LABQUALITY

External Quality Assessment Scheme

Hormones B Steroid and peptide hormones Round 1, 2023

Specimens
Please find enclosed 2 lyophilized serum samples S001 (B1), and S002 (B2), 3 mL each.

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
See page 2.

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 (C-peptide for 3 days). The 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

LQ732423011

S002

LQ732423012

2023-02-07

INSTRUCTIONS

Product no. 2301, 2301S, 1301
LQ732423011-012/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

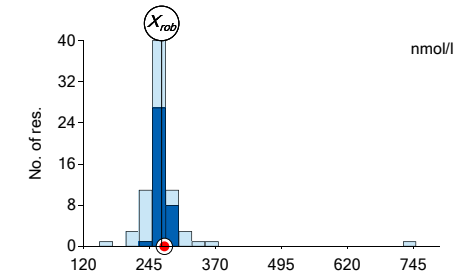
FINAS
Finnish Accreditation Service
PT02 (EN ISO/IEC 17043)

Quality Management
ISO 9001:2015

Examinations
Aldosterone
Androstendione
C-peptide
Cortisol
DHEAS
Estradiol
FSH
Gastrin
Growth hormone
Insulin
LH
Progesterone, 17-OH-progesterone
Prolactin
SHBG
IGF-1
TBG
Testosterone and testosterone, free

Cortisol

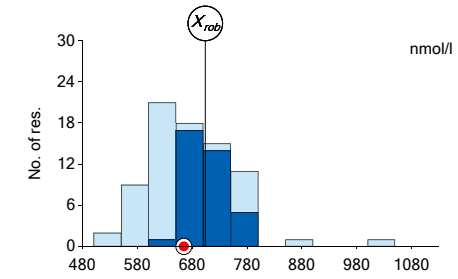
0030 | e601 | Roche cobas e, Elecsys, & Modular... 360 | Roche Elecsys 60



Own result 273 1.9%
analysed: 20.2.2023

Sample B1
Assigned value (X): 268 nmol/l, X_{rob}
Target limits (X ± 15%): 228 - 308 nmol/l

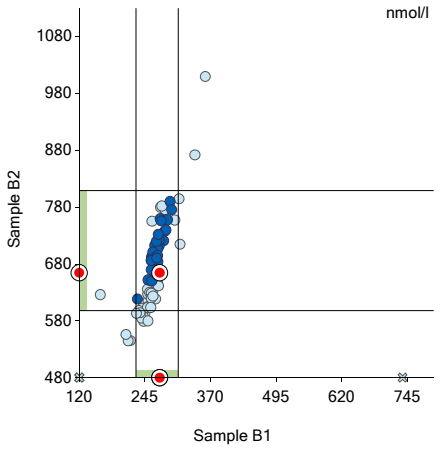
	x	s	u	CV%	n
Own group	268.2	10.5	2.2	3.9	36
All	262.3	17.9	2.5	6.8	78



Own result 665 -5.6%
analysed: 20.2.2023

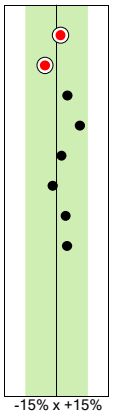
Sample B2
Assigned value (X): 704 nmol/l, X_{rob}
Target limits (X ± 15%): 598 - 809 nmol/l

	x	s	u	CV%	n
Own group	703.7	35.1	7.2	5.0	37
All	672.6	72.6	10.3	10.8	78

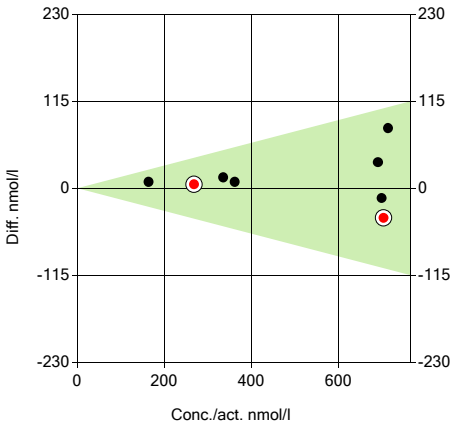


Previous results

Round	Sample	X	Own	Diff%	z
23/01	HaD 360	268	273	1.9	0.5
23/01	HaF 360	704	665	-5.6	-1.1
22/04	HbZ 360	164	172	5.2	1.2
22/04	HaF 360	714	794	11.1	2.1
22/02	HbX 360	362	370	2.3	0.6
22/02	HaF 360	699	686	-1.9	-0.4
21/06	HbI 360	335	350	4.3	1.1
21/06	HaF 360	691	725	5.0	1.1



Conc./act. dependent performance



Comments

Sample B1, Own group:

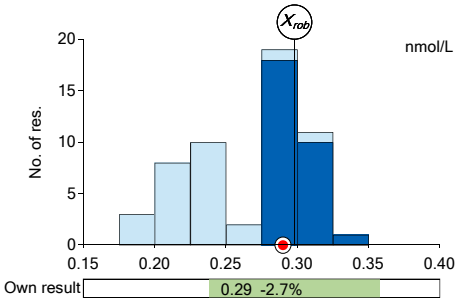
The standard uncertainty of the assigned value (Xrob) is 1.25 x standard error of the mean (SEM) and marked as 'u'.

Sample B2, Own group:

The standard uncertainty of the assigned value (Xrob) is 1.25 x standard error of the mean (SEM) and marked as 'u'.

C-peptide

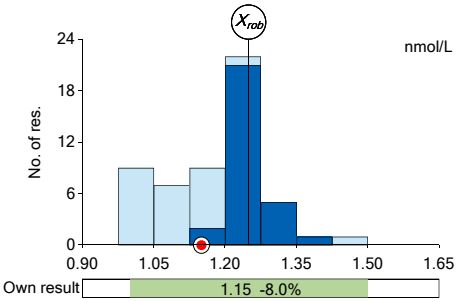
0608 | e601 | Roche cobas e, Elecsys, & Modular... 360 | Roche Elecsys 60



Own result 0.29 -2.7%
analysed: 20.2.2023

Sample B1
Assigned value (X): 0.30 nmol/L, X_{rob}
Target limits (X ± 20%): 0.24 - 0.36 nmol/L

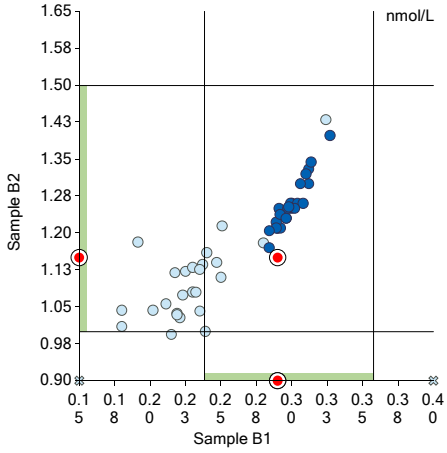
	x	s	u	CV%	n
Own group	0.298	0.010	0.002	3.3	29
All	0.268	0.044	0.008	16.5	54



Own result 1.15 -8.0%
analysed: 20.2.2023

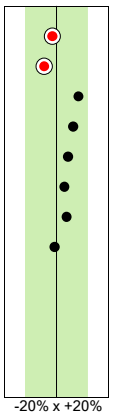
Sample B2
Assigned value (X): 1.25 nmol/L, X_{rob}
Target limits (X ± 20%): 1.00 - 1.50 nmol/L

	x	s	u	CV%	n
Own group	1.249	0.043	0.010	3.5	29
All	1.181	0.111	0.019	9.4	54

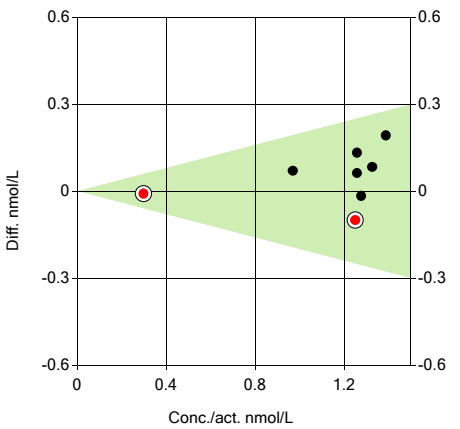


Previous results

Round	Sample	X	Own	Diff%	z
23/01	HaD 360	0.30	0.29	-2.7	-0.8
23/01	HaF 360	1.25	1.15	-8.0	-2.3
22/04	HbZ 360	1.39	1.58	13.9	1.8
22/04	HaF 360	1.26	1.39	10.6	2.7
22/02	HbX 360	0.97	1.04	7.3	0.5
22/02	HaF 360	1.26	1.32	5.0	1.3
21/06	HbI 360	1.33	1.41	6.3	0.7
21/06	HaF 360	1.28	1.26	-1.3	-0.2



Conc./act. dependent performance



Comments

Sample B1, Own group:

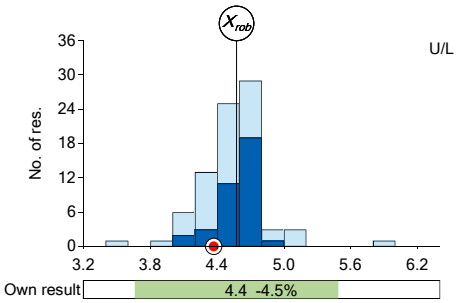
The standard uncertainty of the assigned value (Xrob) is 1.25 x standard error of the mean (SEM) and marked as 'u'.

Sample B2, Own group:

The standard uncertainty of the assigned value (Xrob) is 1.25 x standard error of the mean (SEM) and marked as 'u'.

FSH

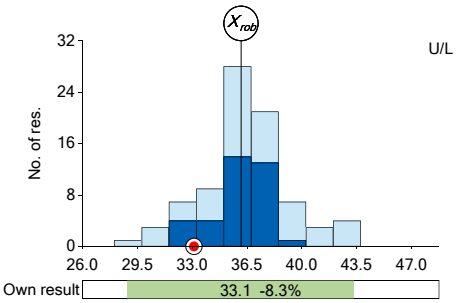
0633 e601 | Roche cobas e, Elecsys, & Modular... 360 | Roche Elecsys 60



Own result 4.4 -4.5%
analysed: 20.2.2023

Sample B1
Assigned value (X): 4.6 U/L, X_{rob}
Target limits (X ± 20%): 3.7 - 5.5 U/L

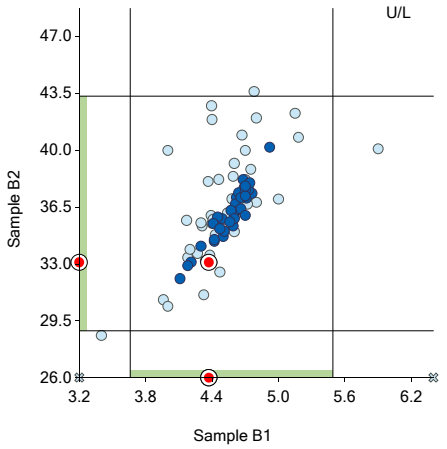
	x	s	u	CV%	n
Own group	4.58	0.16	0.03	3.4	36
All	4.53	0.22	0.03	4.8	82



Own result 33.1 -8.3%
analysed: 20.2.2023

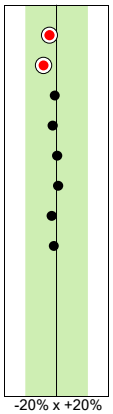
Sample B2
Assigned value (X): 36.1 U/L, X_{rob}
Target limits (X ± 20%): 28.9 - 43.3 U/L

	x	s	u	CV%	n
Own group	36.11	1.61	0.33	4.5	36
All	36.36	2.55	0.35	7.0	83

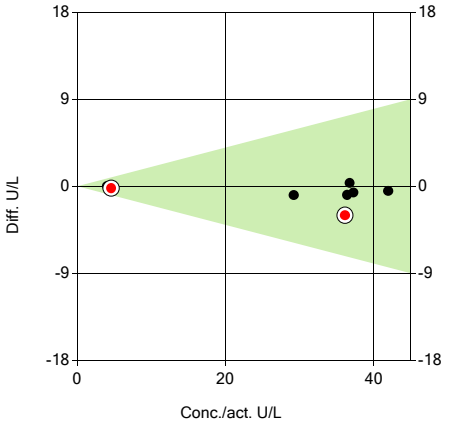


Previous results

Round	Sample	X	Own	Diff%	z
23/01	HaD 360	4.6	4.4	-4.5	-1.3
23/01	HaF 360	36.1	33.1	-8.3	-1.9
22/04	HbZ 360	41.9	41.5	-1.2	-0.4
22/04	HaF 360	36.4	35.5	-2.5	-0.6
22/02	HbX 360	4.0	4.0	0.4	0.1
22/02	HaF 360	36.7	37.1	0.9	0.2
21/06	HbI 360	29.2	28.3	-3.1	-1.2
21/06	HaF 360	37.2	36.6	-1.7	-0.8



Conc./act. dependent performance



Comments

Sample B1, Own group:

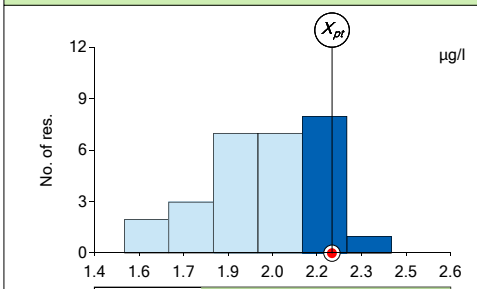
The standard uncertainty of the assigned value (Xrob) is 1.25 x standard error of the mean (SEM) and marked as 'u'.

Sample B2, Own group:

The standard uncertainty of the assigned value (Xrob) is 1.25 x standard error of the mean (SEM) and marked as 'u'.

GH

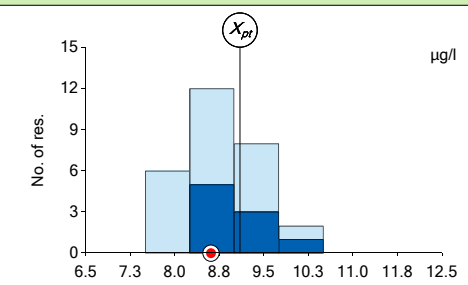
0638 e601 | Roche cobas e, Elecsys, & Modular... 360 | Roche Elecsys 60



Own result 2.2 0.0%
analysed: 20.2.2023

Sample B1
Assigned value (X): 2.2 µg/l, X_{pt}
Target limits (X ± 20%): 1.8 - 2.6 µg/l

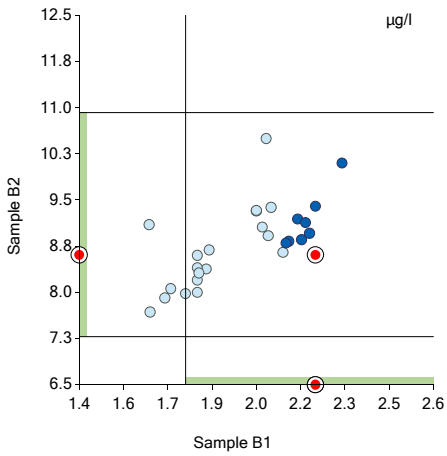
	x	s	u	CV%	n
Own group	2.17	0.06	0.02	2.6	9
All	1.96	0.22	0.05	11.2	28



Own result 8.6 -5.4%
analysed: 20.2.2023

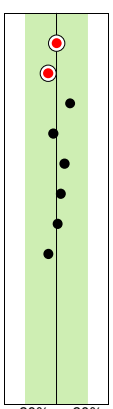
Sample B2
Assigned value (X): 9.1 µg/l, X_{pt}
Target limits (X ± 20%): 7.3 - 10.9 µg/l

	x	s	u	CV%	n
Own group	9.10	0.44	0.15	4.9	9
All	8.76	0.61	0.14	7.0	28

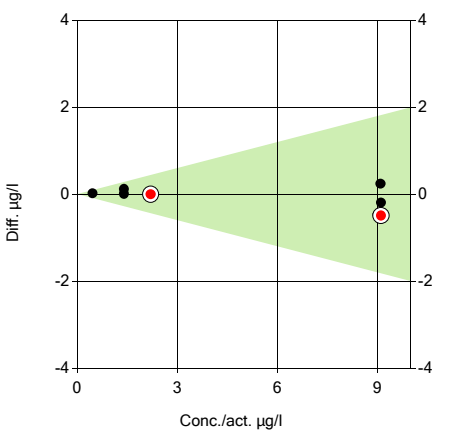


Previous results

Round	Sample	X	Own	Diff%	z
23/01	HaD 360	2.2	2.2	0.0	0.5
23/01	HaF 360	9.1	8.6	-5.4	-1.1
22/04	HbZ 360	1.4	1.5	8.6	0.9
22/04	HaF 360	9.1	8.9	-2.1	-0.4
22/02	HbX 360	0.5	0.5	5.1	0.7
22/02	HaF 360	9.1	9.3	2.7	0.6
21/06	HbI 360	1.4	1.4	0.7	0.5
21/06	HaF 360	9.0	8.5	-5.2	-1.3



Conc./act. dependent performance



Comments

Sample B1, Own group:

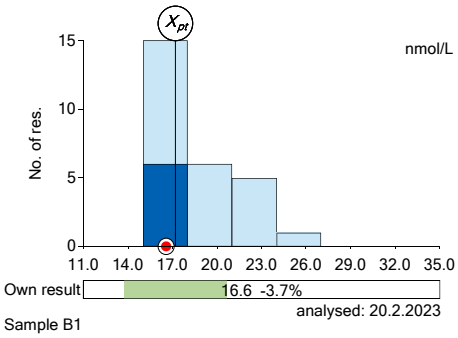
The standard measurement uncertainty (u) of the assigned value (Xpt) is the standard error of the mean (SEM).
Z score is uncertain due to the small number of observations.

Sample B2, 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.

IGF-1

0671 e601 Roche cobas e, Elecsys, & Modular... 360 Roche Elecsys 60



Own result 16.6 -3.7%

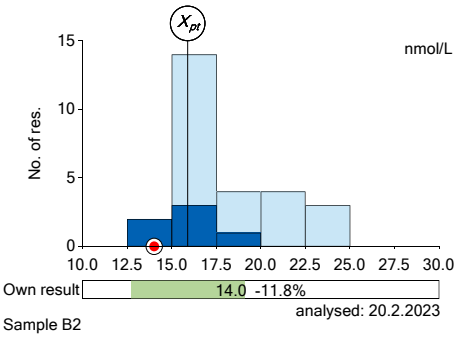
analysed: 20.2.2023

Sample B1

Assigned value (X): 17.2 nmol/L, X_{pt}

Target limits (X ± 20%): 13.8 - 20.6 nmol/L

	x	s	u	CV%	n
Own group	17.21	0.61	0.25	3.5	6
All	18.54	2.63	0.63	14.2	27



Own result 14.0 -11.8%

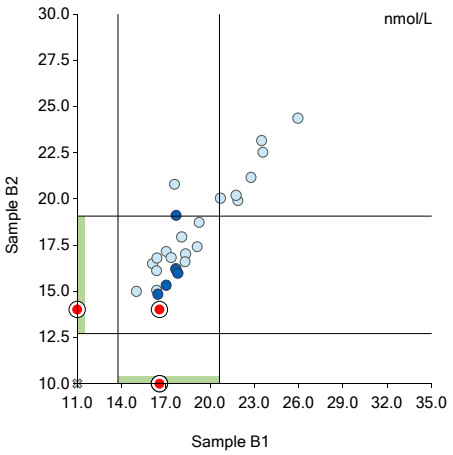
analysed: 20.2.2023

Sample B2

Assigned value (X): 15.9 nmol/L, X_{pt}

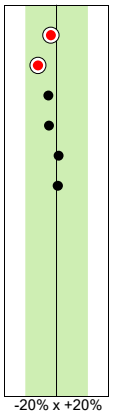
Target limits (X ± 20%): 12.7 - 19.1 nmol/L

	x	s	u	CV%	n
Own group	15.91	1.76	0.72	11.0	6
All	17.81	2.73	0.66	15.3	27

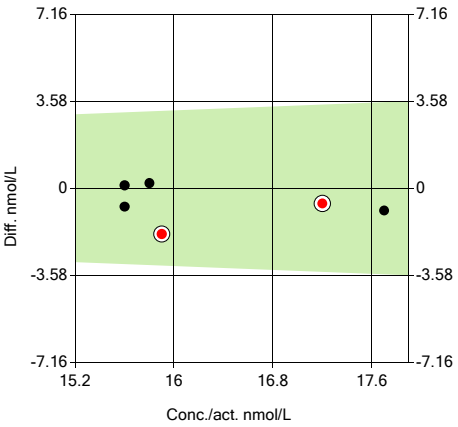


Previous results

Round	Sample	X	Own	Diff%	z
23/01	HaD 360	17.2	16.6	-3.7	-1.0
23/01	HaF 360	15.9	14.0	-11.8	-1.1
22/04	HbZ 360	17.7	16.8	-5.2	-
22/04	HaF 360	15.6	14.8	-4.9	-
22/02	HbX 360	15.8	16.0	1.3	0.4
22/02	HaF 360	15.6	15.7	0.8	0.3



Conc./act. dependent performance



Comments

Sample B1, Own group:

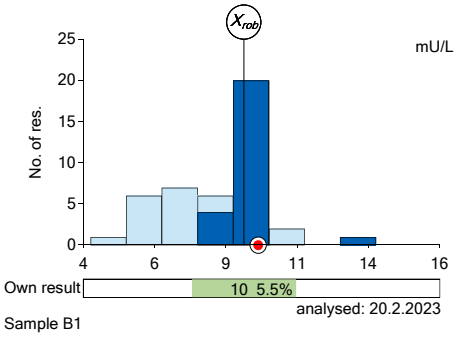
The standard measurement uncertainty (u) of the assigned value (Xpt) is the standard error of the mean (SEM).
Z score is uncertain due to the small number of observations.

Sample B2, 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.

Insulin

0650 e601 Roche cobas e, Elecsys, & Modular... 360 Roche Elecsys 60



Own result 10 5.5%

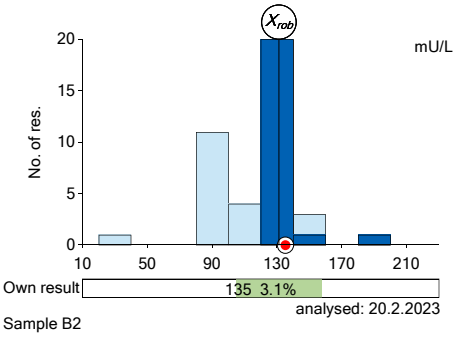
analysed: 20.2.2023

Sample B1

Assigned value (X): 9 mU/L, X_{rob}

Target limits (X ± 20%): 7 - 11 mU/L

	x	s	u	CV%	n
Own group	9.1	0.5	0.1	4.9	25
All	8.2	1.7	0.3	20.6	43



Own result 135 3.1%

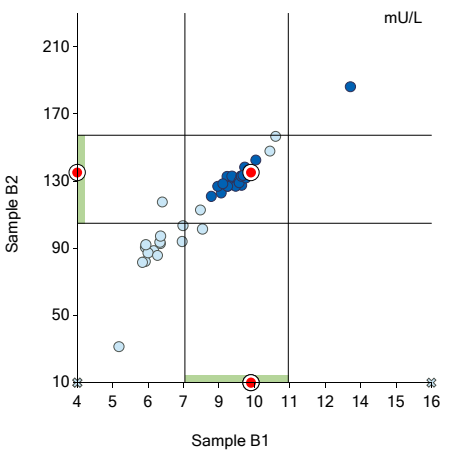
analysed: 20.2.2023

Sample B2

Assigned value (X): 131 mU/L, X_{rob}

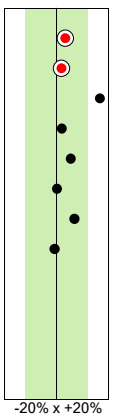
Target limits (X ± 20%): 105 - 157 mU/L

	x	s	u	CV%	n
Own group	131.2	5.2	1.3	3.9	25
All	118.7	24.0	4.6	20.2	43

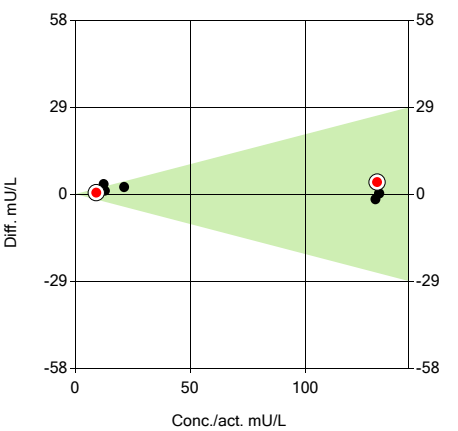


Previous results

Round	Sample	X	Own	Diff%	z
23/01	HaD 360	9	10	5.5	1.1
23/01	HaF 360	131	135	3.1	0.8
22/04	HbZ 360	12	16	27.6	1.7
22/04	HaF 360	131	135	3.3	1.1
22/02	HbX 360	13	14	9.0	0.9
22/02	HaF 360	132	132	0.2	0.0
21/06	HbI 360	21	24	11.4	0.9
21/06	HaF 360	130	129	-1.3	-0.4



Conc./act. dependent performance



Comments

Sample B1, Own group:

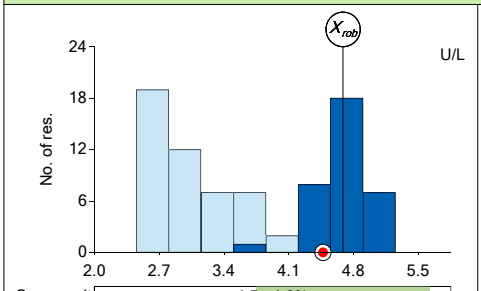
The standard uncertainty of the assigned value (Xrob) is 1.25 x standard error of the mean (SEM) and marked as 'u'.

Sample B2, Own group:

The standard uncertainty of the assigned value (Xrob) is 1.25 x standard error of the mean (SEM) and marked as 'u'.

LH

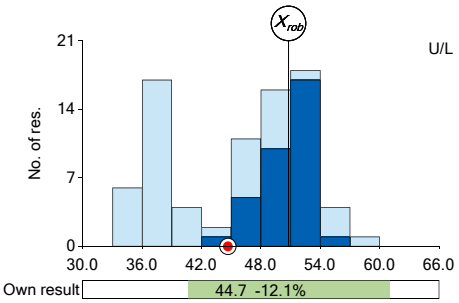
0653	e601	Roche cobas e, Elecsys, & Modular... 360	Roche Elecsys 60



Own result 4.5 -4.6%
analysed: 20.2.2023

Sample B1
Assigned value (X): 4.7 U/L, X_{rob}
Target limits (X ± 20%): 3.7 - 5.6 U/L

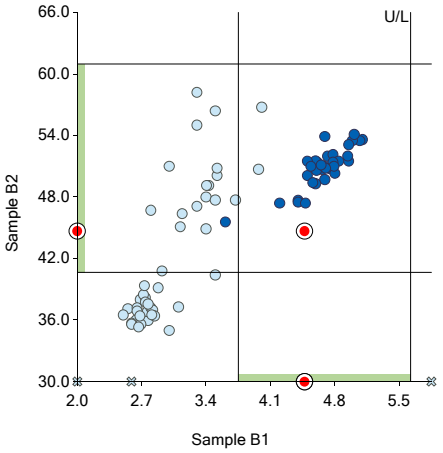
	x	s	u	CV%	n
Own group	4.69	0.23	0.05	4.9	34
All	3.72	1.01	0.14	27.2	80



Own result 44.7 -12.1%
analysed: 20.2.2023

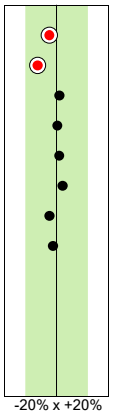
Sample B2
Assigned value (X): 50.8 U/L, X_{rob}
Target limits (X ± 20%): 40.6 - 61.0 U/L

	x	s	u	CV%	n
Own group	50.81	2.22	0.48	4.4	34
All	45.91	7.72	1.09	16.8	79

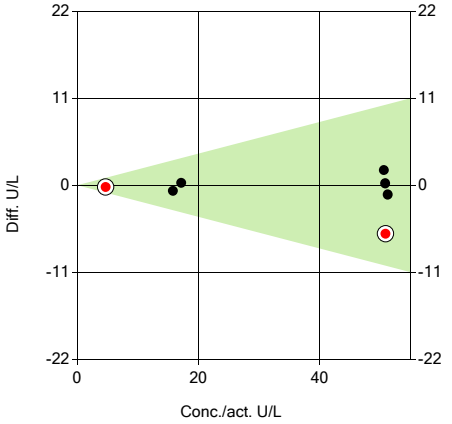


Previous results

Round	Sample	X	Own	Diff%	z
23/01	HaD 360	4.7	4.5	-4.6	-1.0
23/01	HaF 360	50.8	44.7	-12.1	-2.8
22/04	HbZ 360	17.1	17.4	1.8	0.7
22/04	HaF 360	50.8	51.0	0.5	0.2
22/02	HbX 360	4.4	4.5	1.6	0.5
22/02	HaF 360	50.5	52.4	3.8	1.1
21/06	HbI 360	15.8	15.1	-4.5	-1.3
21/06	HaF 360	51.2	50.0	-2.3	-0.6



Conc./act. dependent performance



Comments

Sample B1, Own group:

The standard uncertainty of the assigned value (Xrob) is 1.25 x standard error of the mean (SEM) and marked as 'u'.

Sample B2, Own group:

The standard uncertainty of the assigned value (Xrob) is 1.25 x standard error of the mean (SEM) and marked as 'u'.

Participants

108 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 B 2023/01**

Analyte / Method group	x	med	s	CV%	u	Min	Max	Number
Sample B1								
Aldosterone, pmol/L								
Beckman Coulter Immunotech	159.2	159	25.2	15.9	17.9	141	177	2
DiaSorin Liaison	230.7	225	30.0	13.0	10.0	185	272	9
All	**218.9**	**224**	**43.0**	**19.7**	**13.0**	**141**	**272**	**11**
Androstenedione, nmol/L								
DiaSorin Liaison	4.16	4.3	0.29	7.0	0.17	3.8	4.4	3
DRG Diagnostics EIA	5.27	5.3	2.47	46.8	1.75	3.5	7.0	2
IBL ELISA	5.10	5.1	-	-	-	-	-	1
Mass spectrometry	3.89	3.9	1.39	35.9	0.99	2.9	4.9	2
Roche cobas e, Elecsys, & Modular E	2.90	2.9	0.14	4.7	0.08	2.8	3.0	3
Siemens Immulite 1000, 2000, 2500	4.90	4.9	0.69	14.1	0.40	4.2	5.6	3
Snibe Diagnostic Maglumi	4.99	5.0	-	-	-	-	-	1
All	**4.22**	**4.3**	**1.17**	**27.7**	**0.30**	**2.8**	**7.0**	**15**
Cortisol, nmol/l								
Abbott Alinity	248.8	250	14.3	5.7	3.6	209	271	25
Abbott Architect	249.7	256	12.0	4.8	6.9	236	257	3
DiaSorin Liaison	160.1	160	-	-	-	-	-	1
Mass spectrometry	266.0	266	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	268.2	267	10.5	3.9	2.2	231	296	36
Siemens Advia Centaur & Atellica	298.9	283	34.1	11.4	11.4	259	360	9
Siemens Immulite 1000, 2000, 2500	244.7	245	22.3	9.1	15.7	229	260	2
Tosoh AIA	302.0	302	-	-	-	-	-	1
All	**262.3**	**263**	**17.9**	**6.8**	**2.0**	**160**	**360**	**78**
C-peptide, nmol/L								
Abbott Alinity	0.225	0.22	0.014	6.1	0.005	0.20	0.25	12
Abbott Architect	0.241	0.24	0.008	3.5	0.006	0.24	0.25	2
DiaSorin Liaison	0.324	0.32	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	0.298	0.30	0.010	3.3	0.002	0.28	0.33	29
Siemens Advia Centaur & Atellica	0.239	0.24	0.022	9.1	0.008	0.22	0.28	7
Siemens Immulite 1000, 2000, 2500	0.186	0.19	0.008	4.3	0.006	0.18	0.19	2
Tosoh AIA	0.180	0.18	-	-	-	-	-	1
All	**0.268**	**0.29**	**0.044**	**16.5**	**0.006**	**0.18**	**0.33**	**54**
DHEAS, µmol/L								
Abbott Alinity	7.04	6.9	0.61	8.7	0.22	6.1	8.2	8
Abbott Architect	6.73	6.7	0.59	8.7	0.41	6.3	7.1	2
Roche cobas e, Elecsys, & Modular E	7.97	8.0	0.35	4.3	0.11	7.5	8.6	15
Siemens Advia Centaur & Atellica	5.10	5.1	-	-	-	-	-	1
Siemens Immulite 1000, 2000, 2500	6.04	6.0	0.28	4.6	0.14	5.7	6.4	4
Tosoh AIA	8.05	8.1	-	-	-	-	-	1
All	**7.35**	**7.6**	**0.95**	**12.9**	**0.17**	**5.1**	**8.6**	**31**
Estradiol, nmol/L								
Abbott Alinity	0.316	0.32	0.031	9.8	0.009	0.28	0.39	19
Abbott Architect	0.308	0.30	0.029	9.3	0.013	0.28	0.36	5
Mass spectrometry	0.328	0.33	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	0.321	0.32	0.017	5.2	0.004	0.28	0.37	33
Siemens Advia Centaur & Atellica	0.290	0.30	0.034	11.6	0.011	0.23	0.33	9
Siemens Dimension & Vista	0.290	0.29	0.015	5.1	0.011	0.28	0.30	2
Siemens Immulite 1000, 2000, 2500	0.179	0.18	-	-	-	-	-	1
Tosoh AIA	0.249	0.25	-	-	-	-	-	1

NUMERICAL SUMMARY **Hormone Determinations B 2023/01, Sample B1**

Analyte Method group	x	med	s	CV%	u	Min	Max	Number
Estradiol, nmol/L								
All	**0.313**	**0.32**	**0.025**	**8.1**	**0.003**	**0.18**	**0.39**	**71**
FSH, U/L								
Abbott Alinity	4.51	4.5	0.20	4.3	0.05	4.2	5.0	25
Abbott Architect	4.39	4.4	0.29	6.6	0.13	4.0	4.7	5
Roche cobas e, Elecsys, & Modular E	4.58	4.6	0.16	3.4	0.03	4.1	4.9	36
Siemens Advia Centaur & Atellica	4.53	4.7	0.57	12.5	0.19	3.4	5.2	9
Siemens Dimension & Vista	4.40	4.4	0.20	4.5	0.12	4.2	4.6	3
Siemens Immulite 1000, 2000, 2500	4.22	4.3	0.19	4.6	0.11	4.0	4.3	3
Tosoh AIA	5.90	5.9	-	-	-	-	-	1
All	**4.53**	**4.6**	**0.22**	**4.8**	**0.02**	**3.4**	**5.9**	**82**
Gastrin, pmol/L								
Siemens Immulite 1000, 2000, 2500	9.9	10	1.0	10.0	0.4	8	11	8
All	**9.9**	**10**	**1.1**	**11.4**	**0.4**	**8**	**11**	**8**
GH, µg/l								
DiaSorin Liaison	1.71	1.7	0.08	4.8	0.05	1.6	1.8	3
IDS-iSYS	1.82	1.8	0.02	1.2	0.02	1.8	1.8	2
Roche cobas e, Elecsys, & Modular E	2.17	2.2	0.06	2.6	0.02	2.1	2.3	9
Siemens Immulite 1000, 2000, 2500	1.92	2.0	0.15	7.9	0.05	1.7	2.1	13
Tosoh AIA	1.64	1.6	-	-	-	-	-	1
All	**1.96**	**2.0**	**0.22**	**11.2**	**0.04**	**1.6**	**2.3**	**28**
IGF-1, nmol/L								
DiaSorin Liaison	23.51	23.5	1.55	6.6	0.69	21.8	26.0	5
DIAsource RIA	17.59	17.6	-	-	-	-	-	1
IDS-iSYS	21.88	21.9	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	17.21	17.4	0.61	3.5	0.25	16.5	17.8	6
Siemens IGF-I Restandardized	17.54	17.5	1.54	8.8	0.52	15.0	20.7	14
All	**18.54**	**17.7**	**2.63**	**14.2**	**0.51**	**15.0**	**26.0**	**27**
Insulin, mU/L								
Abbott Alinity	6.1	6	0.3	4.2	0.1	6	6	10
Abbott Architect	7.6	8	0.5	6.7	0.4	7	8	2
DiaSorin Liaison	10.4	10	0.1	1.4	0.1	10	11	2
Roche cobas e, Elecsys, & Modular E	9.1	9	0.5	4.9	0.1	8	13	25
Siemens Advia Centaur & Atellica	7.5	8	0.4	5.8	0.3	7	8	2
Siemens Immulite 1000, 2000, 2500	5.0	5	-	-	-	-	-	1
Tosoh AIA	6.5	7	-	-	-	-	-	1
All	**8.2**	**9**	**1.7**	**20.6**	**0.3**	**5**	**13**	**43**
LH, U/L								
Abbott Alinity	2.71	2.7	0.12	4.3	0.03	2.5	3.5	23
Abbott Architect	2.88	2.9	0.15	5.0	0.07	2.7	3.1	5
Roche cobas e, Elecsys, & Modular E	4.69	4.7	0.23	4.9	0.05	3.6	5.1	34
Siemens Advia Centaur & Atellica	3.34	3.4	0.18	5.3	0.05	3.0	3.5	11
Siemens Dimension & Vista	3.37	3.3	0.12	3.4	0.07	3.3	3.5	3
Siemens Immulite 1000, 2000, 2500	3.90	4.0	0.16	4.0	0.09	3.7	4.0	3
Tosoh AIA	2.80	2.8	-	-	-	-	-	1
All	**3.72**	**3.5**	**1.01**	**27.2**	**0.11**	**2.5**	**5.1**	**80**
Prog, 17-OH, nmol/L								
Demeditec Diagnostics EIA	5.40	5.4	-	-	-	-	-	1
DIAsource RIA	4.10	4.1	-	-	-	-	-	1
DRG Diagnostics EIA	3.46	3.8	1.60	46.4	0.93	1.7	4.9	3
IBL ELISA	3.60	3.6	-	-	-	-	-	1

NUMERICAL SUMMARY **Hormone Determinations B 2023/01, Sample B1**

Analyte Method group	x	med	s	CV%	u	Min	Max	Number
Prog, 17-OH, nmol/L								
Mass spectrometry	2.66	2.7	0.06	2.4	0.04	2.6	2.7	2
Novatec EIA	3.03	3.0	-	-	-	-	-	1
Siemens Dimension	2.25	2.3	-	-	-	-	-	1
Snibe Diagnostic Maglumi	3.30	3.3	-	-	-	-	-	1
All	**3.38**	**3.3**	**1.22**	**36.0**	**0.37**	**1.7**	**5.4**	**11**
Progesterone, nmol/L								
Abbott Alinity	2.68	2.6	0.37	13.8	0.12	2.2	3.5	15
Abbott Architect	2.65	2.7	0.25	9.4	0.11	2.2	2.9	5
Roche cobas e, Elecsys, & Modular E	3.05	3.0	0.28	9.2	0.07	2.6	3.6	25
Siemens Advia Centaur & Atellica	2.83	2.8	0.25	8.7	0.09	2.5	3.3	12
Siemens Dimension & Vista	5.20	5.2	0.28	5.4	0.20	5.0	5.4	2
Siemens Immulite 1000, 2000, 2500	3.53	3.5	0.04	1.3	0.03	3.5	3.6	2
Tosoh AIA	3.37	3.4	-	-	-	-	-	1
All	**2.93**	**2.9**	**0.38**	**13.1**	**0.05**	**2.2**	**5.4**	**62**
Prolactin, mU/L								
Abbott Alinity	177.4	177	7.4	4.2	1.9	167	197	24
Abbott Architect	172.3	171	10.2	5.9	4.5	160	183	5
Brahms Kryptor	126.0	126	1.8	1.4	0.9	124	128	4
Roche cobas e, Elecsys, & Modular E	179.4	180	7.5	4.2	1.6	160	198	33
Siemens Advia Centaur & Atellica	130.0	127	7.4	5.7	2.6	121	141	13
Siemens Dimension & Vista	140.0	140	0.0	0.0	0.0	140	140	3
Siemens Immulite 1000, 2000, 2500	149.7	152	4.3	2.9	2.5	145	152	3
Tosoh AIA	200.0	200	-	-	-	-	-	1
All	**167.6**	**174**	**22.6**	**13.5**	**2.4**	**121**	**200**	**86**
SHBG, nmol/L								
Abbott Alinity	27.4	28	1.8	6.4	0.6	24	30	15
Abbott Architect	27.6	27	2.2	7.8	1.0	26	30	5
Roche cobas e, Elecsys, & Modular E	26.2	26	1.0	3.8	0.2	24	28	29
Siemens Advia Centaur & Atellica	26.3	27	1.8	6.7	0.6	24	30	9
Siemens Immulite 1000, 2000, 2500	22.1	22	-	-	-	-	-	1
Tosoh AIA	29.1	29	-	-	-	-	-	1
All	**26.6**	**27**	**1.6**	**5.9**	**0.2**	**22**	**30**	**60**
Testo, free, pmol/L								
Abbott Alinity	630.0	630	-	-	-	-	-	1
Calculated	393.0	393	-	-	-	-	-	1
DRG Diagnostics EIA	65.9	66	-	-	-	-	-	1
IDS-iSYS	51.2	51	-	-	-	-	-	1
Novatec EIA	125.3	125	-	-	-	-	-	1
All	**253.1**	**125**	**285.6**	**112.9**	**127.7**	**51**	**630**	**5**
Testosterone, nmol/L								
Abbott Alinity	25.05	25.1	1.32	5.3	0.37	23.2	27.9	20
Abbott Architect	24.08	24.6	1.40	5.8	0.57	21.9	25.3	6
Mass spectrometry	23.03	23.0	1.41	6.1	0.63	21.2	24.5	5
Roche cobas e, Elecsys, & Modular E	23.83	23.7	0.86	3.6	0.20	22.7	39.3	28
Siemens Advia Centaur & Atellica	25.16	25.0	2.01	8.0	0.67	22.0	28.5	9
Siemens Immulite 1000, 2000, 2500	23.28	23.3	-	-	-	-	-	1
Tosoh AIA	27.50	27.5	-	-	-	-	-	1
All	**24.37**	**24.3**	**1.45**	**5.9**	**0.17**	**21.2**	**39.3**	**70**

Sample B2

Aldosterone, pmol/L

NUMERICAL SUMMARY **Hormone Determinations B 2023/01, Sample B2**

Analyte Method group	x	med	s	CV%	u	Min	Max	Number
Aldosterone, pmol/L								
Beckman Coulter Immunotech	1,103.5	1,104	106.8	9.7	75.5	1,028	1,179	2
DiaSorin Liaison	1,121.9	1,090	72.6	6.5	24.2	1,040	1,222	9
All	**1,118.6**	**1,090**	**83.4**	**7.5**	**25.1**	**1,028**	**1,222**	**11**
Androstenedione, nmol/L								
DiaSorin Liaison	21.51	22.1	1.42	6.6	0.82	19.9	22.5	3
DRG Diagnostics EIA	17.62	17.6	0.64	3.6	0.45	17.2	18.1	2
IBL ELISA	29.18	29.2	-	-	-	-	-	1
Mass spectrometry	18.10	18.1	2.40	13.3	1.70	16.4	19.8	2
Roche cobas e, Elecsys, & Modular E	16.31	16.0	0.68	4.2	0.40	15.8	17.1	3
Siemens Immulite 1000, 2000, 2500	36.81	36.8	13.59	36.9	9.61	27.2	46.4	2
Snibe Diagnostic Maglumi	17.83	17.8	-	-	-	-	-	1
All	**20.43**	**18.9**	**5.08**	**24.9**	**1.36**	**15.8**	**46.4**	**14**
Cortisol, nmol/l								
Abbott Alinity	606.9	604	29.2	4.8	7.3	545	647	25
Abbott Architect	606.0	604	13.0	2.1	7.5	594	620	3
DiaSorin Liaison	626.1	626	-	-	-	-	-	1
Mass spectrometry	665.0	665	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	703.7	701	35.1	5.0	7.2	618	790	37
Siemens Advia Centaur & Atellica	810.6	781	91.8	11.3	32.4	715	1,010	8
Siemens Immulite 1000, 2000, 2500	608.3	608	21.5	3.5	15.2	593	624	2
Tosoh AIA	757.5	758	-	-	-	-	-	1
All	**672.6**	**679**	**72.6**	**10.8**	**8.2**	**545**	**1,010**	**78**
C-peptide, nmol/L								
Abbott Alinity	1.098	1.10	0.057	5.2	0.021	1.03	1.21	12
Abbott Architect	1.133	1.13	0.010	0.9	0.007	1.13	1.14	2
DiaSorin Liaison	1.430	1.43	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	1.249	1.25	0.043	3.5	0.010	1.15	1.40	29
Siemens Advia Centaur & Atellica	1.062	1.04	0.067	6.3	0.025	0.99	1.18	7
Siemens Immulite 1000, 2000, 2500	1.112	1.11	0.098	8.8	0.069	1.04	1.18	2
Tosoh AIA	1.010	1.01	-	-	-	-	-	1
All	**1.181**	**1.21**	**0.111**	**9.4**	**0.015**	**0.99**	**1.43**	**54**
DHEAS, µmol/L								
Abbott Alinity	23.06	23.0	1.04	4.5	0.37	21.0	24.5	8
Abbott Architect	22.76	22.8	1.63	7.2	1.15	21.6	23.9	2
Roche cobas e, Elecsys, & Modular E	26.67	26.2	1.50	5.6	0.50	25.1	33.9	14
Siemens Advia Centaur & Atellica	18.40	18.4	-	-	-	-	-	1
Siemens Immulite 1000, 2000, 2500	20.52	20.4	1.52	7.4	0.76	19.1	22.3	4
Tosoh AIA	26.20	26.2	-	-	-	-	-	1
All	**24.43**	**24.8**	**2.99**	**12.2**	**0.55**	**18.4**	**33.9**	**30**
Estradiol, nmol/L								
Abbott Alinity	1.243	1.25	0.051	4.1	0.015	1.12	1.33	19
Abbott Architect	1.268	1.27	0.055	4.3	0.025	1.20	1.35	5
Mass spectrometry	1.400	1.40	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	1.557	1.55	0.056	3.6	0.012	1.45	1.75	34
Siemens Advia Centaur & Atellica	1.504	1.53	0.074	4.9	0.025	1.42	1.63	9
Siemens Dimension & Vista	1.202	1.20	0.002	0.2	0.002	1.20	1.20	2
Siemens Immulite 1000, 2000, 2500	1.130	1.13	-	-	-	-	-	1
Tosoh AIA	1.461	1.46	-	-	-	-	-	1
All	**1.429**	**1.49**	**0.179**	**12.5**	**0.021**	**1.12**	**1.75**	**72**
FSH, U/L								

NUMERICAL SUMMARY **Hormone Determinations B 2023/01, Sample B2**

Analyte Method group	x	med	s	CV%	u	Min	Max	Number
FSH, U/L								
Abbott Alinity	36.18	36.1	1.76	4.9	0.44	32.5	38.8	25
Abbott Architect	36.26	35.8	3.65	10.1	1.63	30.8	40.0	5
Roche cobas e, Elecsys, & Modular E	36.11	36.2	1.61	4.5	0.33	32.1	40.2	36
Siemens Advia Centaur & Atellica	40.19	41.4	4.29	10.7	1.36	28.6	43.6	10
Siemens Dimension & Vista	34.00	33.9	0.95	2.8	0.55	33.1	35.0	3
Siemens Immulite 1000, 2000, 2500	31.57	31.1	1.46	4.6	0.84	30.4	33.2	3
Tosoh AIA	40.10	40.1	-	-	-	-	-	1
All	**36.36**	**36.2**	**2.55**	**7.0**	**0.28**	**28.6**	**43.6**	**83**
Gastrin, pmol/L								
Siemens Immulite 1000, 2000, 2500	10.7	11	1.0	9.4	0.4	9	12	8
All	**10.8**	**11**	**1.0**	**9.5**	**0.4**	**9**	**12**	**8**
GH, µg/l								
DiaSorin Liaison	8.00	7.9	0.37	4.6	0.21	7.7	8.4	3
IDS-iSYS	8.19	8.2	0.27	3.3	0.19	8.0	8.4	2
Roche cobas e, Elecsys, & Modular E	9.10	9.0	0.44	4.9	0.15	8.6	10.1	9
Siemens Immulite 1000, 2000, 2500	8.79	8.7	0.63	7.2	0.22	8.0	10.5	13
Tosoh AIA	9.10	9.1	-	-	-	-	-	1
All	**8.76**	**8.8**	**0.61**	**7.0**	**0.12**	**7.7**	**10.5**	**28**
IGF-1, nmol/L								
DiaSorin Liaison	22.29	22.5	1.64	7.4	0.73	20.2	24.4	5
DIAsource RIA	20.80	20.8	-	-	-	-	-	1
IDS-iSYS	19.91	19.9	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	15.91	15.7	1.76	11.0	0.72	14.0	19.1	6
Siemens IGF-I Restandardized	16.88	16.8	1.29	7.6	0.43	15.0	20.0	14
All	**17.81**	**17.0**	**2.73**	**15.3**	**0.52**	**14.0**	**24.4**	**27**
Insulin, mU/L								
Abbott Alinity	89.2	90	5.1	5.7	1.6	82	97	10
Abbott Architect	97.8	98	5.2	5.4	3.7	94	102	2
DiaSorin Liaison	152.3	152	6.2	4.1	4.4	148	157	2
Roche cobas e, Elecsys, & Modular E	131.2	130	5.2	3.9	1.3	121	186	25
Siemens Advia Centaur & Atellica	108.2	108	6.6	6.1	4.7	104	113	2
Siemens Immulite 1000, 2000, 2500	31.5	32	-	-	-	-	-	1
Tosoh AIA	117.6	118	-	-	-	-	-	1
All	**118.7**	**127**	**24.0**	**20.2**	**3.7**	**32**	**186**	**43**
LH, U/L								
Abbott Alinity	36.73	36.7	1.15	3.1	0.31	35.0	40.4	22
Abbott Architect	38.83	39.2	1.44	3.7	0.64	37.3	40.8	5
Roche cobas e, Elecsys, & Modular E	50.81	51.0	2.22	4.4	0.48	44.7	54.1	34
Siemens Advia Centaur & Atellica	48.12	48.0	2.13	4.4	0.64	44.9	51.0	11
Siemens Dimension & Vista	56.53	56.4	1.60	2.8	0.93	55.0	58.2	3
Siemens Immulite 1000, 2000, 2500	51.72	50.7	4.61	8.9	2.66	47.7	56.8	3
Tosoh AIA	46.70	46.7	-	-	-	-	-	1
All	**45.91**	**47.7**	**7.72**	**16.8**	**0.87**	**35.0**	**58.2**	**79**
Prog, 17-OH, nmol/L								
Demeditec Diagnostics EIA	19.70	19.7	-	-	-	-	-	1
DIAsource RIA	17.45	17.5	-	-	-	-	-	1
DRG Diagnostics EIA	16.38	18.4	4.73	28.9	2.73	11.0	19.8	3
IBL ELISA	15.00	15.0	-	-	-	-	-	1
Mass spectrometry	14.31	14.3	2.40	16.8	1.70	12.6	16.0	2
Novatec EIA	15.21	15.2	-	-	-	-	-	1

NUMERICAL SUMMARY **Hormone Determinations B 2023/01, Sample B2**

Analyte Method group	x	med	s	CV%	u	Min	Max	Number
Prog, 17-OH, nmol/L								
Siemens Dimension	14.06	14.1	-	-	-	-	-	1
Snibe Diagnostic Maglumi	14.10	14.1	-	-	-	-	-	1
All	**15.75**	**15.2**	**3.22**	**20.5**	**0.97**	**11.0**	**19.8**	**11**
Progesterone, nmol/L								
Abbott Alinity	55.34	55.0	3.68	6.7	1.19	48.3	72.7	15
Abbott Architect	56.57	57.2	3.99	7.1	1.79	50.6	61.5	5
Roche cobas e, Elecsys, & Modular E	65.26	65.3	2.29	3.5	0.57	58.9	73.6	25
Siemens Advia Centaur & Atellica	43.38	42.9	1.37	3.2	0.41	41.9	46.0	11
Siemens Dimension & Vista	54.10	54.1	0.14	0.3	0.10	54.0	54.2	2
Siemens Immulite 1000, 2000, 2500	46.27	46.3	0.22	0.5	0.16	46.1	46.4	2
Tosoh AIA	75.50	75.5	-	-	-	-	-	1
All	**57.52**	**58.0**	**10.35**	**18.0**	**1.33**	**41.9**	**75.5**	**61**
Prolactin, mU/L								
Abbott Alinity	666.0	672	23.5	3.5	6.0	634	734	24
Abbott Architect	651.1	662	32.0	4.9	14.3	610	688	5
Brahms Kryptor	546.0	540	14.3	2.6	7.1	537	567	4
Roche cobas e, Elecsys, & Modular E	673.8	673	27.5	4.1	6.0	618	744	33
Siemens Advia Centaur & Atellica	508.0	490	35.6	7.0	12.9	475	571	12
Siemens Dimension & Vista	593.3	590	5.8	1.0	3.3	590	600	3
Siemens Immulite 1000, 2000, 2500	612.3	607	32.1	5.2	18.5	583	647	3
Tosoh AIA	718.0	718	-	-	-	-	-	1
All	**644.9**	**658**	**57.5**	**8.9**	**6.2**	**475**	**744**	**85**
SHBG, nmol/L								
Abbott Alinity	52.9	53	2.7	5.2	0.9	45	60	15
Abbott Architect	50.0	51	3.2	6.4	1.4	47	54	5
Roche cobas e, Elecsys, & Modular E	50.6	50	2.4	4.8	0.6	47	56	29
Siemens Advia Centaur & Atellica	52.6	52	3.8	7.3	1.3	47	61	9
Siemens Immulite 1000, 2000, 2500	43.7	44	-	-	-	-	-	1
Tosoh AIA	58.3	58	-	-	-	-	-	1
All	**51.3**	**51**	**3.1**	**6.0**	**0.4**	**44**	**61**	**60**
Testo, free, pmol/L								
Abbott Alinity	140.0	140	-	-	-	-	-	1
Calculated	124.9	125	-	-	-	-	-	1
DRG Diagnostics EIA	27.2	27	-	-	-	-	-	1
IDS-iSYS	25.0	25	-	-	-	-	-	1
Novatec EIA	26.4	26	-	-	-	-	-	1
Roche cobas e, Elecsys, & Modular E	3.6	4	-	-	-	-	-	1
All	**57.8**	**27**	**66.5**	**115.0**	**27.1**	**4**	**140**	**6**
Testosterone, nmol/L								
Abbott Alinity	9.75	9.8	0.42	4.3	0.12	9.1	10.8	20
Abbott Architect	9.66	9.7	0.28	2.9	0.11	9.2	10.0	6
Mass spectrometry	9.88	10.0	0.62	6.3	0.28	9.1	10.5	5
Roche cobas e, Elecsys, & Modular E	9.99	10.0	0.33	3.3	0.08	9.2	11.0	28
Siemens Advia Centaur & Atellica	7.65	7.8	0.73	9.5	0.24	6.0	8.5	9
Siemens Immulite 1000, 2000, 2500	10.90	10.9	-	-	-	-	-	1
Tosoh AIA	13.40	13.4	-	-	-	-	-	1
All	**9.76**	**9.8**	**0.60**	**6.2**	**0.07**	**6.0**	**13.4**	**70**

NUMERICAL SUMMARY **Hormone Determinations B 2023/01, Sample B2**

Analyte	Method group	x	med	s	CV%	u	Min	Max	Number
Testosterone, nmol/L									

Participants

108 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 B Steroid and peptide hormones Round 1, 2023

Specimens
Sample S001/B1 (LQ732423011) and sample S002/B2 (LQ732423012) 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 Global report. 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. The sample history can be seen in the client specific report with the histogram.

Comments – EQA Coordinator
In C-peptide, prolactin and progesterone, Siemens Advia Centaur & Atellica's level is the lowest in both samples, while Roche's level is the highest. In LH, in both samples, Abbott Alinity has the lowest level, while Roche has the highest level. The insulin level in Siemens Immulite is significantly lower than the other groups in sample S002/B2. The results of free testosterone with different methods differ from each other, just like in previous rounds.

Comments – Expert
The mean androstenedione concentration in sample B1 was in the adult reference range (x = 4.22 nmol/L, n = 15). The range of results of different methods was large, and the overall variation of the results was large (CV% = 27.7%). The consensus mean of sample B2 was very high and clearly above the adult reference range (x = 20.43 nmol/L, n = 14). Also in this sample, the overall variation of the results was very large (CV% = 24.9%).

The consensus mean of aldosterone in sample B1 was in the healthy reference range (x = 218.9 pmol/L, n = 11) and the overall variation in sample B1 was large (B1: CV% = 19.7%). The consensus mean of sample B2 in all participants was well above the adult reference range (x = 1118.6 pmol/L, n = 11). The overall variation in sample B2 was good (B2: CV% = 7.5%).

In DHEAS, the mean concentration of sample B1 was 7.35 µmol/L, which was in the reference range for young adult men and women. In sample B2, on the other hand, the concentration was strongly elevated (24.43 µmol/L). The overall variations in both samples were moderate (B1: CV% = 12.9%, n = 31, and B2: CV% = 12.2%, n = 30).

In estradiol, sample (B1) had estradiol levels of the female follicular/luteal phase for all methods (x = 0.313 nmol/L, n = 71) and sample B2 had a high level of estradiol for ovulation (x = 1.429 nmol/L, n = 72). The overall variation in sample B1 was good (CV% = 8.1%), but in sample B2 it was moderate (CV% = 12.5%). Siemens Immulite gave a lower result level in sample B1 than other methods.

2023-03-13

FINAL REPORT

Product no. 2301, 2301S

Samples sent	2023-02-07
Round closed	2023-02-27
Final report	2023-03-13

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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Quality Management
ISO 9001:2015

Mean cortisol results represented normal adult concentrations in sample B1. DiaSorin Liaison gave a lower result level at a low concentration than other methods. The results were slightly elevated in sample B2 compared to the reference range for adult cortisol. (B1: x = 262.3 nmol/L, n = 78 and B2: x = 672.6 nmol/L, n = 78). The overall variations of the methods and results were good and moderate (B1: CV% = 6.8%, B2: CV% = 10.8%).

The mean concentrations of progesterone in sample B1 corresponded high follicular phase concentration (B1: x = 2.93 nmol/L), and the overall variation of the methods was moderately large (B1: x = 13.1%). Siemens Dimension & Vista gave a higher result level than other methods (5.20 nmol/l). In sample B2 the concentration of progesterone was high and corresponded to the women's luteal phase (B2: x = 57.52 nmol/L). All participants reported high luteal phase concentrations, but TOSOH AIA gave a higher result level than other methods (75.50 nmol/l). The overall variation of the methods was large (B2: CV% = 18.0 %).

The concentration of 17OH-progesterone in sample B1 corresponded to the normal level of men (x = 3.38 nmol/L, n = 11). The overall variation of the methods was large, and the concentration varied largely between the groups (2.25 – 5.40 nmol/L, CV%=36.0 %). The concentration in sample B2 was elevated and clearly above the reference values (x = 15.75 nmol/L, n = 11). The overall variation of the methods was large (B2: CV% = 20.5 %).

In testosterone, the mean concentration of sample B1 was in the normal male concentration (x = 24.37 nmol/L, n = 70). The concentration of sample B2 corresponded to the lower limit of men’s reference range (x = 9.76 nmol/L, n = 70). The Siemens Advia-Atellica user group received a lower mean compared to other groups. In both samples, the overall variation of the methods was good (B1: CV% = 5.9% and B2: CV% = 6.2%).

Free testosterone was reported by only five to six (5-6) laboratories. Because different methods used measured free testosterone levels differently, the concentrations of the samples obtained varied by 12-35 -fold and the total variations from the samples was consistent (CV% t were B1: 112.9% and B2: 115.0%). It is therefore not appropriate to compare the results with the different methods. The participants of the round can compare their own results with other laboratories that mainly use a similar method. In general, the testosterone and SHBG levels measured by reliable methods and the calculated free testosterone levels determined by them correlate with the results and result levels of known reference methods based on ultrafiltration or equilibrium dialysis.

End of report