

EQA round: TM2/25 - Tumour Markers

Deadline: 29.4.2025

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]				18							14	14	100
Sample A		3,78	0,24	6,4	18							14	14	100
(6) IMT, IMN; (60) Roche		3,75	0,074	2	5	0	CVPG	3,66	0,031	21%	2,89	4,43	5	
Other					13	0		1x 1/36, 1x 4/1, 1x 4/164, 1x 6/1, 3x 6/58, 2x 6/75, 1x 6/91, 1x 6/149, 1x 6/162, 1x 6/179					9	
Sample B		2,75	0,24	8,8	18							14	14	100
(6) IMT, IMN; (60) Roche		2,86	0,082	2,9	5	0	CVPG	2,84	0,023	21%	2,24	3,44	5	
Other					13	0		1x 1/36, 1x 4/1, 1x 4/164, 1x 6/1, 3x 6/58, 2x 6/75, 1x 6/91, 1x 6/149, 1x 6/162, 1x 6/179					9	
(185) AFP	[µg/L]				27							27	26	96
Sample A		24	2,6	11	27							27	26	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		23,2	1,6	6,9	6	0	CVPG	23,3	0,77	20%	18,6	28	6	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		24,6	2,9	12	15	0	CVPG	25,3	0,18	20%	20,2	30,4	15	
Other					6	0		3x 4/1, 1x 4/162, 2x 4/179					6	
Sample B		4,54	0,68	15	27							27	27	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		5,05	0,62	12	6	0	CVPG	4,69	0,18	±2	2,69	6,69	6	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		4,61	0,63	14	15	0	CVPG	4,82	0,039	±2	2,82	6,82	15	
Other					6	0		3x 4/1, 1x 4/162, 2x 4/179					6	
(181) CA 15-3	[kU/L]				25							25	22	88
Sample A		13,1	2,1	16	25							25	22	88
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		11	1,2	11	5	0	CVPG	10,7	0,36	18%	8,77	12,7	5	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		14,4	1,4	9,7	13	0	CVPG	14,3	0,12	18%	11,7	16,9	13	
Other					7	0		1x 3/24, 3x 4/1, 1x 4/162, 2x 4/179					7	
Sample B		12,7	2,3	18	25							25	23	92
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		10,4	0,52	5	5	0	CVPG	10,1	0,33	18%	8,28	12	5	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		14,3	1,1	7,8	13	0	CVPG	14,3	0,12	18%	11,7	16,9	13	
Other					7	0		1x 3/24, 3x 4/1, 1x 4/162, 2x 4/179					7	
(182) CA 19-9	[kU/L]				28							28	28	100
Sample A		8,41	2	24	28							28	28	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		5,9	0,3	5	6	0	CVPG	6,16	0,16	±2,8	3,36	8,96	6	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		8,33	0,62	7,5	16	0	CVPG	8,75	0,11	±2,8	5,95	11,6	16	
Other					6	0		3x 4/1, 1x 4/162, 2x 4/179					6	
Sample B		7,92	2	26	28							28	28	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		5,4	0,59	11	6	0	CVPG	5,7	0,21	±2,8	2,9	8,5	6	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		7,86	0,62	7,9	16	0	CVPG	8,45	0,11	±2,8	5,65	11,3	16	
Other					6	0		3x 4/1, 1x 4/162, 2x 4/179					6	
(183) CA 72-4	[kU/L]				24							24	21	88
Sample A		1,36	0,15	11	24							24	21	88
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		1,34	0,12	8,9	22	0	CVPG	1,39	0,018	22%	1,08	1,7	22	
Other					2	0		2x 4/73					2	
Sample B		2,17	0,19	8,8	24							24	24	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		2,14	0,16	7,4	22	0	CVPG	2,16	0,023	22%	1,68	2,64	22	
Other					2	0		2x 4/73					2	
(180) CA 125	[kU/L]				28							28	27	96
Sample A		17,2	3	18	28							28	27	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		22,4	1,5	6,6	5	0	CVPG	22,2	0,27	20%	17,7	26,7	5	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		17,1	1,1	6,5	17	0	CVPG	16,6	0,12	20%	13,2	20	17	
Other					6	0		3x 4/12, 1x 4/162, 2x 4/179					6	

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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			
Sample B		24	4,1	17	28							28	28	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		31,4	1,2	3,7	5	0	CVPG	31	0,33	20%	24,8	37,2	5	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		24,2	1,5	6,1	17	0	CVPG	23,5	0,18	20%	18,8	28,2	17	
Other					6	0							6	
								3x 4/12, 1x 4/162, 2x 4/179						
(189) CEA	[µg/L]				28							28	27	96
Sample A		20,9	4,4	21	28							28	27	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		27,8	1,6	5,8	5	0	CVPG	27,6	0,27	16%	23,1	32,1	5	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		21,1	0,8	3,8	14	0	CVPG	21,6	0,12	16%	18,1	25,1	14	
Other					9	0							9	
								4x 4/12, 1x 4/162, 4x 4/179						
Sample B		30,3	5,9	19	28							28	27	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		40	1,5	3,7	5	0	CVPG	40	0,39	16%	33,6	46,4	5	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		30	1,1	3,8	14	0	CVPG	31,3	0,17	16%	26,2	36,4	14	
Other					9	0							9	
								4x 4/12, 1x 4/162, 4x 4/179						
(184) CYFRA 21-1	[µg/L]				22							21	21	100
Sample A		3,98	0,71	18	22							21	21	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		4,33	0,3	7	16	0	CVPG	4,25	0,043	18%	3,48	5,02	16	
Other					6	0							5	
								1x 3/24, 4x 4/1, 1x 4/73						
Sample B		1,34	0,39	29	22							21	21	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		1,55	0,09	5,8	16	0	CVPG	1,52	0,018	18%	1,24	1,8	16	
Other					6	0							5	
								1x 3/24, 4x 4/1, 1x 4/73						
(186) hCG	[U/L]				29							29	29	100
Sample A		192	28	15	29							29	29	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		177	9,1	5,2	7	0	CVPG	169	2,7	18%	138	200	7	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		221	14	6,5	11	0	CVPG	221	1,1	18%	181	261	11	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (210) Roche HCG STAT		176	13	7,2	6	0	CVPG	179	5,5	18%	146	212	6	
Other					5	0							5	
								2x 4/1, 1x 4/162, 2x 4/179						
Sample B		63	9,4	15	29							29	29	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		60	3,7	6,2	7	0	CVPG	58,7	0,93	18%	48,1	69,3	7	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		72,3	4,9	6,8	11	0	CVPG	72,2	0,39	18%	59,2	85,2	11	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (210) Roche HCG STAT		56,5	4,2	7,3	6	0	CVPG	58,5	2	18%	47,9	69,1	6	
Other					5	0							5	
								2x 4/1, 1x 4/162, 2x 4/179						
(206) Calcitonin	[ng/L]				8							7	7	100
Sample A		180	17	9,7	8							7	7	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		180	17	9,7	7	0	CVPG	175	2,8	31%	120	230	7	
Other					1	0							0	
								1x 1/36						
Sample B		37,3	4,1	11	8							7	7	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		38,4	2,4	6,2	7	0	CVPG	38,3	0,62	31%	26,4	50,2	7	
Other					1	0							0	
								1x 1/36						
(194) NSE	[µg/L]				22							21	20	95
Sample A		23,8	3,5	15	22							21	21	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		24	2,5	10	17	0	CVPG	24,7	0,26	30%	17,2	32,2	17	
Other					5	0							4	
								1x 3/24, 3x 4/1, 1x 4/73						
Sample B		5,18	0,99	19	22							21	20	95
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		5,11	0,82	16	17	0	CVPG	4,65	0,13	30%	3,25	6,05	17	
Other					5	0							4	
								1x 3/24, 3x 4/1, 1x 4/73						
(187) p2PSA	[ng/L]				5							4	3	75
Sample A		15,6	2,4	15	5							4	4	100
Other					5	0							4	
								4x 4/12, 1x 4/58						
Sample B		10,4	2	19	5							4	3	75
Other					5	0							4	
								4x 4/12, 1x 4/58						
(191) PSA	[µg/L]				30							30	28	93
Sample A		2,04	0,23	11	30							30	28	93
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		1,79	0,077	4,3	5	0	CVPG	1,69	0,028	15%	1,43	1,95	5	

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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); (12) Beckman Coulter		2,43	0,14	5,8	5	0	CVPG	2,43	0,043	15%	2,06	2,8	5		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		2,11	0,047	2,2	12	0	CVPG	2,08	0,01	15%	1,76	2,4	12		
Other					8	0							8		
															1x 4/162, 4x 4/179, 3x 4/195
Sample B		1,25	0,13	11	30								30	30	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		1,02	0,082	8	5	0	CVPG	0,998	0,016	15%	0,848	1,15	5		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		1,46	0,067	4,6	5	0	CVPG	1,5	0,03	15%	1,27	1,73	5		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		1,29	0,045	3,5	12	0	CVPG	1,28	0,006	15%	1,08	1,48	12		
Other					8	0							8		
															1x 4/162, 4x 4/179, 3x 4/195
(198) free-PSA	[µg/L]				27								27	26	96
Sample A		1,36	0,13	9,9	27								27	27	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		1,4	0,12	8,8	5	0	CVPG	1,35	0,014	16%	1,13	1,57	5		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		1,28	0,06	4,6	11	0	CVPG	1,26	0,01	16%	1,05	1,47	11		
Other					11	0							11		
															4x 4/12, 4x 4/179, 3x 4/195
Sample B		0,793	0,067	8,5	27								27	26	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		0,817	0,04	4,9	5	0	CVPG	0,781	0,009	16%	0,656	0,906	5		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		0,762	0,041	5,4	11	0	CVPG	0,76	0,007	16%	0,638	0,882	11		
Other					11	0							11		
															4x 4/12, 4x 4/179, 3x 4/195
(201) S-100	[µg/L]				8								8	8	100
Sample A					8								8	8	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		0,135	0,022	16	8	0	CVPG	0,137	0,001	32%	0,093	0,181	8		
Sample B					8								8	8	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		0,337	0,035	10	8	0	CVPG	0,339	0,003	32%	0,23	0,448	8		
(195) SCCA	[µg/L]				14								12	11	92
Sample A		5,09	0,74	15	14								12	11	92
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		4,68	1,1	25	8	0	CVPG	4,93	0,11	32%	3,35	6,51	8		
Other					6	0							4		
															4x 4/1, 1x 4/73, 1x 4/162
Sample B		5,41	0,82	15	14								12	11	92
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		5,2	0,82	16	8	0	CVPG	5,34	0,12	32%	3,63	7,05	8		
Other					6	0							4		
															4x 4/1, 1x 4/73, 1x 4/162
(196) TPA	[U/L]				2								0		
Sample A		399	0	0	2								0		
Other					2	1							0		
															1x 4/60, 1x 4/73
Sample B		87,6	0	0	2								0		
Other					2	1							0		
															1x 4/60, 1x 4/73
(207) Thyreoglobulin	[µg/L]				12								12	12	100
Sample A		116	21	18	12								12	12	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		119	6,9	5,8	6	0	CVPG	123	1,1	30%	86,1	160	6		
Other					6	0							6		
															1x 3/24, 3x 4/12, 1x 4/29, 1x 4/164
Sample B		58,3	12	21	12								12	12	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		63,3	4,2	6,6	6	0	CVPG	64,2	0,64	30%	44,9	83,5	6		
Other					6	0							6		
															1x 3/24, 3x 4/12, 1x 4/29, 1x 4/164