

**Uncertainties of quantitative measurements for the tests carried out at the laboratory. PREILI**

Tests	Units of measurement	2013			2014			2015			2016			2017			Target CV	Admissible total CV
		Low numbers	Average numbers	High numbers	Low numbers	Average numbers	High numbers	Low numbers	Average numbers	High numbers	Low numbers	Average numbers	High numbers	Low numbers	Average numbers	High numbers		
		CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%		
Androstendion	ng/ml																12.0	<b>22.2</b>
17 alfa-OH progesterone	ng/ml																9.2	<b>29.7</b>
Aldosterone	pg/ml																10.5	<b>36.7</b>
Parathormon	pg/ml																8.4	<b>30.2</b>
Testosterone	ng/dl																11.7	<b>14.0</b>
Ferritin	ng/ml							5,2	4,9	6,35	4,16	4,63	5,03	5,43	4,91	5,73	7.5	<b>16.9</b>
STH	ng/ml																6.6	<b>20.0</b>
Alpha feta protein	ng/ml																7.1	<b>21.9</b>
FSH	U/L																7.9	<b>17.1</b>
PSA	ng/ml							4,8	3,4	4,01	4,64	4,17	3,95	5,3	4,2	4,4	7.0	<b>30.0</b>
Free PSA								4,5	3,4	3	3,8	3,16	2,94				4.9	<b>25</b>
DHEA-sulphate	µg/dl																9.8	<b>11.2</b>
IgE total	U/ml							5,2	4,2	4,2	4,3	4,7	5,2	5,9	5,9	4,9	6.7	<b>15.0</b>
Free T4	pmol/l							6,4	5,1	5,3	5,93	4,65	5,16	4,3	4,1	3,4	4.6	<b>8.0</b>
LH	U/L																7.3	<b>27.9</b>
ECP	ng/ml																10.6	<b>20.0</b>
Estradiol	pg/ml																11.0	<b>27.2</b>
Progesterone	nmol/l							9,7	4,9	4,9	12,73	5,65	5,94	10,8	6,4	6,7	10.6	<b>20.0</b>
T4	nmol/l																5.5	<b>7.0</b>
Prolactin	mU/L																6.6	<b>29.4</b>
TSH	mU/L							3,47	3,07	3,45	5,16	3,68	3,06	4,2	3,3	3,5	9.7	<b>23.7</b>
T3	nmol/l																4.4	<b>12.0</b>
SHBG	nmol/l																6.1	<b>21.1</b>
Thyroglobin	pmol/l																7.2	<b>21.9</b>
AV against thyroglobin	U/ml																14.9	<b>27.6</b>
C peptide	ng/ml																4.8	<b>20.8</b>
Free T3	pmol/l																4.0	<b>11.3</b>
AV against Tireoperoxidase	U/ml								7,7	5		6,9	5,9		6,6	6,4	14.6	<b>46.2</b>
Troponin I	ng/ml							7,3	6,7	6,35	5,94	5,25	6,16	6,3	5,9	6,4	9.3	<b>22.5</b>
CA-125 (OM-MA)	U/ml																5.2	<b>38.2</b>

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		CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%		
CEA	ng/ml																6.4	<b>24.7</b>
Estriol	ng/ml																10.2	<b>15.0</b>
CA 15-3 (BR-MA)	U/ml																5.2	<b>20.9</b>
Insulin	μU/ml																10.6	<b>32.9</b>
CA 19-9 (GI-MA)	U/ml																8.72	<b>39.0</b>
Highly sensitive CRO	mg/dl																8.7	<b>10.0</b>
Erythropoietin	mU/ml																9.9	<b>30.0</b>
IGF 1	ng/ml																8.5	<b>24.0</b>
Calcitonin	pg/ml																7.7	
Cortisol	nmol/l																10.5	<b>29.8</b>
HCG	mU/ml							10,8	5,8	2,4	10,6	5,93	3,81	9,9	5,4	3,7	7.4	<b>20.0</b>
DPD	nmol																11.0	<b>21.9</b>
Free HCG	ng/ml																9.0	<b>10.0</b>
Valproic acid	μg/ml																7.1	<b>10.0</b>
β2 microglobulin	mg/l																8.4	<b>9.0</b>
PAPP-A	IU/ml																8.5	<b>15.1</b>
Folic acid	ng/ml																17	<b>39</b>
Vitamin B12	pg/ml																7.7	<b>30</b>
TSH receptor antiv.	IU/L																5.5	<b>45</b>
S-100	μg/l																3.6	<b>30</b>
AMH																	3.8	<b>30</b>
Vitamin D total	ng/ml																5.7	<b>40</b>
AKTH	pg/ml																5.7	<b>20.0</b>
Osteocalcine	ng/ml																3.2	<b>11.2</b>
CA72-4	U/ml																3.1	<b>30</b>
P1NP																	4.1	<b>30</b>
Beta TX																	8.4	<b>30</b>
CYFRA	ng/ml																4.7	<b>30</b>
HE4																	3.4	<b>30</b>
NSE	ng/ml																3.8	<b>36</b>
Anti-CCP	U/ml																1.9	<b>45</b>
Troponin T	ng/ml																8.6	<b>12</b>
Homocysteine	μmol/l																6.8	<b>15.5</b>
ALAT	U/L								1,83	2,24		2,17	2,62		1,83	1,5	2.7	<b>32.1</b>

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		CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%		
ASAT	U/L							1,84	1,71			1,95	1,86		1,51	0,91	2,6	<b>15.2</b>
Lipase	U/L							2,39	1,39			2,16	2,79		2,22	1,75	3,2	<b>29,1</b>
KFK MB group	U/L																9.2	<b>31.2</b>
LDH	U/L							1,69	0,93			2,16	1,39		1,52	1,12	2.5	<b>11.4</b>
Alkaline phosphatase	U/L							3,01	4,23			3,8	5,07		3,35	3,96	3.9	<b>11.7</b>
Gamma GT	U/L							1,91	1,23			2,1	2,06		1,71	1,22	5.3	<b>22.2</b>
Alpha amylase	U/L							1,32	1,54			1,52	1,77		1,07	0,96	1.3	<b>14.6</b>
Amylase in urine	u/L							1,18	1,59			1,2	2,01		0,9	1,01	7.2	<b>103.7</b>
Creatinine	μmol/l							1,98	1,59			3,12	2,83		1,81	1,54	3.0	<b>8.2</b>
Creatinine in urine	μmol/l											1,47	1,54		1,83	1,45	2.0	<b>28.4</b>
Ethanol	g/l							2,15	2,05			2,87	2,02		1,96	2,02	3.3	<b>4.8</b>
HCO3	mmol/l																3.5	<b>5.4</b>
Acid phosphatase	U/L																9.2	<b>10.3</b>
C3	g/l																7.0	<b>8.4</b>
C4	g/l																5.1	<b>16.0</b>
Fruktozamine	μmol/l																1.7	<b>4.5</b>
Glutathione peroxidase	U/L																3.6	<b>11.7</b>
Transferrin	g/l																3.8	<b>3.8</b>
Cistatin C	mg/l																2.4	<b>7.2</b>
Albumin	g/l							1,23	0,94			2,05	1,92		1,96	1,49	2.4	<b>3.9</b>
Albumin in urine	mg/l							3,21	1,98			5,92	2,68		4,06	2,68	6.1	<b>46.0</b>
Protein in urine	mg/dl							3,95	2,15			3,69	2,64		2,46	1,21	2.9	<b>40.0</b>
Urea	mmol/l							3,81	3,15			3,85	2,98		3,53	2,89	1.2	<b>15.7</b>
LDL cholesterol	mmol/l							1,64	1,89			1,93	2,18		1,78	1,81	2.9	<b>13.6</b>
HDL cholesterol	mmol/l							1,15	1,53			2,37	2,34		1,89	1,91	2.6	<b>11.1</b>
Glucose	mmol/l							1,52	1,31			1,83	1,81		1,33	1,35	0.9	<b>6.9</b>
Iron	μmol/l														1,33	1,35	2.1	<b>30.7</b>
Bilirubin total	μmol/l							3,11	2,96			4,49	3,65		2,25	2,72	3.2	<b>31.1</b>
Protein total	g/l							2,31	1,67			3,56	2,43		2,93	2,13	1.0	<b>3.4</b>
Uric acid	μmol/l							1,51	1,43			1,73	1,64		1,53	1,14	2.3	<b>8.0</b>
Uric acid in urine	μmol/l											1,59	1,48		2,13	0,97	5.2	<b>28.7</b>
Phosphorus	mmol/l							1,25	1,21			1,49	1,52		1,66	1,36	2.6	<b>7.8</b>
Calcium	mmol/l							1,74	1,36			1,79	1,91		1,44	1,26	2.4	<b>2.4</b>

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		CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%		
Calcium in urine	mmol/l											1,35	1,22		1,86	1,45	2.5	<b>34.2</b>
ASO	vien.							2,51	1,95			2,88	2,58		2,44	2,01	3.1	<b>20.0</b>
IgA	mg/dl																2.8	<b>13.5</b>
IgM	mg/dl																4.0	<b>16.8</b>
CRO	mg/dl							3,91	2,38			3,39	2,94		2,59	1,82	3.5	<b>56.6</b>
Haptoglobin	g/l																6.8	<b>27.3</b>
Transferrin	g/l																3.8	<b>3.8</b>
RF	U/ml							4,93	1,94			4,21	1,94		3,71	1,45	5.8	<b>13.5</b>
Glycosylated Hb	%							4,81	3,56			3,2	2,28		1,6	1,9	1.7	<b>4.3</b>
Cholesterol	mmol/l							1,36	1,44			2,4	2,07		1,56	2,02	1.3	<b>8.5</b>
Triglycerides	mmol/l							1,54	1,24			1,89	1,23		1,58	1,2	2.1	<b>27.9</b>
Cholinesterase	U/l																2.0	<b>8.9</b>
IgG	mg/dl																2.7	<b>8.0</b>
Magnesium	mmol/l							1,52	0,97			2,43	1,69		1,79	1,42	3.2	<b>4.8</b>
Magnesium in urine	mmol/l																2.9	<b>2.9</b>
Sodium	mmol/l							1,54	1,43			1,28	1,16		1,09	1,12	1.1	<b>0.9</b>
Potassium	mmol/l							0,94	0,98			1,94	1,48		1,42	1,45	1.4	<b>5.8</b>
Chlorine	mmol/l							1,48	1,15			2,18	1,9		1,54	1,28	1.2	<b>1.5</b>
α1 acid glycoprotein	g/l																5.7	<b>16.2</b>
BNP	pg/ml																12.5	<b>15</b>
Cyclosporine	ng/ml																9.0	<b>30</b>
Erythrocytes	x10 <sup>12</sup> /l							0,85	0,7	0,7	0,9	0,8	0,7	0,9	0,7	0,8	1.6	<b>4.4</b>
Haemoglobin	g/l							0,6	0,7	0,6	0,7	0,6	0,6	0,8	0,6	0,8	1.8	<b>4.1</b>
Haematocrit	%							0,9	0,9	0,8	1	0,8	0,7	1,2	0,9	0,9	1.8	<b>4.1</b>
Avg.Er volume (MCV)	fl							0,7	0,6	0,6	0,6	0,5	0,6	0,6	0,6	0,5	1.2	<b>2.3</b>
Avg..Hb conc.Er (MCH)	pg							0,9	0,8	0,9	1,1	0,9	0,8	1	0,8	0,8	1.4	<b>2.7</b>
ViAvg.Hb conc. (MCHC)	g/l							0,9	0,8	0,9	1,2	0,9	0,8	1,3	1,1	0,9	0.9	<b>2.2</b>
Thrombocytes	x10 <sup>9</sup> /l							7,7	2,7	1,4	5,6	2,1	1,4	6,9	2,3	1,4	5.9	<b>13.4</b>
Leukocytes	x10 <sup>9</sup> /l							1,8	2	1,5	2,2	1,6	1,3	2,4	1,6	1,3	5.6	<b>14.6</b>
Lymphocytes	x10 <sup>9</sup> /l							4	3,4	3,9	4,3	2,9	3,6	3,7	3,2	3,6	7.4	<b>16.0</b>
Eosinophilic	x10 <sup>9</sup> /l							7,8	7,7	7,3	9,3	7,5	6,8	8,6	8,3	7,4	19.8	<b>37.1</b>
Basophiles	x10 <sup>9</sup> /l							3,1	3,5	2,5	3,8	3,2	2,6	4,4	2,9	2,6	15.4	<b>38.5</b>
Neutrophilic	x10 <sup>9</sup> /l							3,4	2,8	2,3	3,5	2,9	2,3	3,6	2,9	2,6	9.1	<b>22.4</b>
Monocytes	x10 <sup>9</sup> /l							7,9	7,2	7,7	9,6	6,7	9,7	8,2	6,4	6,1	20	<b>27.9</b>

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		CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%	CV%		
Prothrombin	%(INR)							4,5	4,2			3,2	2,9		3,6	3,9	2.0	<b>5.3</b>
APTL	sec							1,6	3,9			2,4	4,1		2,3	2,8	2.8	<b>4.5</b>
Fibrinogen	g/l							4,2				3,9			4,4		7.2	<b>13.6</b>
Resistance to APC	sek																8.9	<b>15.0</b>
VIII factor	%																8.9	<b>8.9</b>
IX factor	%																8.9	<b>8.9</b>
Thrombin time	sek																4.7	<b>15.0</b>
Protein C	%																4.7	<b>18.7</b>
Total Protein S activity	%																11.6	<b>20.7</b>
Free Protein S Ag	%																4.8	<b>20.7</b>
Antithrombin III	%																4.5	<b>8.3</b>
Von Willebranda fact. cAg	%																4.2	<b>7.1</b>
Von Willebranda fact.activity	%																4.9	<b>8.8</b>
D-dimer	ng/ml							9,3	7,7			8,1	6,2		7,2	6	7.9	<b>15</b>
Lupus anticoagulant	Ref.																5.0	<b>15.0</b>
Lipase	U/L																5.0	<b>29.1</b>
Direct bilirubin	µmol/l																3.4	<b>44.5</b>
Interleukin 6	pg/ml																7.2	<b>30.0</b>
Specific Ig E	kU/L																12.0	
Specific Ig G	kU/L																11.7	
Lactate	mmol/l																1.0	30.4
Ceruloplasmin	g/l																4.6	7.9
APOA	mg/dl																4.5	9.1
APOB	mg/dl																5.7	11.6
SF fraction of bones	µg/L																8.1	14.6
Renin	µU/mL																17.1	30.0

\* Permissible uncertainties are indicated in the international inter-laboratory comparative testing programmes: Lab quality (Finland), UK NEQAS (Britain), CLIA (US) requirements for analytical quality.