

EQA round: TM2/23 - Tumour Markers

Deadline: 2.5.2023

Setup: groups - measurement principle, 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]				19							16	16	100
Sample A												16	16	100
Other					19	0						16		
							1x 1/36, 1x 4/29, 1x 4/164, 1x 6/1, 1x 6/5, 4x 6/58, 4x 6/60, 1x 6/75, 1x 6/91, 1x 6/149, 1x 6/162, 2x 6/179							
Sample B												16	16	100
Other					19	0						16		
							1x 1/36, 1x 4/29, 1x 4/164, 1x 6/1, 1x 6/5, 4x 6/58, 4x 6/60, 1x 6/75, 1x 6/91, 1x 6/149, 1x 6/162, 2x 6/179							
(185) AFP	[µg/L]				25							25	25	100
Sample A		9,65	0,7	7,2	25							25	25	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		9,55	0,52	5,4	6	0	CVPG	9,29	0,21	±2	7,29	11,3	6	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		9,81	0,79	8,1	11	0	CVPG	9,85	0,073	±2	7,85	11,9	11	
Other					8	0						8		
							1x 3/24, 4x 4/1, 1x 4/162, 2x 4/179							
Sample B		40	4,4	11	25							25	25	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		37,7	2,5	6,6	6	0	CVPG	37,3	0,84	20%	29,8	44,8	6	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		42,3	2,6	6,1	11	0	CVPG	41,8	0,3	20%	33,4	50,2	11	
Other					8	0						8		
							1x 3/24, 4x 4/1, 1x 4/162, 2x 4/179							
(181) CA 15-3	[kU/L]				25							25	24	96
Sample A		12,5	1,8	14	25							25	24	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		12,4	0,74	6	5	0	CVPG	12	0,19	18%	9,84	14,2	5	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		13,6	1	7,4	12	0	CVPG	13,5	0,11	18%	11	16	12	
Other					8	0						8		
							1x 3/24, 4x 4/12, 1x 4/162, 2x 4/179							
Sample B		32,4	4,7	14	25							25	25	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		38,9	0,37	0,95	5	0	CVPG	38,9	0,54	18%	31,8	46	5	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		31,3	2,5	7,9	12	0	CVPG	30,7	0,23	18%	25,1	36,3	12	
Other					8	0						8		
							1x 3/24, 4x 4/12, 1x 4/162, 2x 4/179							
(182) CA 19-9	[kU/L]				26							26	25	96
Sample A		7,12	1,9	27	26							26	25	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		5,2	0,44	8,6	6	0	CVPG	5,42	0,21	±2,8	2,62	8,22	6	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		7,67	0,86	11	13	0	CVPG	7,39	0,097	±2,8	4,59	10,2	13	
Other					7	0						7		
							4x 4/1, 1x 4/162, 2x 4/179							
Sample B		6,74	1,9	29	26							26	25	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		4,95	0,37	7,5	6	0	CVPG	5,25	0,2	±2,8	2,45	8,05	6	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		7,41	0,7	9,5	13	0	CVPG	7,18	0,098	±2,8	4,38	9,98	13	
Other					7	0						7		
							4x 4/1, 1x 4/162, 2x 4/179							
(183) CA 72-4	[kU/L]				22							21	20	95
Sample A		24,2	3,2	13	22							21	20	95
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		24,5	3	12	21	0	CVPG	26,1	0,52	22%	20,3	31,9	21	
Other					1	0						0		
							1x 4/73							
Sample B		3,44	0,38	11	22							21	21	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		3,4	0,34	10	21	0	CVPG	3,56	0,059	22%	2,77	4,35	21	
Other					1	0						0		
							1x 4/73							
(180) CA 125	[kU/L]				27							26	25	96
Sample A		38,4	7,2	19	27							26	25	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		45,3	0,9	2	6	0	CVPG	45,1	0,51	20%	36	54,2	6	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		38,6	2,1	5,5	13	0	CVPG	37,7	0,3	20%	30,1	45,3	13	
Other					8	0						7		
							1x 3/24, 1x 3/25, 3x 4/12, 1x 4/162, 2x 4/179							
Sample B		16,9	2,6	15	27							26	25	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		19,5	0,79	4,1	6	0	CVPG	19,8	0,24	20%	15,8	23,8	6	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		16,1	0,87	5,4	13	0	CVPG	15,7	0,1	20%	12,5	18,9	13	

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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					8	0	1x 3/24, 1x 3/25, 3x 4/12, 1x 4/162, 2x 4/179					7		
(189) CEA	[µg/L]				26							26	25	96
Sample A		51,7	9,2	18	26							26	25	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		66,7	1,3	1,9	5	0	CVPG	69,9	0,71	16%	58,7	81,1	5	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		45,6	2,9	6,3	5	0	CVPG	46,4	1,1	16%	38,9	53,9	5	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		51,4	3,8	7,5	11	0	CVPG	51,1	0,31	16%	42,9	59,3	11	
Other					5	0	1x 4/162, 4x 4/179					5		
Sample B		16,8	2,9	17	26							26	26	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		20,7	1,1	5,2	5	0	CVPG	21,4	0,22	16%	17,9	24,9	5	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		14,5	0,98	6,8	5	0	CVPG	14,5	0,32	16%	12,1	16,9	5	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		17,4	1,3	7,2	11	0	CVPG	17	0,095	16%	14,2	19,8	11	
Other					5	0	1x 4/162, 4x 4/179					5		
(184) CYFRA 21-1	[µg/L]				22							21	20	95
Sample A		1	0,33	33	22							21	20	95
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		0,62	0,03	4,8	6	0	CVPG	0,568	0,028 ± 0,234	0,334	0,802	6		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		1,11	0,075	6,7	14	0	CVPG	1,07	0,021 ± 0,234	0,836	1,31	14		
Other					2	0	1x 3/24, 1x 4/73					1		
Sample B		8,95	1	11	22							21	20	95
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		7,79	0,42	5,4	6	0	CVPG	7,64	0,26	18%	6,26	9,02	6	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		9,42	0,29	3,1	14	0	CVPG	9,49	0,083	18%	7,78	11,2	14	
Other					2	0	1x 3/24, 1x 4/73					1		
(186) hCG	[U/L]				29							29	29	100
Sample A		93,4	13	14	29							29	29	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		88,4	5,6	6,3	8	0	CVPG	89,3	1,3	18%	73,2	106	8	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		109	4,4	4,1	8	0	CVPG	107	0,7	18%	87,7	127	8	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (210) Roche HCG STAT		90,2	14	16	6	0	CVPG	87,4	3,9	18%	71,6	104	6	
Other					7	0	1x 3/25, 3x 4/1, 1x 4/162, 2x 4/179					7		
Sample B		104	6,2	5,9	29							29	29	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		110	6,4	5,9	8	0	CVPG	111	1,5	18%	91	131	8	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		103	3,3	3,2	8	0	CVPG	102	0,57	18%	83,6	121	8	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (210) Roche HCG STAT		101	5,1	5,1	6	0	CVPG	98,6	4,1	18%	80,8	117	6	
Other					7	0	1x 3/25, 3x 4/1, 1x 4/162, 2x 4/179					7		
(206) Calcitonin	[ng/L]				8							7	7	100
Sample A		130	9,4	7,2	8							7	7	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		126	3,4	2,7	6	0	CVPG	128	2	31%	88,3	168	6	
Other					2	0	1x 1/36, 1x 4/29					1		
Sample B		21,3	4,2	19	8							7	7	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		21,3	4,2	19	6	0	CVPG	22,2	0,79	31%	15,3	29,1	6	
Other					2	0	1x 1/36, 1x 4/29					1		
(194) NSE	[µg/L]				22							20	20	100
Sample A		106	12	11	22							20	20	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		108	7,6	7	17	0	CVPG	105	1,3	30%	73,5	137	17	
Other					5	0	1x 3/24, 1x 3/166, 2x 4/1, 1x 4/73					3		
Sample B		6,46	0,75	12	22							20	20	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		6,38	0,48	7,5	17	0	CVPG	5,95	0,075	30%	4,16	7,74	17	
Other					5	0	1x 3/24, 1x 3/166, 2x 4/1, 1x 4/73					3		
(187) p2PSA	[ng/L]				1							1	1	100
Sample A					1	0						1	1	100
Other					1	0	1x 4/12					1		
Sample B					1	0						1	1	100
Other					1	0	1x 4/12					1		

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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			
(191) PSA	[µg/L]				29							29	26	90
Sample A		0,984	0,17	17	29							29	27	93
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		0,745	0,052	7	6	0	CVPG 0,783	0,01	15%	0,665	0,901	6		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		1,09	0,18	16	6	0	CVPG 1,12	0,026	15%	0,952	1,29	6		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		1,06	0,11	11	11	0	CVPG 1,06	0,006	15%	0,901	1,22	11		
Other					6	0						6		
							1x 4/162, 4x 4/179, 1x 4/195							
Sample B		0,83	0,13	15	29							29	28	97
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		0,638	0,027	4,2	6	0	CVPG 0,646	0,007 ±0,105		0,541	0,751	6		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		0,906	0,024	2,6	6	0	CVPG 0,923	0,021	15%	0,784	1,07	6		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		0,904	0,074	8,2	11	0	CVPG 0,898	0,005	15%	0,763	1,04	11		
Other					6	0						6		
							1x 4/162, 4x 4/179, 1x 4/195							
(198) free-PSA	[µg/L]				24							24	21	88
Sample A		0,67	0,059	8,8	24							24	22	92
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		0,7	0,044	6,2	6	0	CVPG 0,697	0,008 ±0,112		0,585	0,809	6		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		0,623	0,019	3	9	0	CVPG 0,624	0,004 ±0,112		0,512	0,736	9		
Other					9	0						9		
							4x 4/12, 4x 4/179, 1x 4/195							
Sample B		0,53	0,054	10	24							24	21	88
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		0,543	0,034	6,3	6	0	CVPG 0,553	0,006 ±0,112		0,441	0,665	6		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		0,501	0,006	1,2	9	0	CVPG 0,499	0,003 ±0,112		0,387	0,611	9		
Other					9	0						9		
							4x 4/12, 4x 4/179, 1x 4/195							
(201) S-100	[µg/L]				9							9	8	89
Sample A												9	8	89
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		4,61	0,21	4,5	9	0	CVPG 4,77	0,063	32%	3,24	6,3	9		
Sample B												9	9	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		0,105	0,007	6,4	9	0	CVPG 0,102	0,001	32%	0,069	0,135	9		
(195) SCCA	[µg/L]				13							12	11	92
Sample A		3,96	0,34	8,5	13							12	11	92
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		4	0,15	3,7	7	0	CVPG 4,04	0,11	32%	2,74	5,34	7		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		3,75	0,37	9,9	5	0	CVPG 3,97	0,09	32%	2,69	5,25	5		
Other					1	0						0		
							1x 4/73							
Sample B		1,13	0,34	30	13							12	11	92
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		0,95	0,22	23	7	0	CVPG 1,02	0,047	32%	0,693	1,35	7		
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		1,31	0,13	10	5	0	CVPG 1,35	0,058	32%	0,918	1,79	5		
Other					1	0						0		
							1x 4/73							
(207) Thyreoglobulin	[µg/L]				13							12	12	100
Sample A		50,4	12	24	13							12	12	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		58	3,9	6,6	6	0	CVPG 59,3	0,57	30%	41,5	77,1	6		
Other					7	0						6		
							1x 3/24, 1x 3/166, 3x 4/12, 1x 4/29, 1x 4/164							
Sample B		55,9	12	21	13							12	12	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		59,1	3,9	6,7	6	0	CVPG 60,7	0,57	30%	42,4	79	6		
Other					7	0						6		
							1x 3/24, 1x 3/166, 3x 4/12, 1x 4/29, 1x 4/164							