1.0	1.25	119.7	0.63	0.1	2.0	4
hCG intact, U/L									
	Roche cobas e, Elecsys, & Modular E	20.23	20.4	0.47	2.3	0.27	19.7	20.6	3
	All	20.23	20.4	0.54	2.6	0.31	19.7	20.6	3
hCG total, U/L									
	Abbott Alinity & Architect	22.93	22.7	1.65	7.2	0.49	20.0	26.0	18
	Beckman Coulter Access & Unicel	27.38	27.6	1.44	5.3	0.65	25.0	28.8	5
	DiaSorin Liaison	20.08	20.1	-	-	-	-	-	1
	Roche cobas e, Elecsys, & Modular E	20.98	21.0	0.87	4.2	0.15	18.0	50.3	52
	Siemens Advia Centaur & Atellica	26.18	26.0	1.20	4.6	0.37	24.4	28.0	16
	Siemens Immulite 1000, 2000, 2500	22.10	23.5	2.60	11.8	1.50	19.1	23.7	3
	All	22.52	21.7	2.64	11.7	0.27	18.0	50.3	95
HE4, pmol/L									
	Abbott Alinity & Architect	111.76	112.5	10.52	9.4	2.80	96.3	127.4	22
	DiaSorin Liaison	98.20	98.2	-	-	-	-	-	1
	Roche cobas e, Elecsys, & Modular E	115.61	116.0	3.83	3.3	0.79	109.0	123.0	37
	Siemens Advia Centaur & Atellica	114.00	114.0	-	-	-	-	-	1
	All	114.59	115.7	5.86	5.1	0.75	96.3	127.4	61
NSE, µg/L									
	DiaSorin Liaison	13.83	13.8	1.31	9.5	0.93	12.9	14.8	2
	Roche cobas e, Elecsys, & Modular E	9.28	9.1	0.91	9.9	0.23	7.6	11.1	25
	Snibe Diagnostic Maglumi	13.30	13.3	-	-	-	-	-	1
	All	9.50	9.4	1.14	12.0	0.21	7.6	14.8	28
PSA, µg/l									
	Abbott Alinity & Architect	4.02	4.0	0.23	5.6	0.05	3.5	4.5	39
	Beckman Coulter PSA, Hybritech calibration	4.77	4.8	0.09	1.9	0.04	4.6	4.9	4
	Beckman Coulter PSA, WHO calibration	3.81	3.8	0.03	0.7	0.02	3.8	3.8	2
	bioMerieux Vidas	4.97	5.0	0.40	8.0	0.28	4.7	5.3	2
	DiaSorin Liaison	4.87	4.9	0.09	1.9	0.06	4.8	4.9	2
	Roche cobas e, Elecsys, & Modular E	4.22	4.2	0.21	5.0	0.04	3.8	5.1	55
	Siemens Advia Centaur & Atellica	3.86	3.9	0.27	7.0	0.07	3.4	4.3	22
	Siemens Dimension & Vista	4.75	4.8	0.06	1.2	0.02	4.7	4.8	6
	Siemens Immulite 1000, 2000, 2500	4.08	4.1	0.54	13.2	0.38	3.7	4.5	2
	Tosoh AIA	4.06	4.1	-	-	-	-	-	1
	All	4.14	4.1	0.32	7.8	0.03	3.4	5.3	135
PSA free, µg/L									
	Abbott Alinity & Architect	0.459	0.44	0.105	22.8	0.026	0.33	0.66	25
	Beckman Coulter Access & Unicel	0.632	0.63	-	-	-	-	-	1
	DiaSorin Liaison	0.290	0.29	0.014	4.9	0.010	0.28	0.30	2
	Roche cobas e, Elecsys, & Modular E	0.448	0.46	0.081	18.1	0.020	0.10	0.65	26
	Siemens Advia Centaur & Atellica	0.507	0.47	0.134	26.5	0.045	0.31	0.70	9
	Siemens Dimension & Vista	0.375	0.38	0.035	9.4	0.025	0.35	0.40	2
	Siemens Immulite 1000, 2000, 2500	0.506	0.51	-	-	-	-	-	1

NUMERICAL SUMMARY
Tumour markers 2023/01, Sample S002: LQ741223012

Analyte	Method group	x	med	s	CV%	u	Min	Max	Number
PSA free, µg/L									
All		0.454	0.44	0.104	22.8	0.013	0.10	0.70	66
PSA free/total, %									
Abbott Alinity & Architect		11.27	10.8	2.06	18.2	0.61	8.8	16.0	18
Beckman Coulter Access & Unicel		13.00	13.0	-	-	-	-	-	1
Calculated		11.99	12.0	2.81	23.5	1.99	10.0	14.0	2
Roche cobas e, Elecsys, & Modular E		10.41	10.0	1.61	15.4	0.52	8.0	12.8	15
Siemens Advia Centaur & Atellica		13.57	12.0	3.52	25.9	2.03	11.1	17.6	3
All		11.05	10.9	1.82	16.5	0.29	8.0	17.6	39
β-2-Microglob., mg/l									
Abbott Alinity & Architect		1.564	1.56	0.017	1.1	0.007	1.55	1.59	6
Beckman Coulter AU instruments		1.430	1.43	0.071	4.9	0.050	1.38	1.48	2
Biosystems reagents		1.160	1.16	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E		1.700	1.70	-	-	-	-	-	1
Roche Tina-quant		1.638	1.62	0.081	5.0	0.029	1.54	1.79	8
Siemens Immulite 1000, 2000, 2500		1.419	1.42	0.250	17.6	0.177	1.24	1.60	2
Siemens nephelometry		1.526	1.52	0.153	10.0	0.055	1.00	1.75	12
All		1.553	1.56	0.128	8.3	0.023	1.00	1.79	32
Thyroglobulin, µg/L									
Abbott Alinity & Architect		9.22	9.7	2.79	30.2	1.39	5.5	11.9	4
DiaSorin Liaison		27.02	27.0	-	-	-	-	-	1
Perkin Elmer Delfia/Auto Delfia		4.67	4.7	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E		19.67	19.2	3.14	16.0	0.95	14.4	28.3	17
Siemens Immulite 1000, 2000, 2500		14.80	14.1	3.17	21.4	1.12	11.6	19.3	8
All		17.01	18.3	5.50	32.3	0.99	4.7	28.3	31
Thyroglobulin antibodies, kU/L									
Abbott Alinity & Architect		6.14	6.1	0.53	8.6	0.19	4.5	7.3	12
bioMerieux Vidas		7.20	7.2	-	-	-	-	-	1
Brahms Kryptor		11.00	11.0	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E		30.89	30.9	6.17	20.0	2.06	22.4	39.5	14
Siemens Advia Centaur & Atellica		2.75	2.8	0.35	12.9	0.25	2.5	3.0	2
All		17.64	9.1	14.95	84.8	2.73	2.5	39.5	30

NUMERICAL SUMMARY **Tumour markers 2023/01, Sample S002: LQ741223012**

Analyte	Method group	x	med	s	CV%	u	Min	Max	Number
Thyroglobulin antibodies, kU/L									

Participants

157 participants from 25 countries.

Report info

Assigned value (target value) calculation and its uncertainty

Your own result should be compared to others using the same method.

The assigned values (X_{rob}) are calculated according to the robust procedure described in the standard ISO 13528 (Statistical methods for use in proficiency testing by interlaboratory comparisons, Annex C, Algorithm A).

The standard uncertainty of the assigned value is expressed as 1.25 x the standard error of mean (SEM) and marked as "u" in numerical summary. Due to its iterative mode algorithm A adds the uncertainty of the assigned value and with this factor we want to adjust uncertainty accordingly.

In case there are 2-12 results in a method group, the robust calculation is not used but assigned values (X_{pt}) are means of the results where results deviating more than ± 3 * standard deviation from the median are removed. The standard uncertainty (u) of the assigned value is reported as standard error of the mean (SEM). Additionally, if the measurement uncertainty of the target value is too large ($u > 0.1$ * maximum allowable error) an automatic text is printed on the report: "The uncertainty of the assigned value is not negligible, and evaluations could be affected."

Please notice also that for groups that have only 1 result only the client's own result is shown. No target value (except for reference method values) is calculated, no target areas are shown.

Z score

In case there are 2-5 results in a method group, no z-score is calculated, and a text is printed on the report: "Due to the small number of results, the z score is not calculated." In case there are 6-12 results, the report has a text: "Z score is uncertain due to the small number of observations."

Results reported with < tai > -signs cannot be included in the statistics.

For information on report interpretation and performance evaluation, please see the "EQAS Interpretation guidelines" in LabScala User instructions (top right corner ?Help link).

External Quality Assessment Scheme

Tumour markers Round 1, 2023

Specimens

Sample S001 (LQ741223011) and sample S002 (LQ741223012) were unprocessed human sera spiked with sera having elevated levels of tumour markers or purified individual components. No preservatives were added.

Based on the previous tests and the results of this round, the samples were homogeneous, stable and suitable for the external quality assessment scheme.

The materials were sent without temperature control packaging.

Report info

Please see the description of the data analysis on the last page of the laboratory-specific histograms and Numerical Summary 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

Several analytes have concentration differences between analyzers, which may be due to, for example, differences in calibration or in specificity, for example in the identification of different variants. Your own result should be compared with the results of the same analyzer group.

Within the analyzer groups, the CV% were mostly acceptable. In some of the groups, the number of participants was so small that the CV% comparison is not meaningful (in this case, even one abnormal result can change the statistical values significantly). For some analytes (e.g. thyroglobulin and free hCG free β subunit), a low concentration level can lead to a higher CV%.

Comments – Coordinator

Regarding free hCG free β subunit, 6/10 of the results were reported below the limit of detection for S002. Since measurements contain several results below the detection limits the uncertainties of the calculated assigned values are not negligible.

Thyroglobulin antibodies: all the results analysed by Siemens Immulite were below the detection limit for both samples.

End of report

2023-04-20

FINAL REPORT

Product no. 2700, 2700S

Subcontracting: Sample preparation

Samples sent	2023-02-13
Round closed	2023-03-07
Final report	2023-04-20

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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