

External Quality Assessment Scheme

Albumin and creatinine in urine Round 1, 2023

Specimens

Please find enclosed two liquid human urine samples S001 and S002, each 4 mL.

Caution

Quality control samples derived from human urine must be handled with the same care as patient samples, i.e. as potential transmitters of serious diseases.

Examinations

U-Albumin

U-Creatinine

Calculated Alb/Crea index

These samples are meant only for quantitative albumin and creatinine analysis.

Storage and use

The samples are ready for use and they can be stored at +2...8°C for two weeks after arrival. If you need to store them for longer time, please keep them at - 20°C. Analyse the samples in the same way as a patient sample.

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



S002



2023-05-02

INSTRUCTIONS

Product no. 3240
LQ744123011-012/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 **May 22, 2023.**

Inquiries

EQA Coordinator
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Labquality Oy

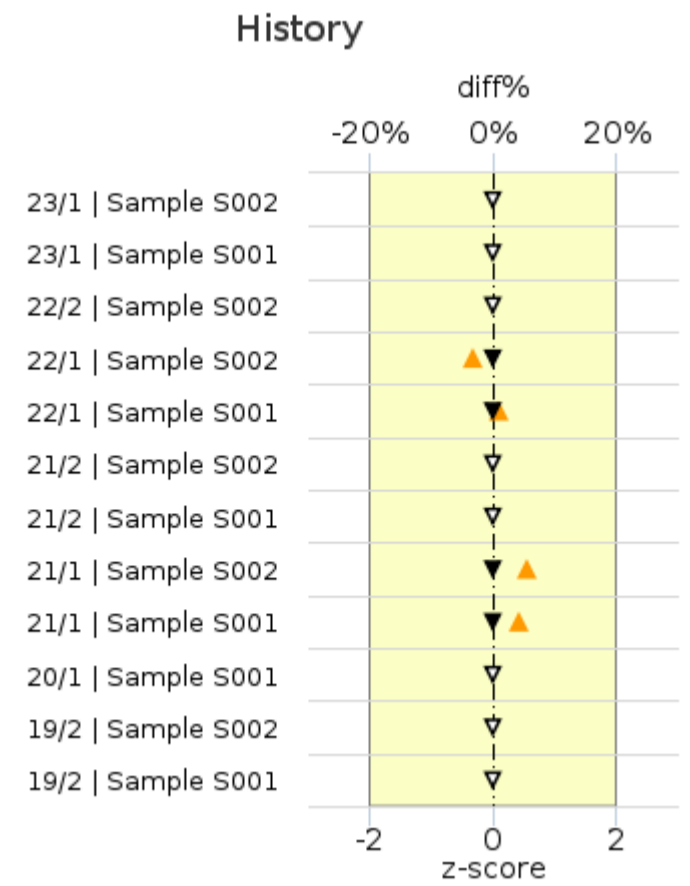
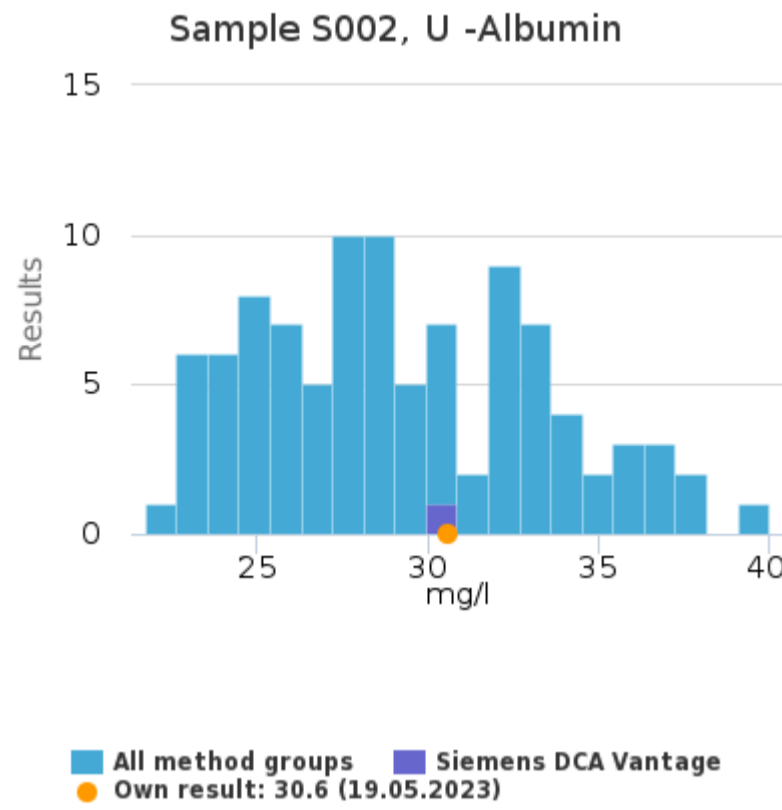
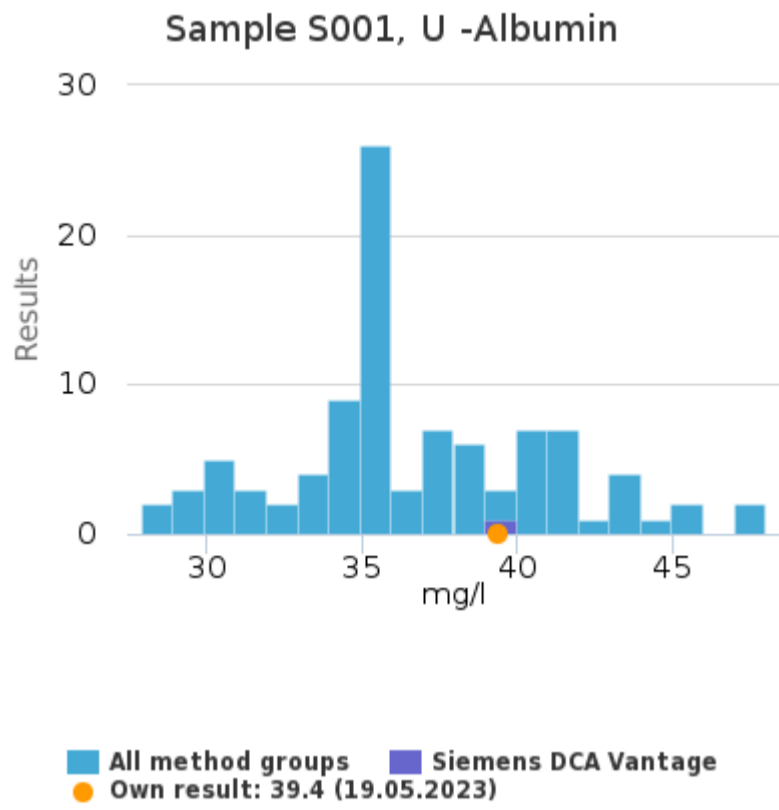
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U -Albumin |DCA Vantage



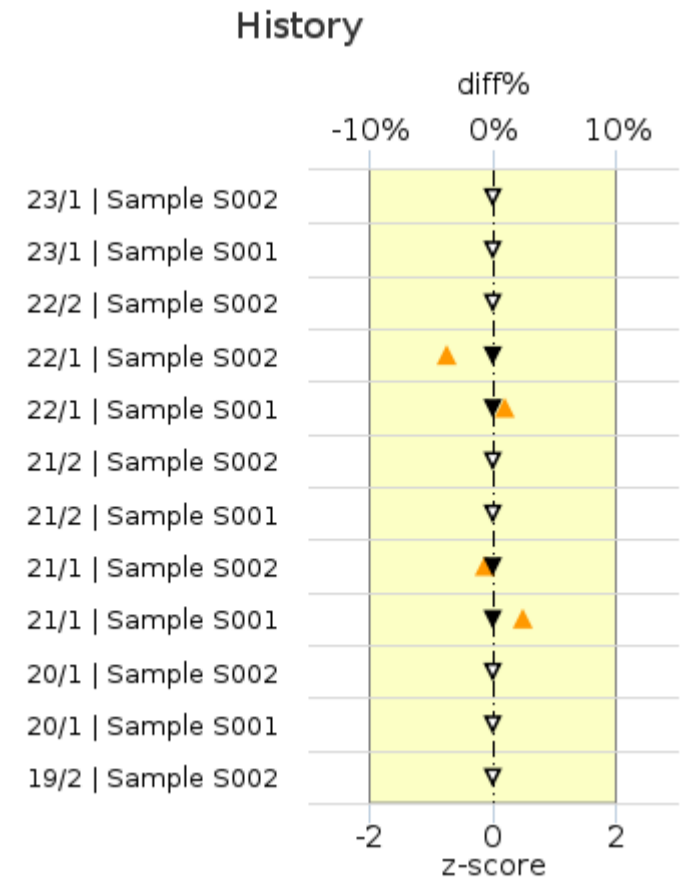
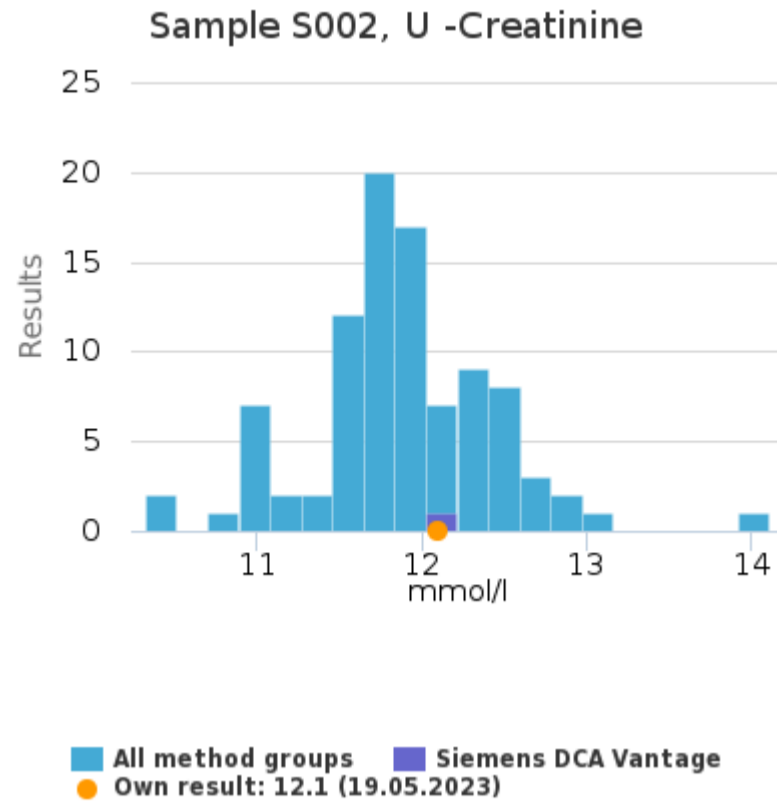
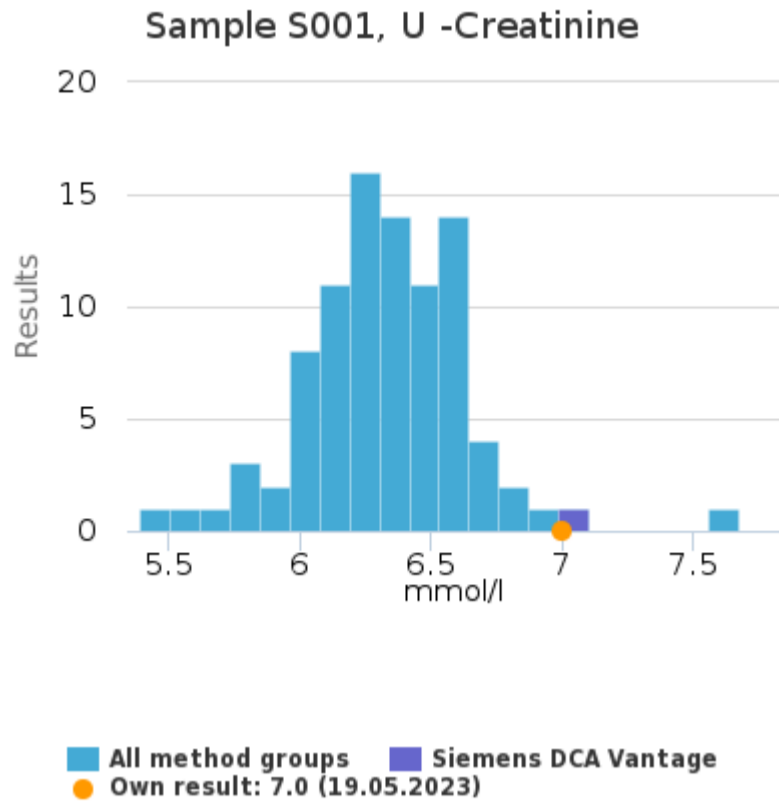
	x_{pt}	sd	SEM	CV%	n
Siemens DCA Vantage	-	-	-	-	1
All methods	36.6 mg/l	4.2	0.4	11.4	97

	x_{pt}	sd	SEM	CV%	n
Siemens DCA Vantage	-	-	-	-	1
All methods	29.2 mg/l	4.1	0.4	14.1	98

▲ diff%
 ▼ Only participant in a method group
 ▼ Due to the small number of results, the z score is not calculated

Round	Sample	x_{pt}	Result	diff%	z-score
23/1	Sample S002	-	30.6	-	-
23/1	Sample S001	-	39.4	-	-
22/2	Sample S002	-	63.6	-	-
22/1	Sample S002	16.3	15.7	-3.4%	-
22/1	Sample S001	52.4	53.0	1.1%	-
21/2	Sample S002	-	83.6	-	-
21/2	Sample S001	-	9.9	-	-
21/1	Sample S002	16.4	17.3	5.5%	-
21/1	Sample S001	102.2	106.5	4.3%	-
20/1	Sample S001	-	131.5	-	-
19/2	Sample S002	-	59.1	-	-
19/2	Sample S001	-	24.3	-	-

U -Creatinine |DCA Vantage



	x_{pt}	sd	SEM	CV%	n
Siemens DCA Vantage	-	-	-	-	1
All methods	6.3 mmol/l	0.3	<0.1	4.6	91

	x_{pt}	sd	SEM	CV%	n
Siemens DCA Vantage	-	-	-	-	1
All methods	11.9 mmol/l	0.5	<0.1	4.4	94

▲ diff%
 ▼ Only participant in a method group
 ▽ Due to the small number of results, the z score is not calculated

Round	Sample	x_{pt}	Result	diff%	z-score
23/1	Sample S002	-	12.1	-	-
23/1	Sample S001	-	7.0	-	-
22/2	Sample S002	-	8.0	-	-
22/1	Sample S002	10.9	10.5	-3.7%	-
22/1	Sample S001	5.9	5.9	0.9%	-
21/2	Sample S002	-	5.7	-	-
21/2	Sample S001	-	7.9	-	-
21/1	Sample S002	13.4	13.3	-0.7%	-
21/1	Sample S001	8.4	8.6	2.4%	-
20/1	Sample S002	-	5.3	-	-
20/1	Sample S001	-	5.3	-	-
19/2	Sample S002	-	8.7	-	-

Report info**Participants**

92 participants from 13 countries.

Report info

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

Assigned values (\bar{x}_p , target values) 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 large an automatic text is printed on the report: "The uncertainty of the assigned value is not negligible, and evaluations could be affected."

In case the client's result is the only one in the method group, no assigned value will be calculated, no target area shown, and no statistics calculated. In case there are only a few results in the client's own method group, the result can be compared to all method mean or to a group that is similar to the own method.

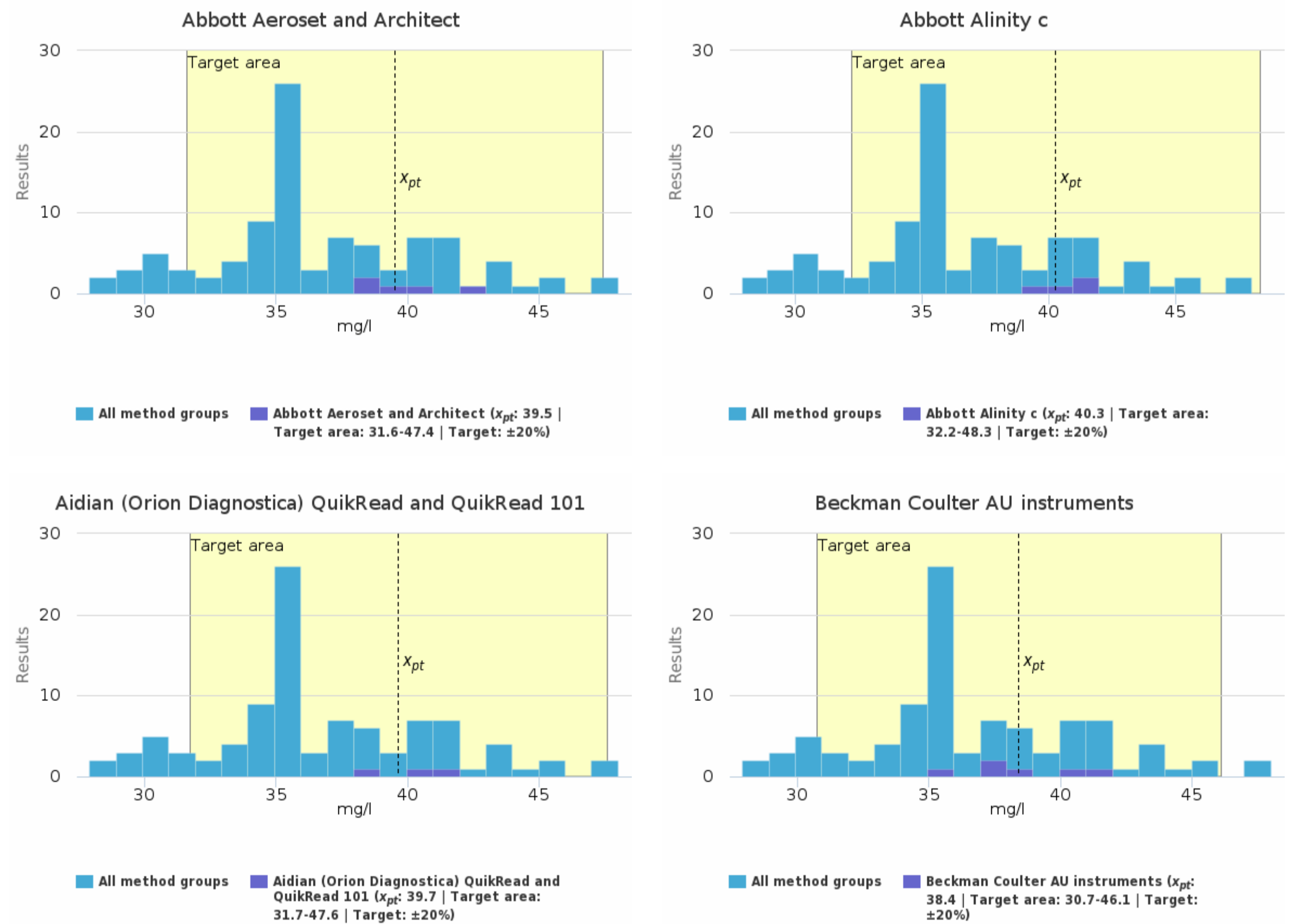
Results reported with $<$ or $>$ -signs cannot be included in the statistics.

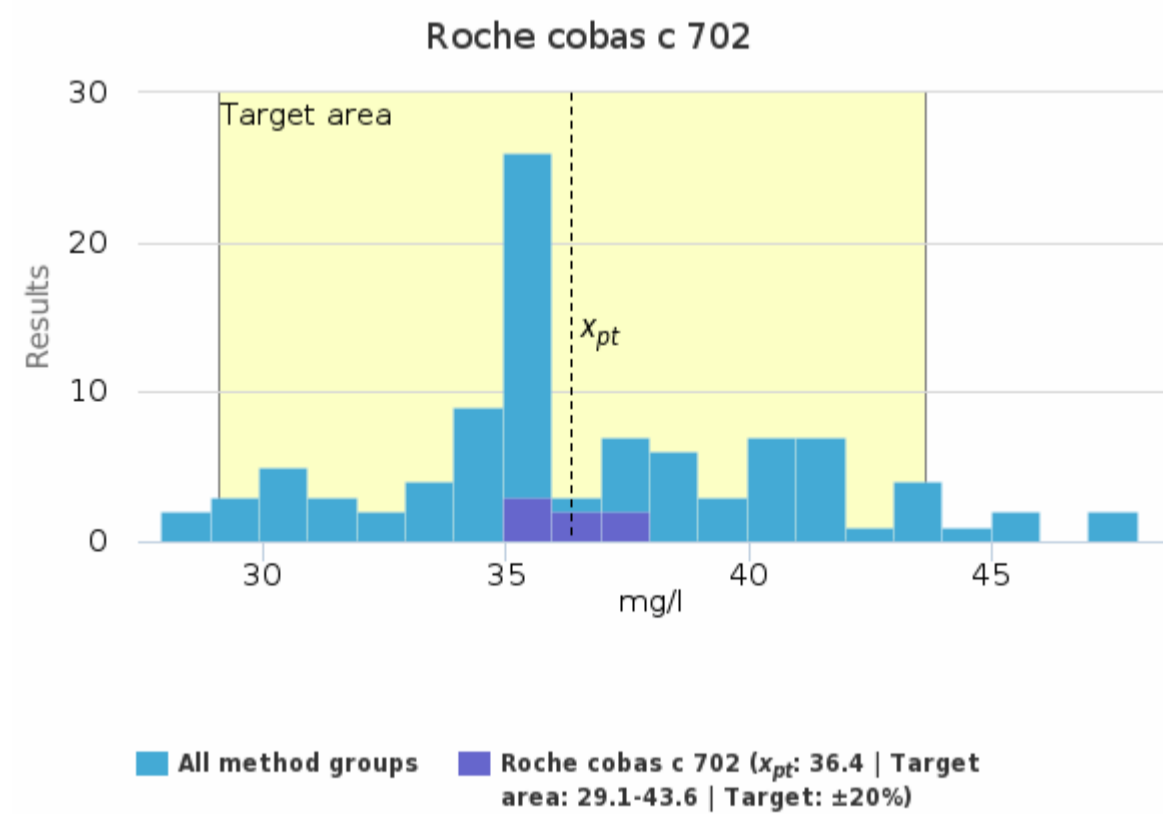
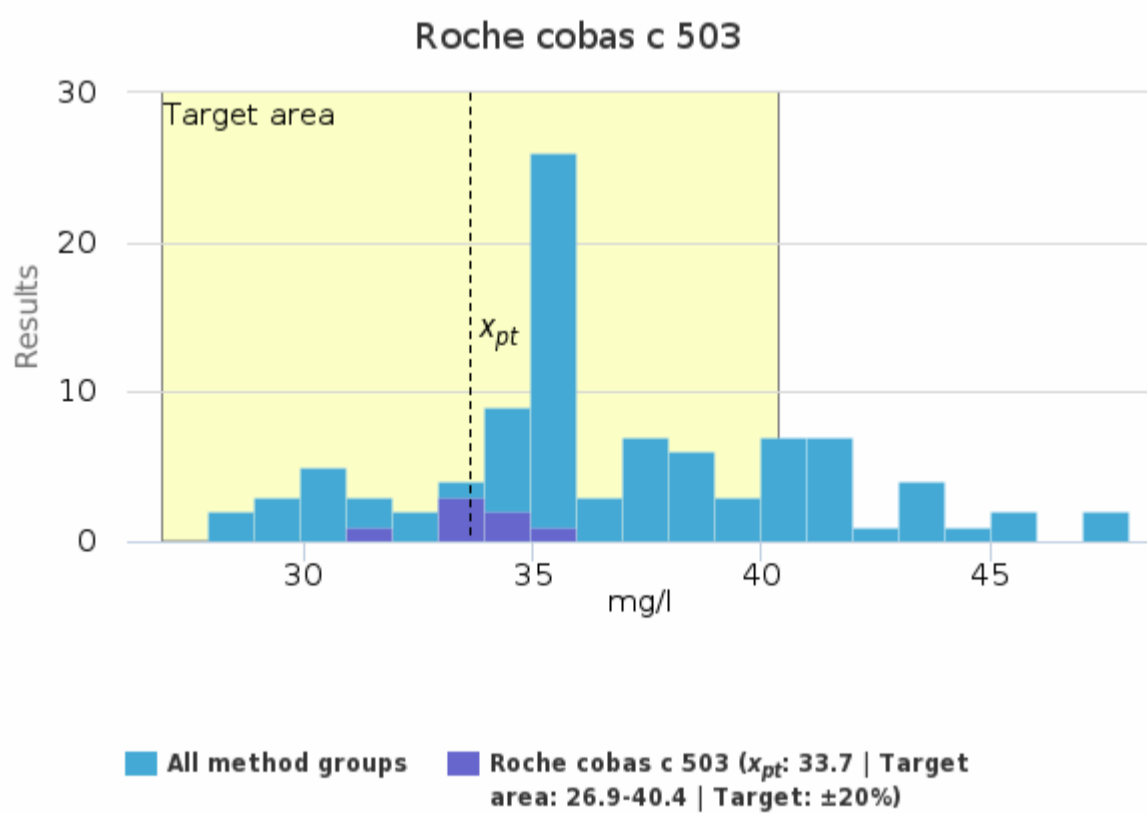
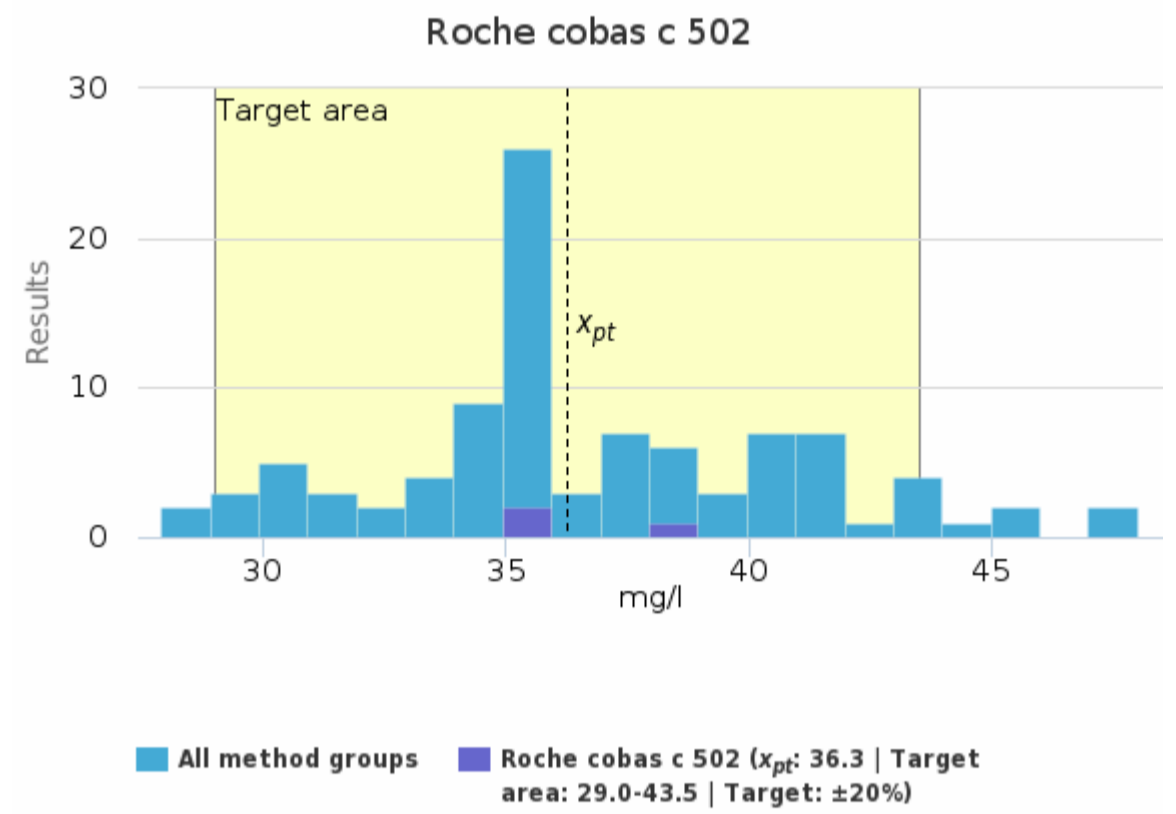
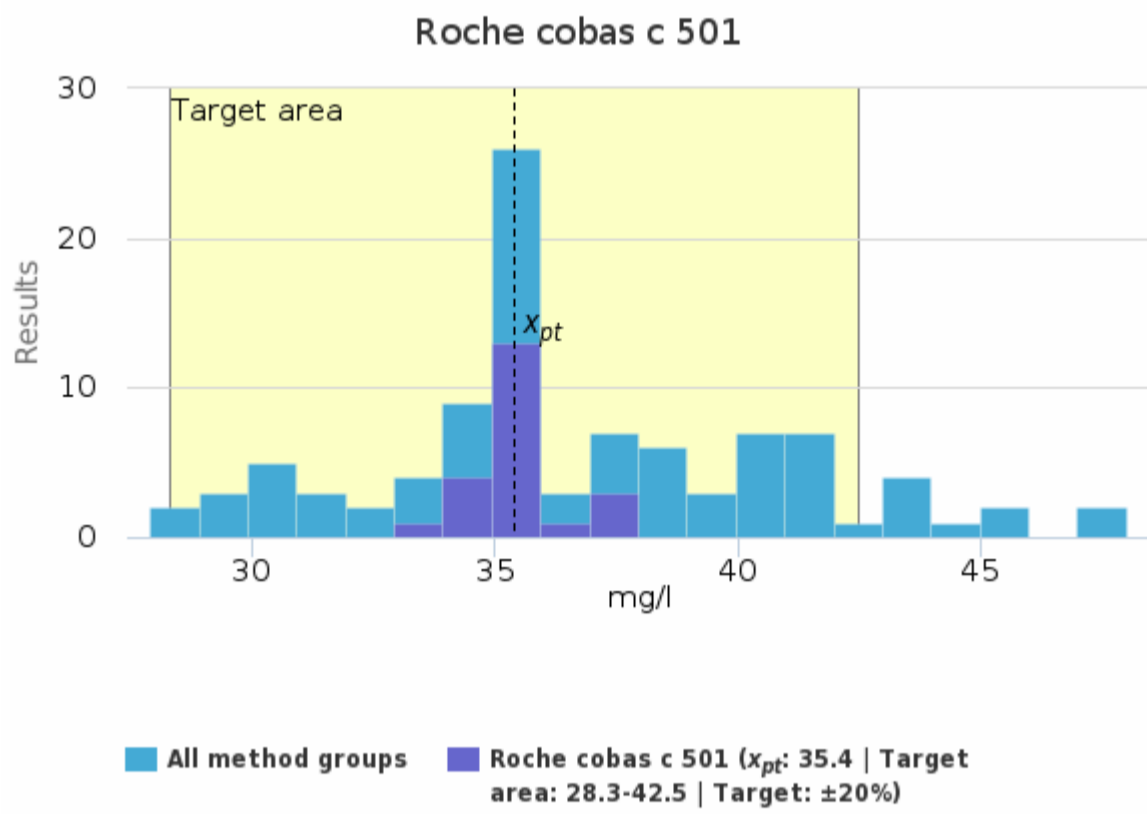
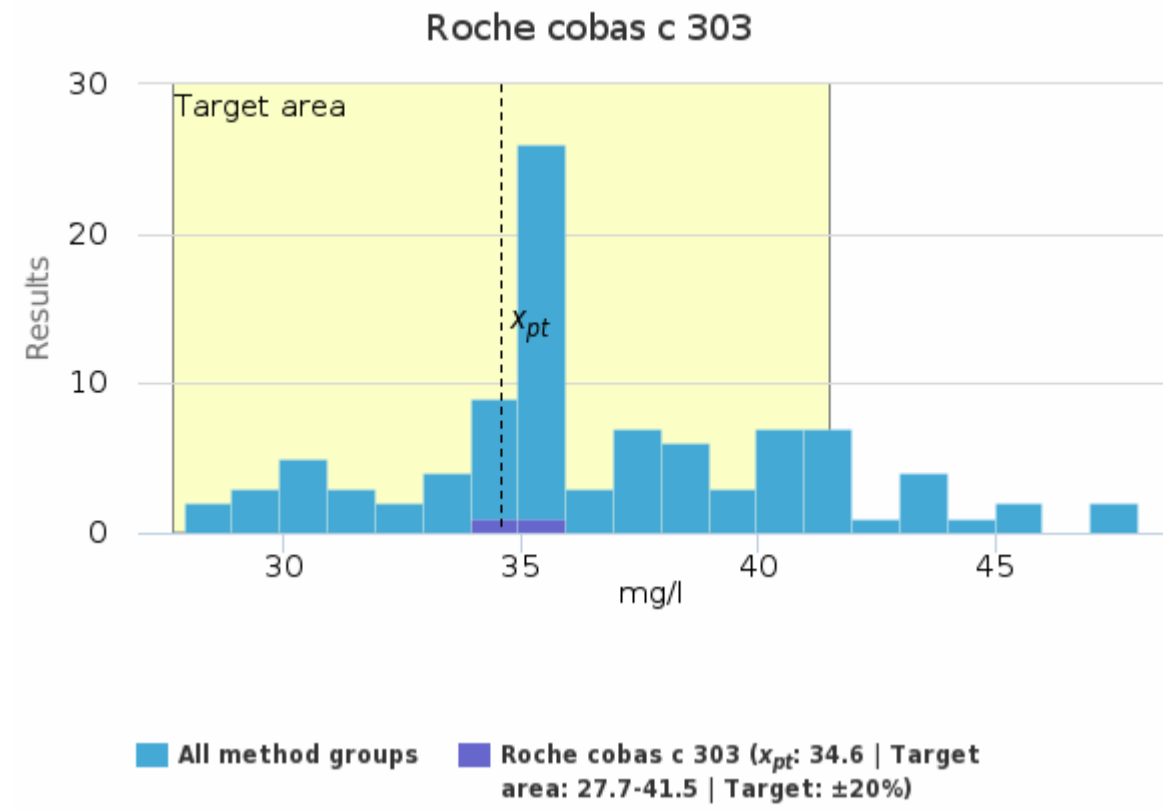
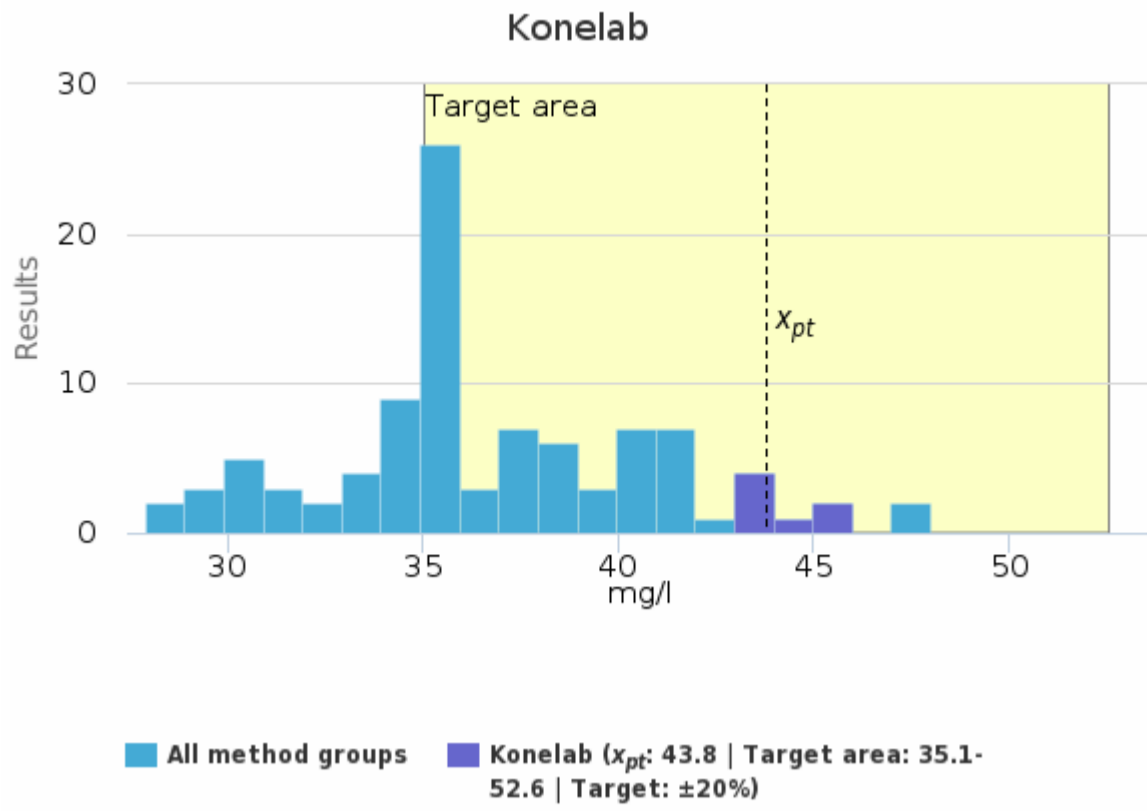
For information on report interpretation and performance evaluation, please see the "EOAS Interpretation guidelines" LabScala User instructions (top right corner ?Help link).

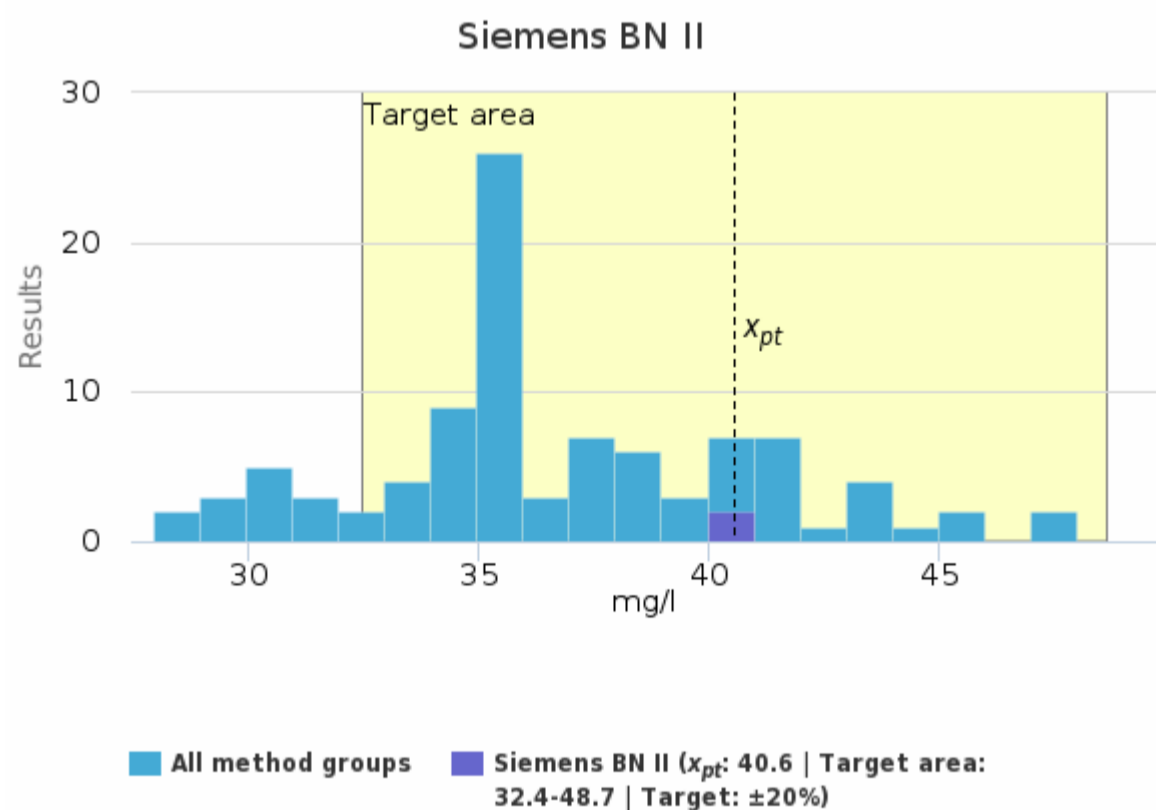
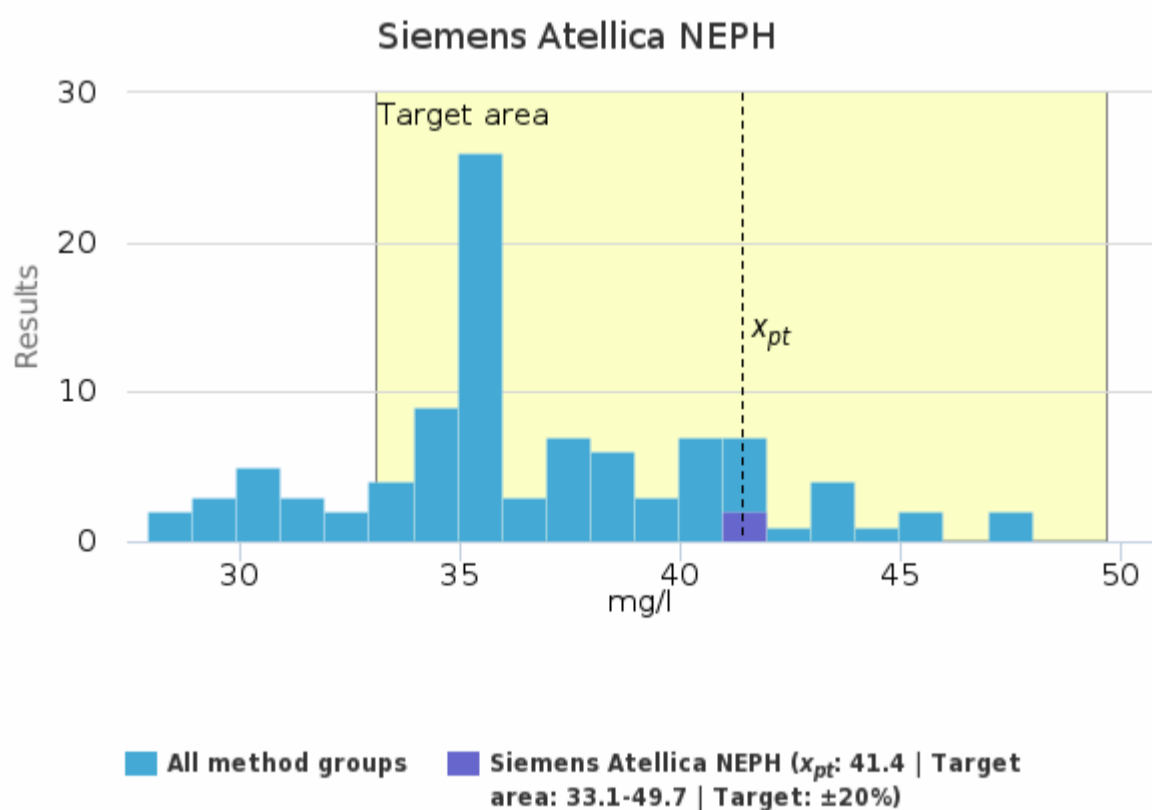
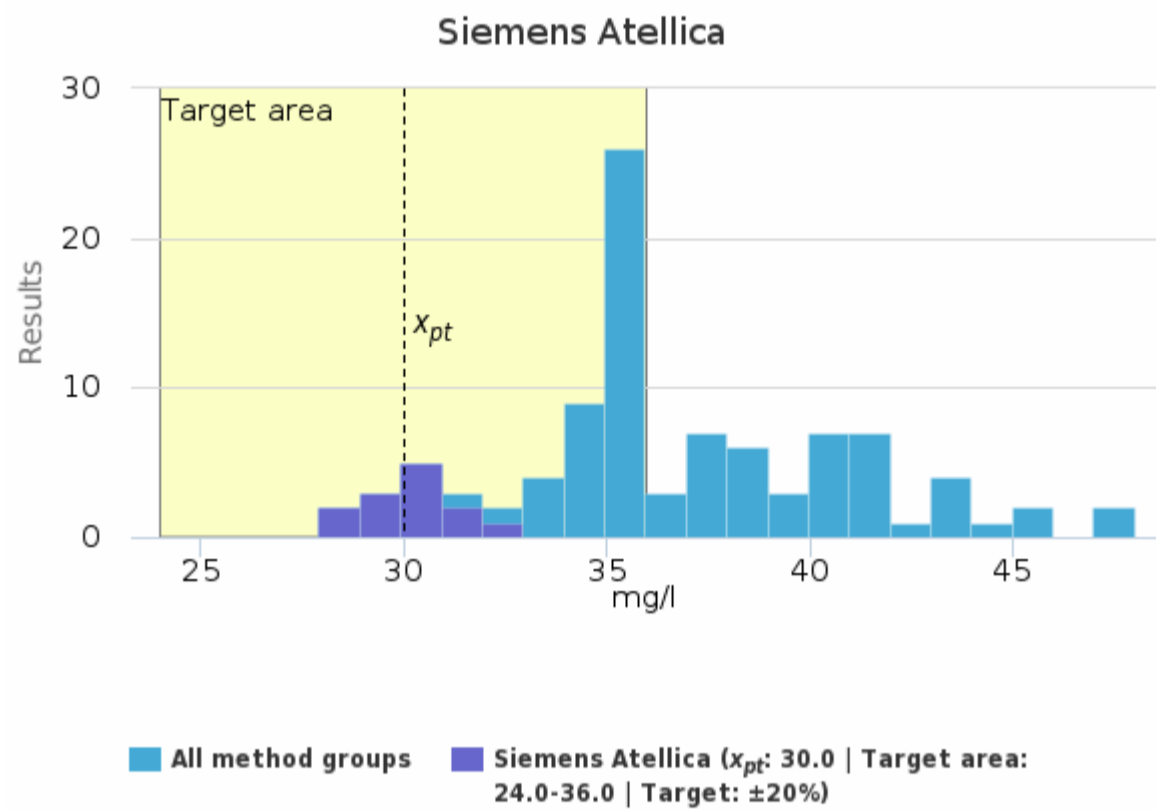
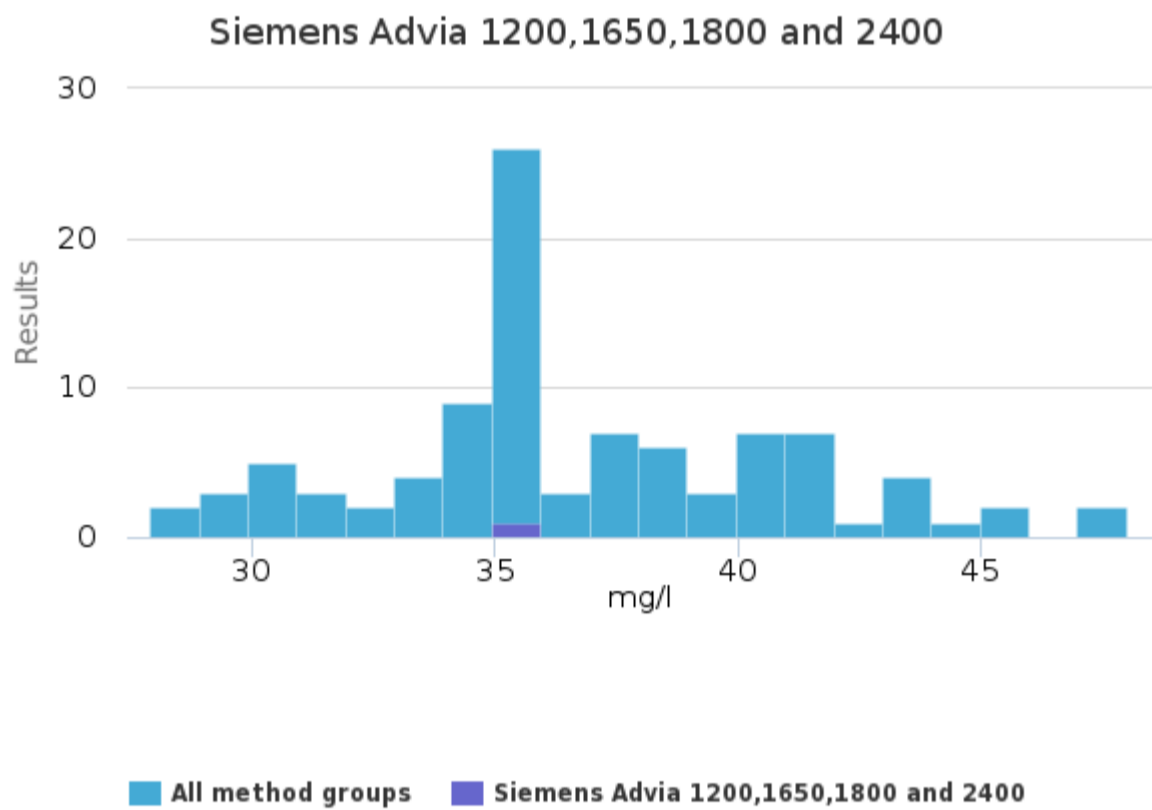
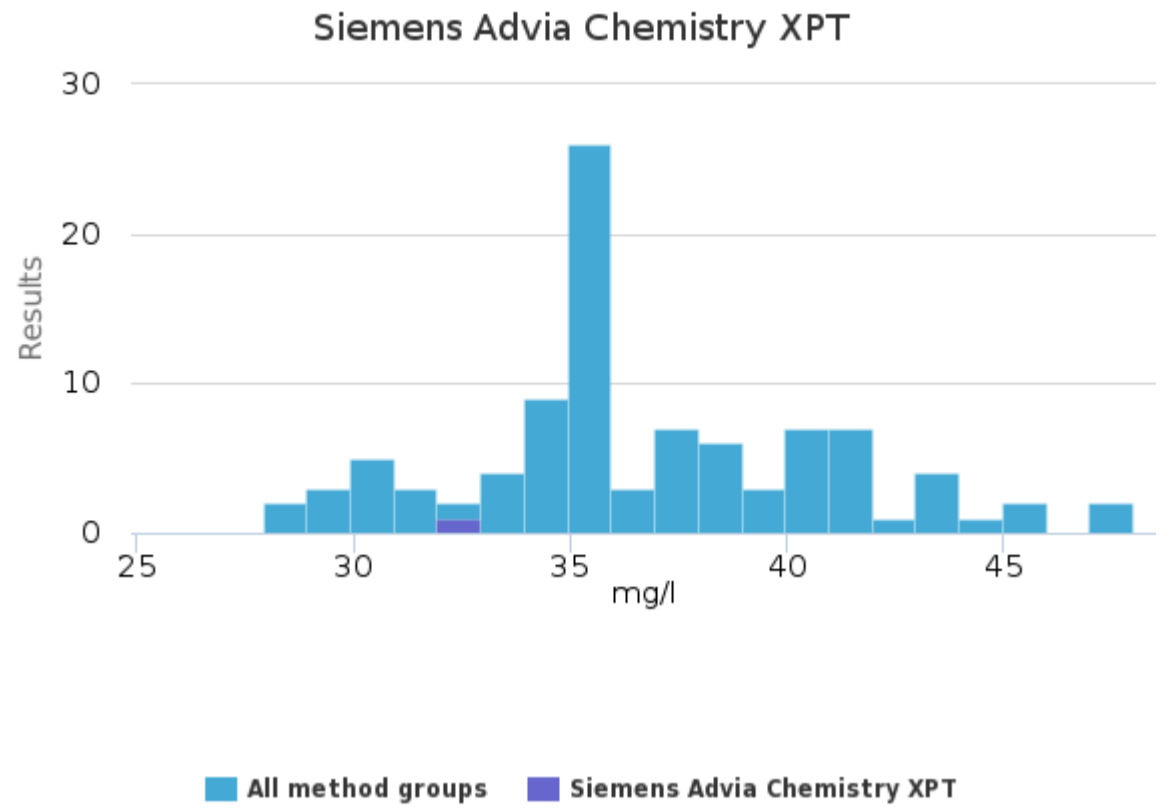
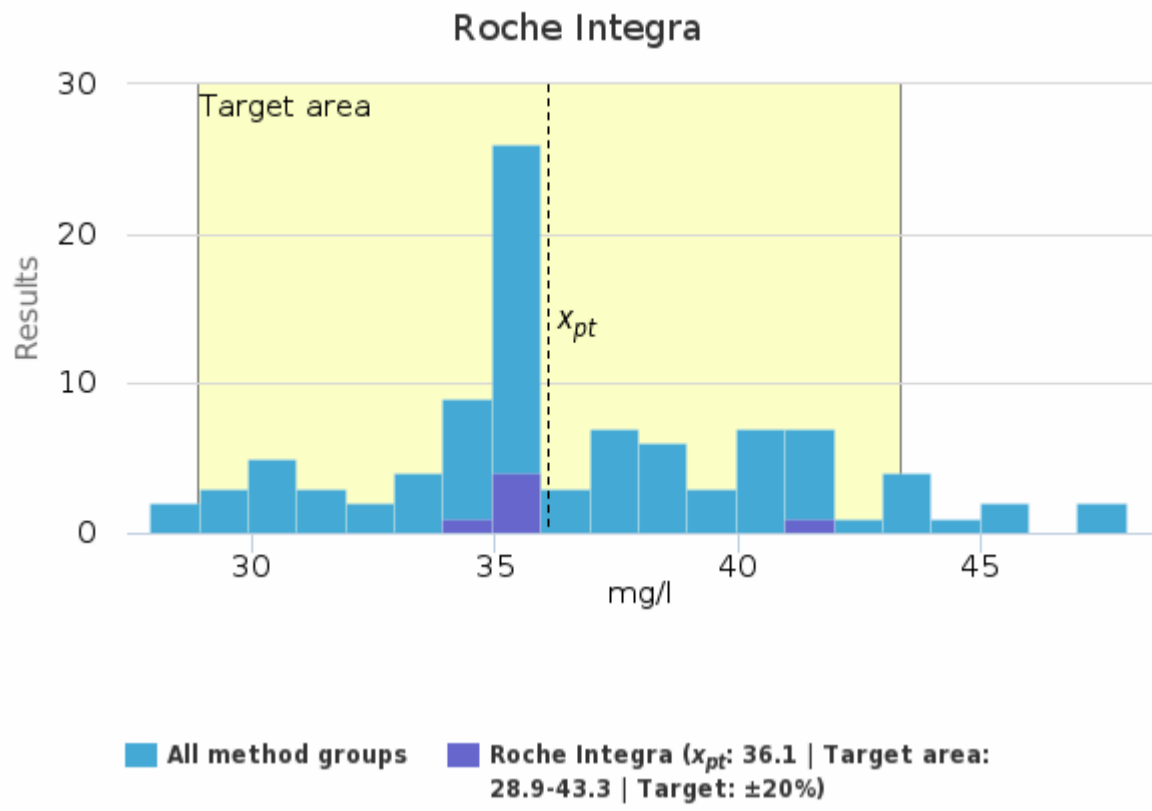
Sample S001 | U -Albumin, mg/l

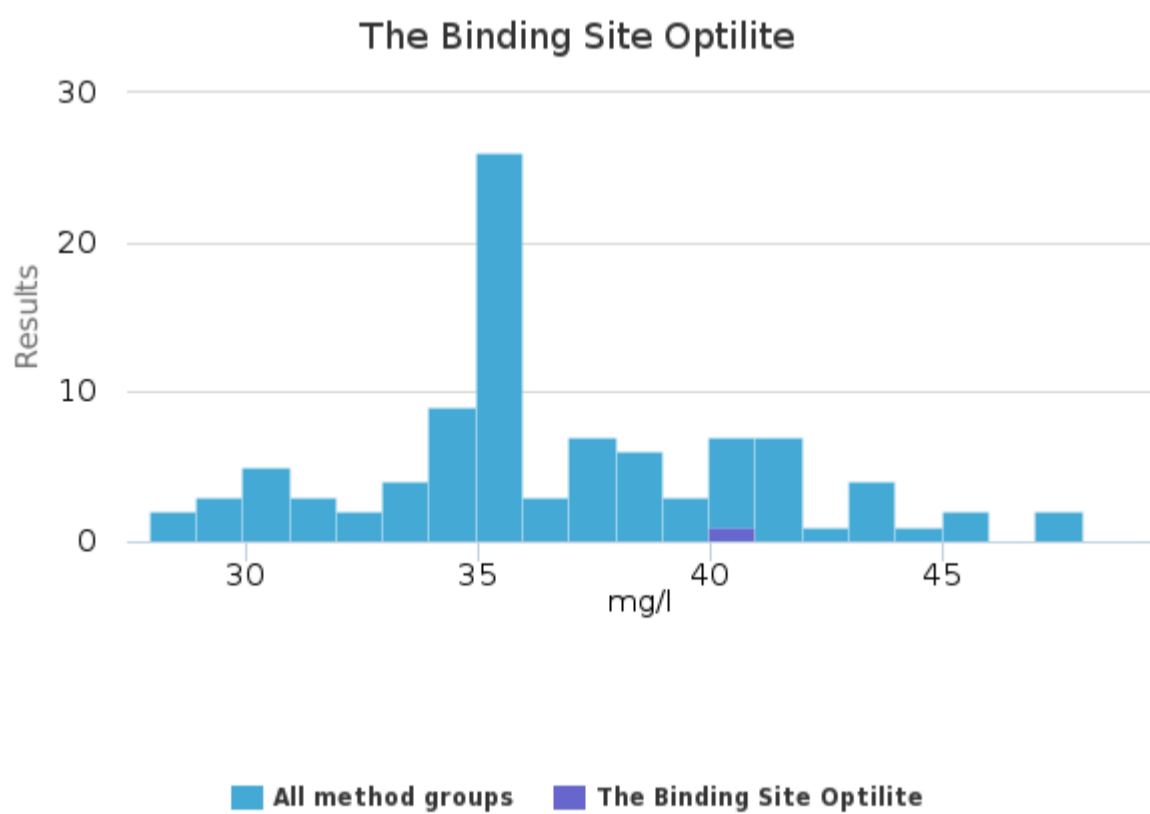
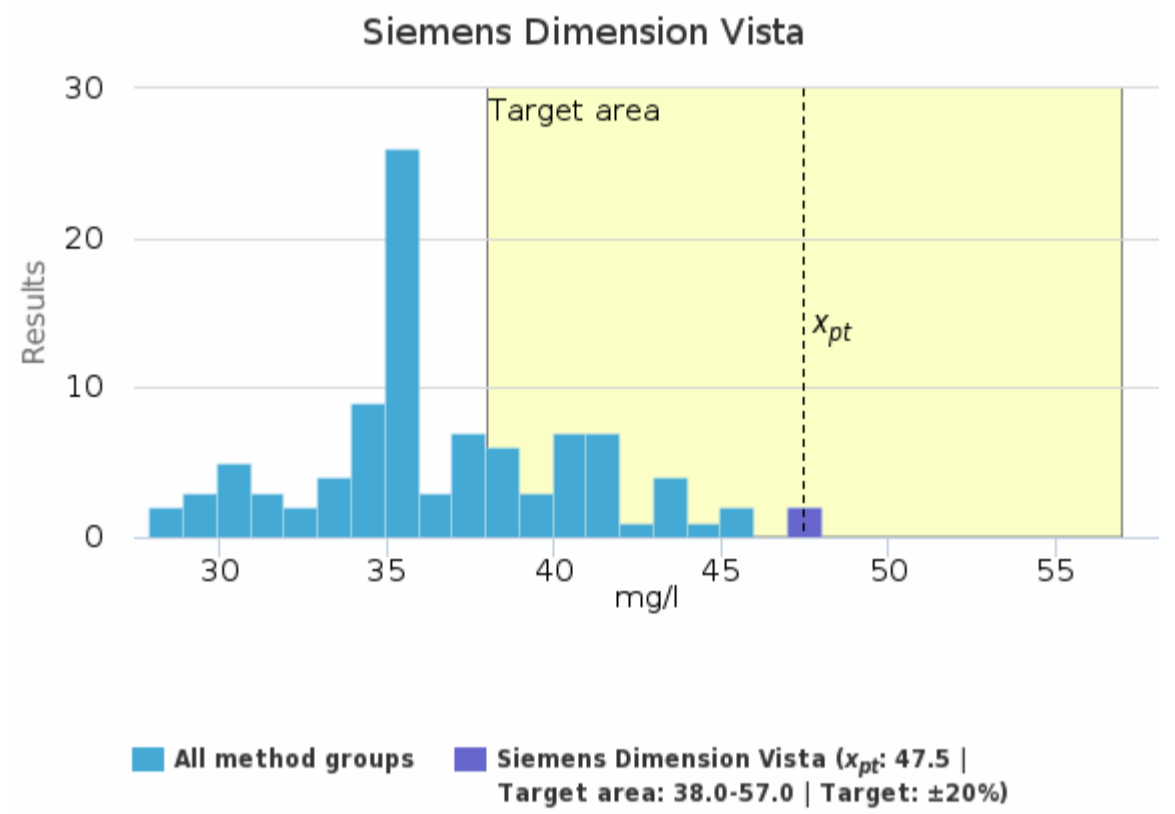
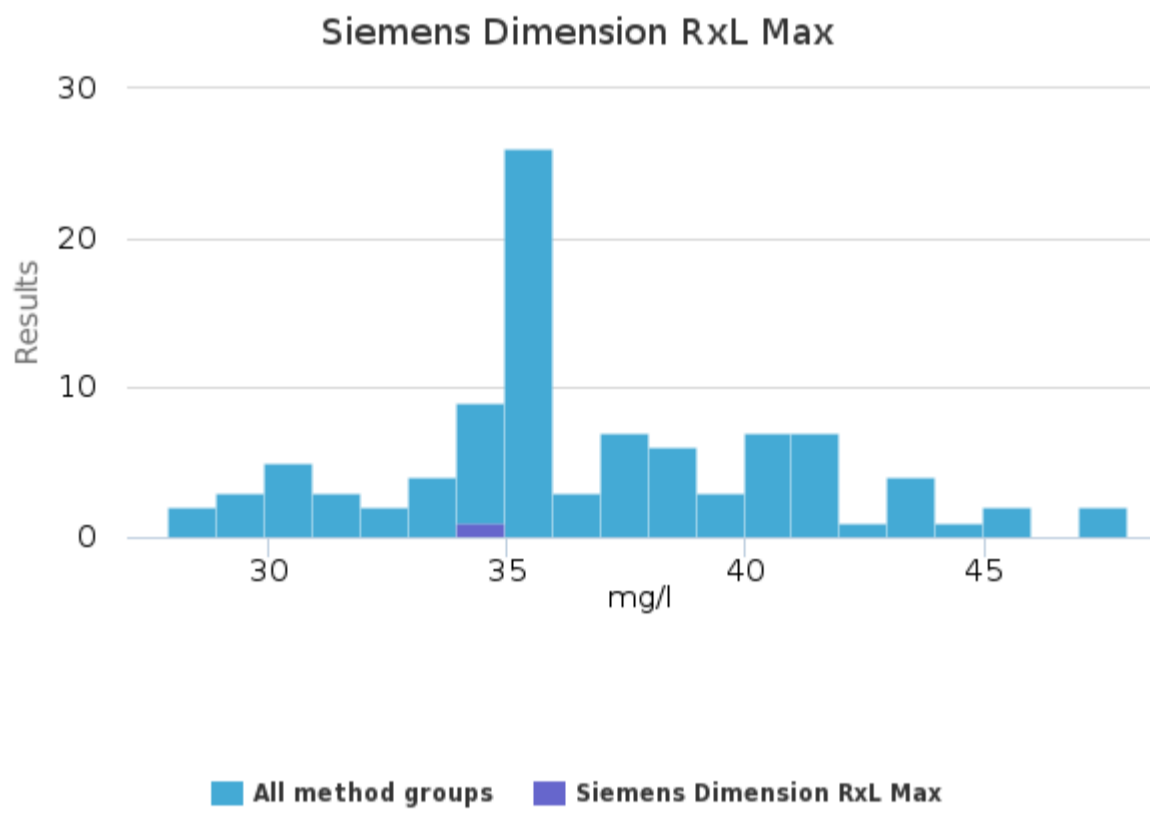
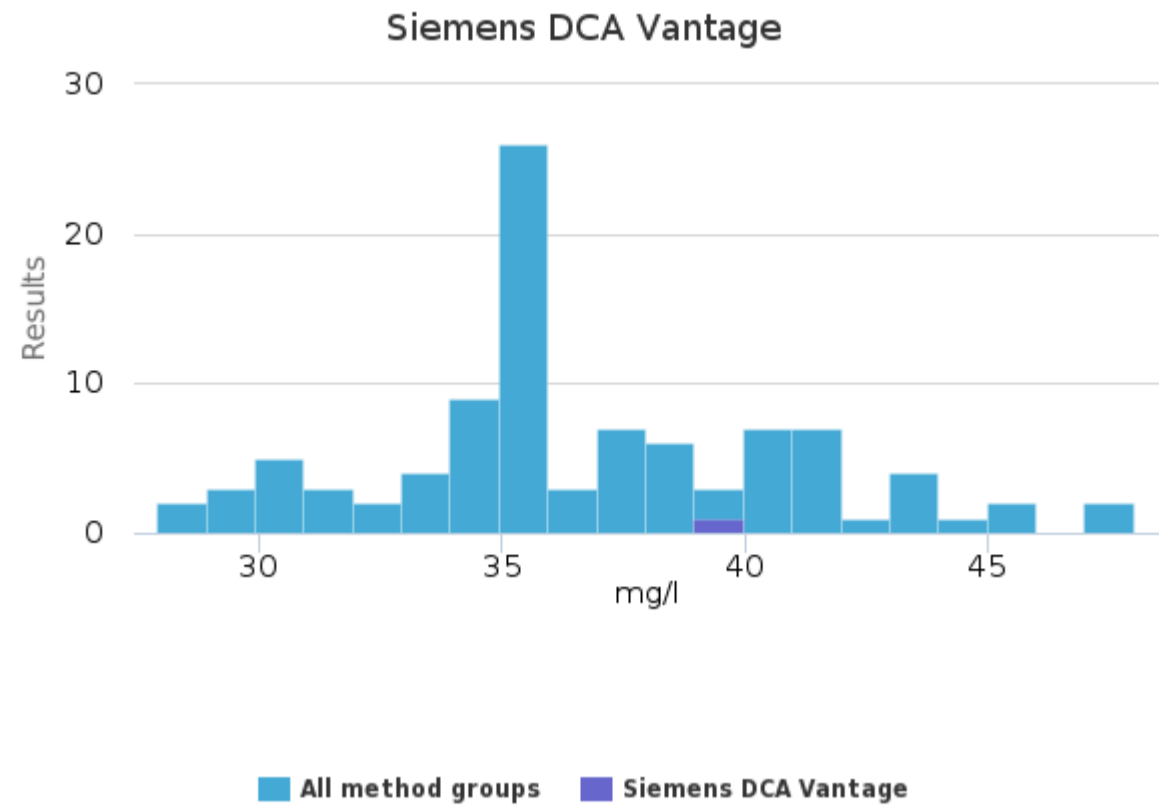
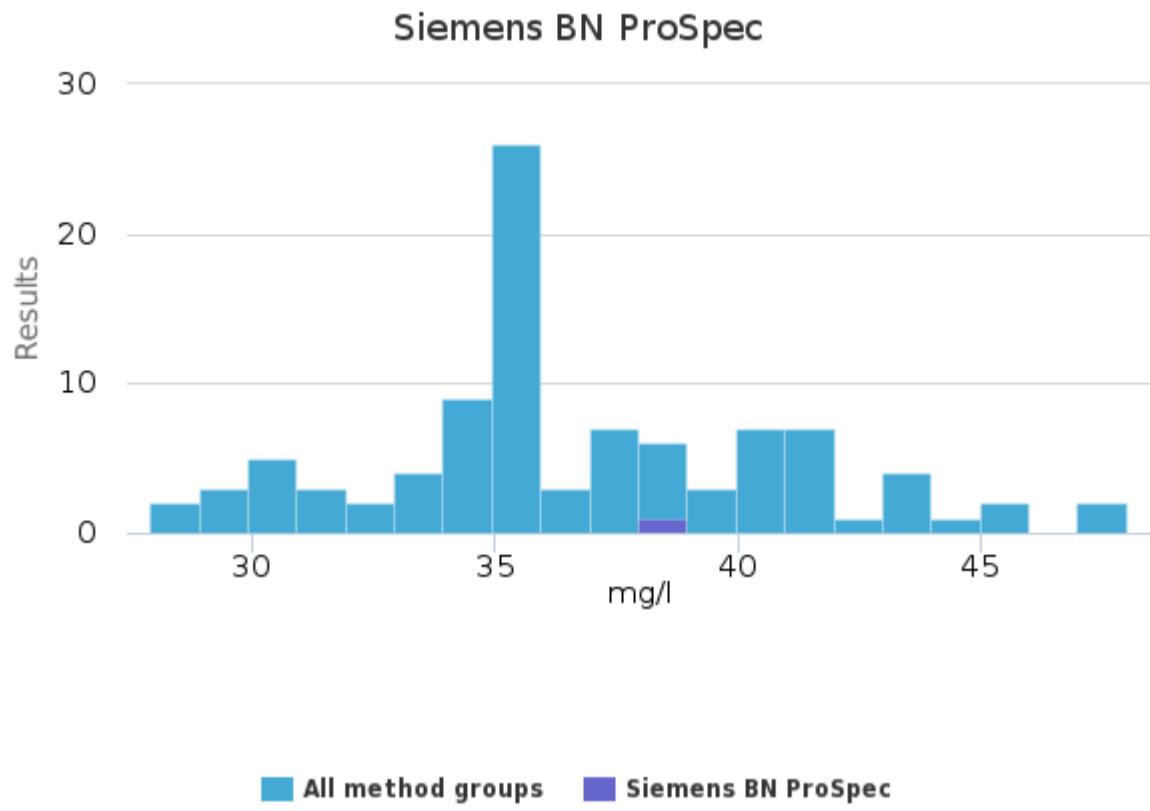
Methodics	x_{pt}	Median	sd	CV%	SEM	min	max	Outliers	n
Abbott Aeroset and Architect	39.5	39.4	1.6	4.1	0.7	38.0	42.0	-	5
Abbott Alinity c	40.3	40.5	0.9	2.3	0.5	39.1	41.0	-	4
Aidian (Orion Diagnostica) QuikRead and QuikRead 101	39.7	40.0	1.5	3.9	0.9	38.0	41.0	-	3
Beckman Coulter AU instruments	38.4	38.2	2.3	6.0	0.9	35.0	41.2	-	6
Konelab	43.8	43.7	0.9	2.1	0.3	43.0	45.0	-	7
Roche cobas c 303	34.6	34.6	0.8	2.5	0.6	34.0	35.2	-	2
Roche cobas c 501	35.4	35.3	0.9	2.6	0.2	33.4	37.3	-	22
Roche cobas c 502	36.3	35.8	1.6	4.3	0.9	35.0	38.0	-	3
Roche cobas c 503	33.7	33.9	1.1	3.2	0.4	31.9	35.3	-	7
Roche cobas c 702	36.4	36.0	1.0	2.7	0.4	35.1	37.6	-	7
Roche Integra	36.1	35.2	2.6	7.3	1.1	34.4	41.5	-	6
Siemens Advia Chemistry XPT	-	-	-	-	-	32.0	32.0	-	1
Siemens Advia 1200,1650,1800 and 2400	-	-	-	-	-	35.2	35.2	-	1
Siemens Atellica	30.0	30.0	1.1	3.6	0.3	27.9	32.0	-	13
Siemens Atellica NEPH	41.4	41.4	<0.1	<0.1	<0.1	41.4	41.4	-	2
Siemens BN II	40.6	40.6	<0.1	0.2	<0.1	40.5	40.6	-	2
Siemens BN ProSpec	-	-	-	-	-	38.9	38.9	-	1
Siemens DCA Vantage	-	-	-	-	-	39.4	39.4	-	1
Siemens Dimension RxL Max	-	-	-	-	-	34.8	34.8	-	1
Siemens Dimension Vista	47.5	47.5	0.7	1.5	0.5	47.0	48.0	-	2
The Binding Site Optilite	-	-	-	-	-	40.4	40.4	-	1
All	36.6	35.6	4.2	11.4	0.4	27.9	48.0	-	97

Sample S001 | U -Albumin, mg/l| histogram summaries in LabScala





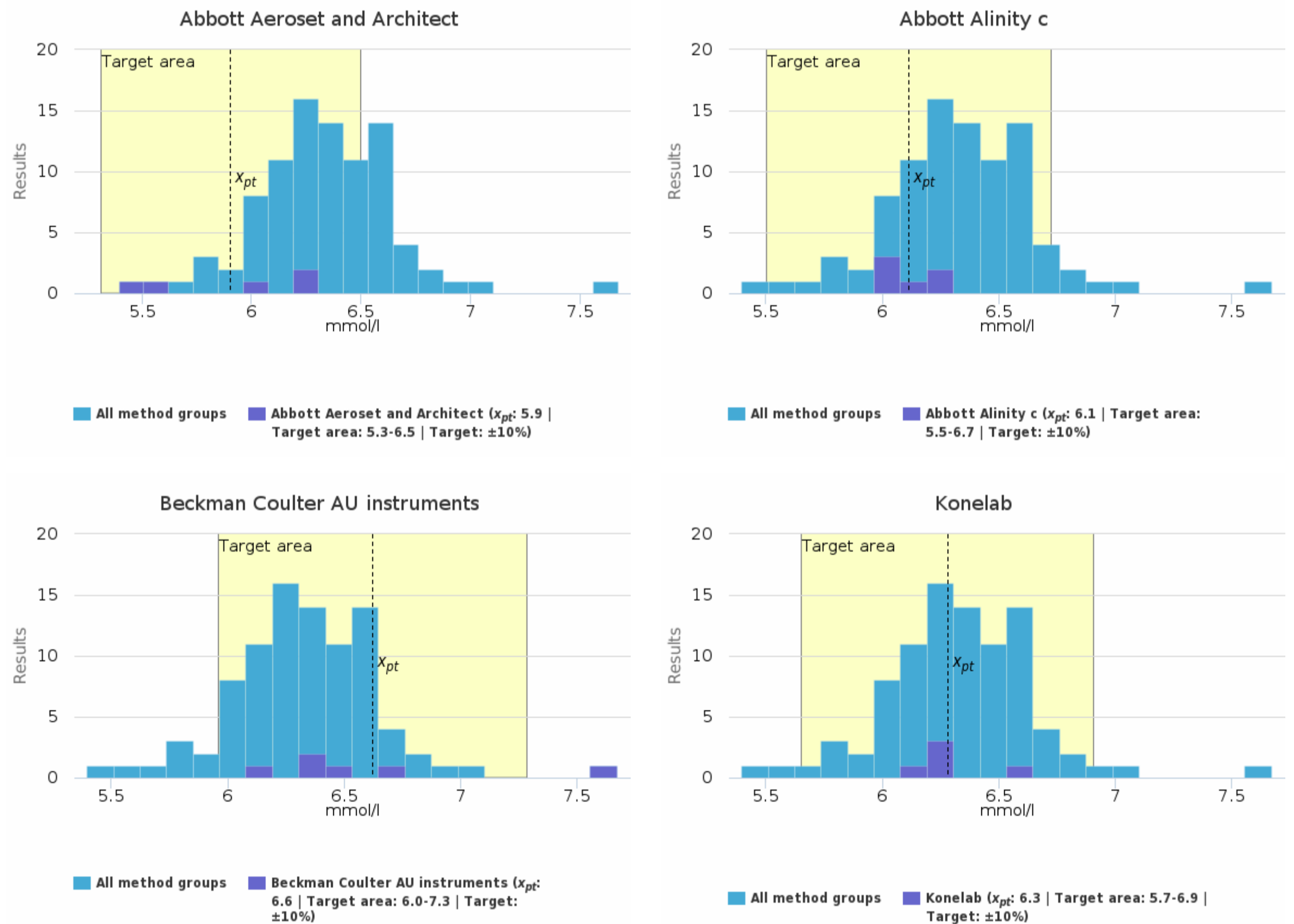


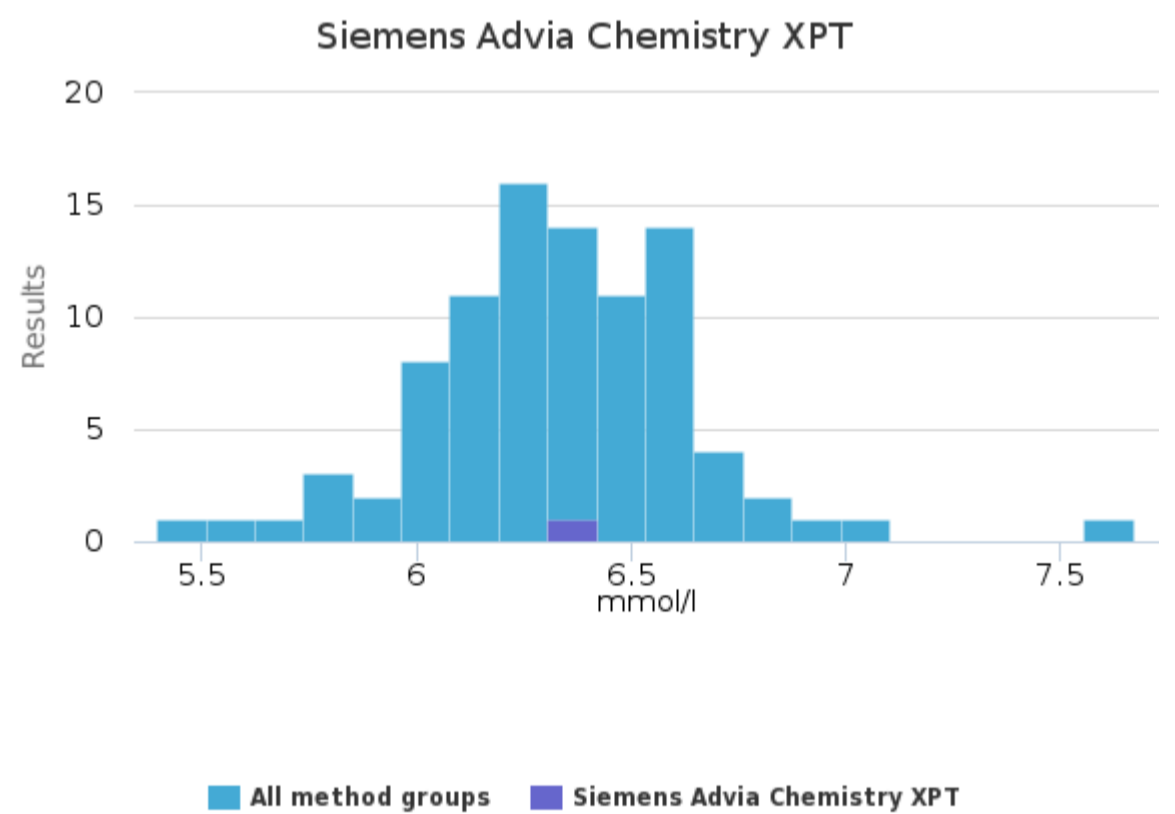
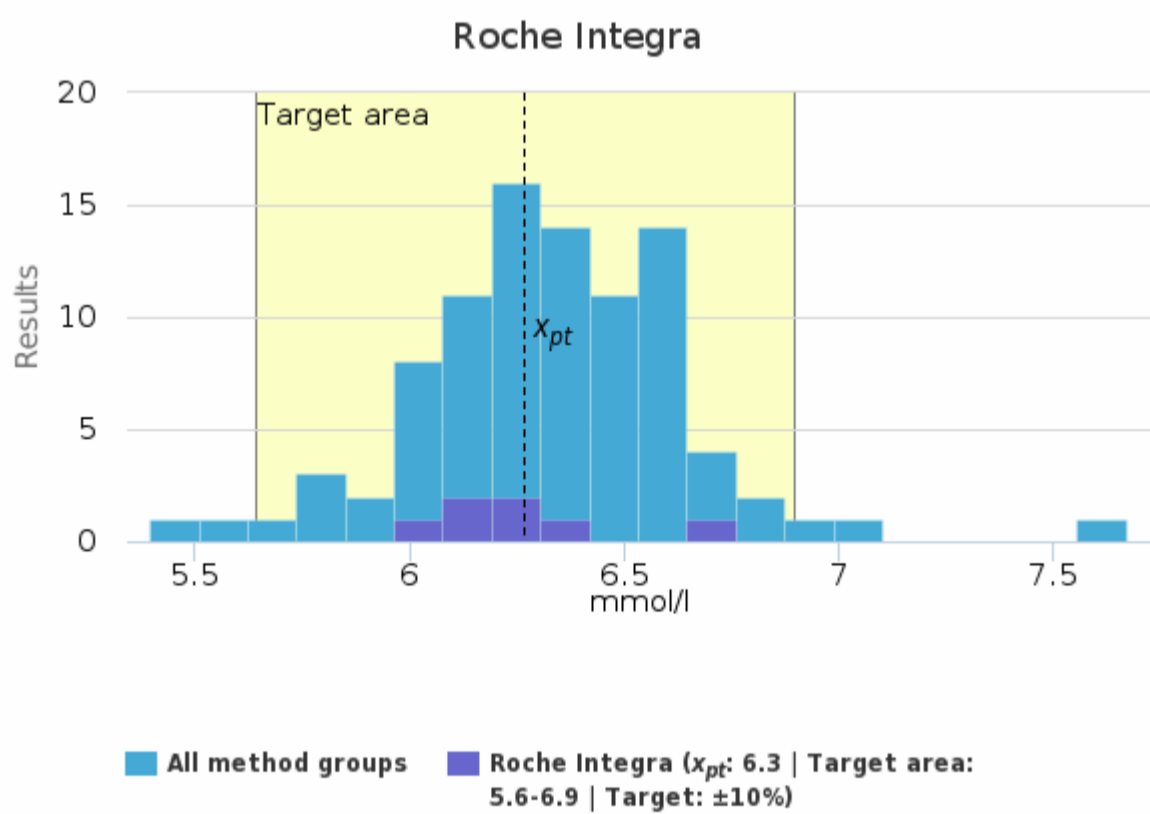
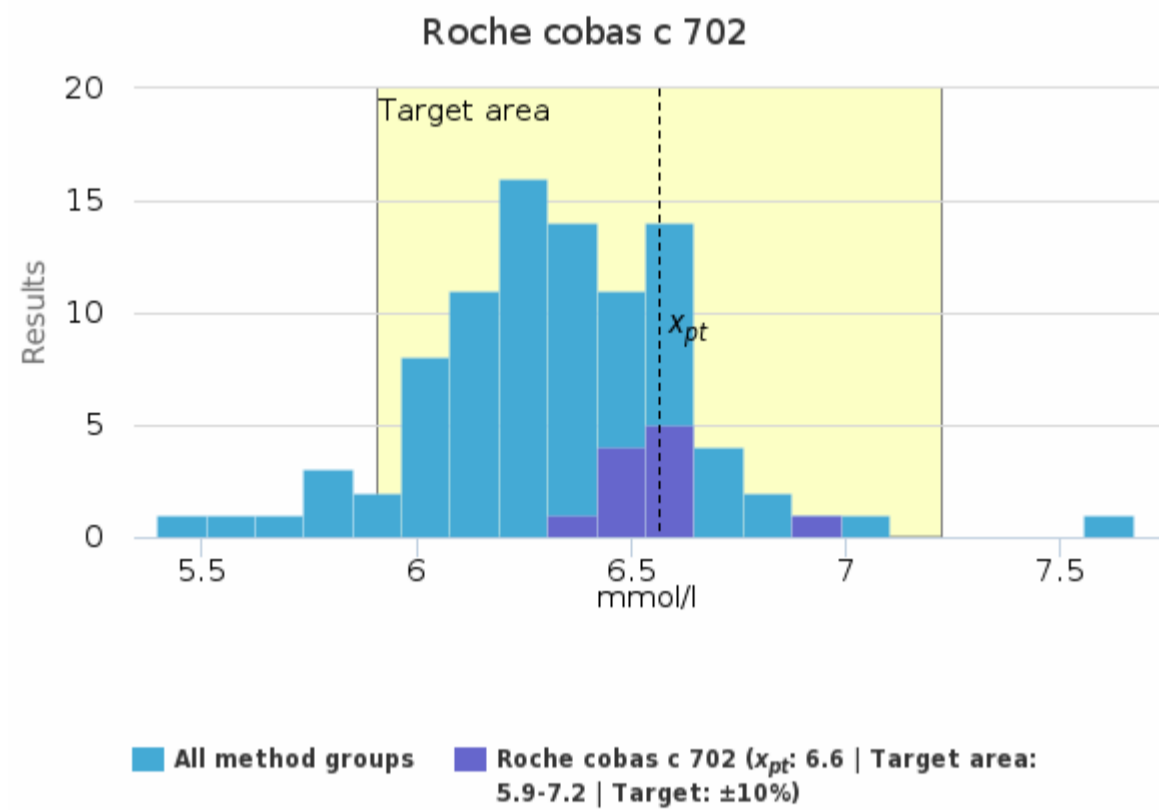
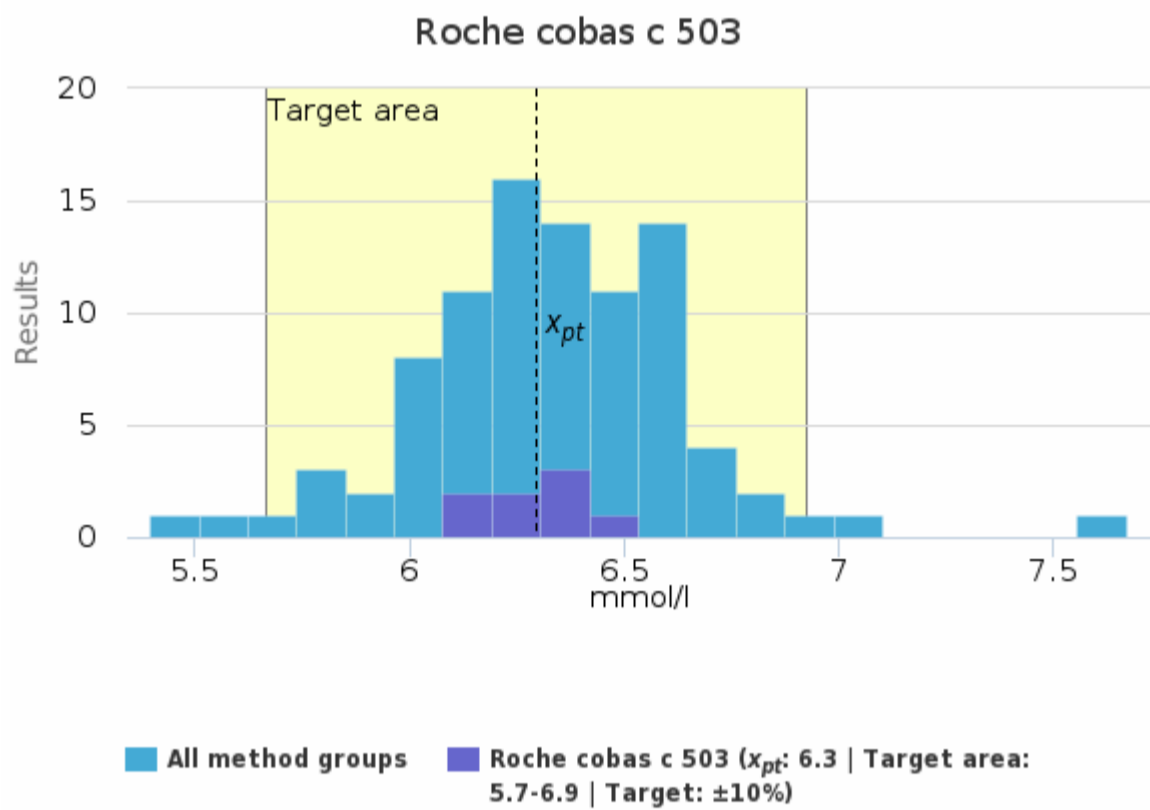
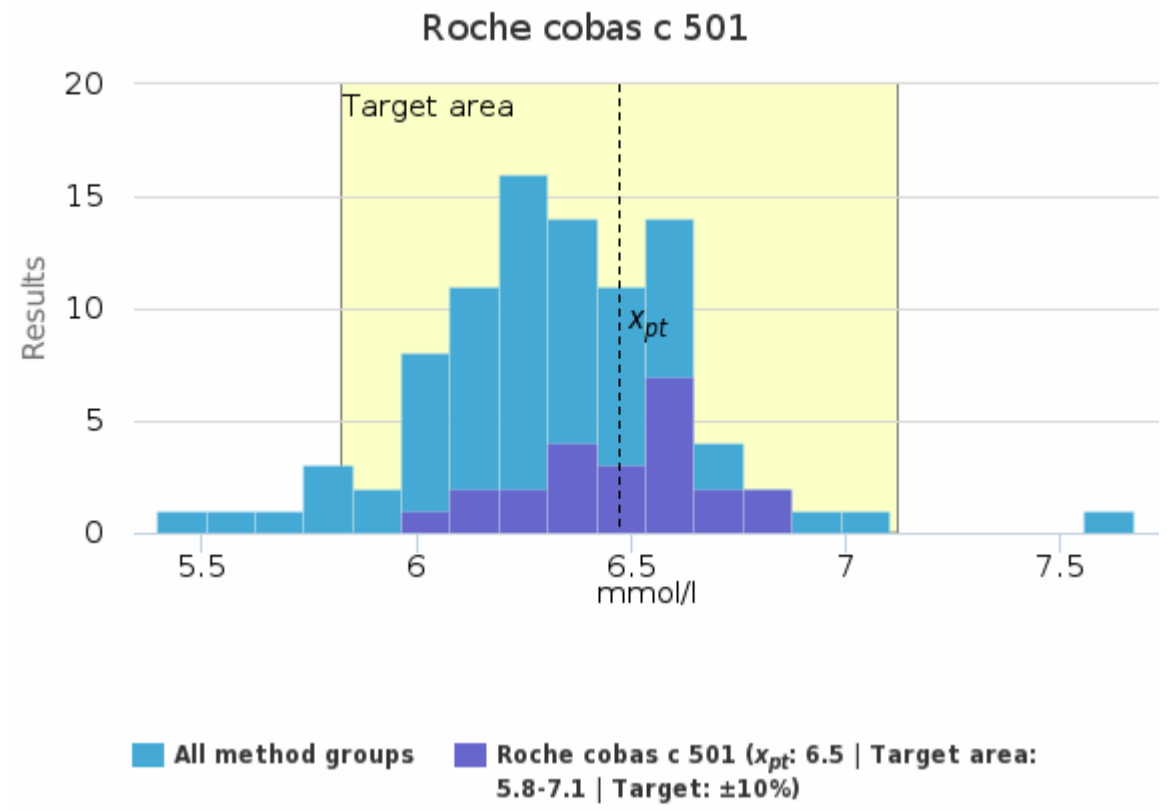
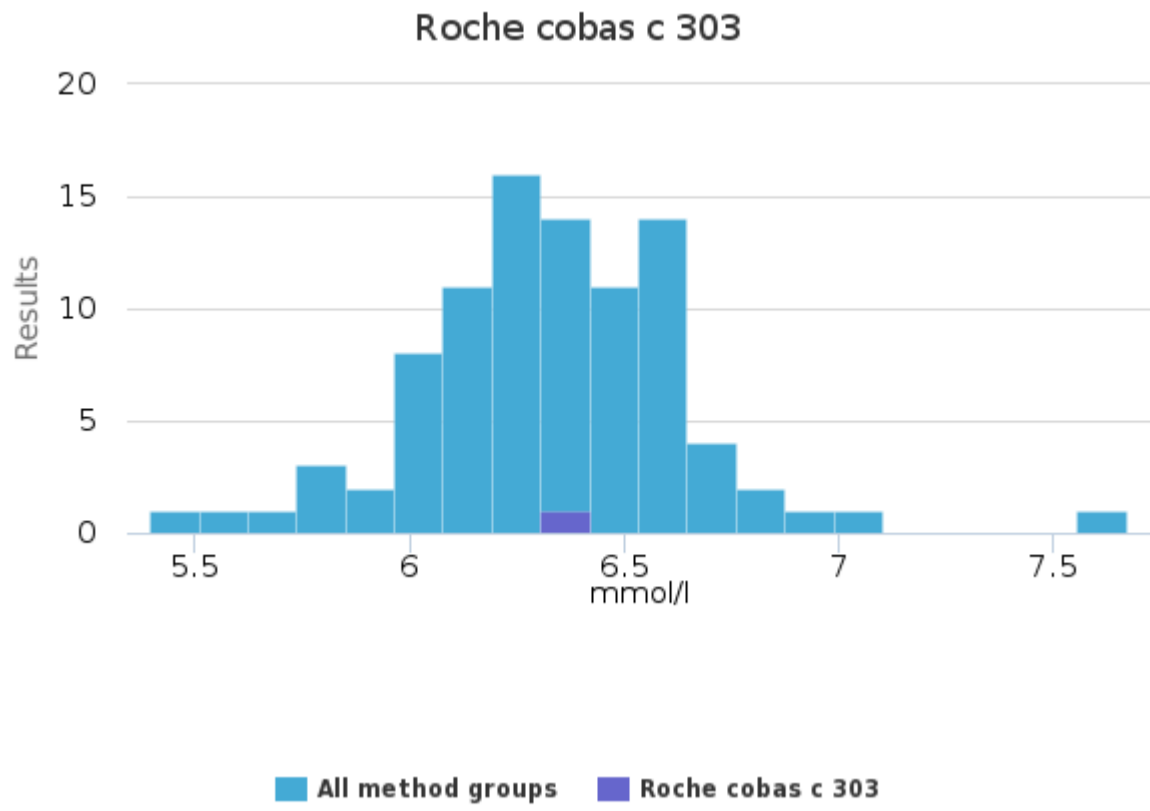


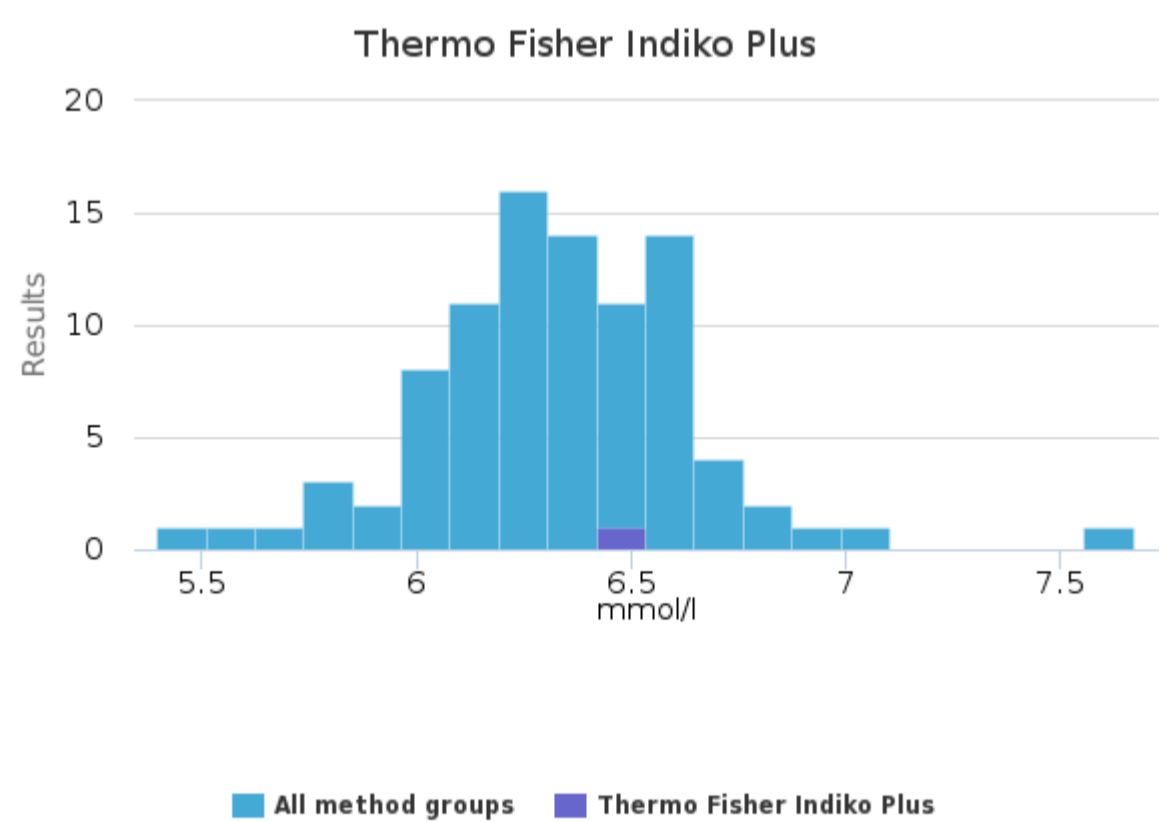
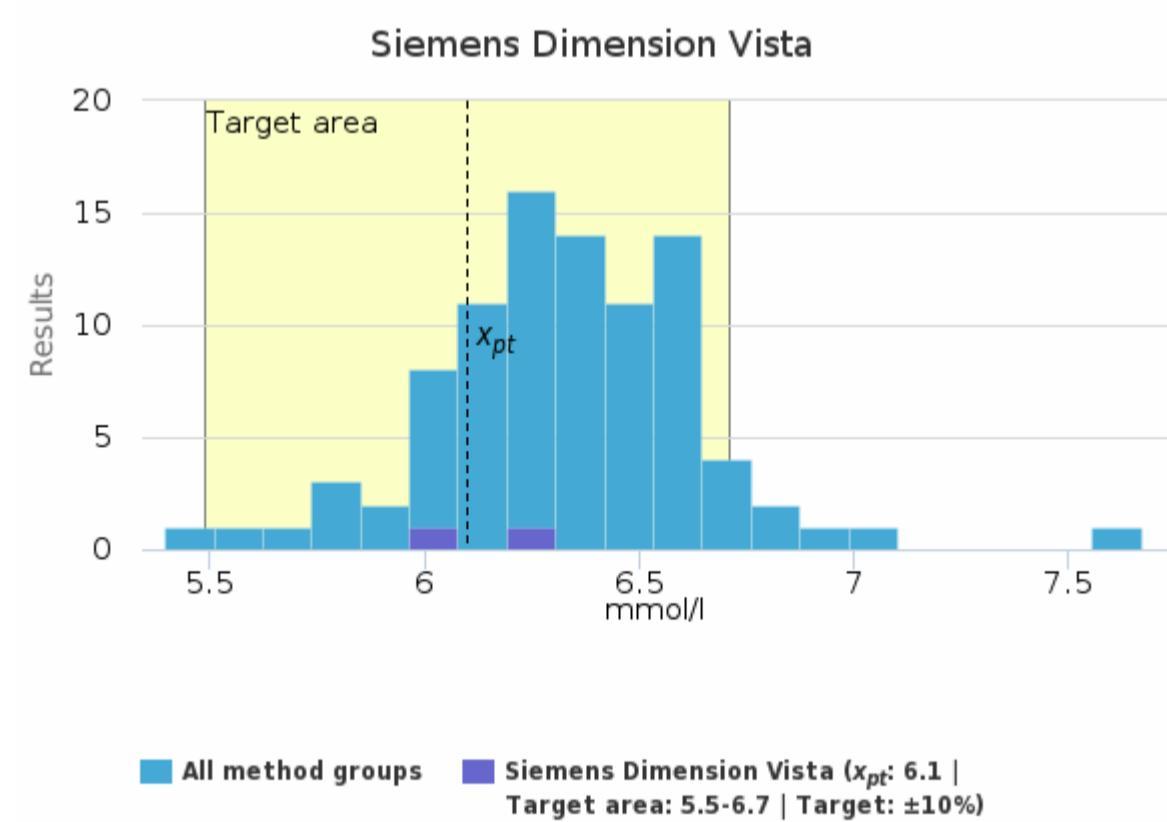
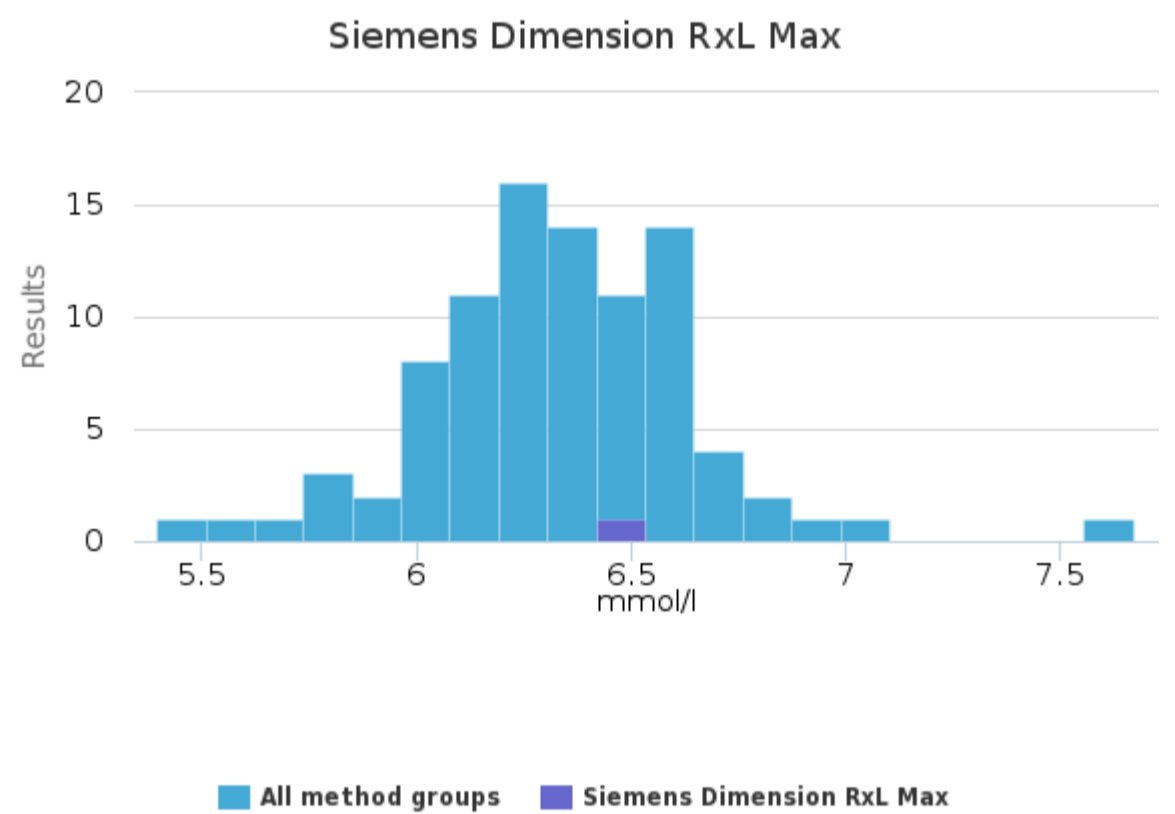
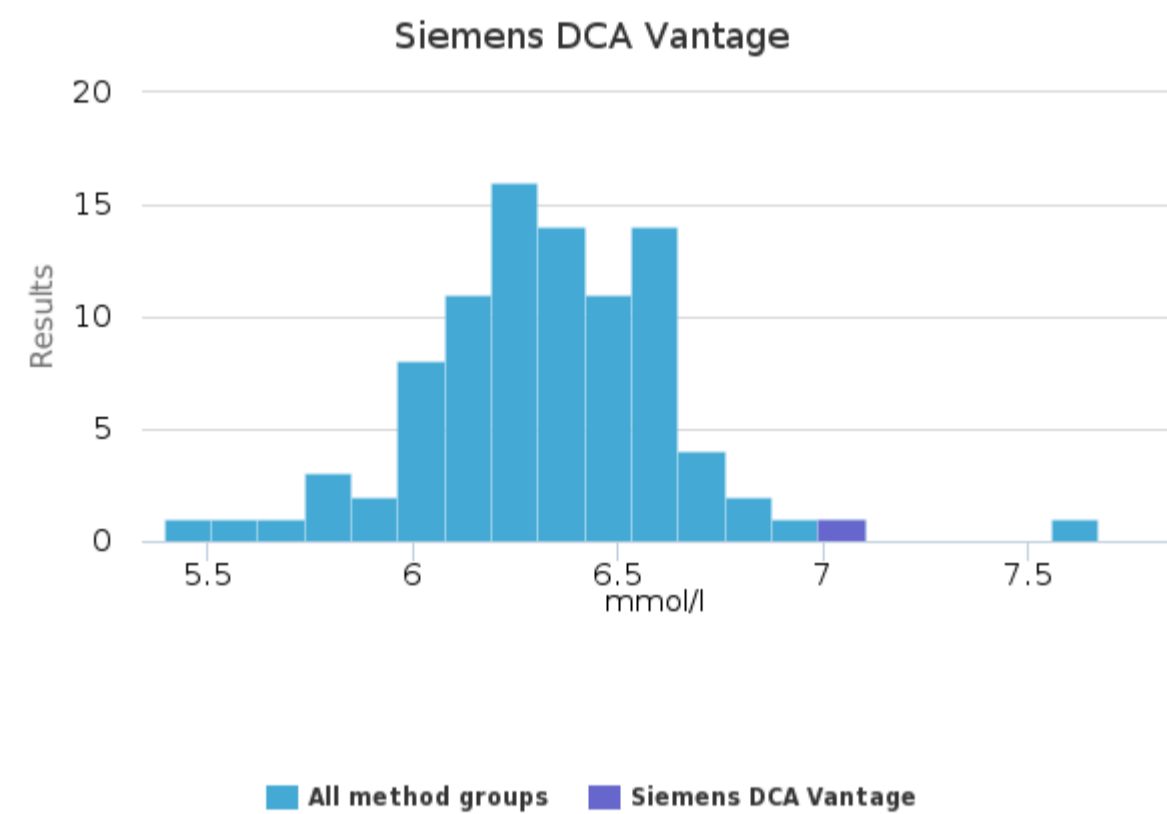
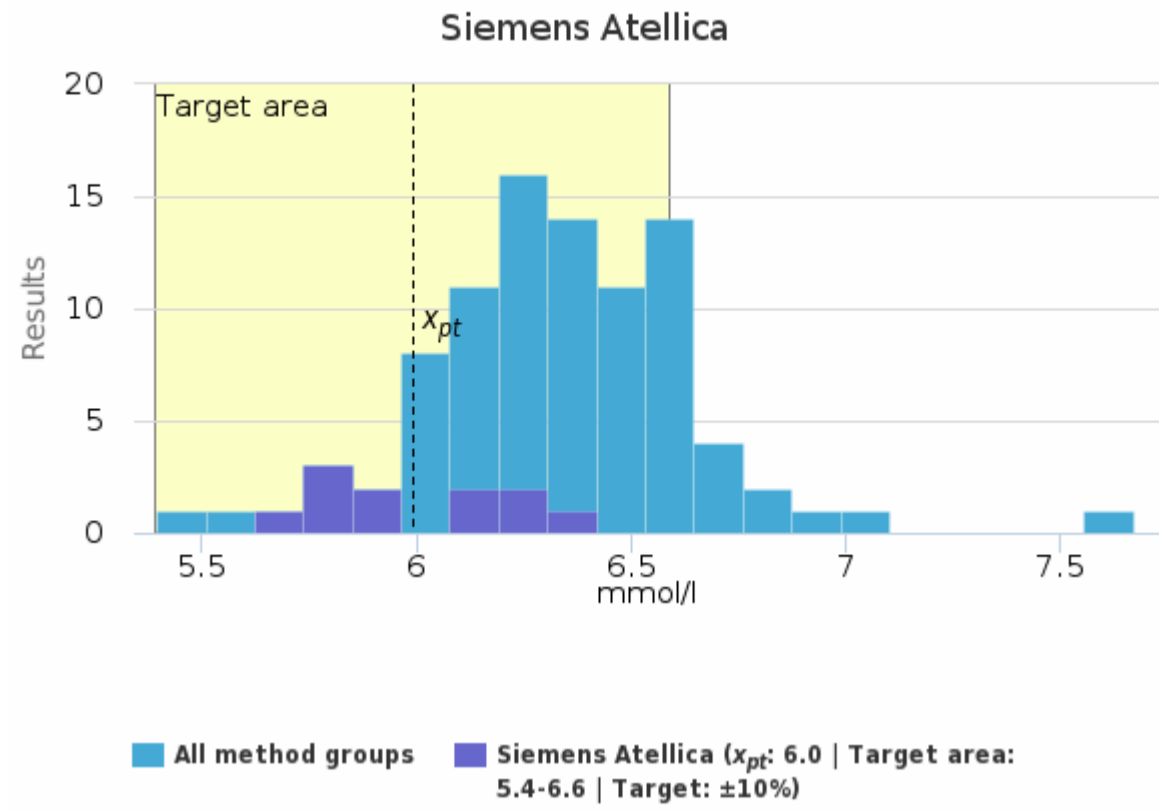
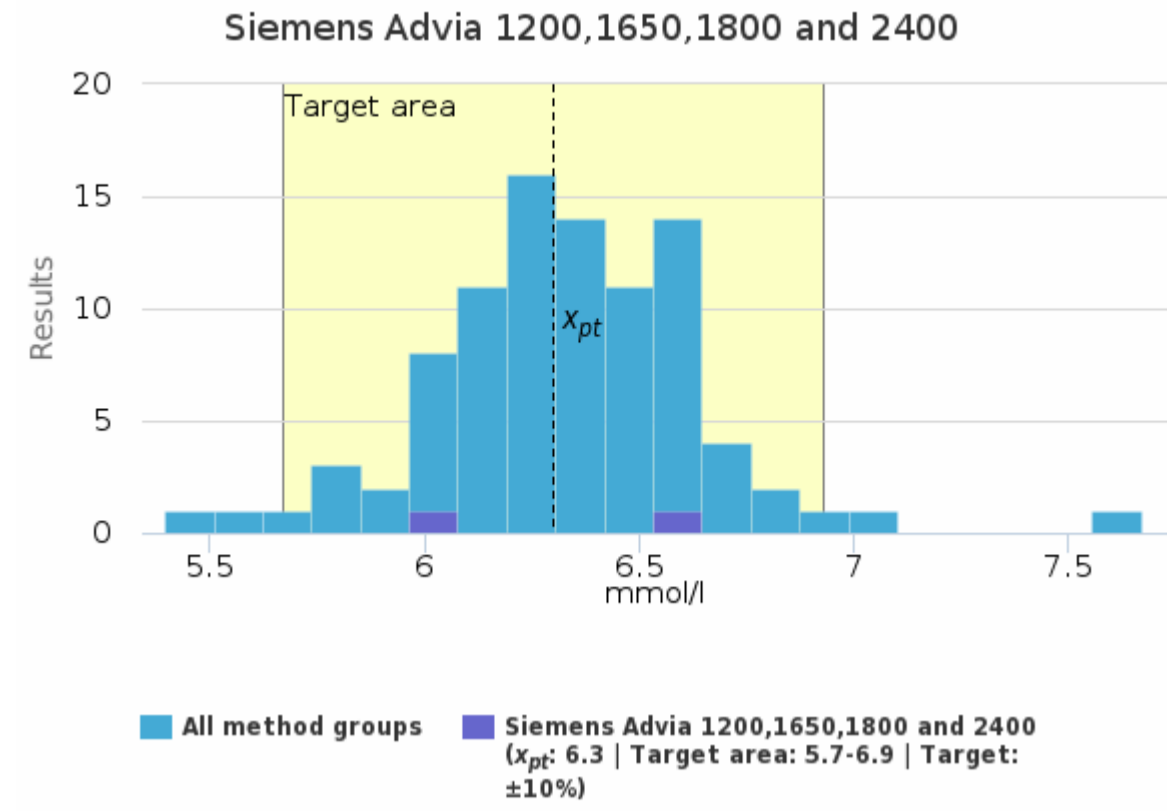
Sample S001 | U -Creatinine, mmol/l

Methodics	x_{pt}	Median	sd	CV%	SEM	min	max	Outliers	n
Abbott Aeroset and Architect	5.9	6.1	0.4	6.5	0.2	5.4	6.3	-	5
Abbott Alinity c	6.1	6.1	<0.1	1.5	<0.1	6.0	6.2	-	6
Beckman Coulter AU instruments	6.6	6.4	0.5	8.2	0.2	6.2	7.7	-	6
Konelab	6.3	6.2	0.2	3.1	<0.1	6.1	6.6	-	5
Roche cobas c 303	-	-	-	-	-	6.4	6.4	-	1
Roche cobas c 501	6.5	6.5	0.2	3.3	<0.1	6.1	6.8	-	23
Roche cobas c 503	6.3	6.3	0.1	1.9	<0.1	6.1	6.5	-	8
Roche cobas c 702	6.6	6.5	0.1	2.1	<0.1	6.4	6.9	-	11
Roche Integra	6.3	6.2	0.2	3.7	<0.1	6.0	6.7	-	7
Siemens Advia Chemistry XPT	-	-	-	-	-	6.4	6.4	-	1
Siemens Advia 1200,1650,1800 and 2400	6.3	6.3	0.4	6.7	0.3	6.0	6.6	-	2
Siemens Atellica	6.0	5.9	0.2	3.6	<0.1	5.7	6.4	-	11
Siemens DCA Vantage	-	-	-	-	-	7.0	7.0	-	1
Siemens Dimension RxL Max	-	-	-	-	-	6.5	6.5	-	1
Siemens Dimension Vista	6.1	6.1	0.1	2.3	0.1	6.0	6.2	-	2
Thermo Fisher Indiko Plus	-	-	-	-	-	6.5	6.5	-	1
All	6.3	6.3	0.3	4.6	<0.1	5.4	7.0	1	91

Sample S001 | U -Creatinine, mmol/l histogram summaries in LabScala



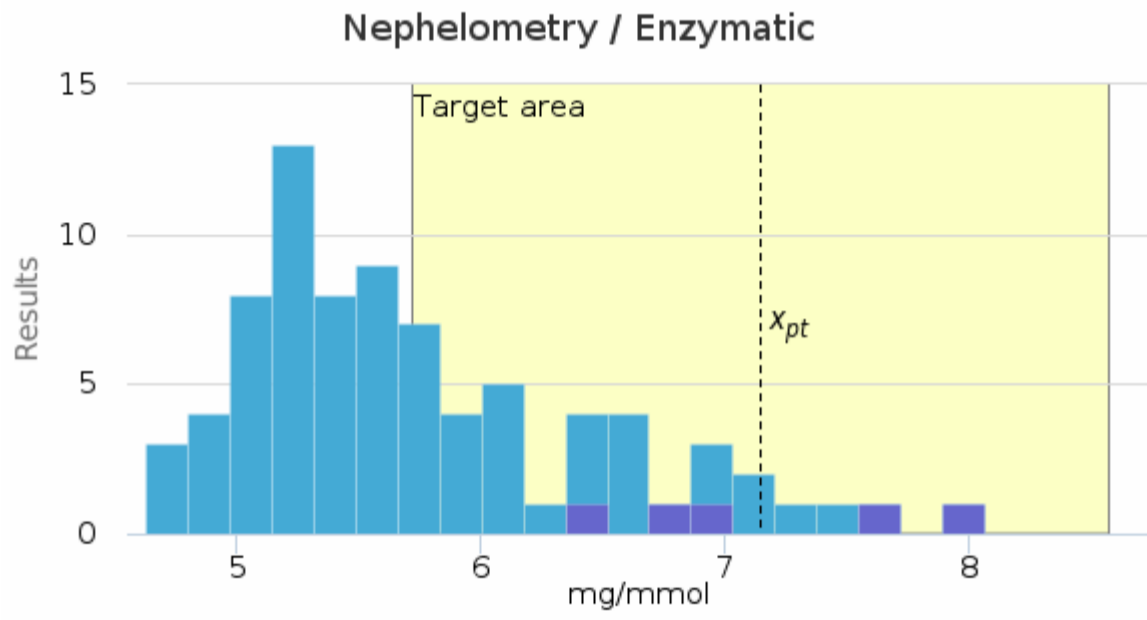




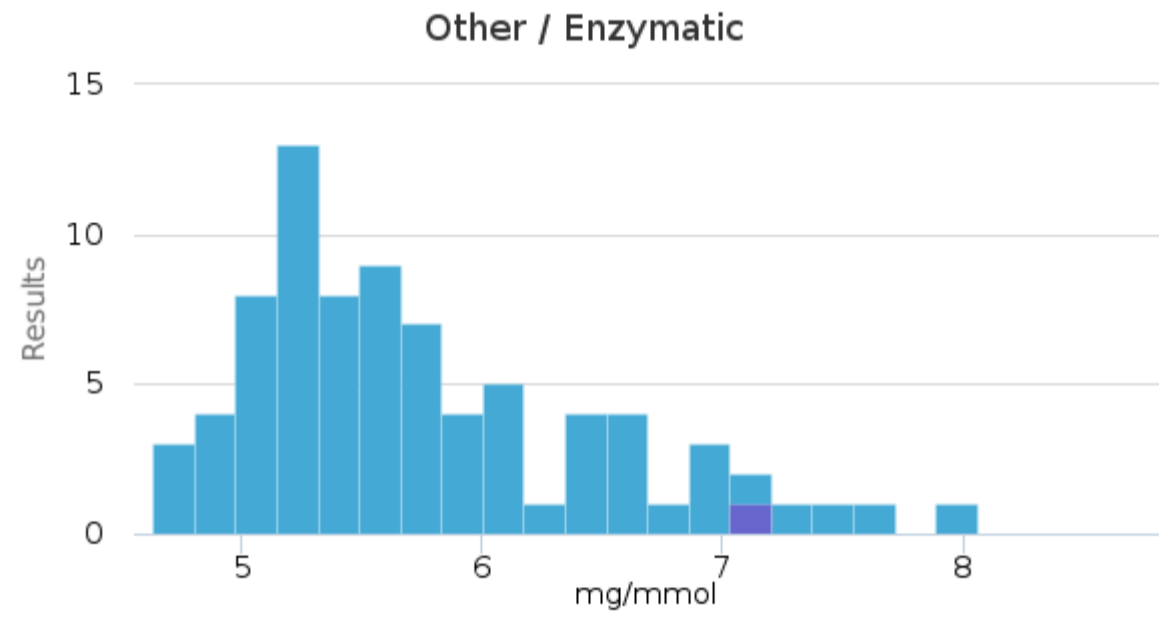
Sample S001 | U-Alb/U-Crea - ratio, mg/mmol

Methodics	x_{pt}	Median	sd	CV%	SEM	min	max	Outliers	n
Nephelometry / Enzymatic	7.14	6.90	0.67	9.4	0.30	6.37	8.06	-	5
Other / Enzymatic	-	-	-	-	-	7.20	7.20	-	1
Turbidimetry / Enzymatic	5.61	5.46	0.62	11.0	0.09	4.63	7.26	1	50
Turbidimetry / Jaffe	5.55	5.47	0.51	9.2	0.11	4.80	6.90	-	22
Turbidimetry / Other	6.50	6.50	0.09	1.5	0.07	6.43	6.56	-	2
All	5.73	5.53	0.70	12.2	0.08	4.63	7.58	1	80

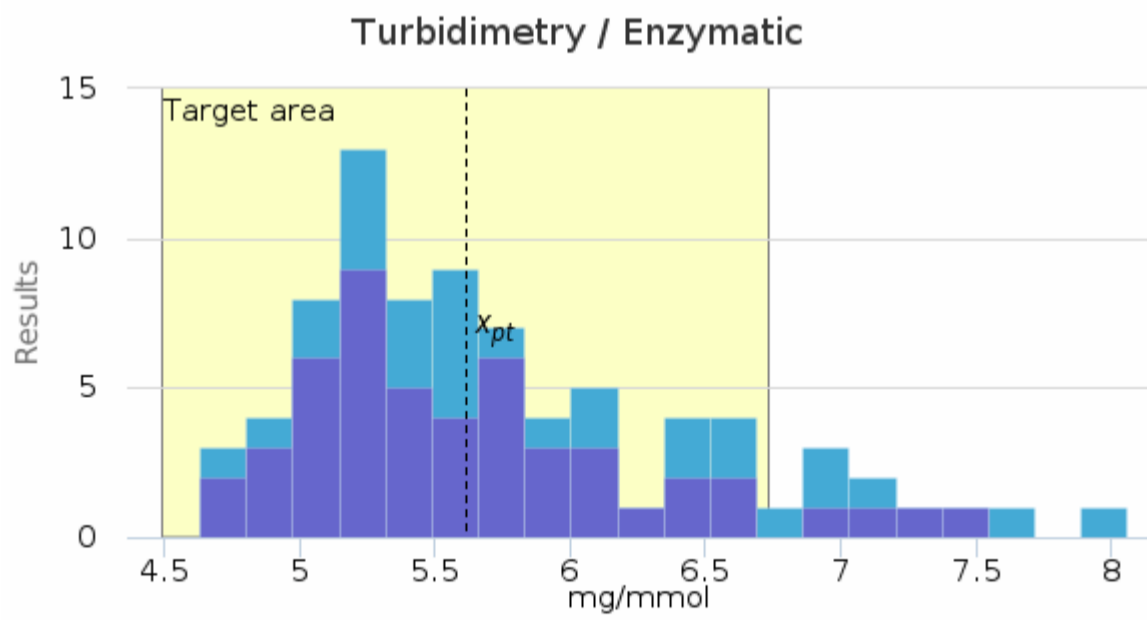
Sample S001 | U-Alb/U-Crea - ratio, mg/mmol | histogram summaries in LabScala



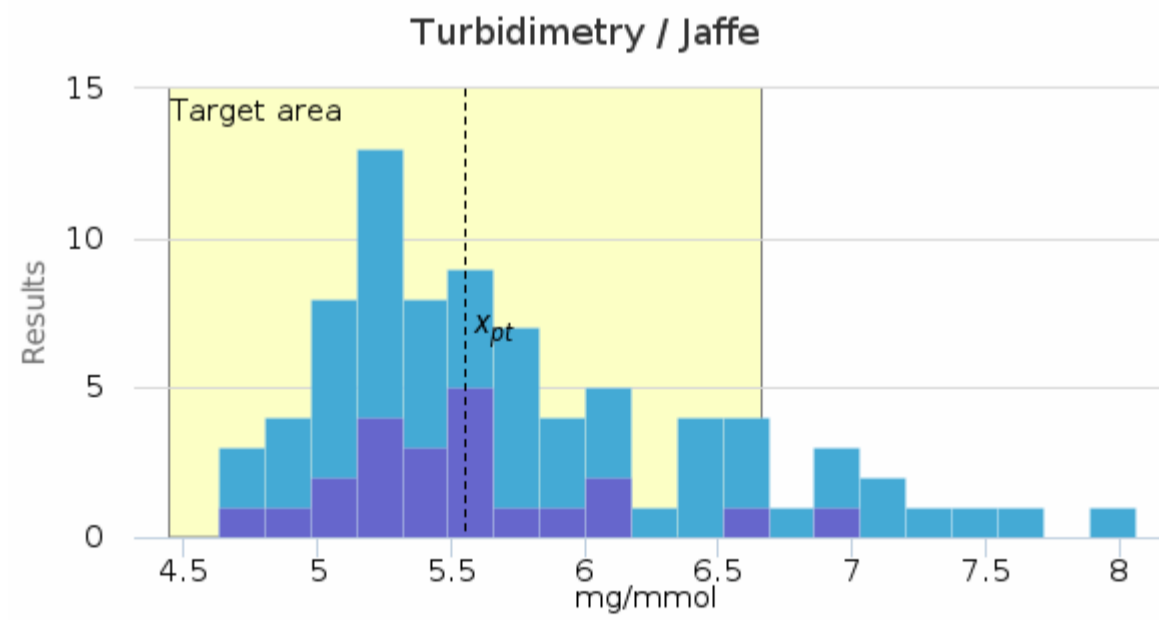
■ All method groups ■ Nephelometry / Enzymatic (x_{pt} : 7.14 | Target area: 5.72-8.57 | Target: $\pm 20\%$)



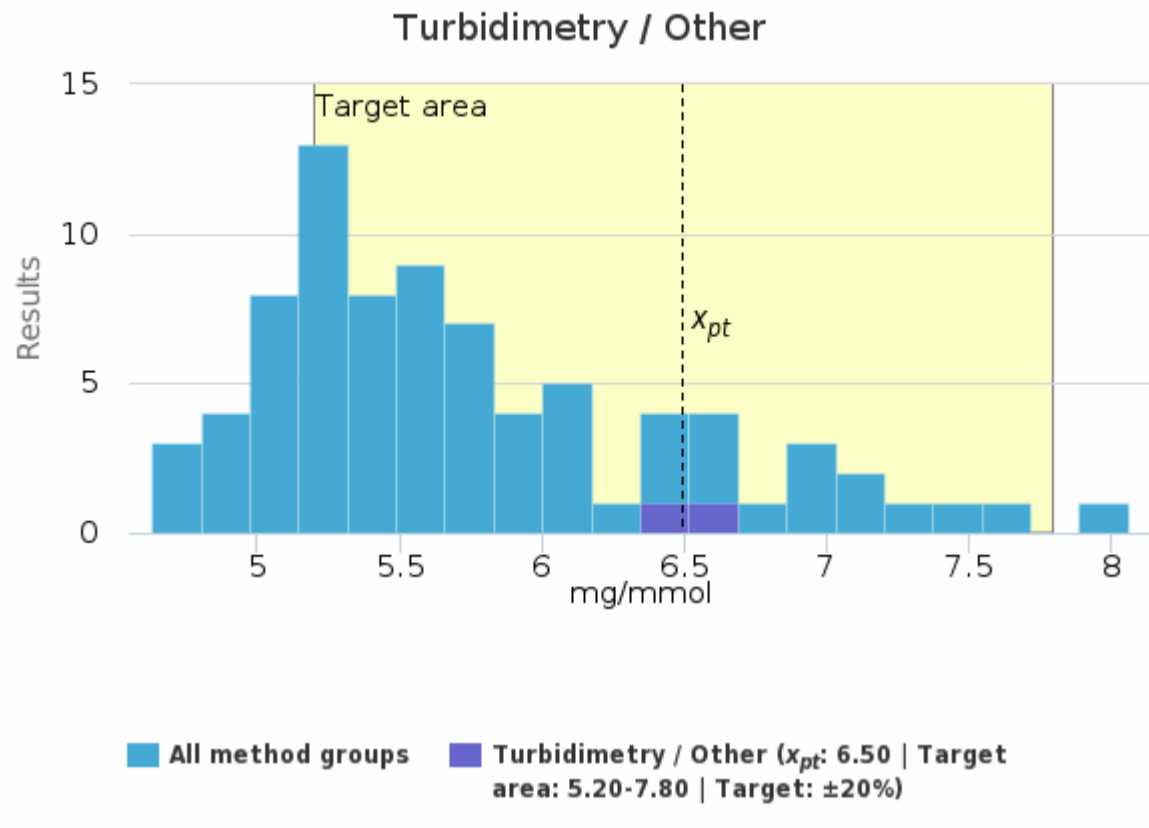
■ All method groups ■ Other / Enzymatic



■ All method groups ■ Turbidimetry / Enzymatic (x_{pt} : 5.61 | Target area: 4.49-6.74 | Target: $\pm 20\%$)



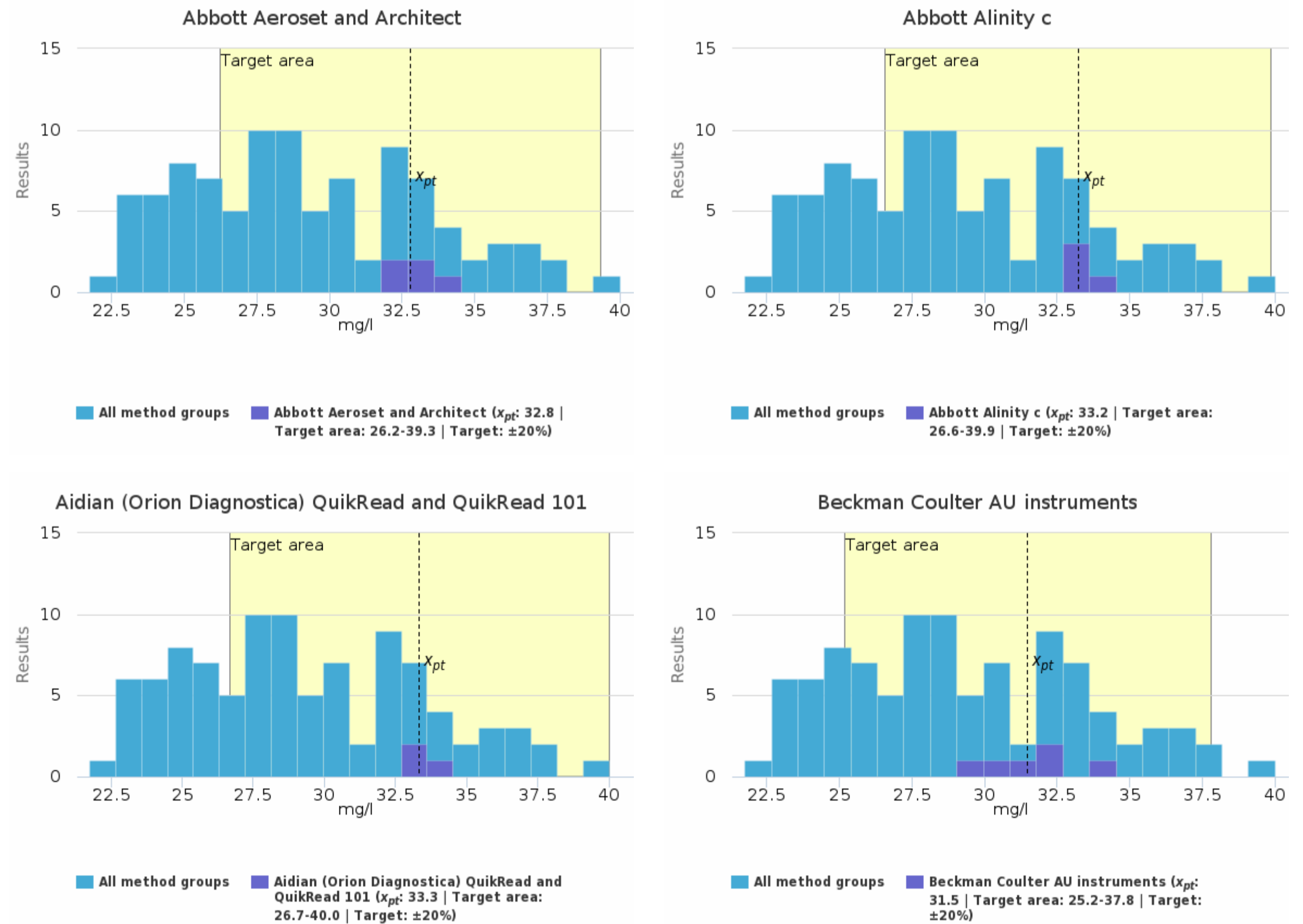
■ All method groups ■ Turbidimetry / Jaffe (x_{pt} : 5.55 | Target area: 4.44-6.66 | Target: $\pm 20\%$)

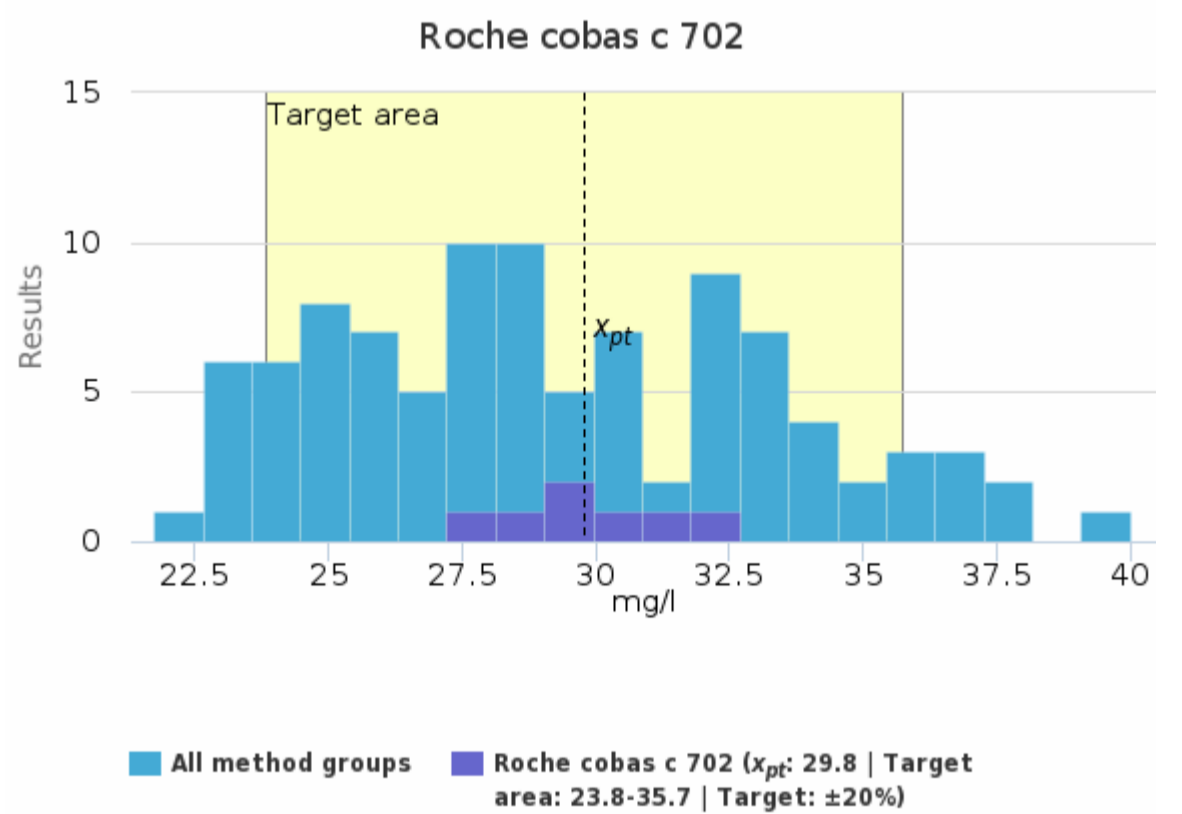
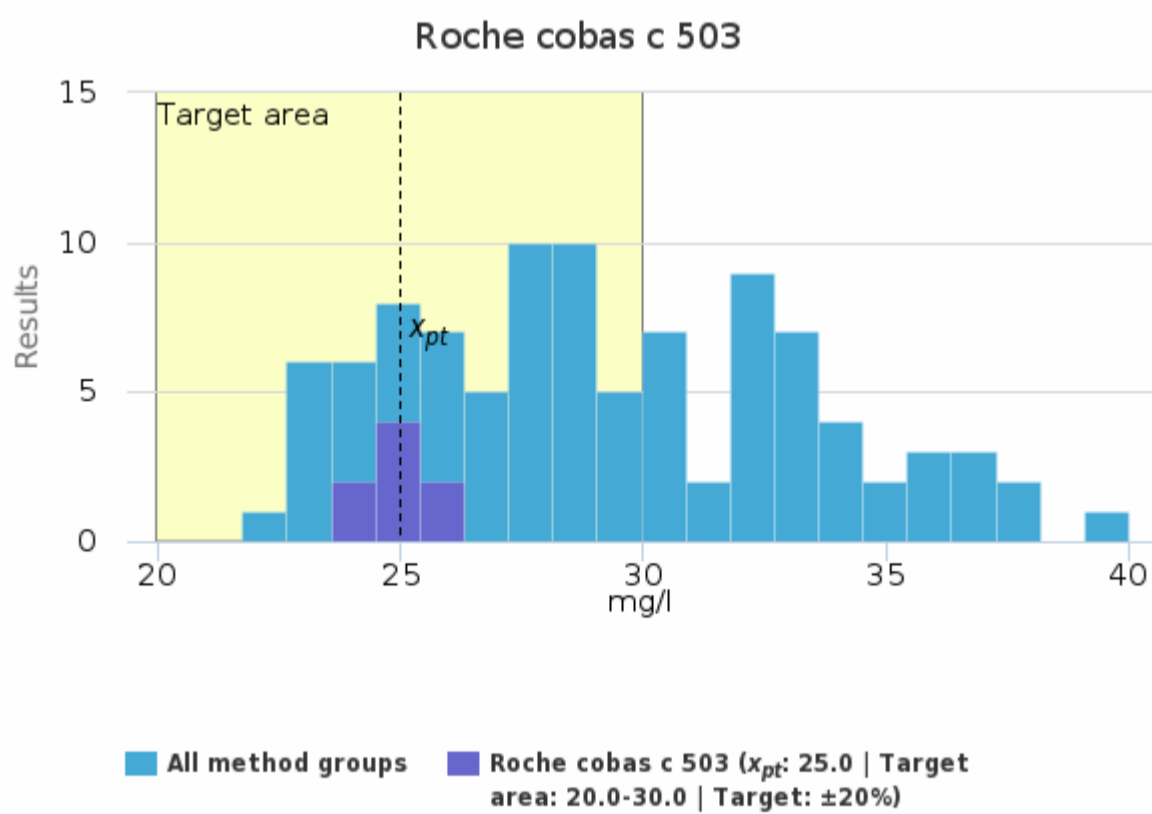
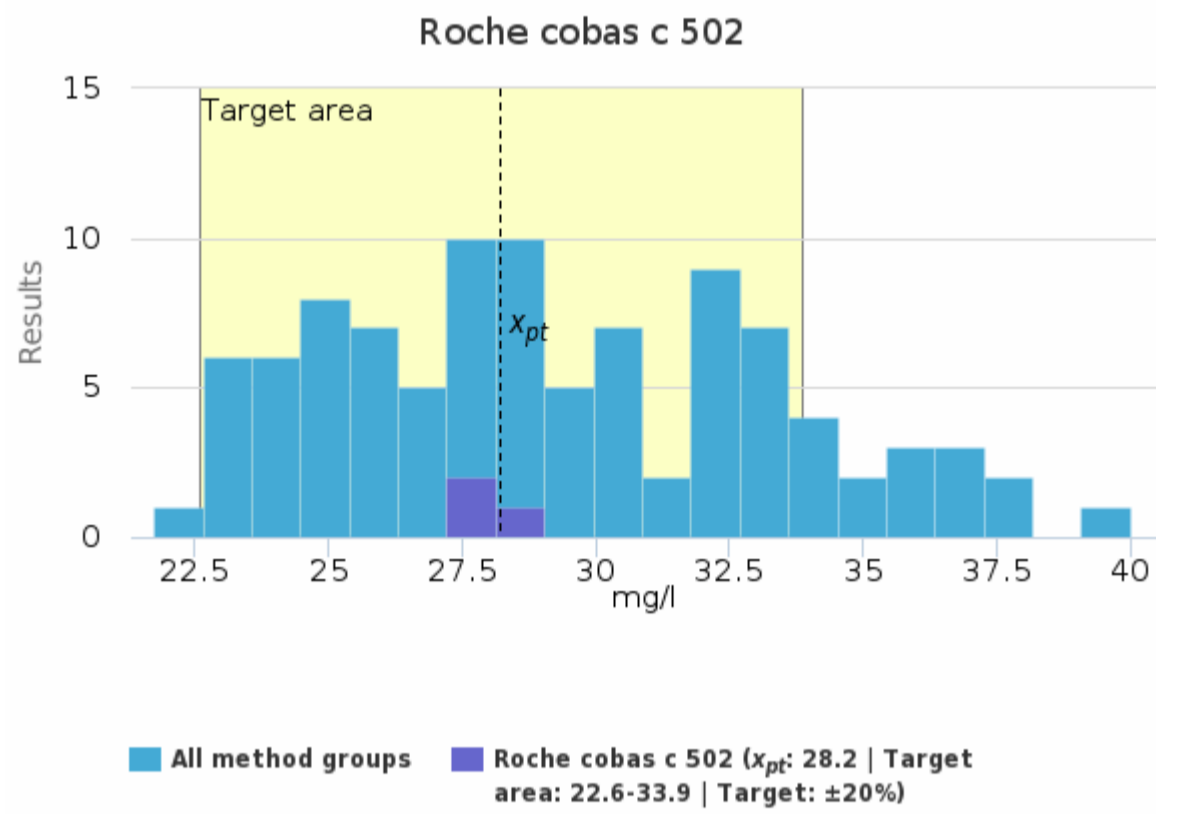
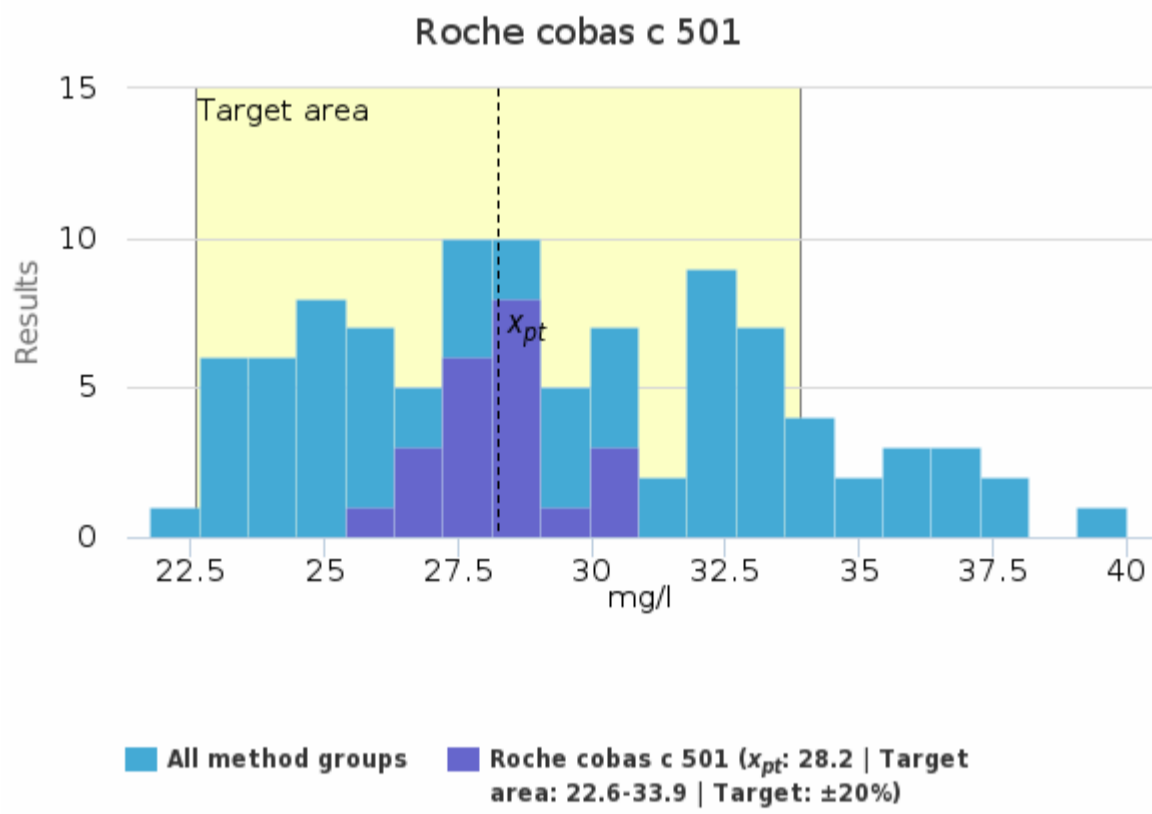
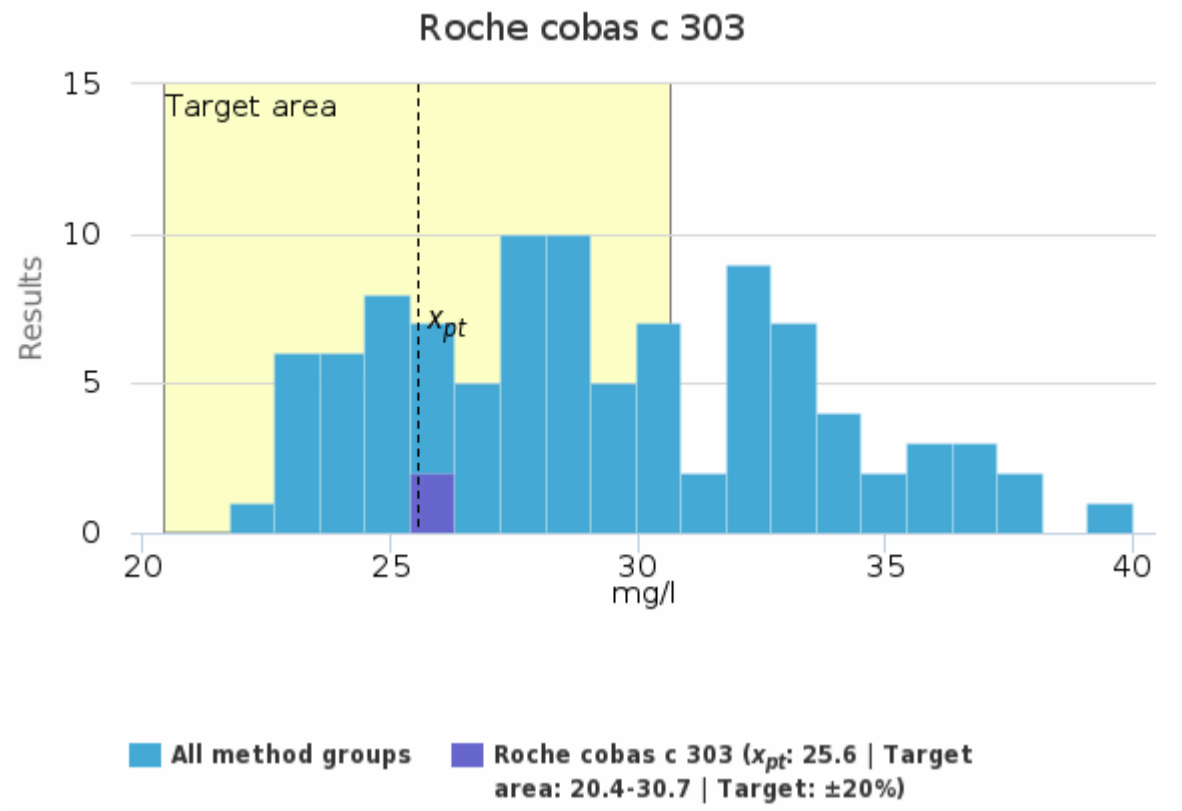
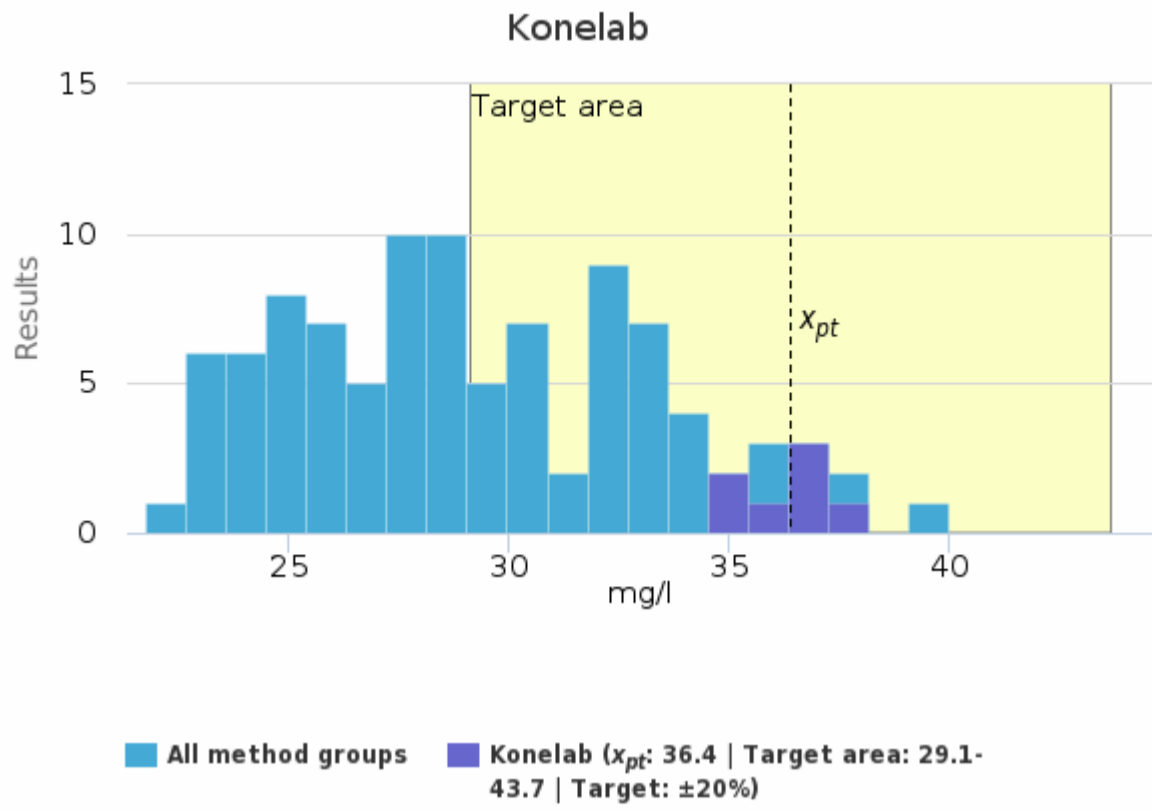


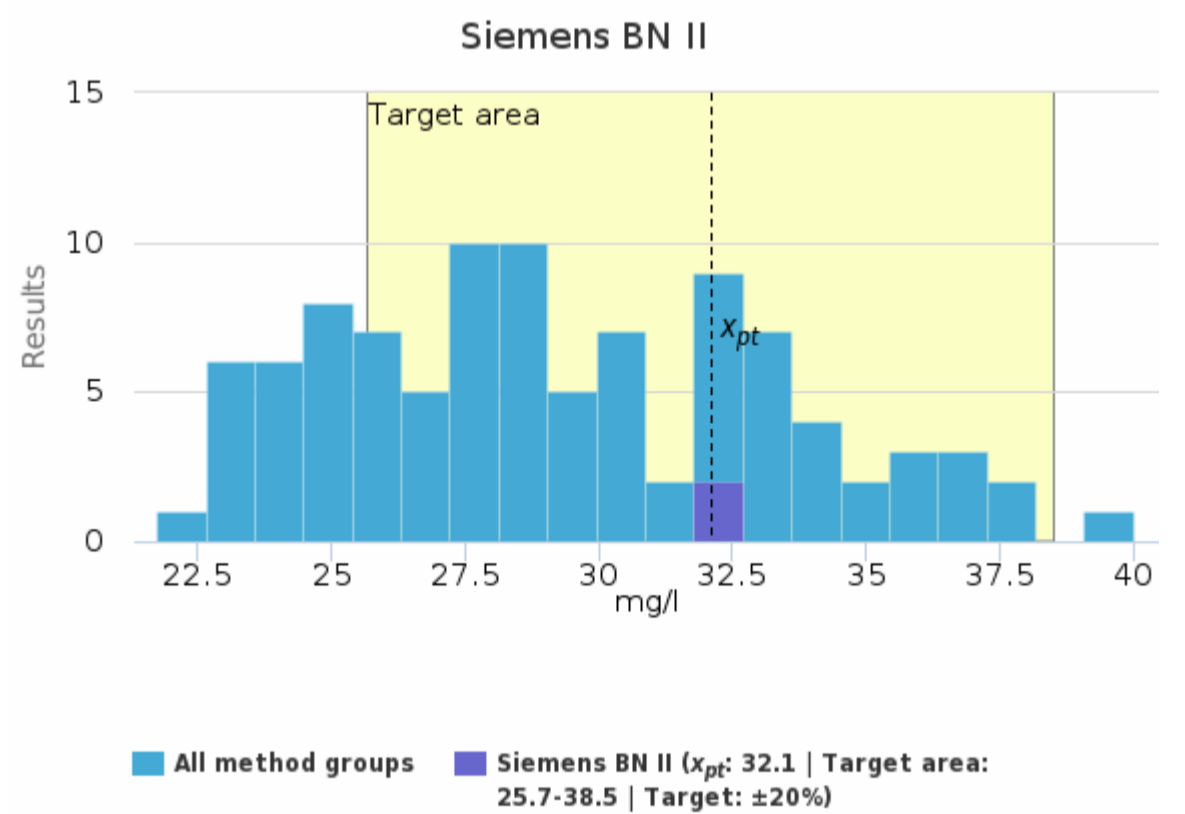
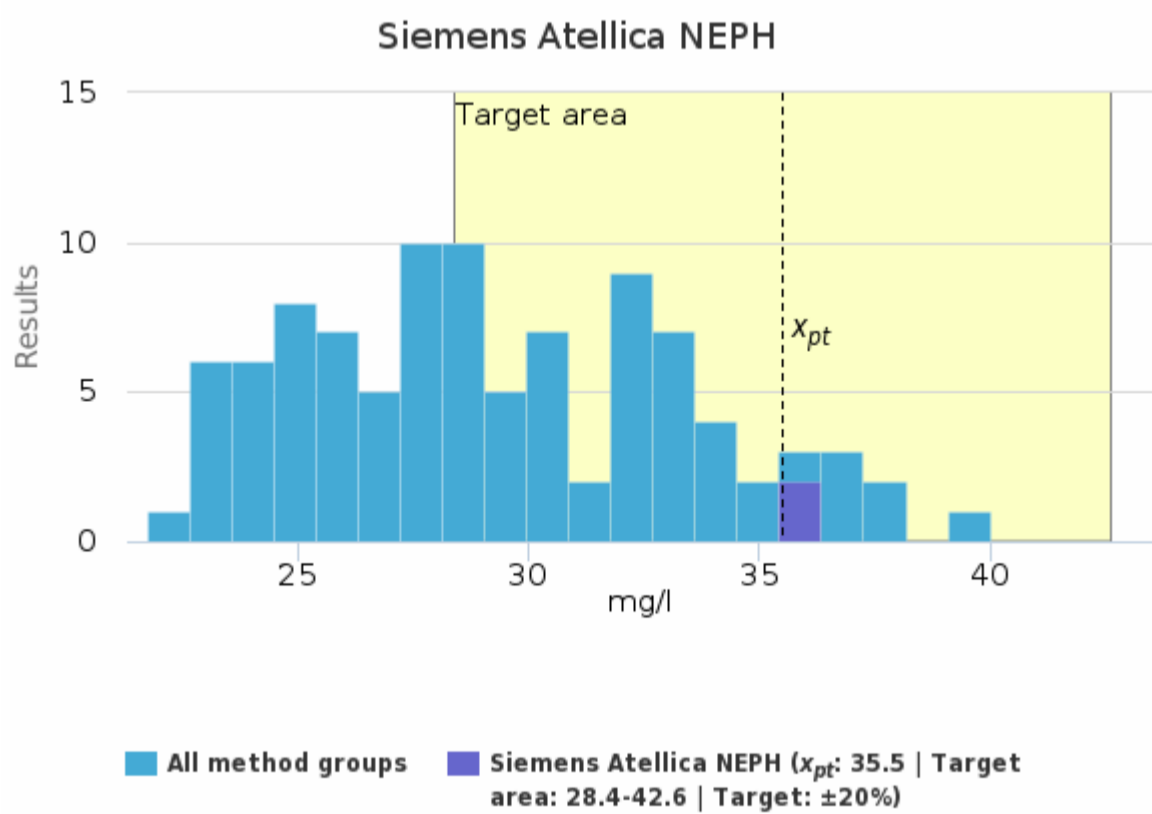
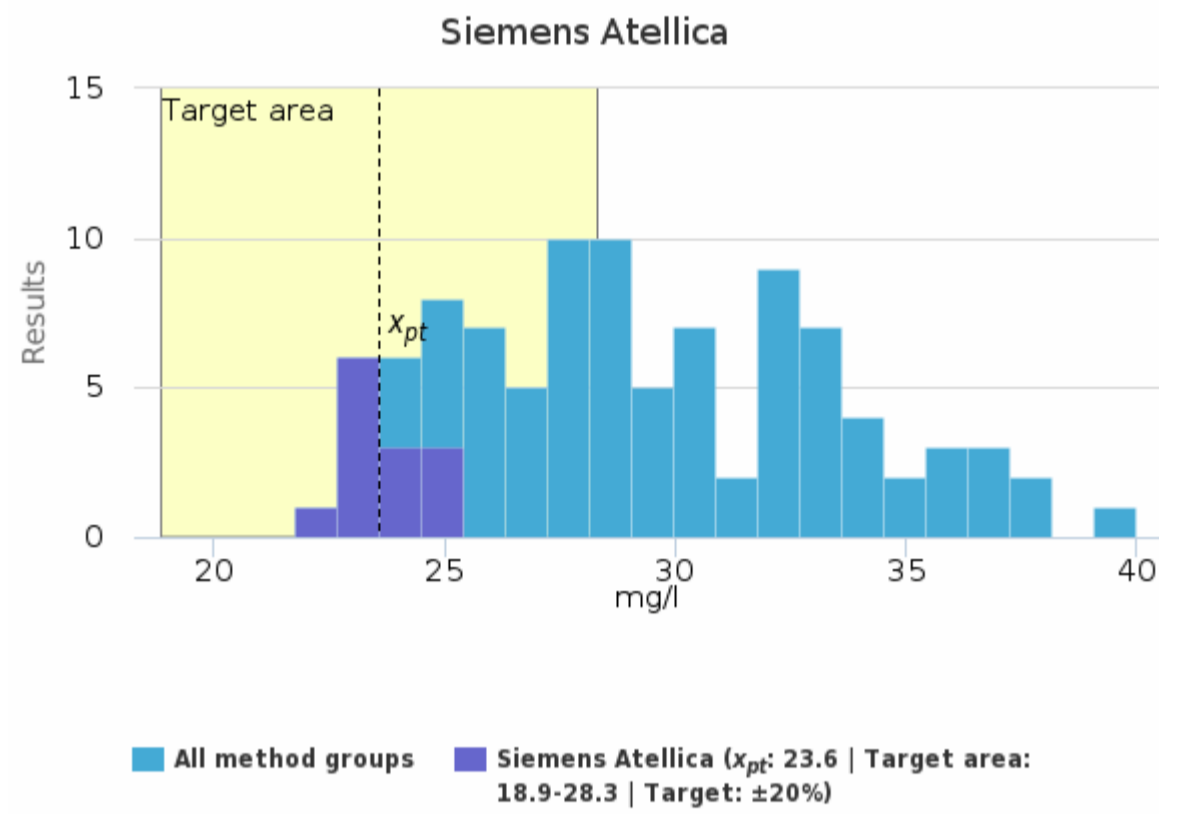
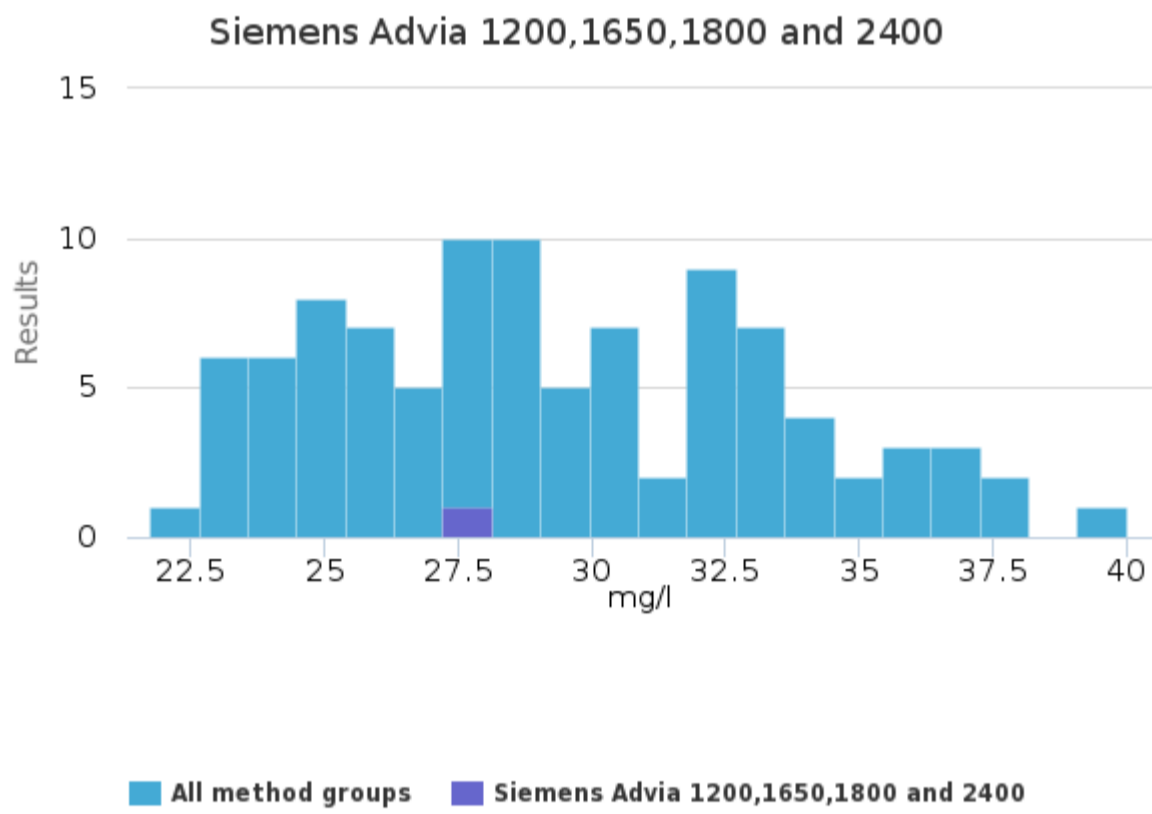
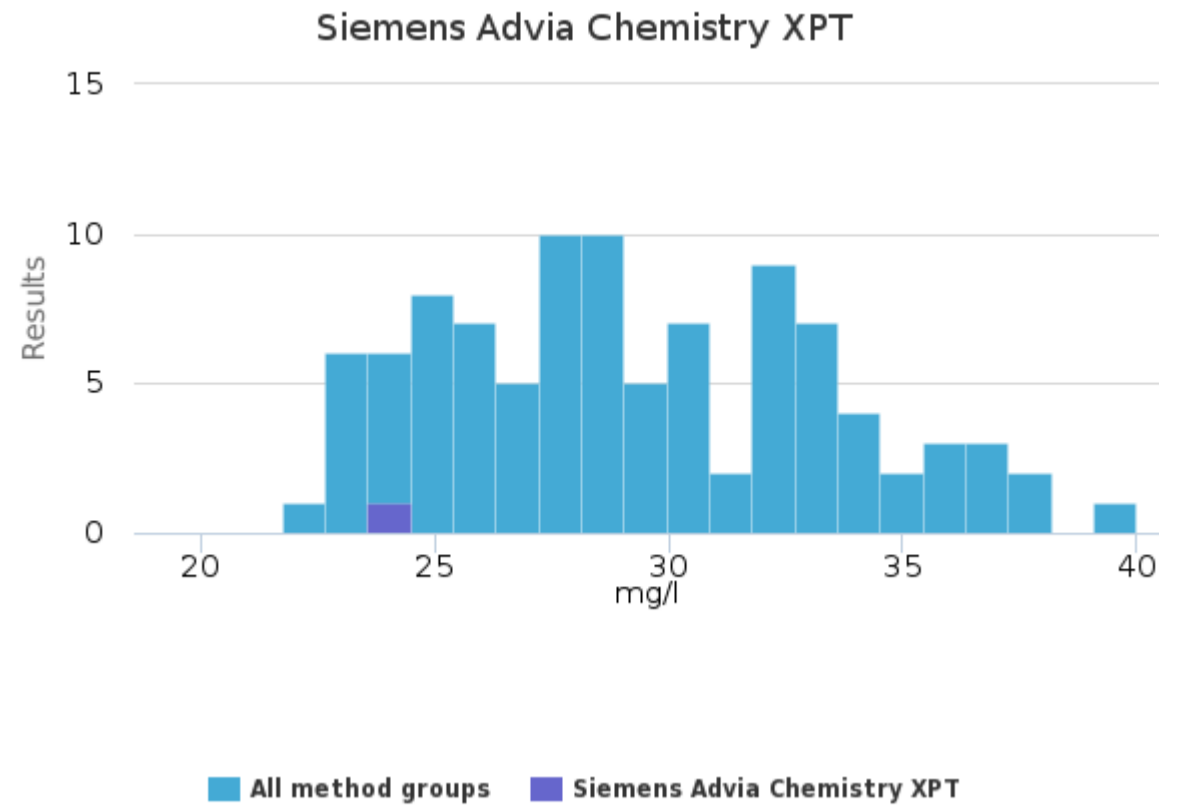
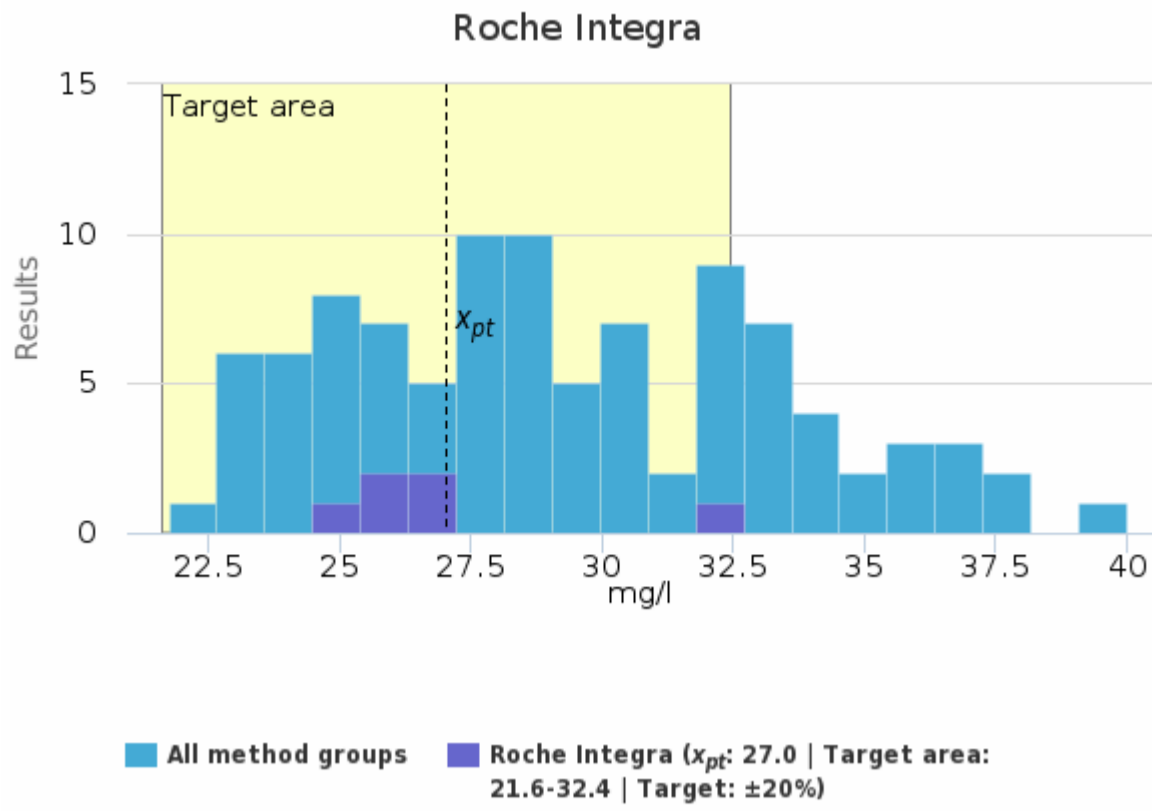
Sample S002 | U -Albumin, mg/l

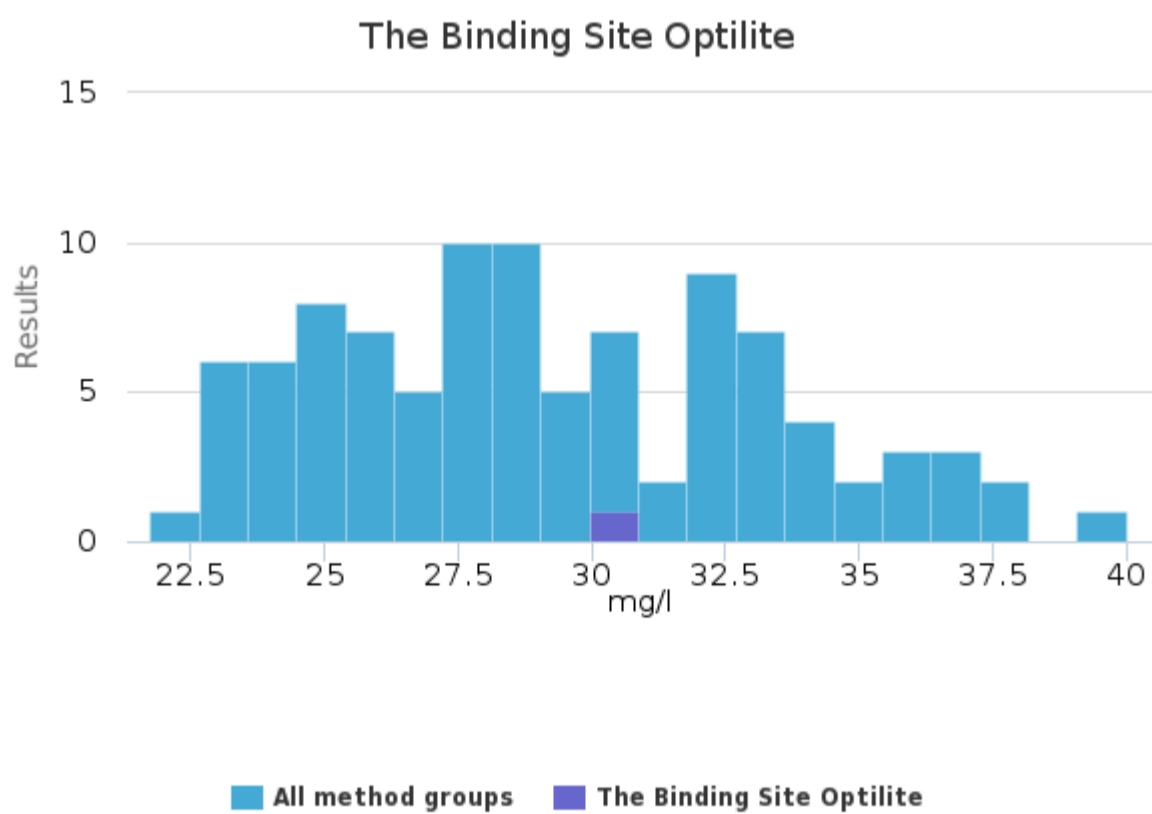
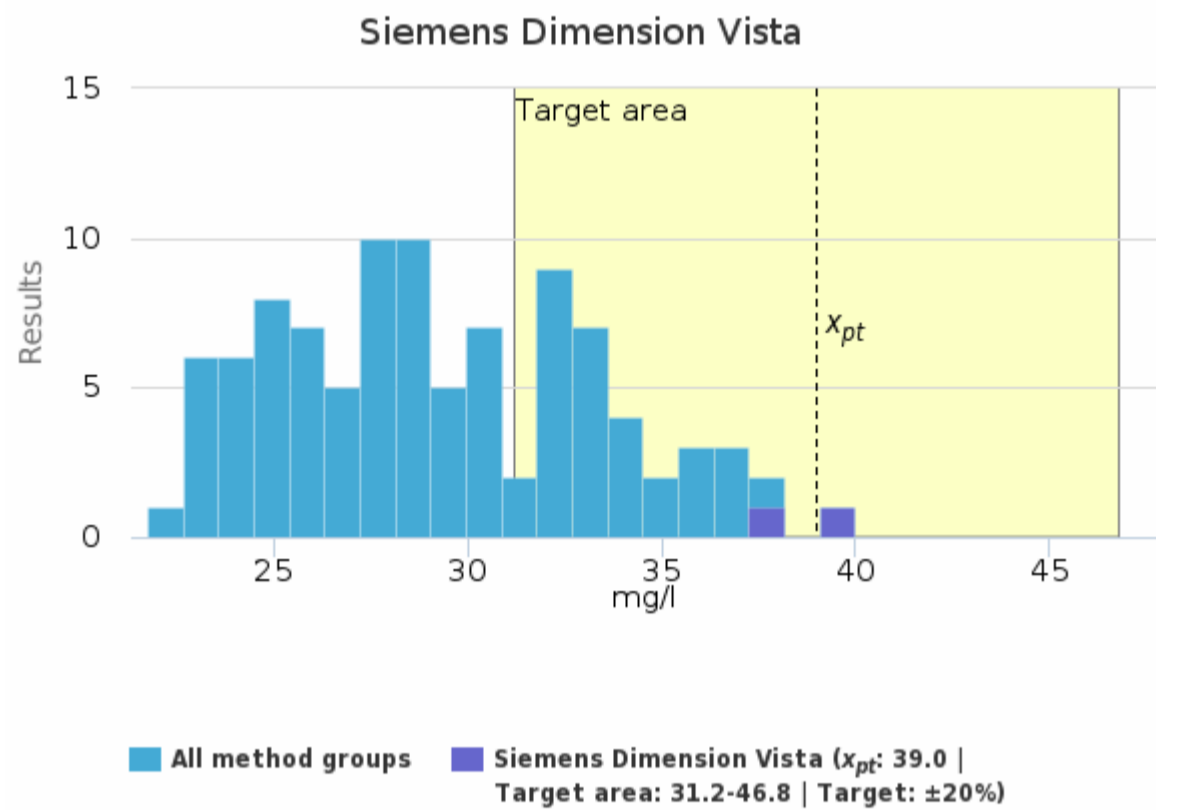
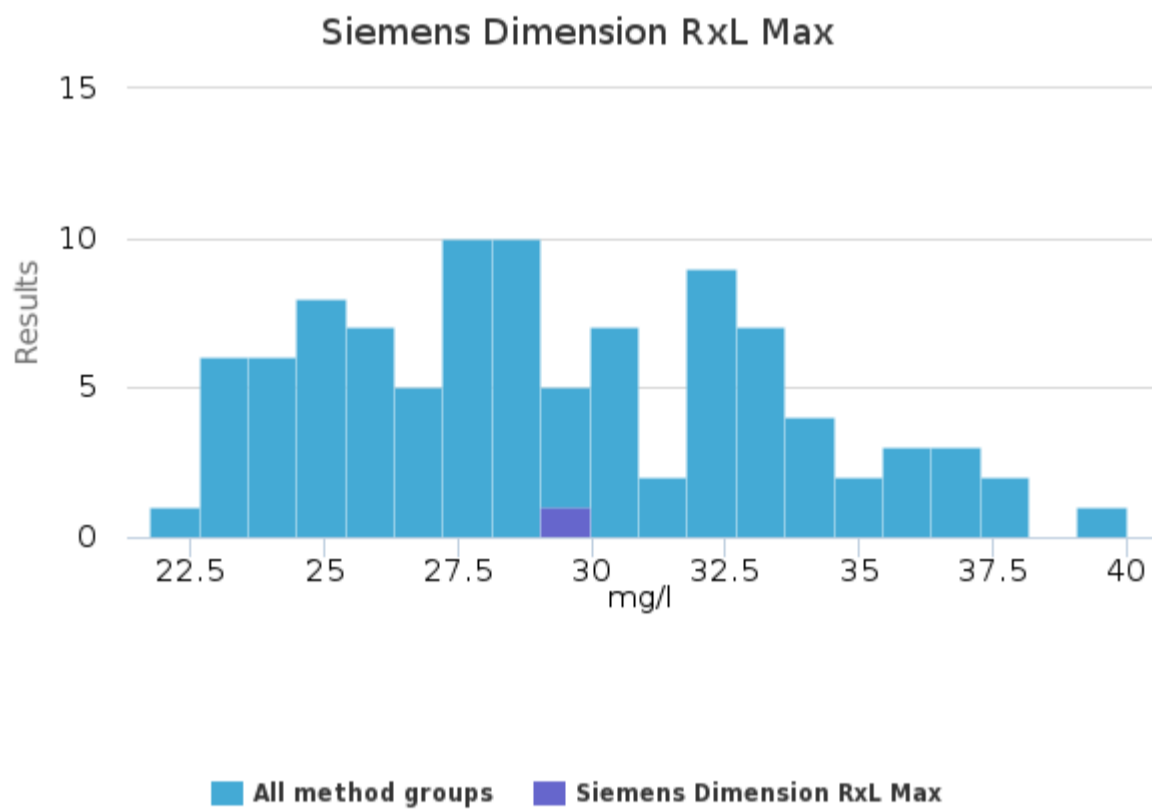
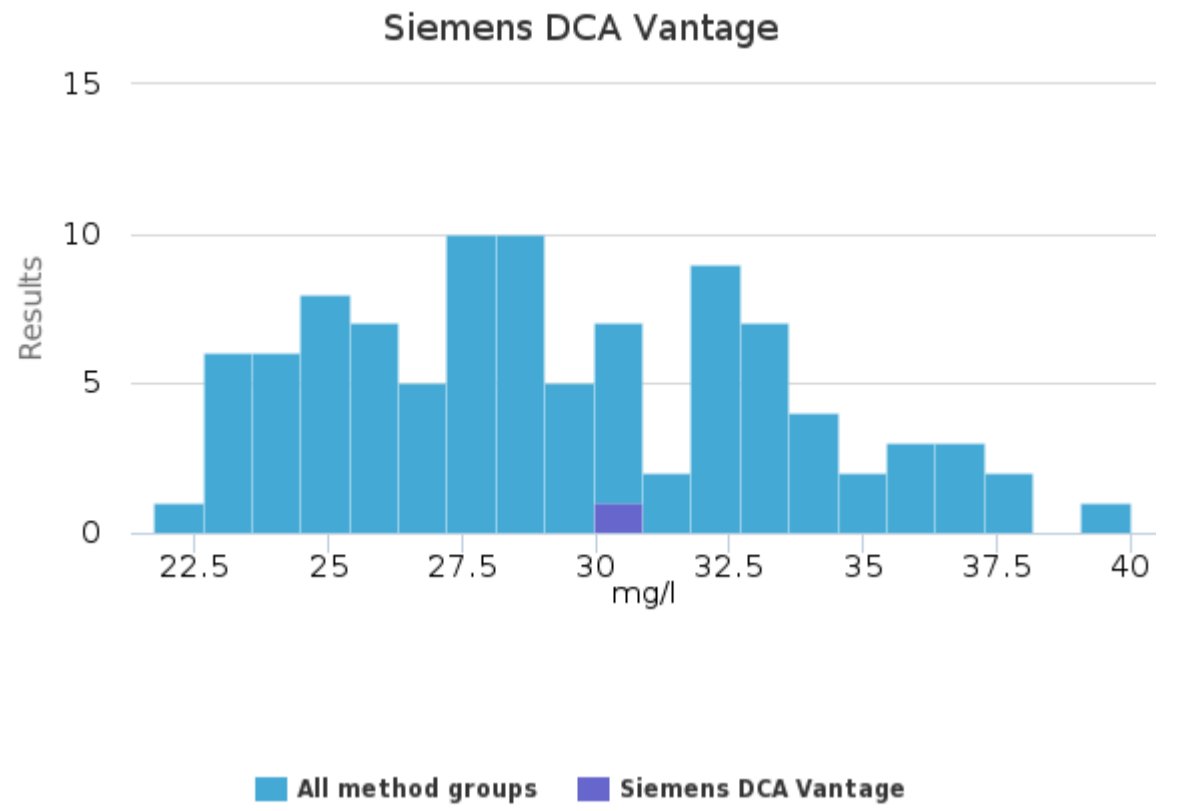
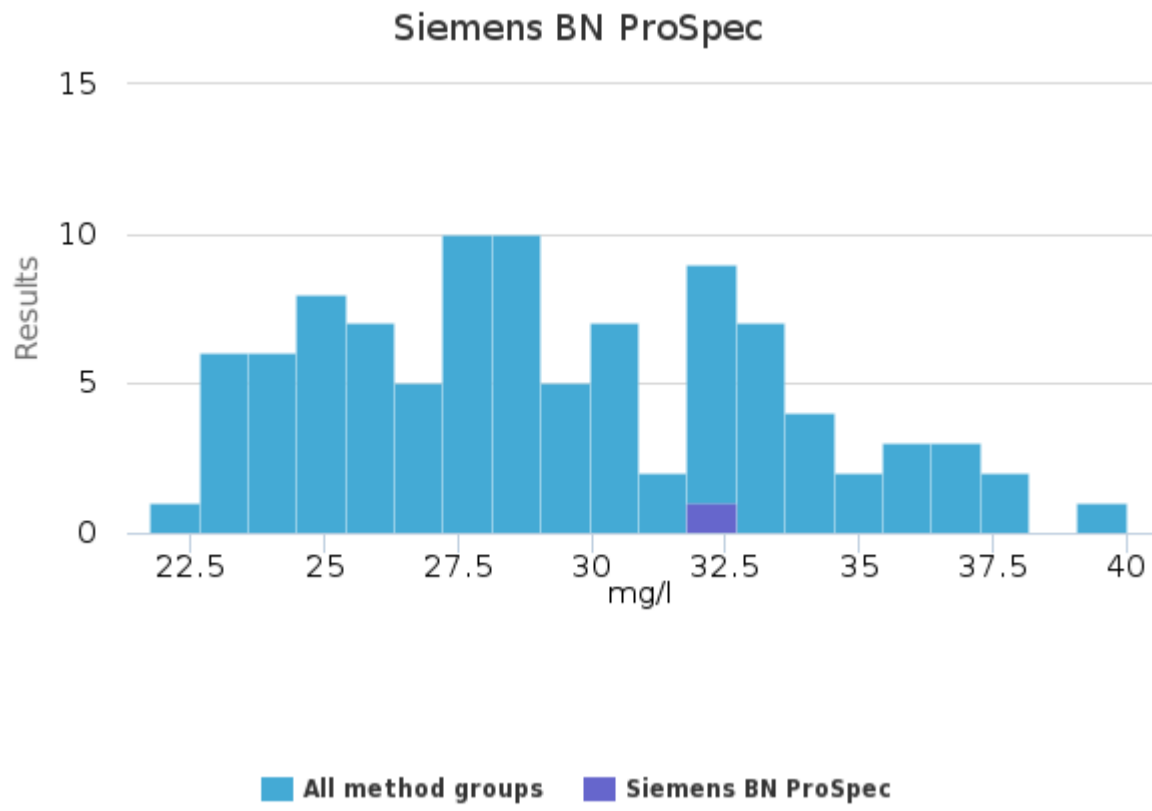
Methodics	x_{pt}	Median	sd	CV%	SEM	min	max	Outliers	n
Abbott Aeroset and Architect	32.8	33.0	0.9	2.7	0.4	31.8	34.0	-	5
Abbott Alinity c	33.2	33.0	0.5	1.6	0.3	32.9	34.0	-	4
Aidian (Orion Diagnostica) QuikRead and QuikRead 101	33.3	33.0	0.6	1.7	0.3	33.0	34.0	-	3
Beckman Coulter AU instruments	31.5	31.5	1.4	4.6	0.6	29.5	33.8	-	6
Konelab	36.4	37.0	1.1	3.2	0.4	35.0	38.0	-	7
Roche cobas c 303	25.6	25.6	<0.1	0.3	<0.1	25.5	25.6	-	2
Roche cobas c 501	28.2	28.3	1.2	4.2	0.3	25.8	30.8	-	22
Roche cobas c 502	28.2	28.1	0.7	2.5	0.4	27.6	29.0	-	3
Roche cobas c 503	25.0	25.0	0.7	2.7	0.2	23.8	26.0	-	8
Roche cobas c 702	29.8	29.6	1.3	4.4	0.5	28.1	31.8	-	7
Roche Integra	27.0	26.4	2.6	9.5	1.0	24.8	32.0	-	6
Siemens Advia Chemistry XPT	-	-	-	-	-	24.0	24.0	-	1
Siemens Advia 1200,1650,1800 and 2400	-	-	-	-	-	27.8	27.8	-	1
Siemens Atellica	23.6	23.4	0.9	4.0	0.3	21.8	25.0	-	13
Siemens Atellica NEPH	35.5	35.5	<0.1	<0.1	<0.1	35.5	35.5	-	2
Siemens BN II	32.1	32.1	0.1	0.4	0.1	32.0	32.2	-	2
Siemens BN ProSpec	-	-	-	-	-	32.3	32.3	-	1
Siemens DCA Vantage	-	-	-	-	-	30.6	30.6	-	1
Siemens Dimension RxL Max	-	-	-	-	-	29.7	29.7	-	1
Siemens Dimension Vista	39.0	39.0	1.4	3.6	1.0	38.0	40.0	-	2
The Binding Site Optilite	-	-	-	-	-	30.6	30.6	-	1
All	29.2	28.6	4.1	14.1	0.4	21.8	40.0	-	98

Sample S002 | U -Albumin, mg/l| histogram summaries in LabScala





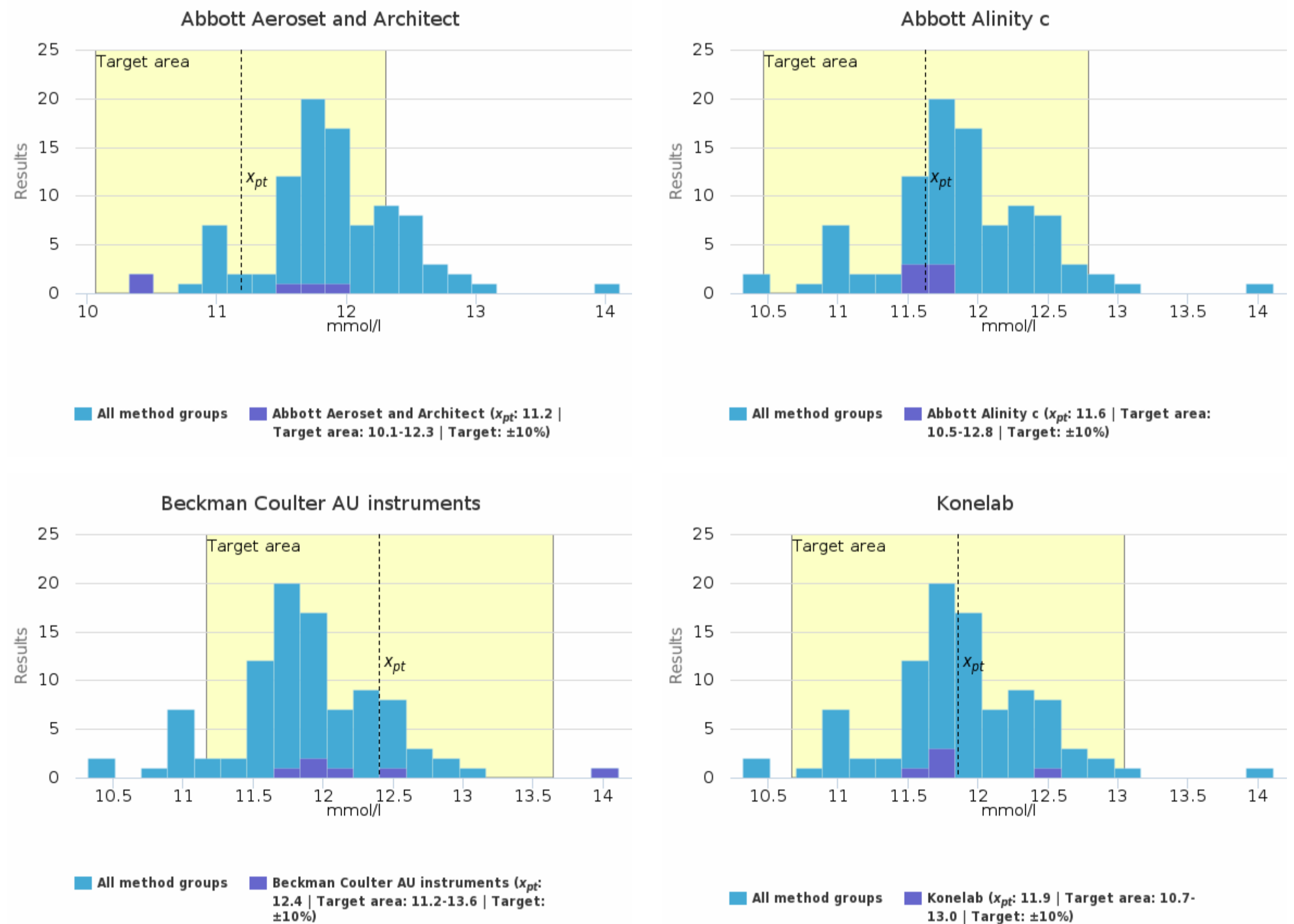


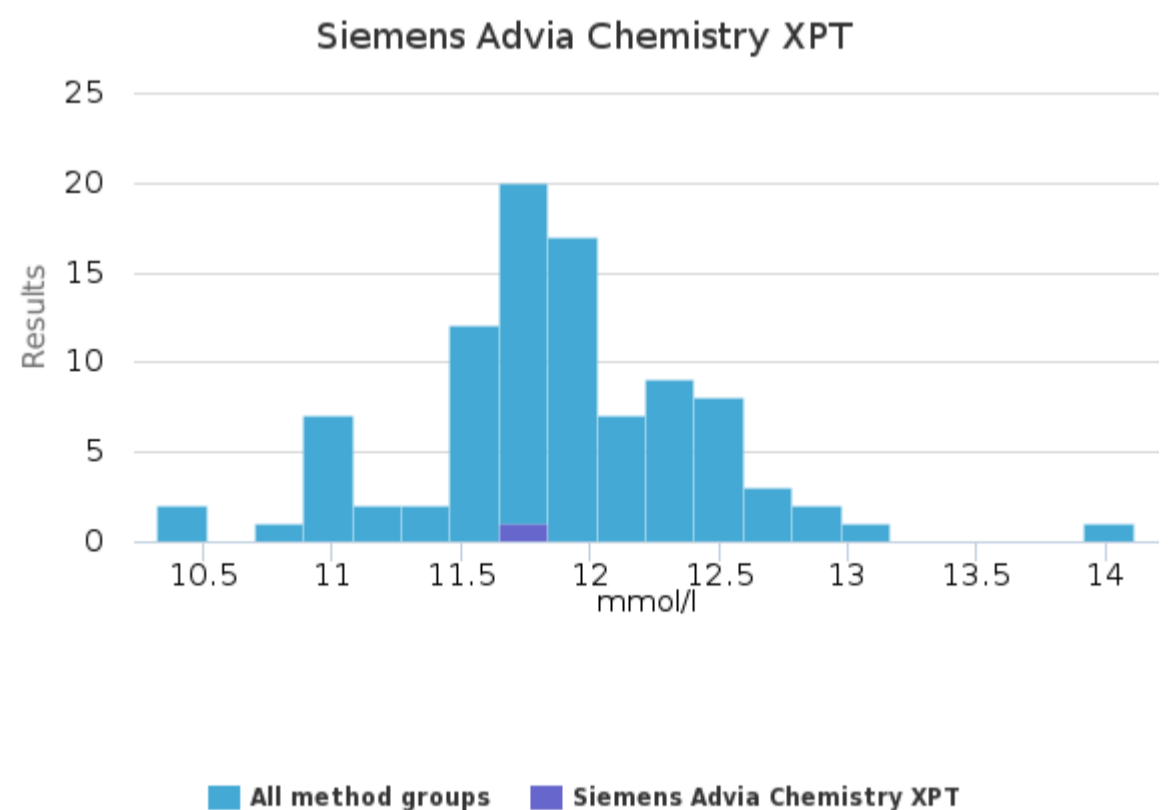
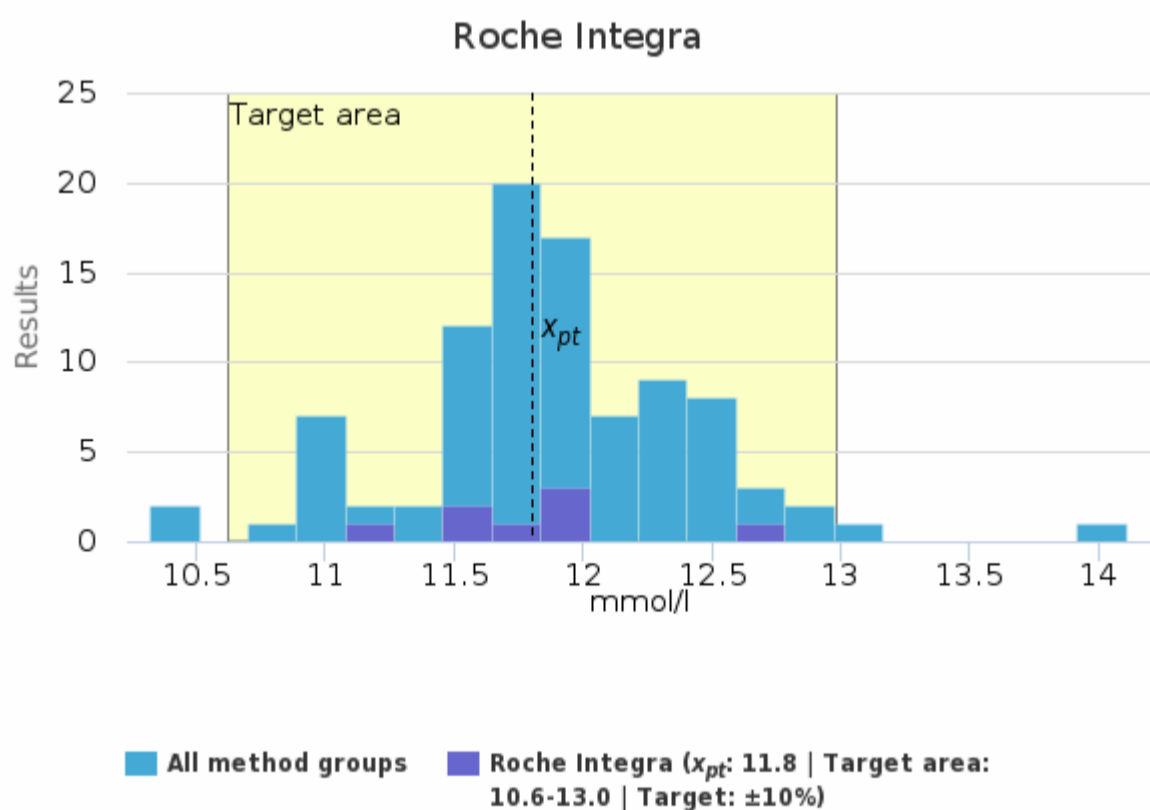
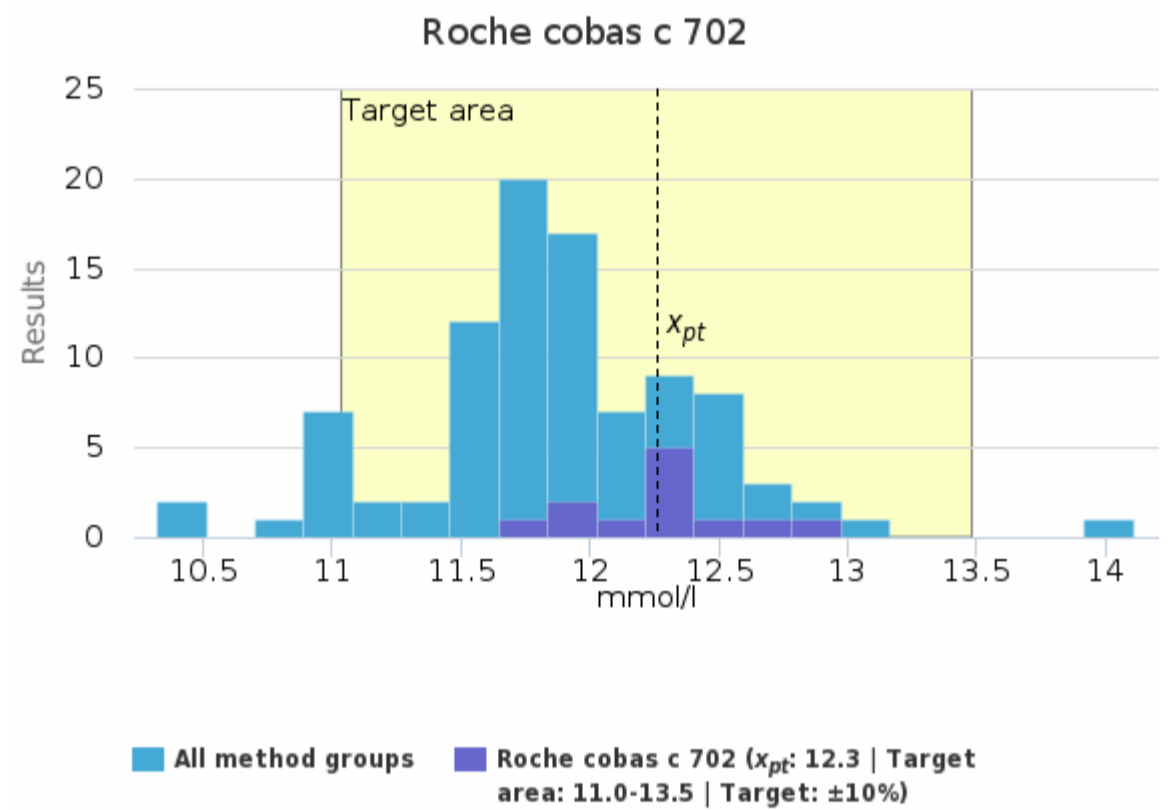
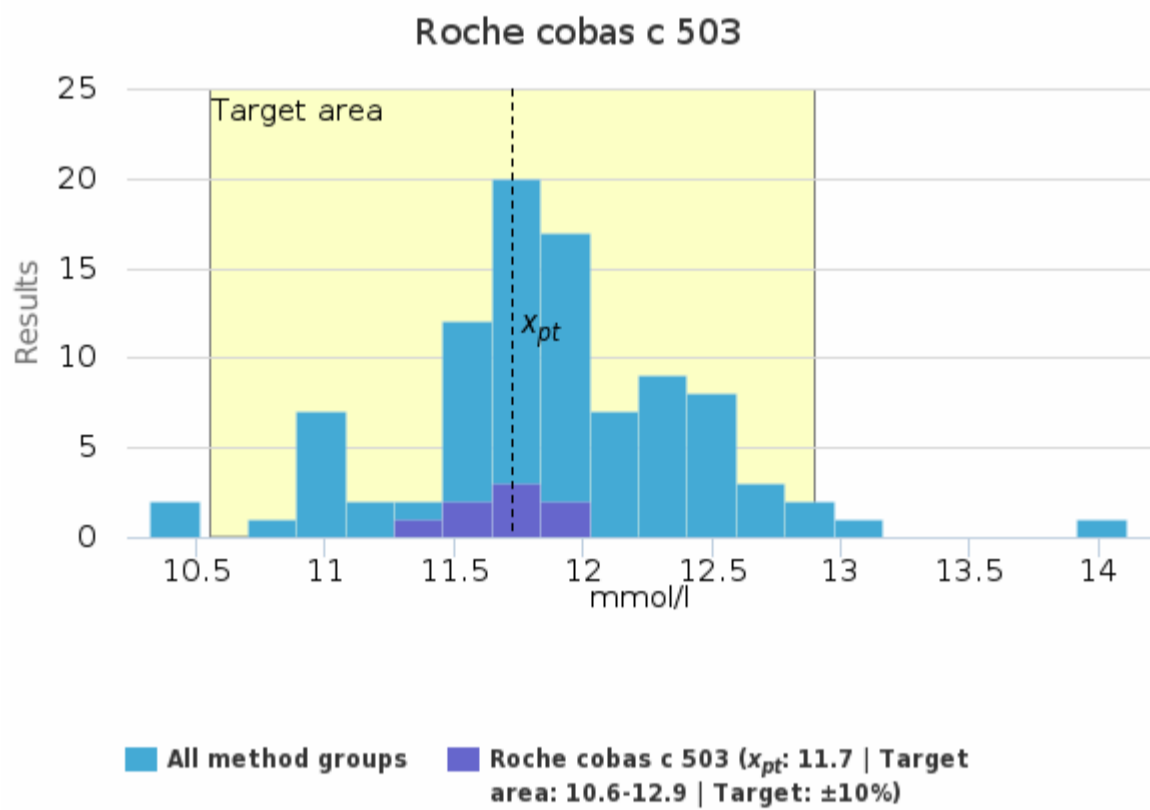
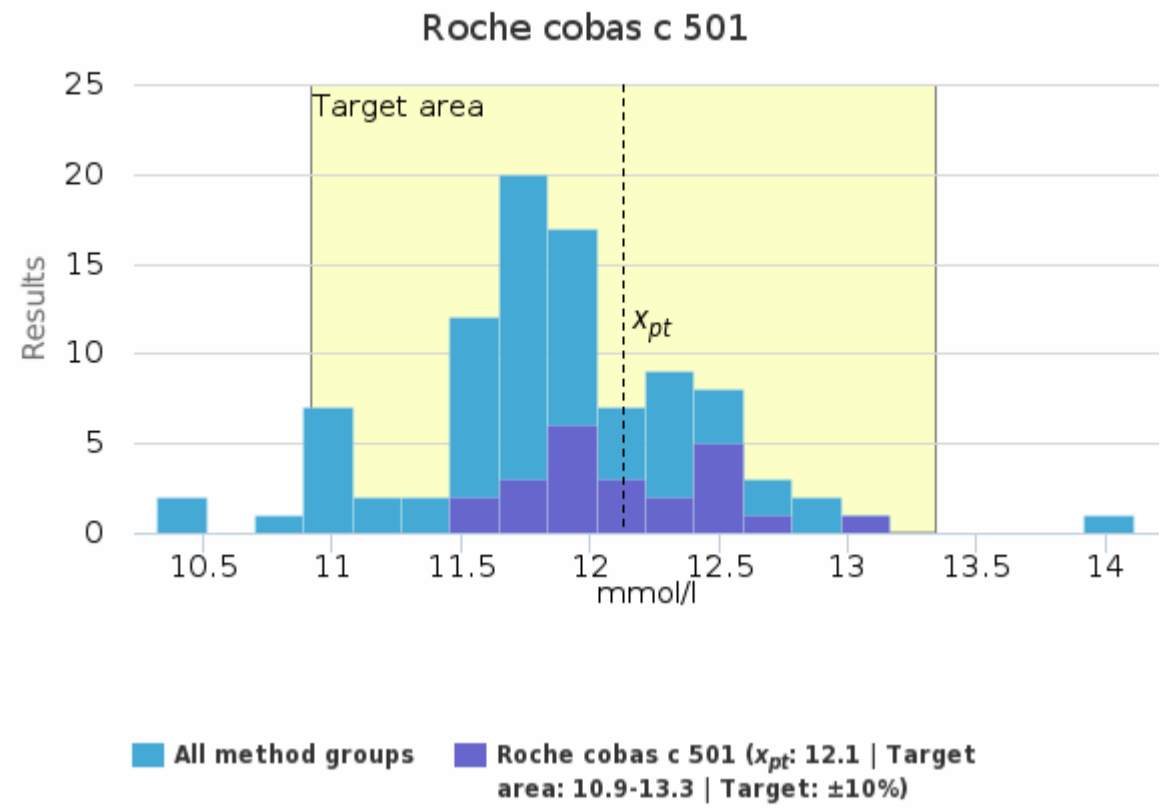
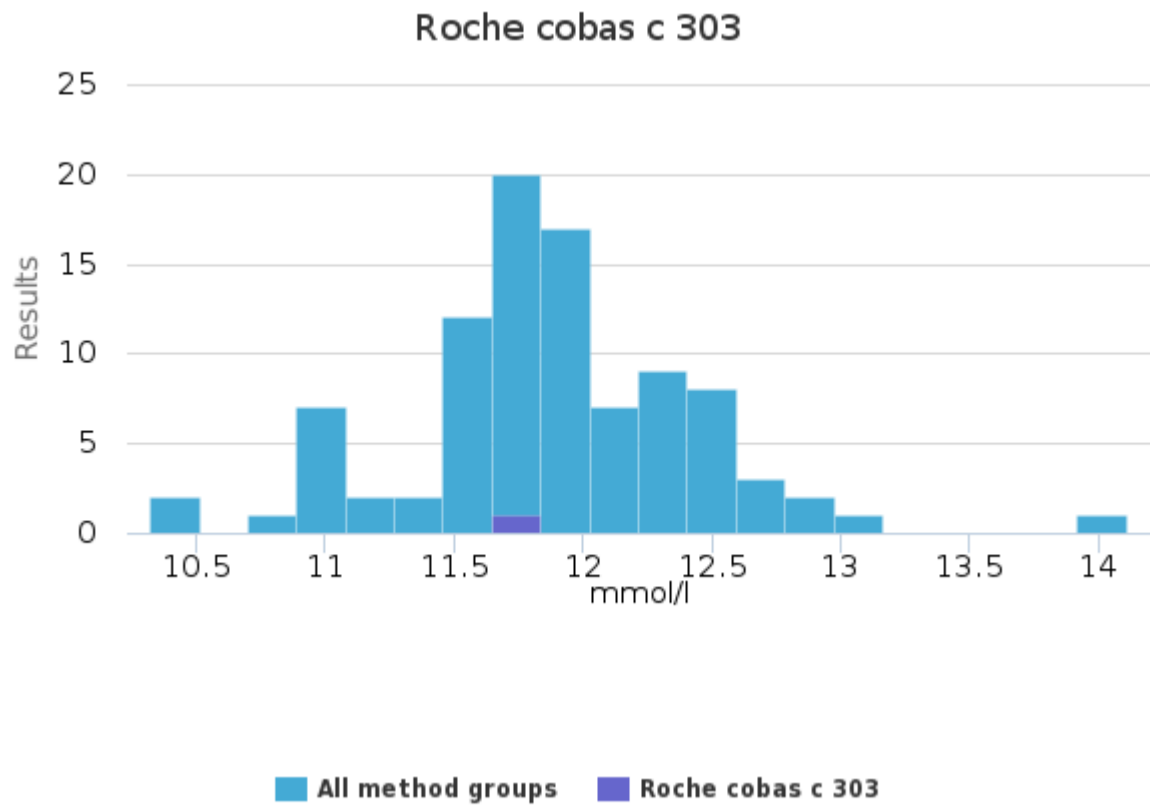


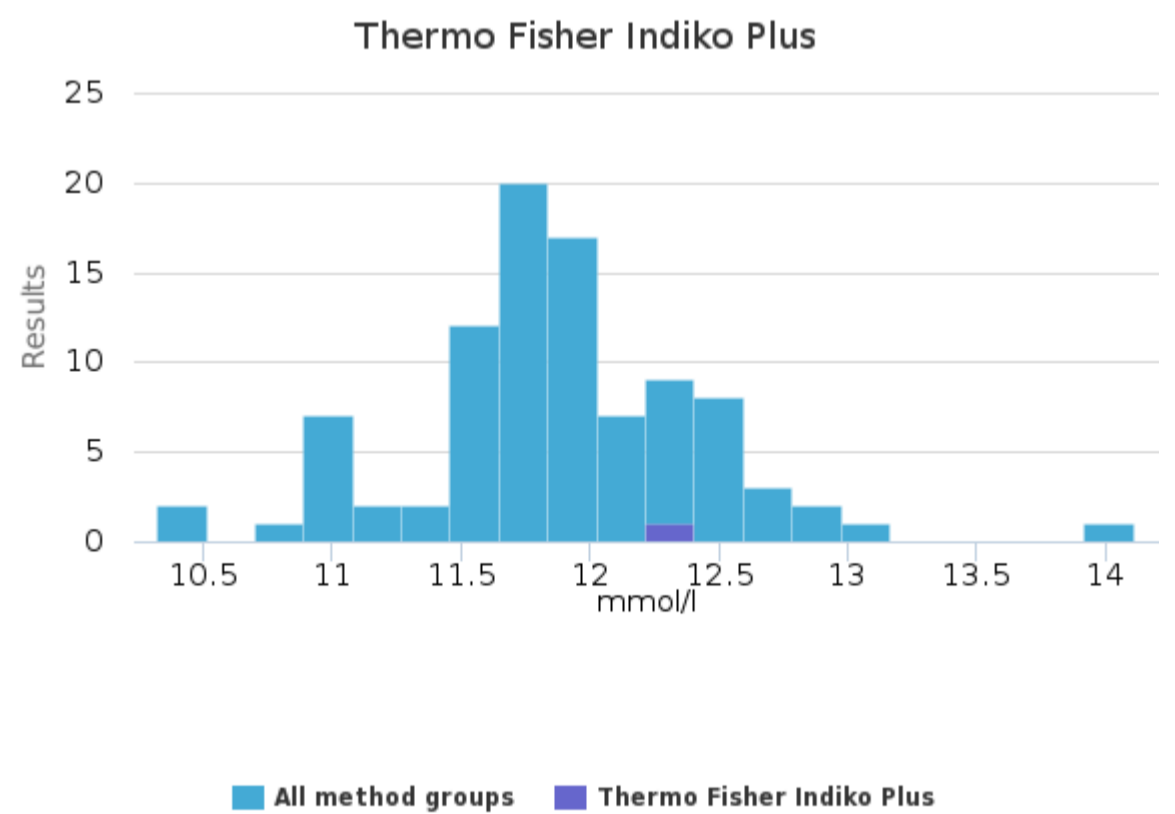
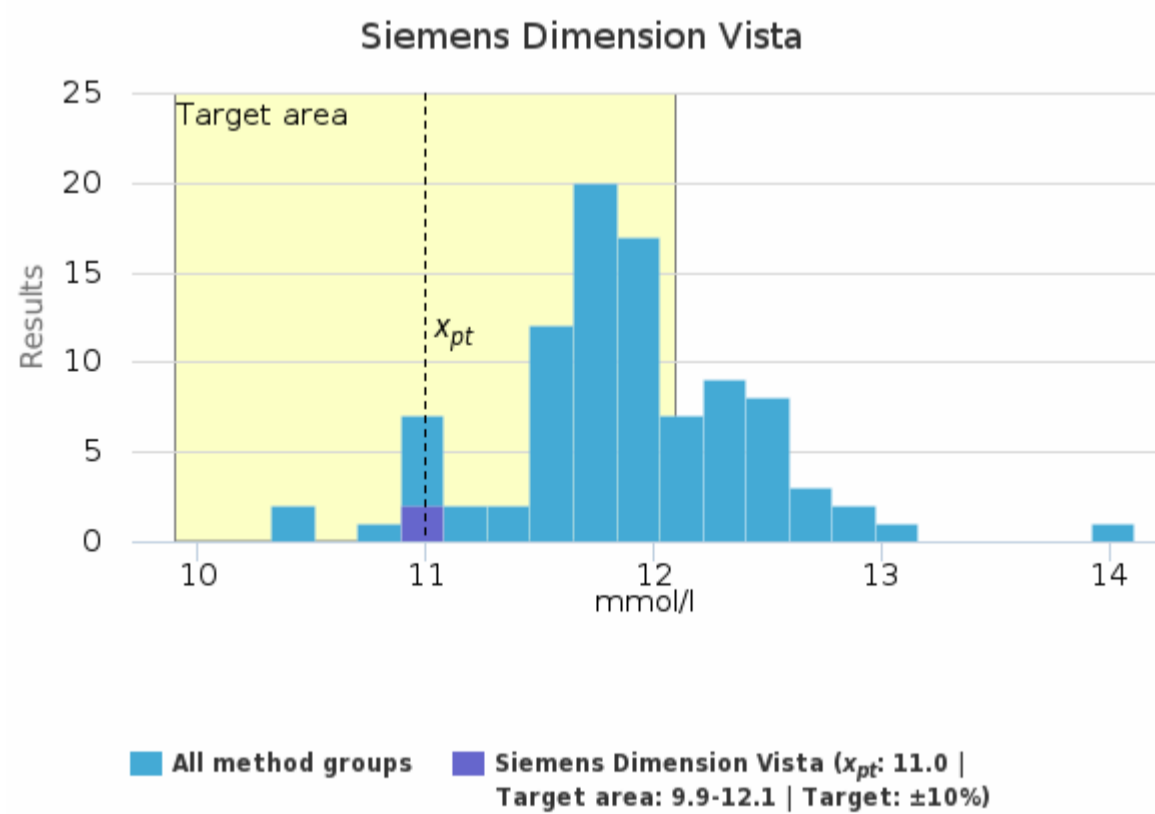
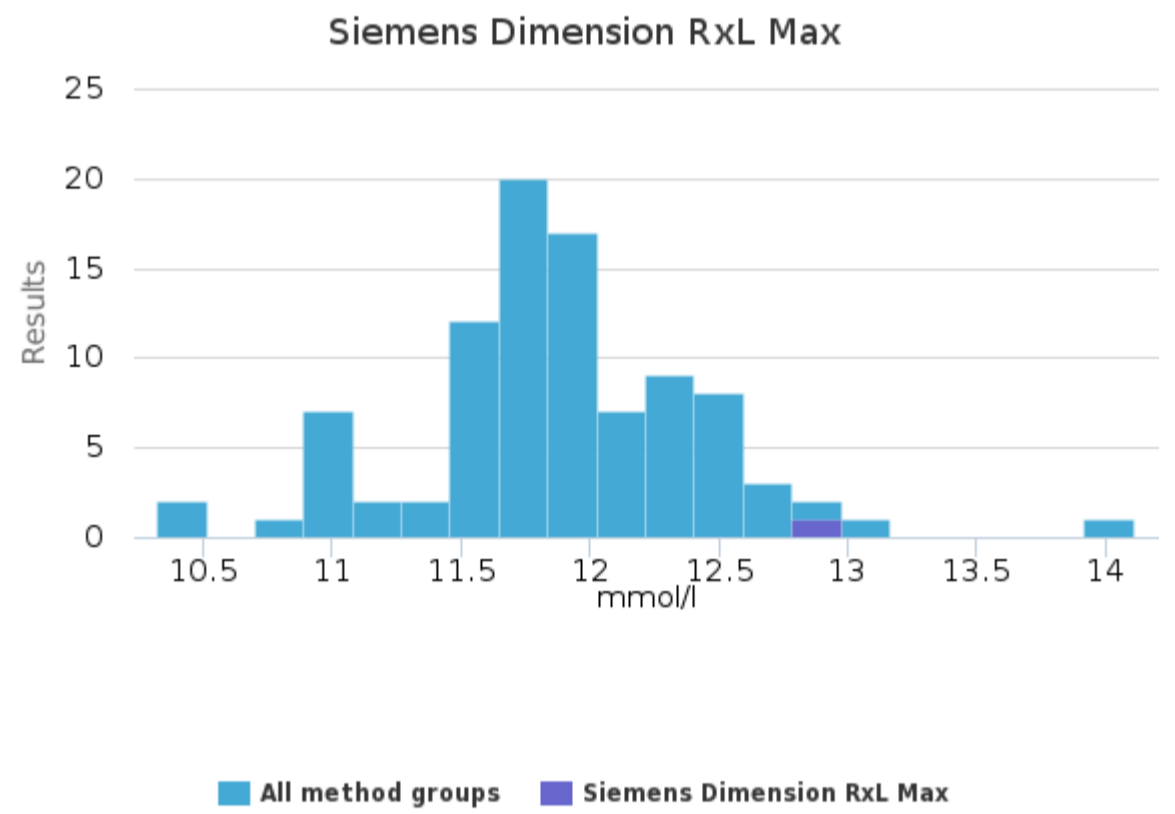
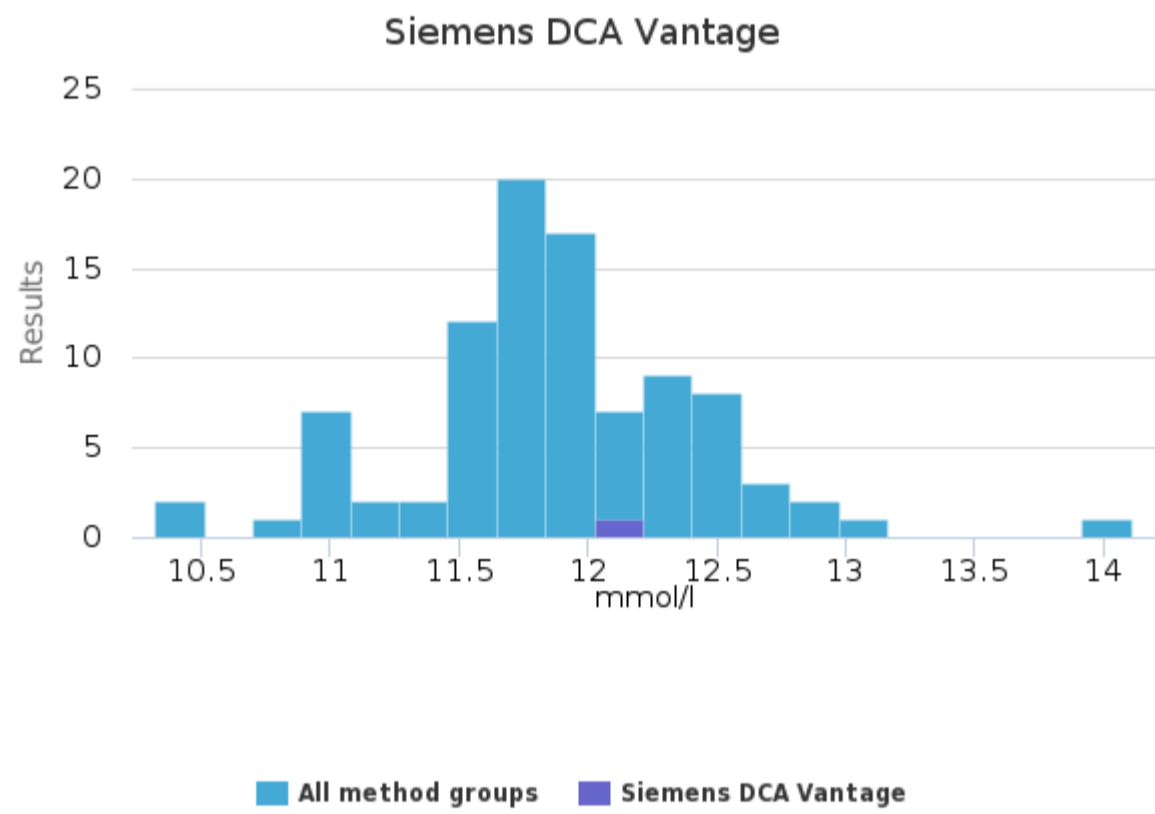
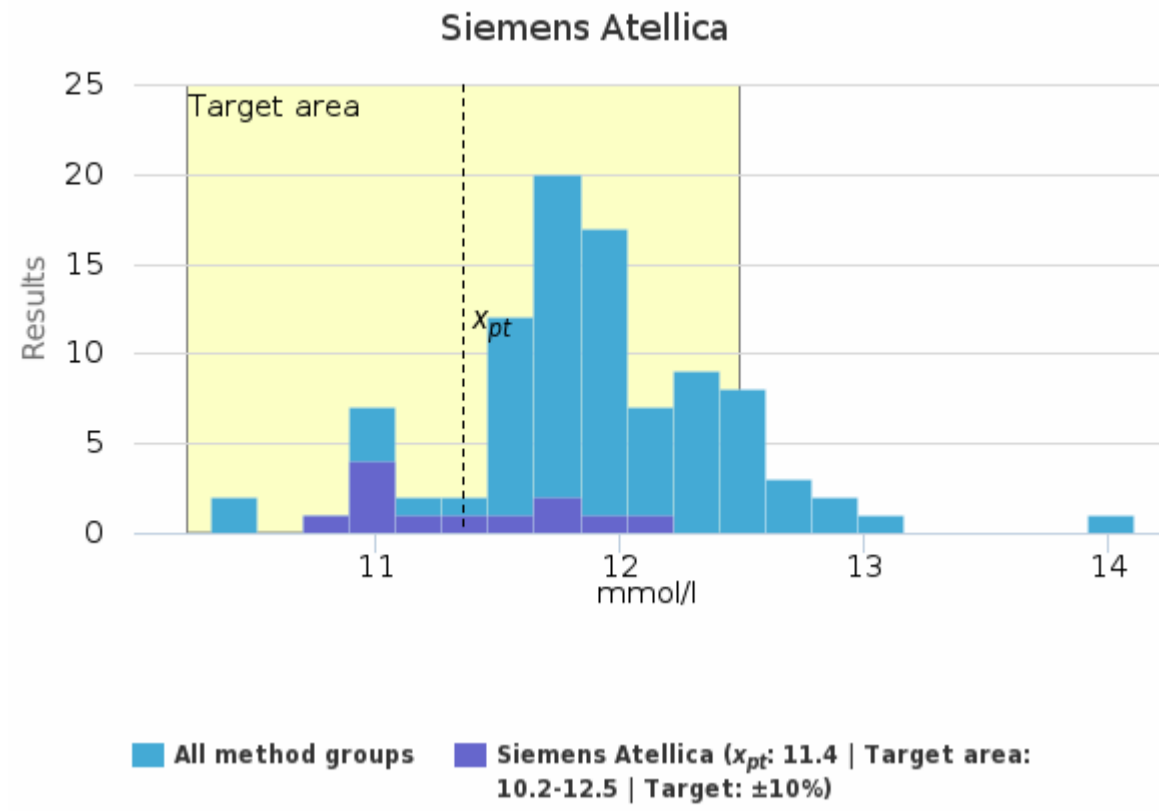
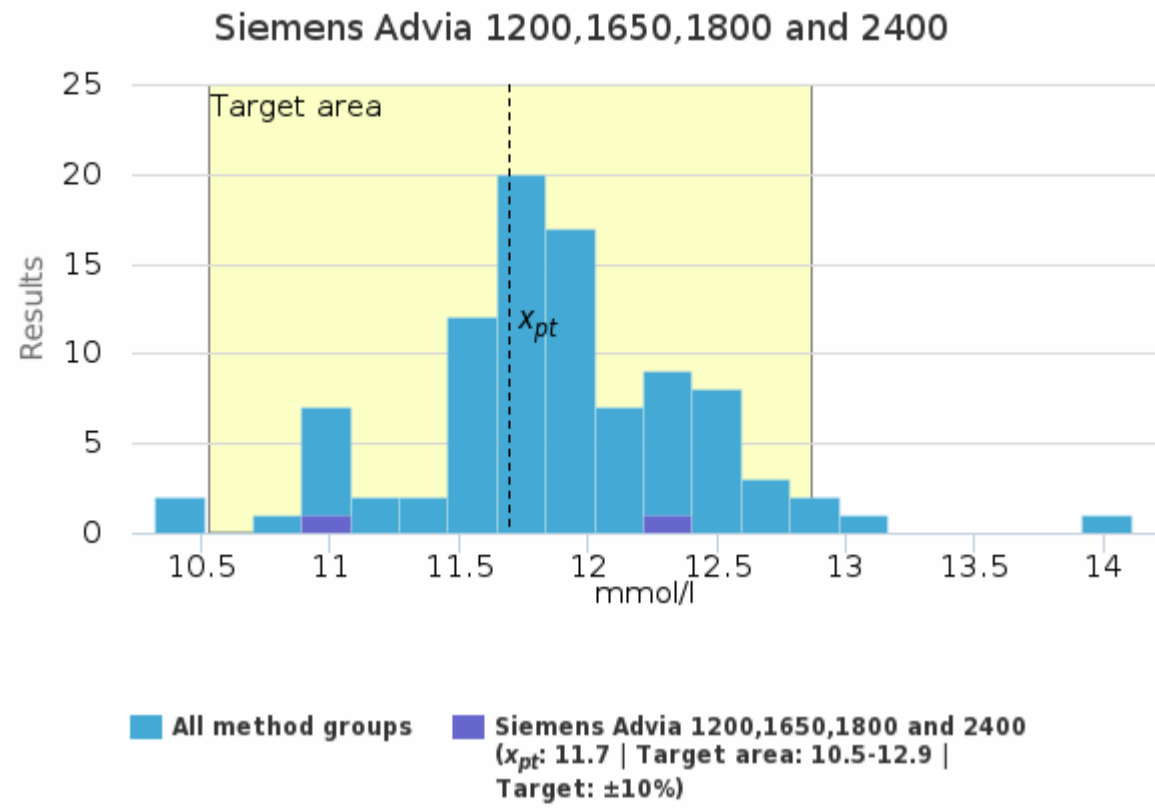
Sample S002 | U -Creatinine, mmol/l

Methodics	x_{pt}	Median	sd	CV%	SEM	min	max	Outliers	n
Abbott Aeroset and Architect	11.2	11.6	0.8	7.0	0.4	10.3	12.0	-	5
Abbott Alinity c	11.6	11.6	<0.1	0.7	<0.1	11.5	11.7	-	6
Beckman Coulter AU instruments	12.4	12.1	0.9	7.1	0.4	11.8	14.1	-	6
Konelab	11.9	11.7	0.4	3.1	0.2	11.6	12.5	-	5
Roche cobas c 303	-	-	-	-	-	11.8	11.8	-	1
Roche cobas c 501	12.1	12.1	0.4	3.2	<0.1	11.5	13.0	-	23
Roche cobas c 503	11.7	11.8	0.2	1.6	<0.1	11.4	12.0	-	8
Roche cobas c 702	12.3	12.3	0.3	2.4	<0.1	11.8	12.9	-	12
Roche Integra	11.8	11.8	0.5	3.8	0.2	11.2	12.7	-	8
Siemens Advia Chemistry XPT	-	-	-	-	-	11.7	11.7	-	1
Siemens Advia 1200,1650,1800 and 2400	11.7	11.7	1.0	8.5	0.7	11.0	12.4	-	2
Siemens Atellica	11.4	11.3	0.5	4.1	0.1	10.9	12.1	-	12
Siemens DCA Vantage	-	-	-	-	-	12.1	12.1	-	1
Siemens Dimension RxL Max	-	-	-	-	-	12.8	12.8	-	1
Siemens Dimension Vista	11.0	11.0	<0.1	<0.1	<0.1	11.0	11.0	-	2
Thermo Fisher Indiko Plus	-	-	-	-	-	12.4	12.4	-	1
All	11.9	11.8	0.5	4.4	<0.1	10.3	13.0	1	94

Sample S002 | U -Creatinine, mmol/l histogram summaries in LabScala



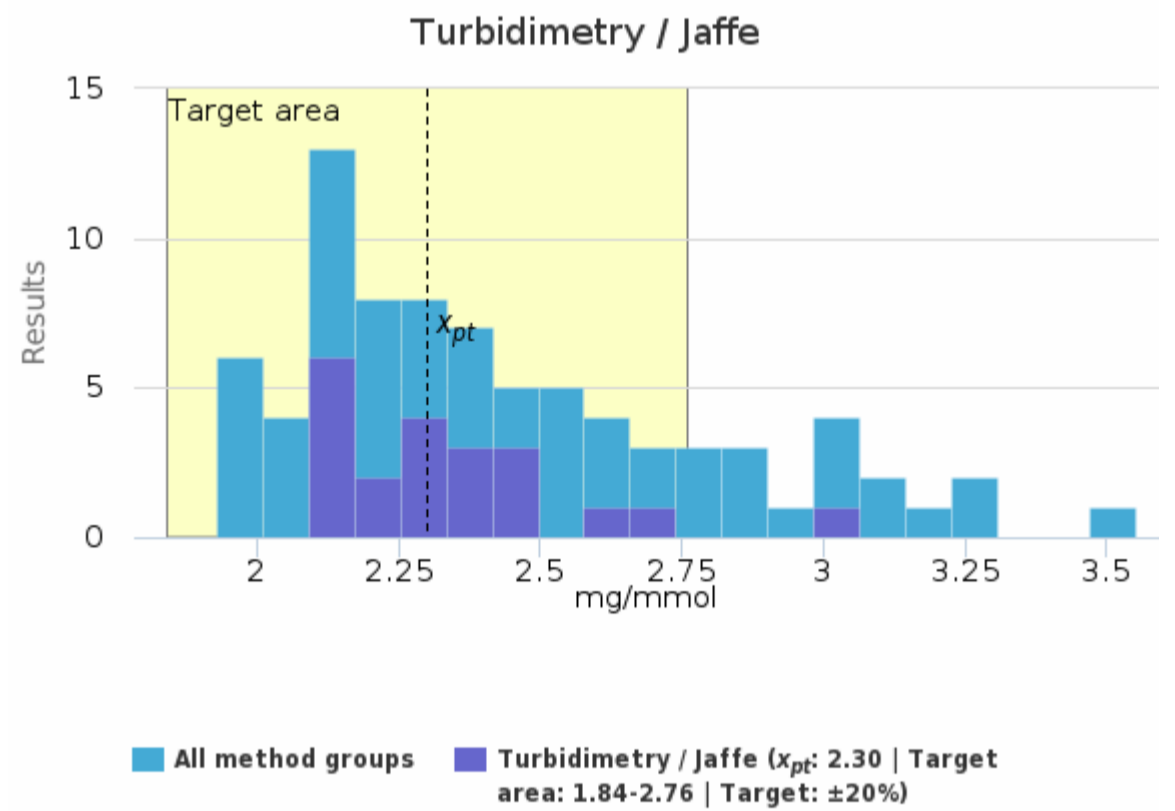
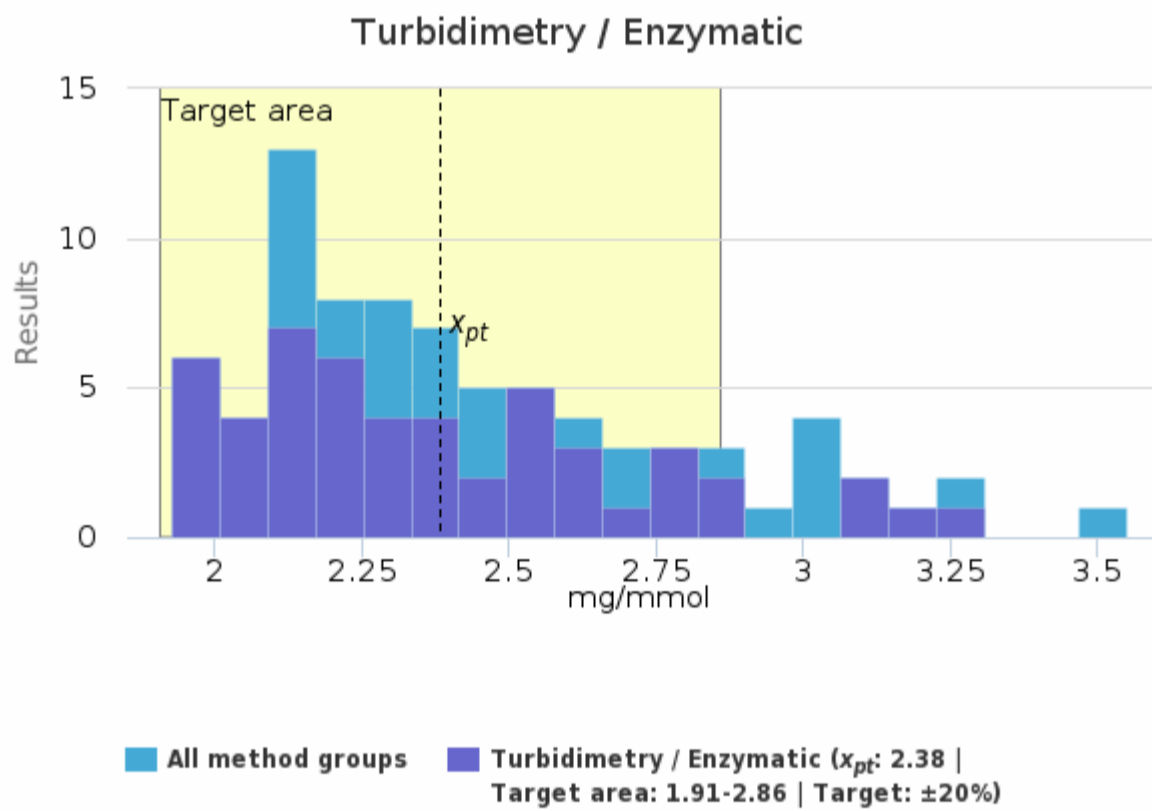
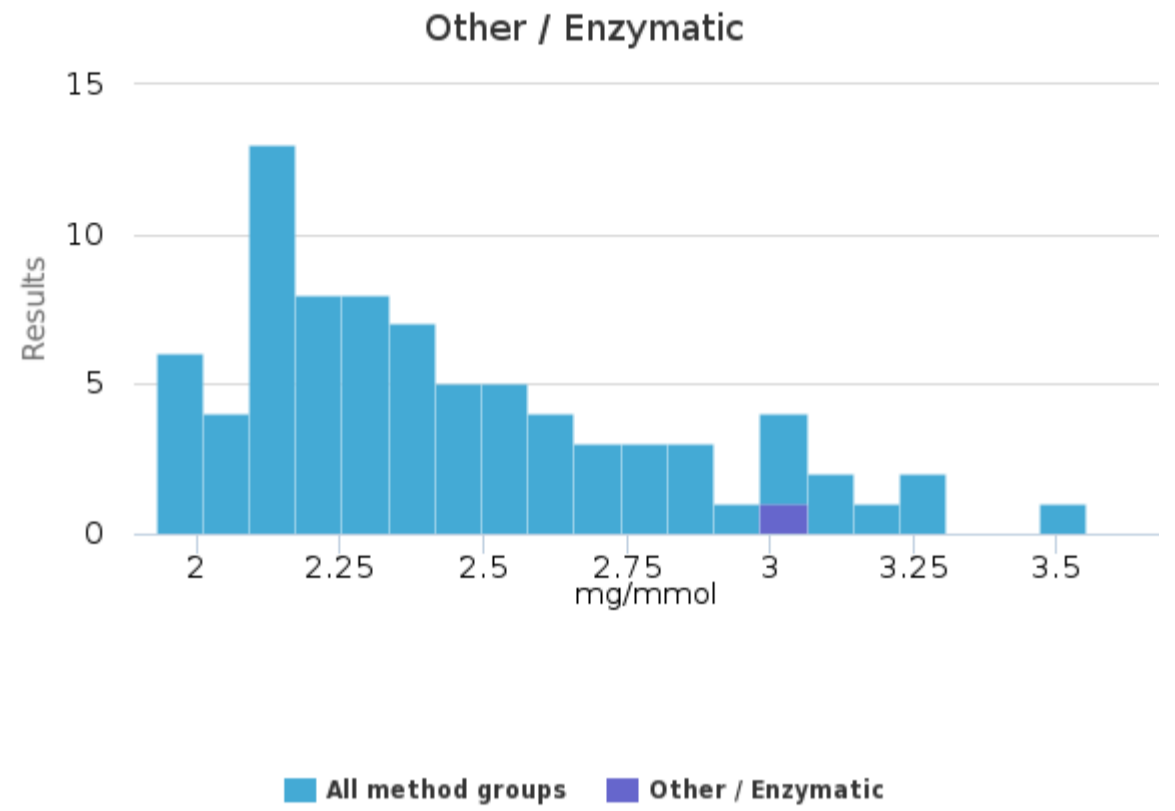
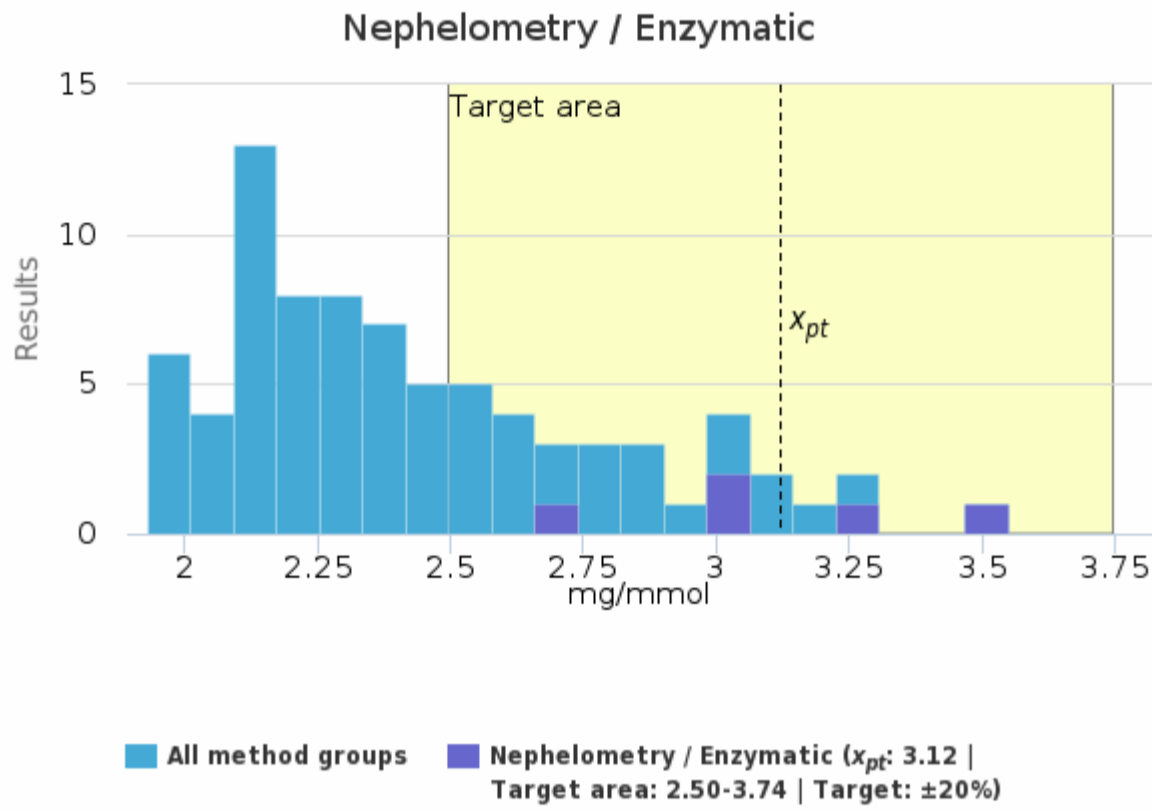


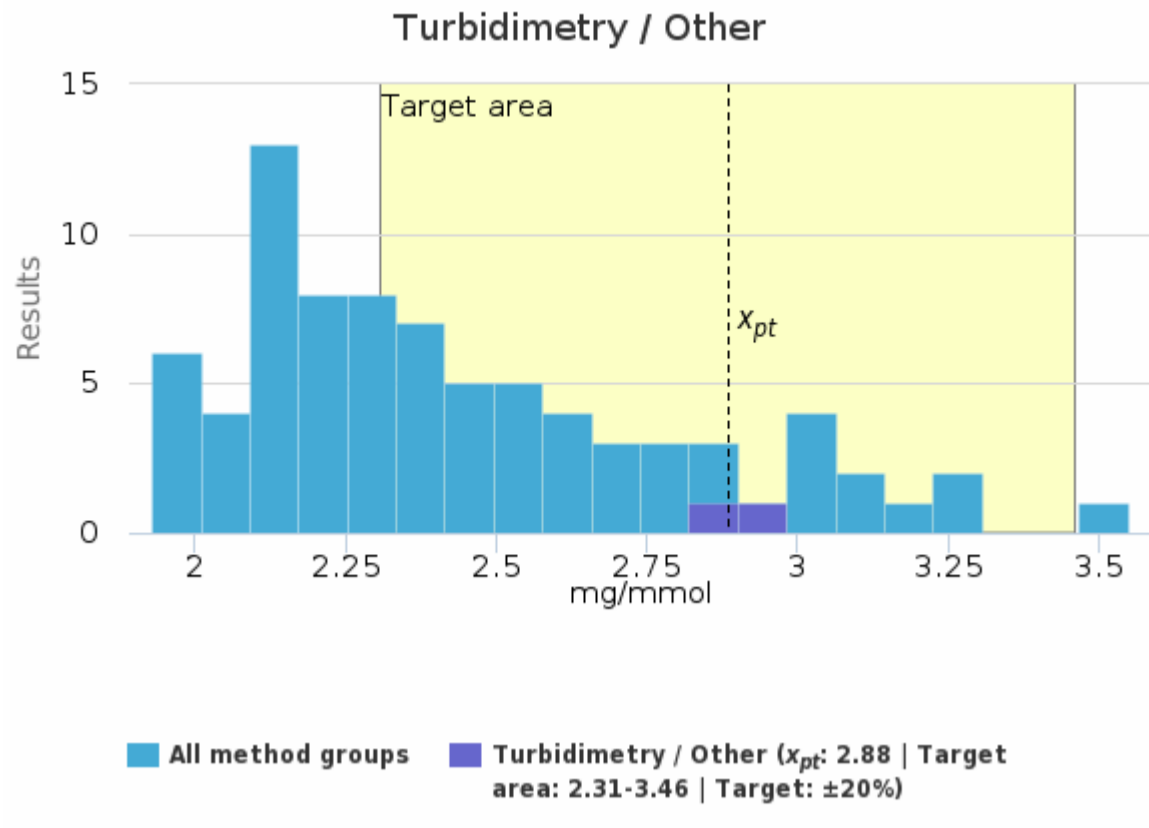


Sample S002 | U-Alb/U-Crea - ratio, mg/mmol

Methodics	x_{pt}	Median	sd	CV%	SEM	min	max	Outliers	n
Nephelometry / Enzymatic	3.12	3.04	0.32	10.2	0.14	2.70	3.55	-	5
Other / Enzymatic	-	-	-	-	-	3.00	3.00	-	1
Turbidimetry / Enzymatic	2.38	2.28	0.35	14.5	0.05	1.93	3.28	-	51
Turbidimetry / Jaffe	2.30	2.27	0.17	7.2	0.04	2.10	2.69	1	21
Turbidimetry / Other	2.88	2.88	0.06	2.2	0.05	2.84	2.93	-	2
All	2.42	2.34	0.35	14.5	0.04	1.93	3.28	1	80

Sample S002 | U-Alb/U-Crea - ratio, mg/mmol | histogram summaries in LabScala





Report info**Participants**

92 participants from 13 countries.

Report info

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

Assigned values (\bar{x}_p , target values) 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 large an automatic text is printed on the report: "The uncertainty of the assigned value is not negligible, and evaluations could be affected."

In case the client's result is the only one in the method group, no assigned value will be calculated, no target area shown, and no statistics calculated. In case there are only a few results in the client's own method group, the result can be compared to all method mean or to a group that is similar to the own method.

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

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

External Quality Assessment Scheme

Albumin and creatinine in urine Round 1, 2023

Specimens

Samples S001 and S002 (LQ744123011-012) were liquid human urine.

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

The following results were obtained from fresh samples (Cobas c702):

Sample S001: Albumin 34.4 mg/L Creatinine 6.6 mmol/L
Sample S002: Albumin 28.7 mg/L Creatinine 12.6 mmol/L

For the albumin results, the total variations were 11.4% and 14.1% (sample S001 and S002). The overall variations were little bit high, but the variations within the individual groups were less than 5% in almost all groups. The internal reproducibility of the methods was at an excellent level. Clear differences in results can be seen between the different methods. The turbidimetric methods of Roche and Siemens are at a low level, while the nephelometric methods give higher results. Both samples were samples from healthy volunteers to which pure human albumin has been added.

Creatinine results were at a consistent level. Almost all results were within $\pm 10\%$ target areas. The total variation was less than 5% for both samples.

Albumin/creatinine ratio results were reasonably consistent. Most of the results were in the target areas. Due to the differences in the results levels of the methods and manufacturers, some of the clients got slightly higher results. From sample S002, some clients got a pathological result, while most clients got result within the reference values, if compared to the most typical reference value for men (2.5 mg/mmol).

These samples were intended only for quantitative albumin and creatinine analyzing. Despite of that, one client reported semiquantitative results (Annex Table 1).

End of report

2023-06-08

FINAL REPORT

Product no. 3240

Subcontracting: Sample preparation

Samples sent	2023-05-02
Round closed	2023-05-22
Final report	2023-06-08

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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Annex

Table 1. Semiquantitative results

Method	S001 Alb	S001 Crea	S001 Alb/Crea	S002 Alb	S002 Crea	S002 Alb/Crea
Clinitek Advantus	10 mg/L	4.4 mmol/L	3.4-33.9 mg/mmol	10 mg/L	8.8 mmol/L	<3.4 mg/mmol