Summary statistics - quantitative results

EQA round: TM4/26 - Tumour Markers

Deadline: 13.10.2026

Setup: groups - M (measurement principle), R (manufacturer of kit); Slovakia; minimal size of the groups n = 5

RoM = robust average
SD = standard deviation
CV = coefficient of variation
N_{tot} = total number of the results
N_{out} = number of the results removed before calculation
AV = assigned value
CVPG = consensus of the participants' groups
U_{AV} = expanded uncertainty of the assigned value (k = 2)
D_{max} = acceptable difference
LL = lower limit
UL = upper limit
N_{eva} = number of the results assessed
N_{suc} = number of successful results
S_{rel} = relative success

Test / Sample / Group	[unit]	RoM	SD	CV [%]	N_{tot}	N_{out}	Comparability	AV	U_{AV}	D_{max}	LL	UL	N_{eva}	N_{suc}	S_{rel} [%]
(208) **β-2-microglobulin**	[mg/L]				19								17	17	100
Sample A		2,13	0,22	10	19								17	17	100
Other					19	0							17		
							1x 1/36, 1x 4/73, 1x 4/164, 2x 6/1, 3x 6/58, 4x 6/60, 1x 6/75, 2x 6/91, 1x 6/149, 3x 6/162								
Sample B		2,49	0,21	8,5	19								17	17	100
Other					19	0							17		
							1x 1/36, 1x 4/73, 1x 4/164, 2x 6/1, 3x 6/58, 4x 6/60, 1x 6/75, 2x 6/91, 1x 6/149, 3x 6/162								
(185) **AFP**	[µg/L]				28								28	26	93
Sample A		13,6	1,5	11	28								28	26	93
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		14	0,37	2,7	7	0	CVPG	13,2	0,39	20%	10,5	15,9	7		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		14,1	1,3	9,5	13	0	CVPG	14,9	0,1	20%	11,9	17,9	13		
Other					8	0							8		
							4x 4/1, 3x 4/162, 1x 4/179								
Sample B		4,77	0,64	14	28								28	28	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		4,65	0,52	11	7	0	CVPG	4,43	0,15	±2	2,43	6,43	7		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		4,65	0,59	13	13	0	CVPG	4,83	0,041	±2	2,83	6,83	13		
Other					8	0							8		
							4x 4/1, 3x 4/162, 1x 4/179								
(181) **CA 15-3**	[kU/L]				28								28	27	96
Sample A		50	15	30	28								28	27	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		28,2	0,67	2,4	6	0	CVPG	29,4	0,76	18%	24,1	34,7	6		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		59,6	3,7	6,2	14	0	CVPG	57,2	0,4	18%	46,9	67,5	14		
Other					8	0							8		
							1x 3/24, 3x 4/1, 3x 4/162, 1x 4/179								
Sample B		14	3,3	23	28								28	27	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		10,2	0,52	5,1	6	0	CVPG	10,4	0,22	18%	8,52	12,3	6		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		16,5	1,3	8	14	0	CVPG	15,8	0,13	18%	12,9	18,7	14		
Other					8	0							8		
							1x 3/24, 3x 4/1, 3x 4/162, 1x 4/179								
(182) **CA 19-9**	[kU/L]				29								29	24	83
Sample A		8,18	2,5	31	29								29	26	90
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		5,47	0,69	13	7	0	CVPG	6,05	0,28	±2,8	3,25	8,85	7		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		9,41	0,97	10	14	0	CVPG	9,01	0,093	±2,8	6,21	11,9	14		
Other					8	0							8		
							3x 4/1, 4x 4/162, 1x 4/179								
Sample B		80,3	37	46	29								29	27	93
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		70,4	5,2	7,4	7	0	CVPG	70,6	1,7	20%	56,4	84,8	7		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		55,5	2	3,6	14	0	CVPG	54	0,31	20%	43,2	64,8	14		
Other					8	0							8		
							3x 4/1, 4x 4/162, 1x 4/179								
(183) **CA 72-4**	[kU/L]				25								25	21	84
Sample A		1,79	0,28	15	25								25	22	88
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		1,87	0,17	9,1	22	0	CVPG	1,82	0,024	22%	1,41	2,23	22		
Other					3	0							3		
							3x 4/73								
Sample B		3,9	0,34	8,7	25								25	24	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		3,91	0,37	9,5	22	0	CVPG	3,8	0,038	22%	2,96	4,64	22		
Other					3	0							3		
							3x 4/73								
(180) **CA 125**	[kU/L]				31								31	30	97
Sample A		16,7	2,6	16	31								31	31	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		21	1,1	5	7	0	CVPG	20,8	0,27	20%	16,6	25	7		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		15,7	0,96	6,1	17	0	CVPG	15,7	0,084	20%	12,5	18,9	17		
Other					7	0							7		
							3x 4/12, 3x 4/162, 1x 4/179								
Sample B		131	30	23	31								31	30	97
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		179	8,9	5	7	0	CVPG	175	2	20%	140	210	7		

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Test / Sample / Group	[unit]	RoM	SD	CV [%]	N_{tot}	N_{out}	Comparability	AV	U_{AV}	D_{max}	LL	UL	N_{eva}	N_{suc}	S_{rel} [%]
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		114	7,6	6,6	17	0	CVPG	109	0,69	20%	87,2	131	17		
Other					7	0							7		
							3x 4/12, 3x 4/162, 1x 4/179								
(189) **CEA**	[µg/L]				30								30	28	93
Sample A		11,7	1,5	13	30								30	28	93
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		11	0,26	2,4	6	0	CVPG	10,9	0,23	16%	9,15	12,7	6		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		12	0,44	3,6	15	0	CVPG	11,8	0,052	16%	9,91	13,7	15		
Other					9	0							9		
							4x 4/1, 4x 4/162, 1x 4/179								
Sample B		30,9	6,5	21	30								30	28	93
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		24,6	1	4,1	6	0	CVPG	24,5	0,63	16%	20,5	28,5	6		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		33,3	1,1	3,4	15	0	CVPG	32,4	0,16	16%	27,2	37,6	15		
Other					9	0							9		
							4x 4/1, 4x 4/162, 1x 4/179								
(184) **CYFRA 21-1**	[µg/L]				27								26	22	85
Sample A		156	29	19	27								26	22	85
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		100	0	0	6	0	CVPG	100		18%	82	118	6		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		165	17	10	19	0	CVPG	174	2	18%	142	206	19		
Other					2	0							1		
							1x 3/24, 1x 4/73								
Sample B		4,81	0,83	17	27								26	25	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		3,63	0,25	6,9	6	0	CVPG	3,63	0,15	18%	2,97	4,29	6		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		5,15	0,41	8	19	0	CVPG	5,05	0,051	18%	4,14	5,96	19		
Other					2	0							1		
							1x 3/24, 1x 4/73								
(186) **hCG**	[U/L]				30								30	28	93
Sample A		139	12	8,7	30								30	30	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		151	5	3,3	7	0	CVPG	146	2,4	18%	119	173	7		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		137	9,6	7	11	0	CVPG	136	0,63	18%	111	161	11		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (210) Roche HCG STAT		132	13	9,6	5	0	CVPG	128	6,8	18%	104	152	5		
Other					7	0							7		
							2x 4/1, 4x 4/162, 1x 4/179								
Sample B		133	12	8,9	30								30	28	93
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		142	8,6	6	7	0	CVPG	138	1,9	18%	113	163	7		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		131	9,4	7,2	11	0	CVPG	130	0,66	18%	106	154	11		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (210) Roche HCG STAT		128	11	9	5	0	CVPG	125	6,6	18%	102	148	5		
Other					7	0							7		
							2x 4/1, 4x 4/162, 1x 4/179								
(206) **Calcitonin**	[ng/L]				9								8	8	100
Sample A		41,4	16	38	9								8	8	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		52	3,6	6,9	6	0	CVPG	49,6	0,76	31%	34,2	65	6		
Other					3	0							2		
							1x 1/36, 2x 4/73								
Sample B		9,55	1,9	19	9								8	8	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		10,3	1,5	14	6	0	CVPG	9,54	0,24	31%	6,58	12,5	6		
Other					3	0							2		
							1x 1/36, 2x 4/73								
(194) **NSE**	[µg/L]				26								26	25	96
Sample A		28,1	4,7	17	26								26	26	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		28,1	2,3	8,2	20	0	CVPG	27,7	0,26	30%	19,3	36,1	20		
Other					6	0							6		
							1x 3/24, 3x 4/1, 2x 4/73								
Sample B		35,8	5,1	14	26								26	25	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		35,7	1,8	4,9	20	0	CVPG	34,6	0,29	30%	24,2	45	20		
Other					6	0							6		
							1x 3/24, 3x 4/1, 2x 4/73								
(187) **p2PSA**	[ng/L]				4								4	4	100
Sample A		7,3	0,93	13	4								4	4	100
Other					4	0							4		
							4x 4/12								
Sample B		6,25	1,3	21	4								4	4	100
Other					4	0							4		
							4x 4/12								

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Test / Sample / Group	[unit]	RoM	SD	CV [%]	N_{tot}	N_{out}	Comparability	AV	U_{AV}	D_{max}	LL	UL	N_{eva}	N_{suc}	S_{rel} [%]
(191) **PSA**	[µg/L]				31								31	29	94
Sample A		0,795	0,14	17	31								31	29	94
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		0,535	0,043	8	5	0	CVPG	0,549	0,007	±0,105	0,444	0,654	5		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		0,975	0,082	8,4	5	0	CVPG	0,979	0,021	15%	0,832	1,13	5		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		0,809	0,063	7,8	12	0	CVPG	0,776	0,004	15%	0,659	0,893	12		
Other					9	0							9		
							4x 4/162, 1x 4/179, 4x 4/195								
Sample B		0,722	0,14	20	31								31	29	94
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		0,494	0,015	3	5	0	CVPG	0,493	0,006	±0,105	0,388	0,598	5		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		0,88	0,045	5,1	5	0	CVPG	0,877	0,019	15%	0,745	1,01	5		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		0,74	0,072	9,8	12	0	CVPG	0,701	0,004	15%	0,595	0,807	12		
Other					9	0							9		
							4x 4/162, 1x 4/179, 4x 4/195								
(198) **free-PSA**	[µg/L]				26								25	25	100
Sample A		0,472	0,059	12	26								25	25	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		0,441	0,013	3	5	0	CVPG	0,433	0,005	±0,112	0,321	0,545	5		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		0,459	0,035	7,6	11	0	CVPG	0,449	0,003	±0,112	0,337	0,561	11		
Other					10	0							9		
							4x 4/12, 1x 4/162, 1x 4/179, 4x 4/195								
Sample B		0,45	0,05	11	26								25	25	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		0,418	0,019	4,4	5	0	CVPG	0,408	0,005	±0,112	0,296	0,52	5		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		0,444	0,043	9,8	11	0	CVPG	0,421	0,004	±0,112	0,309	0,533	11		
Other					10	0							9		
							4x 4/12, 1x 4/162, 1x 4/179, 4x 4/195								
(201) **S-100**	[µg/L]				11								10	10	100
Sample A		0,204	0,024	12	11								10	10	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		0,201	0,021	10	10	0	CVPG	0,192	0,002	32%	0,13	0,254	10		
Other					1	0							0		
							1x 4/73								
Sample B		0,335	0,035	10	11								10	10	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		0,33	0,031	9,3	10	0	CVPG	0,317	0,003	32%	0,215	0,419	10		
Other					1	0							0		
							1x 4/73								
(195) **SCCA**	[µg/L]				18								17	13	76
Sample A		1,18	0,39	33	18								17	13	76
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		0,9	0	0	6	0	CVPG	0,897	0,039	32%	0,609	1,19	6		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		1,25	0,37	29	10	0	CVPG	1,26	0,046	32%	0,856	1,67	10		
Other					2	0							1		
							1x 4/73, 1x 4/162								
Sample B		5,39	0,81	15	18								17	16	94
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		5,09	0,28	5,5	6	0	CVPG	4,85	0,12	32%	3,29	6,41	6		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		5,33	0,84	16	10	0	CVPG	5,36	0,11	32%	3,64	7,08	10		
Other					2	0							1		
							1x 4/73, 1x 4/162								
(196) **TPA**	[U/L]				2								2	2	100
Sample A		4500	0	0	2								2	2	100
Other					2	0							2		
							2x 4/164								
Sample B		613	18	2,9	2								2	2	100
Other					2	0							2		
							2x 4/164								
(207) **Thyreoglobulin**	[µg/L]				12								12	11	92
Sample A		79,8	21	27	12								12	11	92
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		88,6	4,6	5,2	6	0	CVPG	89,4	0,75	30%	62,5	117	6		
Other					6	0							6		
							1x 3/24, 3x 4/12, 1x 4/29, 1x 4/164								
Sample B		48	11	24	12								12	12	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		52	2,3	4,4	6	0	CVPG	51,5	0,45	30%	36	67	6		
Other					6	0							6		
							1x 3/24, 3x 4/12, 1x 4/29, 1x 4/164								