LABQUALITY

External Quality Assessment Scheme

Hormones A: Basic analytes of hormone and immunochemistry
Round 1, 2023

Specimens
Please find enclosed 2 lyophilized human serum samples S001 (A1) and S002 (A2), 3 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.

Examinations
Ferritin
Folate
hCG total
hCG intact
T3
T3 free
T4
T4 free
TSH
Vitamin B12
Active vitamin B12

Storage and use
Lyophilized samples are stable at +2 …8 °C until the closing date of the round.

Add 3.0 mL aqua to the samples. Ensure solubility and homogeneity. The reconstituted sample can be stored for 10 days at +2 to +8 °C (Folate for 8 days in dark). The components of the frozen sample can be stored frozen at -20° C for 4 weeks if the sample is frozen within 30 minutes after reconstitution. Thaw the sample shortly before analysis and mix until homogenous. Allow the sample to warm to room temperature before analysis.

Analyze both samples 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.

S001
LQ732323011

S002
LQ732323012

2023-02-07

INSTRUCTIONS

Product no. 2300, 2300S, 1300
LQ732323011-012/NO

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

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The results should be reported no later than **February 27, 2023**.

Inquiries
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www.labquality.com

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

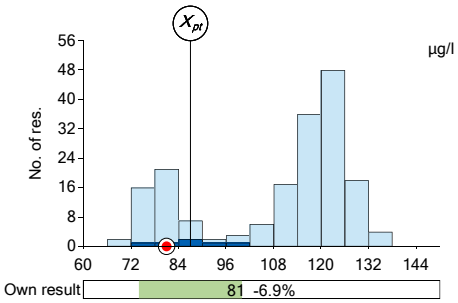
Quality Management
ISO 9001:2015

Ferritin

0035 Tue

Siemens Dimension & Vista 816

Siemens Dimension 180

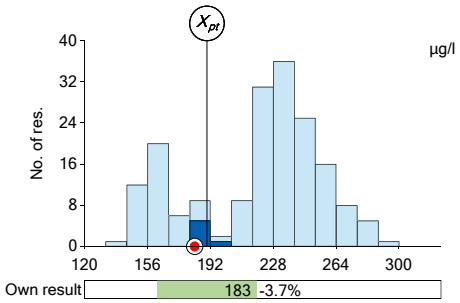


Sample A1

Assigned value (X): 87 µg/l, X_{pt}

Target limits (X ± 15%): 74 - 100 µg/l

	x	s	u	CV%	n
Own group	87.5	7.5	3.0	8.5	6
All	109.3	20.3	1.9	18.6	179

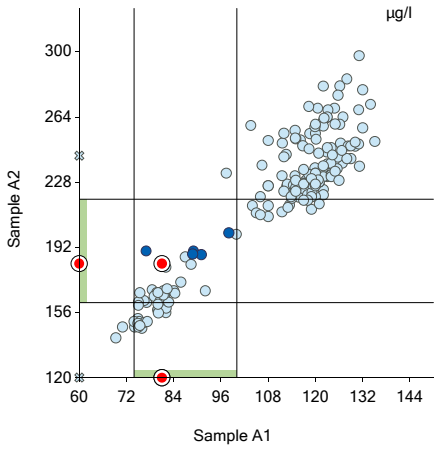


Sample A2

Assigned value (X): 190 µg/l, X_{pt}

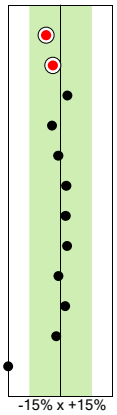
Target limits (X ± 15%): 162 - 219 µg/l

	x	s	u	CV%	n
Own group	189.9	5.6	2.3	2.9	6
All	219.5	40.6	3.8	18.5	181

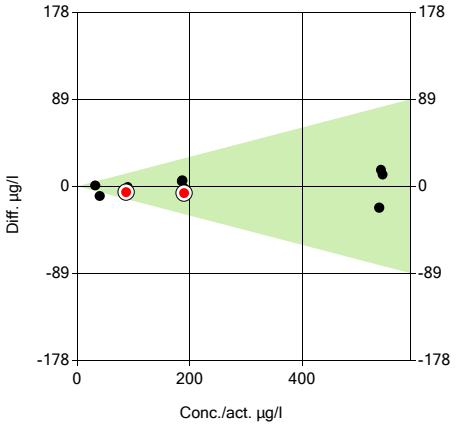


Previous results

Round	Sample	X	Own	Diff%	z
23/01	HaD 816	87	81	-6.9	-0.9
23/01	HaE 816	190	183	-3.7	-1.2
22/08	HaE 816	187	193	3.2	0.7
22/08	HaF 816	537	515	-4.1	-0.9
22/07	HaD 816	90	89	-1.1	-0.2
22/07	HaE 816	186	191	2.7	0.9
22/06	HbY 816	32	33	2.4	0.8
22/06	HaF 816	540	557	3.1	1.3
22/05	HaE 816	190	188	-1.1	-0.6
22/05	HaF 816	543	555	2.2	1.1
22/04	HaE 816	191	187	-2.1	-0.7
22/04	HbP 816	40	30	-25.0	-1.8
22/03	HbR 816	70	72	2.9	0.9



Conc./act. dependent performance



Comments

Sample A1, Own group:

The standard measurement uncertainty (u) of the assigned value (Xpt) 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 A2, Own group:

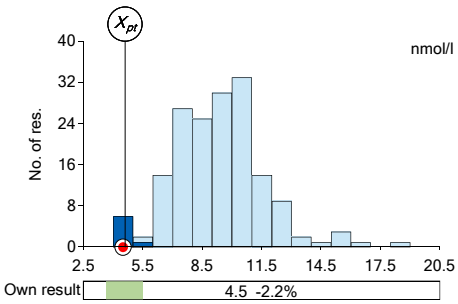
The standard measurement uncertainty (u) of the assigned value (Xpt) is the standard error of the mean (SEM).
Z score is uncertain due to the small number of observations.

Folate

0058 Tue

Siemens Dimension & Vista 816

Siemens Dimension 180

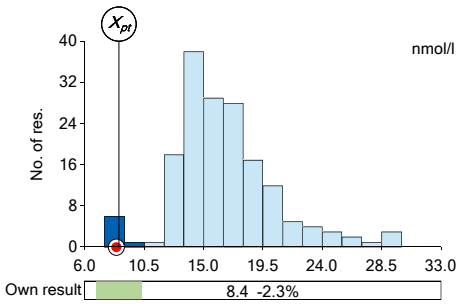


Sample A1

Assigned value (X): 4.6 nmol/l, X_{pt}

Target limits (X ± 20%): 3.7 - 5.5 nmol/l

	x	s	u	CV%	n
Own group	4.63	0.40	0.15	8.6	7
All	9.25	2.04	0.20	22.1	168

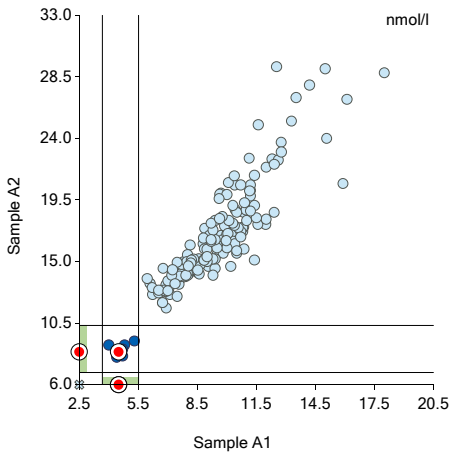


Sample A2

Assigned value (X): 8.6 nmol/l, X_{pt}

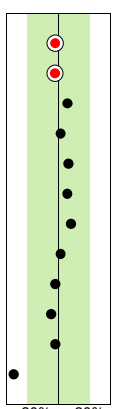
Target limits (X ± 20%): 6.9 - 10.3 nmol/l

	x	s	u	CV%	n
Own group	8.59	0.45	0.17	5.2	7
All	16.28	3.10	0.30	19.0	168

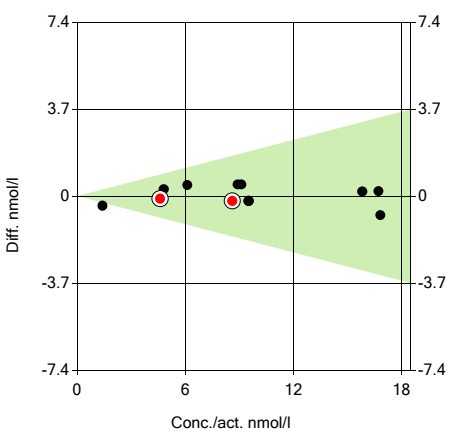


Previous results

Round	Sample	X	Own	Diff%	z
23/01	HaD 816	4.6	4.5	-2.2	-0.3
23/01	HaE 816	8.6	8.4	-2.3	-0.4
22/08	HaE 816	8.9	9.4	5.6	1.3
22/08	HaF 816	15.8	16.0	1.3	0.5
22/07	HaD 816	4.8	5.1	6.3	0.8
22/07	HaE 816	9.1	9.6	5.5	1.3
22/06	HbY 816	6.1	6.6	7.9	1.4
22/06	HaF 816	16.7	16.9	1.3	0.5
22/05	HaE 816	9.5	9.3	-2.1	-0.4
22/05	HaF 816	16.8	16.0	-4.8	-1.2
22/04	HaE 816	9.5	9.3	-2.1	-0.3
22/04	HbP 816	1.4	1.0	-28.6	-
22/03	HbR 816	6.4	6.4	0.0	-0.1



Conc./act. dependent performance



Comments

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The standard measurement uncertainty (u) of the assigned value (Xpt) 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 A2, Own group:

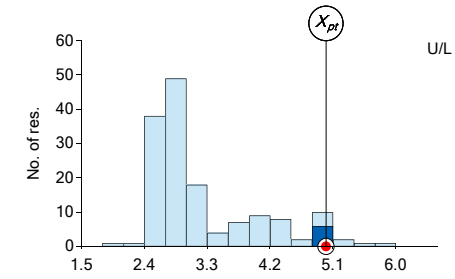
The standard measurement uncertainty (u) of the assigned value (Xpt) is the standard error of the mean (SEM).
Z score is uncertain due to the small number of observations.

hCG total

0640 Tue

Siemens Dimension & Vista
816

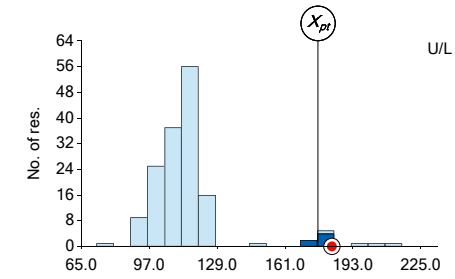
Siemens Dimension
180



Own result 5.0 0.0%
analysed: 10.2.2023

Sample A1
Assigned value (X): 5.0 U/L, X_{pt}
Target limits (X ± 20%): 4.0 - 6.0 U/L

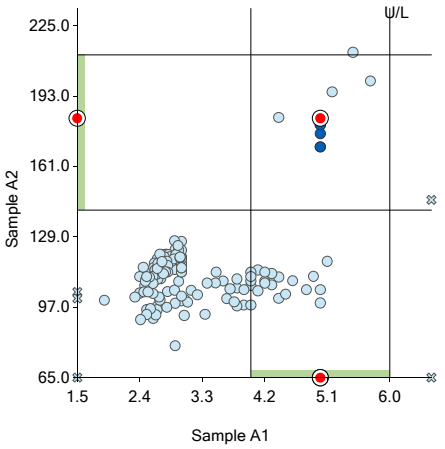
	x	s	u	CV%	n
Own group	5.00	0.00	0.00	0.0	6
All	3.11	0.66	0.07	21.4	151



Own result 183.0 3.7%
analysed: 10.2.2023

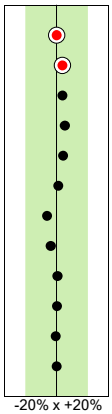
Sample A2
Assigned value (X): 176.5 U/L, X_{pt}
Target limits (X ± 20%): 141.2 - 211.8 U/L

	x	s	u	CV%	n
Own group	176.50	5.50	2.25	3.1	6
All	111.67	10.22	1.03	9.1	155

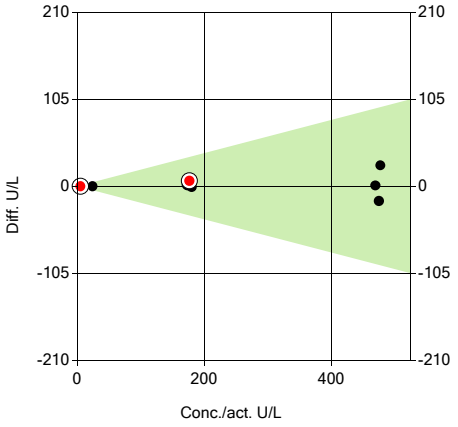


Previous results

Round	Sample	X	Own	Diff%	z
23/01	HaD 816	5.0	5.0	0.0	0.0
23/01	HaE 816	176.5	183.0	3.7	1.2
22/08	HaE 816	175.4	182.0	3.8	1.3
22/08	HaF 816	476.8	502.0	5.3	1.7
22/07	HaD 816	4.8	5.0	4.2	0.6
22/07	HaE 816	172.1	174.0	1.1	0.7
22/06	HbY 816	2.8	2.6	-6.1	-1.1
22/06	HaF 816	474.7	456.9	-3.8	-0.6
22/05	HaE 816	174.0	175.0	0.6	0.3
22/05	HaF 816	469.0	470.0	0.2	0.1
22/04	HaE 816	180.0	179.0	-0.6	-0.1
22/03	HbR 816	24.0	24.0	0.0	-0.3
22/03	HaF 816	482.0	470.0	-2.5	-0.7



Conc./act. dependent performance



Comments

Sample A1, Own group:

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Z score is uncertain due to the small number of observations.

Sample A2, Own group:

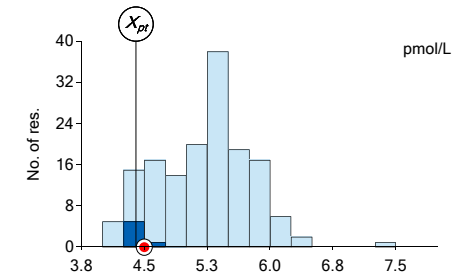
The standard measurement uncertainty (u) of the assigned value (Xpt) is the standard error of the mean (SEM).
Z score is uncertain due to the small number of observations.

T3 free

0675 Tue

Siemens Dimension & Vista
816

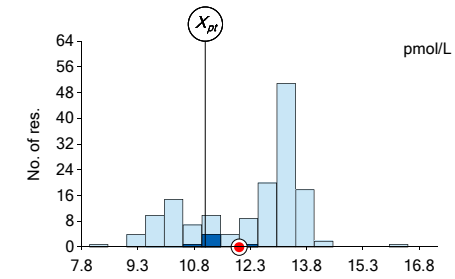
Siemens Dimension
180



Own result 4.5 2.3%
analysed: 10.2.2023

Sample A1
Assigned value (X): 4.4 pmol/L, X_{pt}
Target limits (X ± 20%): 3.5 - 5.3 pmol/L

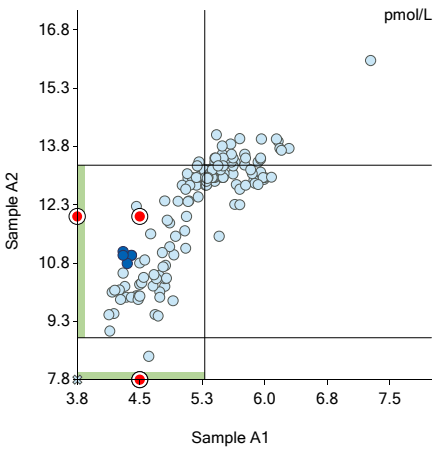
	x	s	u	CV%	n
Own group	4.38	0.08	0.03	1.7	6
All	5.21	0.59	0.06	11.3	154



Own result 12.0 8.1%
analysed: 10.2.2023

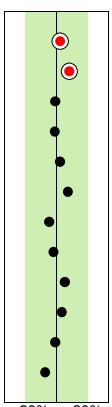
Sample A2
Assigned value (X): 11.1 pmol/L, X_{pt}
Target limits (X ± 20%): 8.9 - 13.3 pmol/L

	x	s	u	CV%	n
Own group	11.15	0.43	0.18	3.9	6
All	12.26	1.50	0.15	12.2	152

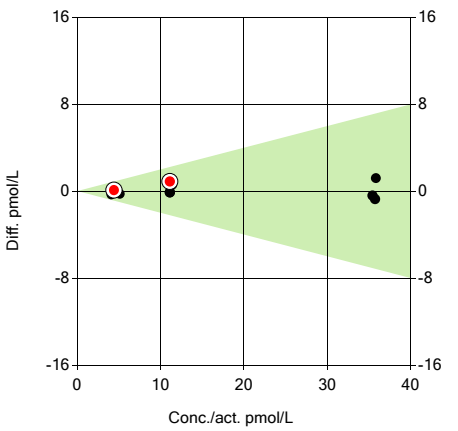


Previous results

Round	Sample	X	Own	Diff%	z
23/01	HaD 816	4.4	4.5	2.3	1.6
23/01	HaE 816	11.1	12.0	8.1	2.0
22/08	HaE 816	11.1	11.0	-0.9	-0.4
22/08	HaF 816	35.4	35.0	-1.1	-0.5
22/07	HaD 816	4.5	4.6	2.2	0.7
22/07	HaE 816	11.2	12.0	7.1	1.5
22/06	HbY 816	5.1	4.9	-4.7	-1.4
22/06	HaF 816	35.7	35.0	-2.0	-1.1
22/05	HaE 816	11.4	12.0	5.3	1.5
22/05	HaF 816	35.8	37.0	3.4	1.2
22/04	HaE 816	11.1	11.0	-0.9	-0.4
22/04	HbP 816	4.1	3.8	-7.3	-1.6
22/03	HbR 816	12.9	13.0	0.8	0.3



Conc./act. dependent performance



Comments

Sample A1, Own group:

The standard measurement uncertainty (u) of the assigned value (Xpt) is the standard error of the mean (SEM).
Z score is uncertain due to the small number of observations.

Sample A2, Own group:

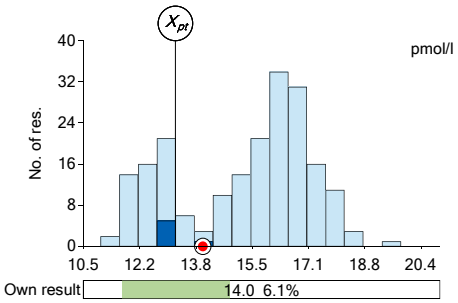
The standard measurement uncertainty (u) of the assigned value (Xpt) is the standard error of the mean (SEM).
Z score is uncertain due to the small number of observations.

T4 free

0034 Tue

Siemens Dimension & Vista 816

Siemens Dimension 180

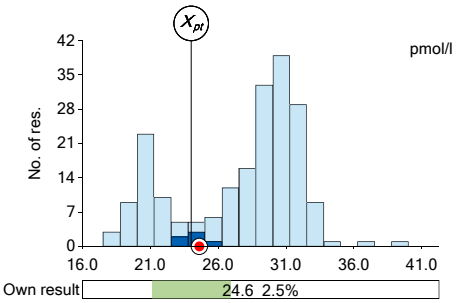


Sample A1

Assigned value (X): 13.2 pmol/l, X_{pt}

Target limits (X ± 12%): 11.6 - 14.8 pmol/l

	x	s	u	CV%	n
Own group	13.19	0.40	0.16	3.0	6
All	15.22	2.16	0.19	14.2	203

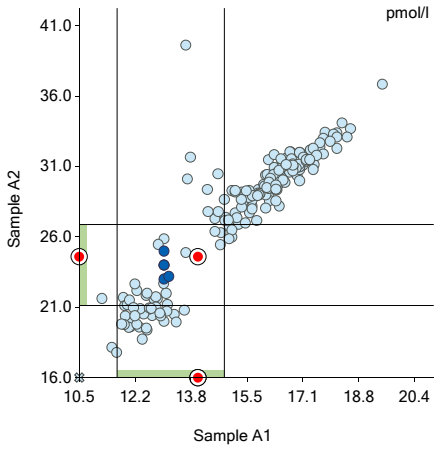


Sample A2

Assigned value (X): 24.0 pmol/l, X_{pt}

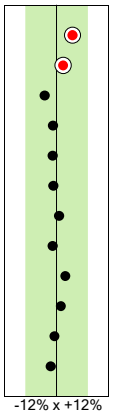
Target limits (X ± 12%): 21.1 - 26.9 pmol/l

	x	s	u	CV%	n
Own group	23.97	0.77	0.32	3.2	6
All	27.69	4.85	0.43	17.5	202

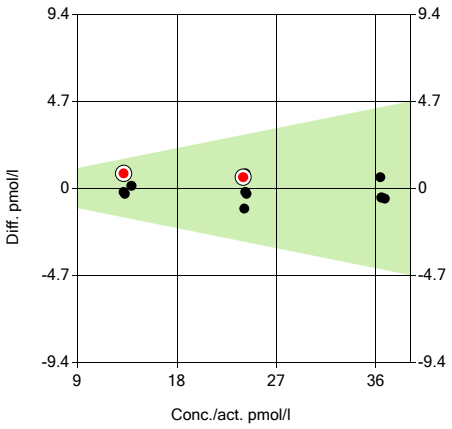


Previous results

Round	Sample	X	Own	Diff%	z
23/01	HaD 816	13.2	14.0	6.1	2.0
23/01	HaE 816	24.0	24.6	2.5	0.8
22/08	HaE 816	24.1	23.0	-4.6	-1.6
22/08	HaF 816	36.5	36.0	-1.4	-0.4
22/07	HaD 816	13.2	13.0	-1.5	-0.4
22/07	HaE 816	24.3	24.0	-1.2	-0.4
22/06	HbY 816	13.9	14.0	0.9	0.9
22/06	HaF 816	36.8	36.2	-1.5	-0.7
22/05	HaE 816	24.2	25.0	3.3	1.0
22/05	HaF 816	36.4	37.0	1.6	0.7
22/04	HaE 816	24.2	24.0	-0.8	-0.4
22/04	HbP 816	13.3	13.0	-2.3	-0.7
22/03	HbR 816	23.9	23.0	-3.8	-1.1



Conc./act. dependent performance



Comments

Sample A1, Own group:

The standard measurement uncertainty (u) of the assigned value (Xpt) 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 A2, Own group:

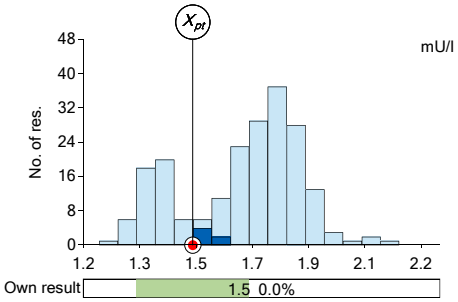
The standard measurement uncertainty (u) of the assigned value (Xpt) is the standard error of the mean (SEM).
The uncertainty (u) of the assigned value is not negligible, and evaluations could be affected. Z score is uncertain due to the small number of observations.

TSH

0033 Tue

Siemens Dimension & Vista 816

Siemens Dimension 180

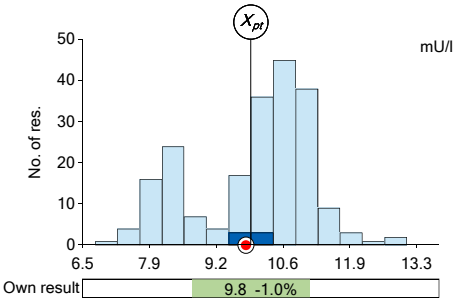


Sample A1

Assigned value (X): 1.5 mU/l, X_{pt}

Target limits (X ± 12%): 1.3 - 1.7 mU/l

	x	s	u	CV%	n
Own group	1.53	0.04	0.02	2.9	6
All	1.65	0.20	0.02	12.2	205

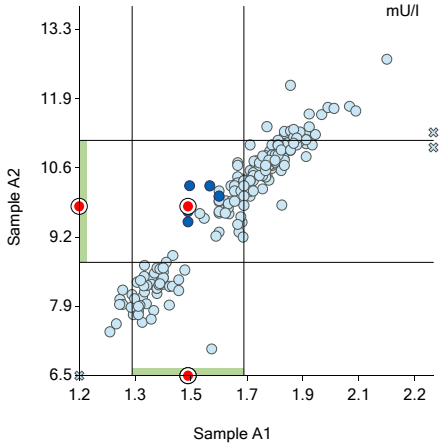


Sample A2

Assigned value (X): 9.9 mU/l, X_{pt}

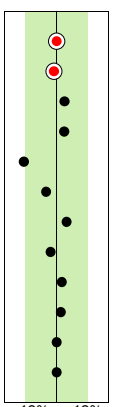
Target limits (X ± 12%): 8.7 - 11.1 mU/l

	x	s	u	CV%	n
Own group	9.90	0.28	0.12	2.9	6
All	9.98	1.27	0.11	12.8	207

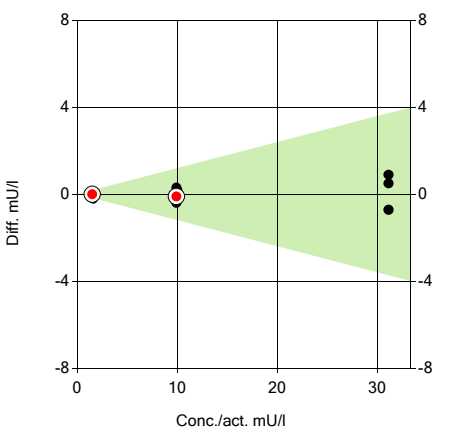


Previous results

Round	Sample	X	Own	Diff%	z
23/01	HaD 816	1.5	1.5	0.0	-0.7
23/01	HaE 816	9.9	9.8	-1.0	-0.4
22/08	HaE 816	9.9	10.2	3.0	1.0
22/08	HaF 816	31.1	32.0	2.9	0.5
22/07	HaD 816	1.6	1.4	-12.5	-1.6
22/07	HaE 816	9.9	9.5	-4.0	-0.9
22/06	HbY 816	1.6	1.7	3.8	0.6
22/06	HaF 816	31.1	30.4	-2.3	-0.7
22/05	HaE 816	10.0	10.2	2.0	0.6
22/05	HaF 816	31.1	31.6	1.6	0.4
22/04	HaE 816	9.7	9.7	0.0	0.2
22/04	HbP 816	1.3	1.3	0.0	0.1
22/03	HbR 816	1.8	1.8	0.0	0.7



Conc./act. dependent performance



Comments

Sample A1, Own group:

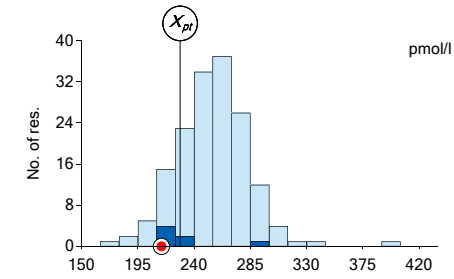
The standard measurement uncertainty (u) of the assigned value (Xpt) is the standard error of the mean (SEM).
Z score is uncertain due to the small number of observations.

Sample A2, Own group:

The standard measurement uncertainty (u) of the assigned value (Xpt) is the standard error of the mean (SEM).
Z score is uncertain due to the small number of observations.

Vit-B12

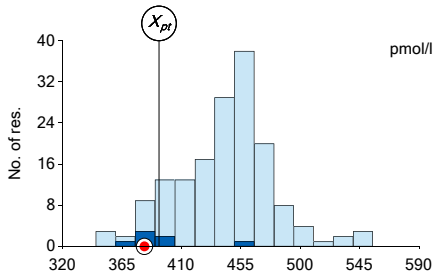
0036 Tue | Siemens Dimension & Vista 816 | Siemens Dimension 180



Own result 214 -6.6%
analysed: 10.2.2023

Sample A1
Assigned value (X): 229 pmol/l, X_{pt}
Target limits (X ± 15%): 195 - 263 pmol/l

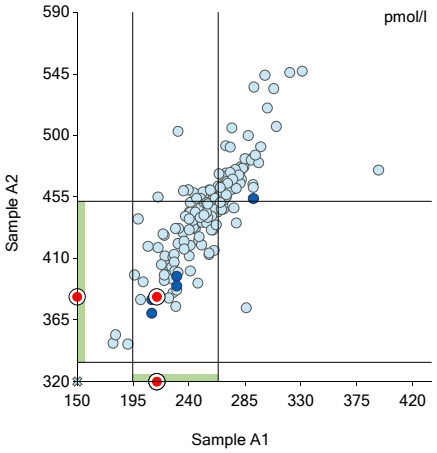
	x	s	u	CV%	n
Own group	228.7	29.1	11.0	12.7	7
All	253.7	27.3	2.7	10.7	162



Own result 382 -2.8%
analysed: 10.2.2023

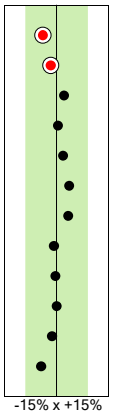
Sample A2
Assigned value (X): 393 pmol/l, X_{pt}
Target limits (X ± 15%): 334 - 452 pmol/l

	x	s	u	CV%	n
Own group	393.4	28.0	10.6	7.1	7
All	443.0	34.1	3.3	7.7	162

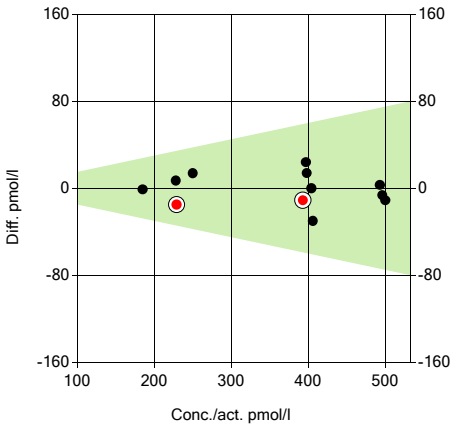


Previous results

Round	Sample	X	Own	Diff%	z
23/01	HaD 816	229	214	-6.6	-0.5
23/01	HaE 816	393	382	-2.8	-0.4
22/08	HaE 816	398	412	3.5	1.1
22/08	HaF 816	493	496	0.6	0.3
22/07	HaD 816	228	235	3.1	0.6
22/07	HaE 816	397	421	6.0	1.2
22/06	HbY 816	250	264	5.5	0.9
22/06	HaF 816	496	490	-1.3	-0.3
22/06	HbB 816	185	184	-0.5	-0.1
22/05	HaE 816	404	404	0.0	0.0
22/05	HaF 816	500	489	-2.2	-0.8
22/04	HaE 816	406	376	-7.4	-1.1
22/04	HbP 816	254	216	-15.0	-1.2



Conc./act. dependent performance



Comments

Sample A1, Own group:

The standard measurement uncertainty (u) of the assigned value (Xpt) 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 A2, Own group:

The standard measurement uncertainty (u) of the assigned value (Xpt) 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.

Participants

168 participants from 17 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 (Xrob) 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 (Xpt) 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).

NUMERICAL SUMMARY **Hormone Determinations A 2023/01**

Analyte / Method group	x	med	s	CV%	u	Min	Max	Number
Sample A1								
Ferritin, µg/l								
Abbott Alinity	120.9	122	7.5	6.2	1.5	97	134	42
Abbott Architect	115.1	115	7.9	6.9	3.2	106	128	6
Beckman Coulter Access & Unicel	130.1	130	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	119.5	120	5.7	4.8	0.8	104	135	78
Roche Tina-quant	115.6	121	13.9	12.0	8.0	100	126	3
Siemens Advia Centaur & Atellica	79.2	80	4.1	5.2	0.8	71	92	41
Siemens Dimension & Vista	87.5	89	7.5	8.5	3.0	77	98	6
Siemens Immulite 1000, 2000, 2500	108.0	108	-	-	-	-	-	1
Tosoh AIA	82.3	82	-	-	-	-	-	1
All	**109.3**	**117**	**20.3**	**18.6**	**1.5**	**71**	**135**	**179**
Folate, nmol/l								
Abbott Alinity	11.16	11.1	1.59	14.2	0.34	8.8	15.9	35
Abbott Architect	10.41	10.4	0.59	5.7	0.24	9.6	11.2	6
Beckman Coulter Access	11.20	11.2	2.22	19.9	1.57	9.6	12.8	2
Mass spectrometry	11.40	11.4	-	-	-	-	-	1
Roche Folate III restandardized	8.04	8.0	1.22	15.2	0.17	6.0	18.0	78
Siemens Advia Centaur & Atellica	10.00	10.0	0.94	9.4	0.19	7.7	12.0	38
Siemens Dimension & Vista	4.63	4.7	0.40	8.6	0.15	4.0	5.3	7
Tosoh AIA	10.20	10.2	-	-	-	-	-	1
All	**9.25**	**9.4**	**2.04**	**22.1**	**0.16**	**4.0**	**18.0**	**168**
hCG intact, U/L								
Roche cobas e, Elecsys, & Modular E	2.93	3.0	0.13	4.3	0.07	2.8	3.0	3
Tosoh AIA	4.60	4.6	-	-	-	-	-	1
All	**3.35**	**3.0**	**0.96**	**28.6**	**0.48**	**2.8**	**4.6**	**4**
hCG total, U/L								
Abbott Alinity	2.86	2.8	0.33	11.4	0.09	2.5	4.1	19
Abbott Architect	2.93	3.1	0.58	19.9	0.21	1.9	3.8	8
Beckman Coulter Access & Unicel	3.37	3.4	-	-	-	-	-	1
Radiometer AQT 90 FLEX	2.41	2.4	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	2.76	2.7	0.18	6.6	0.02	2.3	3.0	82
Siemens Advia Centaur & Atellica	4.15	4.1	0.51	12.4	0.12	2.8	5.1	30
Siemens Dimension & Vista	5.00	5.0	0.00	0.0	0.00	5.0	5.0	6
Siemens Immulite 1000, 2000, 2500	5.45	5.5	0.28	5.0	0.16	5.2	5.7	3
Tosoh AIA	4.40	4.4	-	-	-	-	-	1
All	**3.11**	**2.9**	**0.66**	**21.4**	**0.05**	**1.9**	**5.7**	**151**
Holotranscobalamin, pmol/l								
Abbott Alinity	72.9	74	7.4	10.2	2.6	58	80	8
Abbott Architect	80.4	81	3.2	3.9	1.6	77	84	4
Roche cobas e, Elecsys, & Modular E	68.9	68	6.5	9.5	2.2	58	77	14
Siemens Advia Centaur & Atellica	87.8	80	18.4	20.9	9.2	77	115	4
All	**73.2**	**74**	**7.9**	**10.7**	**1.4**	**58**	**115**	**30**
T3, nmol/l								
Abbott Alinity	1.49	1.5	0.07	4.5	0.03	1.4	1.6	5
Abbott Architect	1.45	1.5	-	-	-	-	-	1
Beckman Coulter Access & Unicel	1.90	1.9	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	1.93	1.9	0.12	6.1	0.04	1.8	2.1	9
Siemens Advia Centaur & Atellica	1.83	1.8	0.07	4.0	0.03	1.6	1.9	13

NUMERICAL SUMMARY **Hormone Determinations A 2023/01, Sample A1**

Analyte Method group	x	med	s	CV%	u	Min	Max	Number
T3, nmol/l								
All	**1.79**	**1.8**	**0.20**	**11.2**	**0.04**	**1.4**	**2.1**	**29**
T3 free, pmol/L								
Abbott Alinity	4.57	4.6	0.26	5.6	0.06	4.1	4.9	29
Abbott Architect	4.43	4.4	0.29	6.6	0.12	4.1	4.9	6
Beckman Coulter Access & Unicel	4.74	4.7	0.15	3.1	0.09	4.6	4.9	3
bioMerieux Vidas	4.63	4.6	-	-	-	-	-	1
DiaSorin Liaison	5.18	5.2	0.18	3.5	0.13	5.1	5.3	2
Roche cobas e, Elecsys, & Modular E	5.36	5.4	0.22	4.1	0.03	4.8	7.3	76
Siemens Advia Centaur & Atellica	5.87	5.9	0.24	4.1	0.06	4.7	6.3	29
Siemens Dimension & Vista	4.38	4.4	0.08	1.7	0.03	4.3	4.5	6
Tosoh AIA	4.75	4.8	0.41	8.6	0.29	4.5	5.0	2
All	**5.21**	**5.3**	**0.59**	**11.3**	**0.05**	**4.1**	**7.3**	**154**
T4, nmol/l								
Abbott Alinity	78.5	79	2.2	2.8	1.0	76	81	5
Abbott Architect	75.3	75	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	79.4	79	5.8	7.3	2.0	70	90	8
Siemens Advia Centaur & Atellica	83.3	83	5.1	6.1	1.5	77	92	11
All	**80.5**	**80**	**4.5**	**5.6**	**0.9**	**70**	**92**	**25**
T4 free, pmol/l								
Abbott Alinity	12.41	12.4	0.56	4.5	0.11	11.2	13.6	41
Abbott Architect	12.44	12.3	0.49	3.9	0.17	11.8	13.1	8
Beckman Coulter Access & Unicel	13.20	13.0	0.51	3.8	0.29	12.8	13.8	3
bioMerieux Vidas	19.44	19.4	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	16.66	16.7	0.80	4.8	0.10	13.7	18.5	102
Siemens Advia Centaur & Atellica	15.36	15.4	0.70	4.6	0.14	13.6	16.9	39
Siemens Dimension & Vista	13.19	13.0	0.40	3.0	0.16	13.0	14.0	6
Siemens Immulite 1000, 2000, 2500	16.60	16.6	-	-	-	-	-	1
Tosoh AIA	14.44	14.4	0.22	1.5	0.16	14.3	14.6	2
All	**15.22**	**15.8**	**2.16**	**14.2**	**0.15**	**11.2**	**19.4**	**203**
TSH, mU/l								
Abbott Alinity	1.38	1.4	0.06	4.3	0.01	1.3	1.5	42
Abbott Architect	1.36	1.4	0.06	4.2	0.02	1.2	1.4	9
Beckman Coulter Access & Unicel	1.70	1.6	0.24	13.9	0.12	1.5	2.0	4
bioMerieux Vidas	1.83	1.8	-	-	-	-	-	1
DiaSorin Liaison	1.99	2.0	0.21	10.7	0.15	1.8	2.1	2
Roche cobas e, Elecsys, & Modular E	1.78	1.8	0.08	4.3	0.01	1.6	2.1	96
Siemens Advia Centaur & Atellica	1.68	1.7	0.06	3.7	0.01	1.6	1.8	42
Siemens Dimension & Vista	1.53	1.5	0.04	2.9	0.02	1.5	1.6	6
Siemens Immulite 1000, 2000, 2500	1.66	1.7	-	-	-	-	-	1
Tosoh AIA	1.61	1.6	0.03	1.8	0.02	1.6	1.6	2
All	**1.65**	**1.7**	**0.20**	**12.2**	**0.01**	**1.2**	**2.1**	**205**
Vit-B12, pmol/l								
Abbott Alinity	236.1	237	17.5	7.4	3.8	196	270	33
Abbott Architect	239.0	245	29.8	12.4	14.9	201	266	4
Beckman Coulter Access	240.9	241	85.0	35.3	60.1	181	301	2
Mindray	292.1	292	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	268.2	268	17.1	6.4	2.4	191	392	77
Siemens Advia Centaur & Atellica	243.1	243	22.5	9.3	4.6	179	321	37
Siemens Dimension & Vista	228.7	215	29.1	12.7	11.0	210	292	7
Tosoh AIA	308.1	308	-	-	-	-	-	1

NUMERICAL SUMMARY **Hormone Determinations A 2023/01, Sample A1**

Analyte / Method group	x	med	s	CV%	u	Min	Max	Number
Vit-B12, pmol/l								
All	**253.7**	**255**	**27.3**	**10.7**	**2.1**	**179**	**392**	**162**
Sample A2								
Ferritin, µg/l								
Abbott Alinity	258.5	259	15.1	5.8	2.9	226	298	42
Abbott Architect	244.4	247	11.1	4.5	4.5	226	257	6
Beckman Coulter Access & Unicel	196.1	196	76.4	39.0	54.0	142	250	2
Roche cobas e, Elecsys, & Modular E	229.2	229	10.8	4.7	1.5	209	251	79
Roche Tina-quant	214.7	216	14.9	7.0	8.6	199	229	3
Siemens Advia Centaur & Atellica	160.9	162	9.7	6.0	1.9	147	187	41
Siemens Dimension & Vista	189.9	189	5.6	2.9	2.3	183	200	6
Siemens Immulite 1000, 2000, 2500	226.0	226	-	-	-	-	-	1
Tosoh AIA	169.1	169	-	-	-	-	-	1
All	**219.5**	**228**	**40.6**	**18.5**	**3.0**	**142**	**298**	**181**
Folate, nmol/l								
Abbott Alinity	20.47	20.2	2.64	12.9	0.56	16.6	29.1	35
Abbott Architect	18.64	18.9	1.10	5.9	0.45	16.5	19.6	6
Beckman Coulter Access	20.58	20.6	3.44	16.7	2.43	18.1	23.0	2
Mass spectrometry	15.11	15.1	-	-	-	-	-	1
Roche Folate III restandardized	14.62	14.4	1.62	11.1	0.23	11.6	29.2	78
Siemens Advia Centaur & Atellica	16.41	16.4	1.37	8.3	0.28	13.8	21.9	38
Siemens Dimension & Vista	8.59	8.6	0.45	5.2	0.17	8.0	9.2	7
Tosoh AIA	14.65	14.7	-	-	-	-	-	1
All	**16.28**	**16.0**	**3.10**	**19.0**	**0.24**	**8.0**	**29.2**	**168**
hCG intact, U/L								
Roche cobas e, Elecsys, & Modular E	120.87	123.0	4.77	3.9	2.76	115.4	124.2	3
Tosoh AIA	186.10	186.1	-	-	-	-	-	1
All	**137.18**	**123.6**	**37.25**	**27.2**	**18.63**	**115.4**	**186.1**	**4**
hCG total, U/L								
Abbott Alinity	99.16	99.1	5.41	5.5	1.44	92.0	109.0	22
Abbott Architect	100.03	101.2	4.17	4.2	1.48	93.8	104.7	8
Beckman Coulter Access & Unicel	126.93	126.9	26.77	21.1	18.93	108.0	145.9	2
Radiometer AQT 90 FLEX	91.40	91.4	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	116.13	116.7	4.72	4.1	0.65	79.5	127.3	82
Siemens Advia Centaur & Atellica	106.91	107.1	5.68	5.3	1.30	97.6	117.9	30
Siemens Dimension & Vista	176.50	178.0	5.50	3.1	2.25	170.0	183.0	6
Siemens Immulite 1000, 2000, 2500	202.67	200.0	9.29	4.6	5.36	195.0	213.0	3
Tosoh AIA	183.40	183.4	-	-	-	-	-	1
All	**111.67**	**113.0**	**10.22**	**9.1**	**0.82**	**79.5**	**213.0**	**155**
Holotranscobalamin, pmol/l								
Abbott Alinity	226.4	229	20.8	9.2	10.4	200	248	4
Abbott Architect	250.3	249	4.7	1.9	2.7	246	256	3
Roche cobas e, Elecsys, & Modular E	188.9	185	35.7	18.9	12.6	141	232	8
All	**211.8**	**222**	**41.2**	**19.5**	**10.6**	**141**	**256**	**15**
T3, nmol/l								
Abbott Alinity	3.42	3.4	0.09	2.7	0.04	3.3	3.6	5
Abbott Architect	3.60	3.6	-	-	-	-	-	1
Beckman Coulter Access & Unicel	4.68	4.7	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	4.19	4.1	0.20	4.7	0.07	3.9	4.6	9
Siemens Advia Centaur & Atellica	4.08	4.1	0.21	5.3	0.07	3.8	28.0	13

NUMERICAL SUMMARY **Hormone Determinations A 2023/01, Sample A2**

Analyte / Method group	x	med	s	CV%	u	Min	Max	Number
T3, nmol/l								
All	**4.01**	**4.1**	**0.40**	**9.9**	**0.07**	**3.3**	**28.0**	**29**
T3 free, pmol/L								
Abbott Alinity	10.31	10.3	0.45	4.4	0.11	9.5	11.2	29
Abbott Architect	10.15	10.0	0.80	7.9	0.33	9.1	11.5	6
Beckman Coulter Access & Unicel	9.22	9.4	0.74	8.0	0.43	8.4	9.8	3
bioMerieux Vidas	11.55	11.6	-	-	-	-	-	1
DiaSorin Liaison	12.08	12.1	1.27	10.5	0.90	11.2	13.0	2
Mindray	10.31	10.3	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	13.13	13.1	0.36	2.7	0.05	11.8	16.0	75
Siemens Advia Centaur & Atellica	13.08	13.0	0.56	4.2	0.13	9.5	14.0	27
Siemens Dimension & Vista	11.15	11.0	0.43	3.9	0.18	10.8	12.0	6
Tosoh AIA	11.95	11.9	0.45	3.7	0.32	11.6	12.3	2
All	**12.26**	**12.9**	**1.50**	**12.2**	**0.12**	**8.4**	**16.0**	**152**
T4, nmol/l								
Abbott Alinity	150.9	156	9.3	6.2	4.2	136	158	5
Abbott Architect	161.0	161	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	156.0	156	9.5	6.1	3.4	140	167	8
Siemens Advia Centaur & Atellica	172.7	176	18.7	10.8	5.6	124	193	11
All	**162.8**	**164**	**16.4**	**10.1**	**3.3**	**124**	**193**	**25**
T4 free, pmol/l								
Abbott Alinity	20.62	20.7	1.03	5.0	0.20	17.8	24.0	41
Abbott Architect	21.39	21.5	1.09	5.1	0.39	19.8	22.7	8
Beckman Coulter Access & Unicel	27.67	25.9	3.47	12.5	2.00	25.5	31.7	3
bioMerieux Vidas	36.86	36.9	-	-	-	-	-	1
Mindray	28.93	28.9	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	30.84	31.0	1.37	4.4	0.17	27.8	34.1	101
Siemens Advia Centaur & Atellica	27.88	27.9	1.39	5.0	0.28	24.9	39.6	38
Siemens Dimension & Vista	23.97	24.0	0.77	3.2	0.32	23.0	25.0	6
Siemens Immulite 1000, 2000, 2500	31.15	31.1	-	-	-	-	-	1
Tosoh AIA	29.94	29.9	0.78	2.6	0.56	29.4	30.5	2
All	**27.69**	**29.2**	**4.85**	**17.5**	**0.34**	**17.8**	**39.6**	**202**
TSH, mU/l								
Abbott Alinity	8.15	8.2	0.36	4.4	0.07	7.5	8.8	42
Abbott Architect	8.19	8.3	0.40	4.8	0.13	7.4	8.6	9
Beckman Coulter Access & Unicel	10.20	9.8	0.99	9.7	0.49	9.6	11.7	4
bioMerieux Vidas	12.16	12.2	-	-	-	-	-	1
DiaSorin Liaison	11.85	11.9	1.16	9.8	0.82	11.0	12.7	2
Mindray	12.70	12.7	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	10.75	10.7	0.42	3.9	0.05	9.7	11.8	97
Siemens Advia Centaur & Atellica	10.17	10.2	0.51	5.0	0.10	7.0	11.4	42
Siemens Dimension & Vista	9.90	9.9	0.28	2.9	0.12	9.5	10.2	6
Siemens Immulite 1000, 2000, 2500	9.45	9.5	-	-	-	-	-	1
Tosoh AIA	9.50	9.5	0.39	4.1	0.27	9.2	9.8	2
All	**9.98**	**10.3**	**1.27**	**12.8**	**0.09**	**7.0**	**12.7**	**207**
Vit-B12, pmol/l								
Abbott Alinity	422.0	420	26.8	6.4	5.8	381	503	33
Abbott Architect	415.0	409	38.6	9.3	19.3	380	462	4
Beckman Coulter Access	449.1	449	134.2	29.9	94.9	354	544	2
Mindray	535.4	535	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	458.9	460	18.5	4.0	2.6	348	547	77
Siemens Advia Centaur & Atellica	435.4	439	29.3	6.7	6.0	348	546	37

NUMERICAL SUMMARY **Hormone Determinations A 2023/01, Sample A2**

Analyte Method group	x	med	s	CV%	u	Min	Max	Number
Vit-B12, pmol/l								
Siemens Dimension & Vista	393.4	382	28.0	7.1	10.6	370	454	7
Tosoh AIA	534.2	534	-	-	-	-	-	1
All	**443.0**	**448**	**34.1**	**7.7**	**2.7**	**348**	**547**	**162**

Participants

168 participants from 17 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 (Xrob) 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 (Xpt) 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).

LABQUALITY

External Quality Assessment Scheme

Hormones A: Basic analytes of hormone and immunochemistry Round 1, 2023

Specimens
Sample S001 (LQ732323011) and sample S002 (LQ732323012) were lyophilized human serum samples.

Based on the previous tests and the results of this round, the samples are 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 histogram 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. The samples have been used before on the round and the sample history can be seen in the client specific report with the histogram.

Comments – EQA Coordinator
In both samples, ferritin results were highest by Abbott Alinity's and Roche's methods, while Siemens Advia Centaur & Atellica had the lowest results.

In the hCG total results, the results of both samples had the main group consisting of the results of the Roche methods and, in addition to these, higher results of other methods in a wide range.

The results for T4 free and TSH are the lowest by Abbott's methods and the highest by Roche's methods in both samples.

The level of active vitamin B12 in sample S002/A2 was high and eight laboratories reported a result above the measurement range. The reported results are in agreement with the mean of all results of 211.8 pmol/L.

The round went well. Only 12 results were manually excluded from the results processing.

End of report

2023-03-06

FINAL REPORT

Product no. 2300, 2300S

Samples sent	2023-02-07
Round closed	2023-02-27
Final report	2023-03-06

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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PT02 (EN ISO/IEC 17043)

Quality Management
ISO 9001:2015