

EQA round: TM2/26 - Tumour Markers

Deadline: 28.4.2026

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

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

Test Sample Group	[unit]	RoM	SD	CV [%]	N _{tot}	N _{out}	Comparability					N _{eva}	N _{suc}	S _{rel} [%]
							AV	U _{AV}	D _{max}	LL	UL			
(208) β-2-microglobulin	[mg/L]				16							11	11	100
Sample A		1,46	0,25	17	16							11	11	100
Other					16	0						11		
							1x 1/36, 1x 4/1, 1x 4/29, 1x 4/164, 1x 6/1, 2x 6/58, 2x 6/60, 2x 6/75, 1x 6/91, 1x 6/149, 2x 6/162, 1x 6/179							
Sample B		1,65	0,27	17	16							11	11	100
Other					16	0						11		
							1x 1/36, 1x 4/1, 1x 4/29, 1x 4/164, 1x 6/1, 2x 6/58, 2x 6/60, 2x 6/75, 1x 6/91, 1x 6/149, 2x 6/162, 1x 6/179							
(185) AFP	[µg/L]				26							26	23	88
Sample A		7,32	0,6	8,2	26							26	25	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		7	0,44	6,4	7	0	CVPG	6,99	0,22	±2	4,99	8,99	7	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		7,28	0,85	12	11	0	CVPG	7,62	0,049	±2	5,62	9,62	11	
Other					8	0						8		
							4x 4/1, 3x 4/162, 1x 4/179							
Sample B		16,5	1,8	11	26							26	23	88
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		15,9	1,2	7,8	7	0	CVPG	16,2	0,58	20%	12,9	19,5	7	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		16,5	2,5	15	11	0	CVPG	17,9	0,12	20%	14,3	21,5	11	
Other					8	0						8		
							4x 4/1, 3x 4/162, 1x 4/179							
(181) CA 15-3	[kU/L]				26							26	25	96
Sample A		13,8	2,4	17	26							26	25	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		10	0,59	5,9	5	0	CVPG	10,6	0,26	18%	8,69	12,6	5	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		15,1	1,1	7,4	12	0	CVPG	15	0,13	18%	12,3	17,7	12	
Other					9	0						9		
							1x 3/24, 4x 4/1, 3x 4/162, 1x 4/179							
Sample B		32,7	5,5	17	26							26	26	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		18,8	0,59	3,2	5	0	CVPG	19,6	0,53	18%	16	23,2	5	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		36	1,9	5,2	12	0	CVPG	35,4	0,24	18%	29	41,8	12	
Other					9	0						9		
							1x 3/24, 4x 4/1, 3x 4/162, 1x 4/179							
(182) CA 19-9	[kU/L]				27							27	26	96
Sample A		11,2	4,6	41	27							27	27	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		6,65	0,22	3,3	6	0	CVPG	6,82	0,18	±2,8	4,02	9,62	6	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		9,72	1	10	12	0	CVPG	9,25	0,096	±2,8	6,45	12,1	12	
Other					9	0						9		
							4x 4/1, 4x 4/162, 1x 4/179							
Sample B		8,67	3,4	39	27							27	26	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		4,8	0,44	9,3	6	0	CVPG	5,01	0,17	±2,8	2,21	7,81	6	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		8,49	1,6	19	12	0	CVPG	7,87	0,098	±2,8	5,07	10,7	12	
Other					9	0						9		
							4x 4/1, 4x 4/162, 1x 4/179							
(183) CA 72-4	[kU/L]				24							24	18	75
Sample A		1,6	0,24	15	24							24	21	88
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		1,65	0,19	12	21	0	CVPG	1,66	0,019	22%	1,29	2,03	21	
Other					3	0						3		
							3x 4/73							
Sample B		1,95	0,27	14	24							24	20	83
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		1,97	0,26	13	21	0	CVPG	2,02	0,02	22%	1,57	2,47	21	
Other					3	0						3		
							3x 4/73							
(180) CA 125	[kU/L]				28							28	28	100
Sample A		10,6	2	18	28							28	28	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		13,2	1	7,6	8	0	CVPG	12,2	0,19	20%	9,76	14,7	8	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		10	0,56	5,6	13	0	CVPG	10	0,078	±2	8	12	13	
Other					7	0						7		
							2x 4/12, 4x 4/162, 1x 4/179							
Sample B		11	1,9	17	28							28	28	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		13,7	1,3	9,3	8	0	CVPG	13	0,18	20%	10,4	15,6	8	

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Test Sample Group	[unit]	RoM	SD	CV [%]	N _{tot}	N _{out}	Comparability					N _{eva}	N _{suc}	S _{rel} [%]	
							AV	U _{AV}	D _{max}	LL	UL				
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche Other		10,4	0,61	5,8	13	0	CVPG	10,5	0,081	20%	8,4	12,6	13	7	
					7	0	2x 4/12, 4x 4/162, 1x 4/179								
(189) CEA	[µg/L]				27								27	25	93
Sample A		49,3	12	25	27								27	25	93
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		65,9	3,2	4,8	5	0	CVPG	67,4	0,68	16%	56,6	78,2	5		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		39,2	0,67	1,7	5	0	CVPG	40,7	0,9	16%	34,1	47,3	5		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche Other		52,8	3,4	6,5	10	0	CVPG	53,7	0,26	16%	45,1	62,3	10	7	
					7	0	4x 4/162, 3x 4/179								
Sample B		24,3	6,2	26	27								27	25	93
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		31,9	1,8	5,7	5	0	CVPG	31,9	0,34	16%	26,7	37,1	5		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		19,6	0,074	0,38	5	0	CVPG	20,2	0,5	16%	16,9	23,5	5		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche Other		26,5	2,4	9,2	10	0	CVPG	25,8	0,13	16%	21,6	30	10	7	
					7	0	4x 4/162, 3x 4/179								
(184) CYFRA 21-1	[µg/L]				23								23	20	87
Sample A		10,7	1,8	16	23								23	20	87
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		8,95	0,56	6,3	6	0	CVPG	9	0,22	18%	7,38	10,7	6		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche Other		11,2	1	9,3	15	0	CVPG	11	0,11	18%	9,02	13	15	2	
					2	0	1x 3/24, 1x 4/73								
Sample B		23,8	2,2	9,3	23								23	21	91
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		22,4	1,3	5,7	6	0	CVPG	21,9	0,59	18%	17,9	25,9	6		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche Other		24,2	2,1	8,7	15	0	CVPG	24,3	0,22	18%	19,9	28,7	15	2	
					2	0	1x 3/24, 1x 4/73								
(186) hCG	[U/L]				28								28	28	100
Sample A		130	17	13	28								28	28	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		123	4,5	3,6	8	0	CVPG	118	1,7	18%	96,7	140	8		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche Other		150	4,6	3,1	9	0	CVPG	152	0,7	18%	124	180	9	11	
					11	0	2x 4/1, 4x 4/162, 1x 4/179, 4x 4/210								
Sample B		79,1	7,6	9,6	28								28	28	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		85,3	2,7	3,1	8	0	CVPG	83,6	1,2	18%	68,5	98,7	8		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche Other		75,8	3,1	4,1	9	0	CVPG	75,8	0,37	18%	62,1	89,5	9	11	
					11	0	2x 4/1, 4x 4/162, 1x 4/179, 4x 4/210								
(206) Calcitonin	[ng/L]				9								7	7	100
Sample A		8,53	1,9	23	9								7	7	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche Other		9,58	1,5	16	6	0	CVPG	9,69	0,21	31%	6,68	12,7	6	1	
					3	0	1x 1/36, 1x 4/29, 1x 4/73								
Sample B		49,5	6,7	14	9								7	7	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche Other		54,9	6,4	12	6	0	CVPG	51,9	0,89	31%	35,8	68	6	1	
					3	0	1x 1/36, 1x 4/29, 1x 4/73								
(194) NSE	[µg/L]				24								21	19	90
Sample A		7,01	1,8	25	24								21	19	90
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche Other		6,57	0,85	13	17	0	CVPG	6,11	0,11	30%	4,27	7,95	17	4	
					7	0	1x 3/24, 3x 4/1, 3x 4/73								
Sample B		33,7	7,4	22	24								21	20	95
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche Other		34	2,5	7,2	17	0	CVPG	34,3	0,46	30%	24	44,6	17	4	
					7	0	1x 3/24, 3x 4/1, 3x 4/73								
(187) p2PSA	[ng/L]				5								4	4	100
Sample A		30,8	0,29	0,94	5								4	4	100
Other					5	0	4x 4/12, 1x 4/58								
Sample B		4,8	0,24	5,1	5								4	4	100
Other					5	0	4x 4/12, 1x 4/58								
(191) PSA	[µg/L]				29								29	26	90
Sample A		4,13	0,8	19	29								29	26	90
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		3,33	0,27	8,2	6	0	CVPG	3,3	0,035	15%	2,8	3,8	6		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche Other		4,52	0,37	8,2	8	0	CVPG	4,32	0,02	15%	3,67	4,97	8		

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Test Sample Group	[unit]	RoM	SD	CV [%]	N _{tot}	N _{out}	Comparability					N _{eva}	N _{suc}	S _{rel} [%]
							AV	U _{AV}	D _{max}	LL	UL			
Other					15	0	4x 4/12, 4x 4/162, 3x 4/179, 4x 4/195					15		
Sample B		0,581	0,14	23	29							29	27	93
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		0,432	0,042	9,8	6	0	CVPG	0,413	0,005 ±0,105	0,308	0,518	6		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		0,61	0,051	8,4	8	0	CVPG	0,577	0,003 ±0,105	0,472	0,682	8		
Other					15	0	4x 4/12, 4x 4/162, 3x 4/179, 4x 4/195					15		
(198) free-PSA	[µg/L]				27							27	26	96
Sample A		2,82	0,24	8,6	27							27	26	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		2,8	0,25	8,8	6	0	CVPG	2,94	0,028	16%	2,46	3,42	6	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		2,75	0,25	9,2	8	0	CVPG	2,66	0,018	16%	2,23	3,09	8	
Other					13	0	4x 4/12, 2x 4/162, 3x 4/179, 4x 4/195					13		
Sample B		0,326	0,034	10	27							27	26	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		0,294	0,065	22	6	0	CVPG	0,312	0,004 ±0,112	0,2	0,424	6		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		0,318	0,033	10	8	0	CVPG	0,309	0,002 ±0,112	0,197	0,421	8		
Other					13	0	4x 4/12, 2x 4/162, 3x 4/179, 4x 4/195					13		
(201) S-100	[µg/L]				12							12	12	100
Sample A		0,382	0,042	11	12							12	12	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		0,367	0,023	6,1	10	0	CVPG	0,361	0,003	32%	0,245	0,477	10	
Other					2	0	2x 4/73					2		
Sample B		0,109	0,017	15	12							12	12	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		0,105	0,011	11	10	0	CVPG	0,107	0,001	32%	0,072	0,142	10	
Other					2	0	2x 4/73					2		
(195) SCCA	[µg/L]				16							15	13	87
Sample A		2,53	0,38	15	16							15	13	87
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		2,35	0,22	9,5	6	0	CVPG	2,21	0,069	32%	1,5	2,92	6	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		2,65	0,44	17	8	0	CVPG	2,54	0,079	32%	1,72	3,36	8	
Other					2	0	1x 4/73, 1x 4/162					1		
Sample B		2,5	0,37	15	16							15	14	93
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		2,35	0,22	9,5	6	0	CVPG	2,16	0,076	32%	1,46	2,86	6	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		2,6	0,36	14	8	0	CVPG	2,48	0,07	32%	1,68	3,28	8	
Other					2	0	1x 4/73, 1x 4/162					1		
(196) TPA	[U/L]				2							2	2	100
Sample A		1530	65	4,2	2							2	2	100
Other					2	0	2x 4/164					2		
Sample B		3570	360	10	2							2	2	100
Other					2	0	2x 4/164					2		
(207) Thyreoglobulin	[µg/L]				12							12	12	100
Sample A		84	20	23	12							12	12	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		94,5	2,2	2,4	5	0	CVPG	96,2	0,81	30%	67,3	126	5	
Other					7	0	1x 3/24, 4x 4/12, 1x 4/29, 1x 4/164					7		
Sample B		77,8	17	22	12							12	12	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		87,6	3,2	3,6	5	0	CVPG	88,1	0,7	30%	61,6	115	5	
Other					7	0	1x 3/24, 4x 4/12, 1x 4/29, 1x 4/164					7		