

## EQA round: E21/24 - Hormones 2

Deadline: 2.2.2024

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

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

Test Sample Group	[unit]	RoM	SD	CV [%]	N <sub>tot</sub>	N <sub>out</sub>	Comparability					N <sub>eva</sub>	N <sub>suc</sub>	S <sub>rel</sub> [%]
							AV	U <sub>AV</sub>	D <sub>max</sub>	LL	UL			
<b>(393) C-peptide</b>	[pmol/L]				38							31	31	100
<b>Sample A</b>		457	64	14	38							31	31	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		437	15	3,5	10	0	CVPG	435	13	20%	348	522	10	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		273	5,2	1,9	5	0	CVPG	275	12	20%	220	330	5	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		509	30	5,9	16	0	CVPG	513	15	20%	410	616	16	
Other					7	0							0	
							2x 4/29, 4x 4/162, 1x 4/179							
<b>Sample B</b>		397	65	16	38							31	31	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		382	17	4,4	10	0	CVPG	381	13	20%	304	458	10	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		237	5,2	2,2	5	0	CVPG	238	10	20%	190	286	5	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		450	25	5,6	16	0	CVPG	452	11	20%	361	543	16	
Other					7	0							0	
							2x 4/29, 4x 4/162, 1x 4/179							
<b>(193) Ferritin</b>	[µg/L]				49							47	47	100
<b>Sample A</b>		284	65	23	49							47	47	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		345	46	13	10	0	CVPG	354	9	24%	269	439	10	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		219	20	9,1	7	0	CVPG	207	8,8	24%	157	257	7	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		317	32	10	14	0	CVPG	315	3,5	24%	239	391	14	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (162) Siemens (Atellica)		208	17	8	6	0	CVPG	221	6	24%	167	275	6	
Other					12	0							10	
							3x 4/29, 1x 4/179, 2x 6/1, 3x 6/58, 3x 6/60							
<b>Sample B</b>		160	36	23	49							47	47	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		186	16	8,8	10	0	CVPG	199	5,7	24%	151	247	10	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		116	26	23	7	0	CVPG	119	7	24%	90,4	148	7	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		182	24	13	14	0	CVPG	187	2,7	24%	142	232	14	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (162) Siemens (Atellica)		117	11	9,6	6	0	CVPG	128	4,6	24%	97,2	159	6	
Other					12	0							10	
							3x 4/29, 1x 4/179, 2x 6/1, 3x 6/58, 3x 6/60							
<b>(321) FSH</b>	[U/L]				38							38	37	97
<b>Sample A</b>		39,8	2,8	6,9	38							38	37	97
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		38,3	2,4	6,2	8	0	CVPG	38	0,54	15%	32,3	43,7	8	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		43,3	3	6,8	8	0	CVPG	42,9	0,73	15%	36,4	49,4	8	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		38,4	2	5,2	15	0	CVPG	38	0,21	15%	32,3	43,7	15	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (162) Siemens (Atellica)		39,4	1,7	4,3	5	0	CVPG	39,7	0,75	15%	33,7	45,7	5	
Other					2	0							2	
							2x 4/179							
<b>Sample B</b>		5,26	0,49	9,2	38							38	38	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		4,95	0,67	13	8	0	CVPG	4,84	0,073	15%	4,11	5,57	8	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		5,8	0,3	5,1	8	0	CVPG	5,72	0,11	15%	4,86	6,58	8	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		5,14	0,28	5,5	15	0	CVPG	5,08	0,029	15%	4,31	5,85	15	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (162) Siemens (Atellica)		5,14	0,53	10	5	0	CVPG	5,18	0,088	15%	4,4	5,96	5	
Other					2	0							2	
							2x 4/179							
<b>(328) hGH</b>	[mU/L]				10							10	10	100
<b>Sample A</b>		3,2	0,81	25	10							10	10	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (29) Siemens (Immulite)		2,87	0,096	3,4	5	0	CVPG	3,12	0,078	±1,54	1,58	4,66	5	
Other					5	0							5	
							1x 1/36, 1x 4/12, 3x 4/60							
<b>Sample B</b>		25	1,6	6,5	10							10	10	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (29) Siemens (Immulite)		24,5	0,8	3,3	5	0	CVPG	25,6	0,5	19%	20,7	30,5	5	
Other					5	0							5	
							1x 1/36, 1x 4/12, 3x 4/60							

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Test Sample Group	[unit]	RoM	SD	CV [%]	N <sub>tot</sub>	N <sub>out</sub>	Comparability					N <sub>eva</sub>	N <sub>suc</sub>	S <sub>rel</sub> [%]
							AV	U <sub>AV</sub>	D <sub>max</sub>	LL	UL			
<b>(329) IGF-1</b>	[µg/L]				11							11	11	100
<b>Sample A</b>												11	11	100
Other					11	0						11		
							3x 4/29, 4x 4/60, 4x 4/164							
<b>Sample B</b>												11	11	100
Other					11	0						11		
							3x 4/29, 4x 4/60, 4x 4/164							
<b>(392) IGF-BP3</b>	[µg/L]				3							3	3	100
<b>Sample A</b>												3	3	100
Other					3	0						3		
							2x 4/29, 1x 4/60							
<b>Sample B</b>												3	3	100
Other					3	0						3		
							2x 4/29, 1x 4/60							
<b>(325) Insulin</b>	[mU/L]				11							11	11	100
<b>Sample A</b>		22,4	4	18	11							11	11	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		24,6	1,6	6,7	5	0	CVPG	25,1	0,25	20%	20	30,2	5	
Other					6	0							6	
							2x 4/1, 3x 4/12, 1x 4/179							
<b>Sample B</b>		89	16	18	11							11	11	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		101	9	8,9	5	0	CVPG	103	0,98	20%	82,4	124	5	
Other					6	0							6	
							2x 4/1, 3x 4/12, 1x 4/179							
<b>(326) Folate</b>	[nmol/L]				50							50	43	86
<b>Sample A</b>		45,8	3,6	7,9	50							50	48	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		45,3	0,009	0,02	16	0	CVPG	49,6	1,8	27%	36,2	63	16	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		46	3,3	7,3	9	0	CVPG	48,4	0,91	27%	35,3	61,5	9	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		43,9	2,5	5,8	18	0	CVPG	42	0,42	27%	30,6	53,4	18	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (162) Siemens (Atellica)		54,2	0,37	0,68	5	0	CVPG	54,5	1,6	27%	39,7	69,3	5	
Other					2	0							2	
							1x 4/29, 1x 4/179							
<b>Sample B</b>		7,26	1,8	25	50							50	45	90
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		8,94	1,4	16	16	0	CVPG	8,66	0,28	27%	6,32	11	16	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		7,01	0,75	11	9	0	CVPG	7,09	0,18	27%	5,17	9,01	9	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		5,63	0,94	17	18	0	CVPG	5,26	0,12	27%	3,83	6,69	18	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (162) Siemens (Atellica)		7,73	0,93	12	5	0	CVPG	8,56	0,29	27%	6,24	10,9	5	
Other					2	0							2	
							1x 4/29, 1x 4/179							
<b>(320) LH</b>	[U/L]				37							37	36	97
<b>Sample A</b>		67	9,4	14	37							37	36	97
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		58,9	7	12	8	0	CVPG	58,1	0,76	15%	49,3	66,9	8	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		59	10	18	8	0	CVPG	57,6	1,4	15%	48,9	66,3	8	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		74,9	3,7	5	14	0	CVPG	75,6	0,5	15%	64,2	87	14	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (162) Siemens (Atellica)		69,7	2,5	3,6	5	0	CVPG	69,2	0,91	15%	58,8	79,6	5	
Other					2	0							2	
							2x 4/179							
<b>Sample B</b>		3,6	0,92	26	37							37	37	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		2,53	0,19	7,6	8	0	CVPG	2,6	0,029	15%	2,21	2,99	8	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		3,29	0,13	3,8	8	0	CVPG	3,28	0,063	15%	2,78	3,78	8	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		4,54	0,23	5	14	0	CVPG	4,63	0,038	15%	3,93	5,33	14	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (162) Siemens (Atellica)		3,33	0,19	5,6	5	0	CVPG	3,3	0,042	15%	2,8	3,8	5	
Other					2	0							2	
							2x 4/179							
<b>(407) Parathyrin biointact (PTH 1-84)</b>	[pmol/L]				14							14	14	100
<b>Sample A</b>		1,94	0,23	12	14							14	14	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		2	0,16	7,8	12	0	CVPG	2,05	0,056	23%	1,57	2,53	12	
Other					2	0							2	
							2x 4/164							
<b>Sample B</b>		8,46	0,84	10	14							14	14	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		8,66	0,68	7,9	12	0	CVPG	8,79	0,28	23%	6,76	10,9	12	

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Test Sample Group	[unit]	RoM	SD	CV [%]	N <sub>tot</sub>	N <sub>out</sub>	Comparability					N <sub>eva</sub>	N <sub>suc</sub>	S <sub>rel</sub> [%]
							AV	U <sub>AV</sub>	D <sub>max</sub>	LL	UL			
Other					2	0	2x 4/164					2		
<b>(405) Parathyrin intact (PTH)</b>	[pmol/L]				24							24	24	100
<b>Sample A</b>		2,06	0,42	20	24							24	24	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		2,55	0,36	14	8	0	CVPG	2,52	0,062	23%	1,94	3,1	8	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		1,84	0,052	2,8	6	0	CVPG	1,96	0,07	23%	1,5	2,42	6	
Other					10	0	1x 4/29, 4x 4/60, 4x 4/162, 1x 4/179					10		
<b>Sample B</b>		11,3	2,2	20	24							24	24	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		14,1	1,9	13	8	0	CVPG	13,5	0,28	23%	10,3	16,7	8	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		10,4	0,85	8,2	6	0	CVPG	11	0,44	23%	8,47	13,6	6	
Other					10	0	1x 4/29, 4x 4/60, 4x 4/162, 1x 4/179					10		
<b>(322) Prolactin</b>	[mU/L]				39							39	37	95
<b>Sample A</b>		250	39	16	39							39	38	97
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		248	15	5,9	10	0	CVPG	255	3,3	16%	214	296	10	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		233	14	6,1	8	0	CVPG	229	4,7	16%	192	266	8	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		285	10	3,7	14	0	CVPG	280	1,8	16%	235	325	14	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (162) Siemens (Atellica)		195	6,1	3,1	5	0	CVPG	187	3,1	16%	157	217	5	
Other					2	0	2x 4/179					2		
<b>Sample B</b>		512	75	15	39							39	38	97
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		511	33	6,4	10	0	CVPG	522	7,5	16%	438	606	10	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		485	17	3,6	8	0	CVPG	479	10	16%	402	556	8	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		580	28	4,8	14	0	CVPG	568	3,9	16%	477	659	14	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (162) Siemens (Atellica)		402	7,9	2	5	0	CVPG	390	5,6	16%	327	453	5	
Other					2	0	2x 4/179					2		
<b>(390) Renin</b>	[ng/L]				8							7	7	100
<b>Sample A</b>		72,4	14	19	8							7	7	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (164) DiaSorin		69,7	9,6	14	6	0	CVPG	69	0,92	20%	55,2	82,8	6	
Other					2	0	1x 1/36, 1x 4/183					1		
<b>Sample B</b>		36,2	4,8	13	8							7	7	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (164) DiaSorin		35,5	3,7	10	6	0	CVPG	36	0,58	20%	28,8	43,2	6	
Other					2	0	1x 1/36, 1x 4/183					1		
<b>(394) SHBG</b>	[nmol/L]				24							23	23	100
<b>Sample A</b>		49,1	3,3	6,6	24							23	23	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		50,7	3,9	7,6	5	0	CVPG	51,8	1,2	20%	41,4	62,2	5	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		48,1	1,3	2,6	9	0	CVPG	49,2	0,37	20%	39,3	59,1	9	
Other					10	0	1x 1/36, 4x 4/12, 2x 4/29, 3x 4/162					9		
<b>Sample B</b>		31,4	2,1	6,6	24							23	23	100
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		32	0,59	1,9	5	0	CVPG	33,2	0,8	20%	26,5	39,9	5	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		30,7	1,3	4,3	9	0	CVPG	31,6	0,24	20%	25,2	38	9	
Other					10	0	1x 1/36, 4x 4/12, 2x 4/29, 3x 4/162					9		
<b>(327) Vitamin B<sub>12</sub></b>	[pmol/L]				45							45	42	93
<b>Sample A</b>		532	85	16	45							45	42	93
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		550	71	13	14	0	CVPG	531	11	20%	424	638	14	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		409	26	6,4	10	0	CVPG	410	7,5	20%	328	492	10	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		587	19	3,3	14	0	CVPG	571	4,2	20%	456	686	14	
Other					7	0	3x 4/29, 4x 4/162					7		
<b>Sample B</b>		401	66	16	45							45	43	96
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		417	46	11	14	0	CVPG	396	8,5	20%	316	476	14	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (12) Beckman Coulter		307	20	6,4	10	0	CVPG	305	7,3	20%	244	366	10	
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (60) Roche		449	19	4,1	14	0	CVPG	437	3,6	20%	349	525	14	
Other					7	0	3x 4/29, 4x 4/162					7		

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							AV	U <sub>AV</sub>	D <sub>max</sub>	LL	UL			
(319) <b>Vitamin B<sub>12</sub> (active)</b>	[pmol/L]				9									0
<b>Sample A</b>		192	95	49	9									0
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		192	95	49	5	0	CVPG	192	130	20%	153	231		0
Other					4	0								0
							2x 4/60, 1x 4/162, 1x 4/179							
<b>Sample B</b>		188	89	47	9									0
(4) LIA (CLIA, CMIA, ECLIA, LOCI); (1) Abbott		192	95	49	5	0	CVPG	192	130	20%	153	231		0
Other					4	0								0
							2x 4/60, 1x 4/162, 1x 4/179							