RANDOX

PRODUCT INFORMATION

HE1532 / HS2611

1513UE

Please note, in Human Assayed Multi-Sera Level 3, lot 1513UE,
AST (GOT) is stable for **4 days** at +2°C to +8°C.
AST is also stable for 8 hours at +15°C to +25°C,
or 28 days when frozen once at -18°C to -24°C.

For any queries regarding the above, please contact technical.services@randox.com

CCS INC2312

FORM NO. 8373-GP
REVISION (2)
2 Aug 2019

HUMAN ASSAYED MULTI-SERA - LEVEL 3 (HUM ASY CONTROL 3)

CAT. NO.	HE1532	**GTIN:**	05055273203608	**SIZE:**	20 x 5ml
CAT. NO.	HS2611	**GTIN:**	05055273203813	**SIZE:**	5 x 5ml
LOT NO.	1513UE	**EXPIRY:**	2029-12-28		

INTENDED USE

This product is intended for *in vitro* diagnostic use, in the quality control of diagnostic assays. The Human Assayed Multi-sera is for the control of accuracy.

DEVICE DESCRIPTION

The Human Assayed Multi-sera is supplied at 2 levels, level 2 and 3. Target values and ranges are supplied for the analytes listed in the values section at both levels.

SAFETY PRECAUTIONS AND WARNINGS

For *in vitro* diagnostic use only. Do not pipette by mouth. Exercise the normal precautions required for handling laboratory reagents.

Human source material, from which this product has been derived, has been tested at donor level for the Human Immunodeficiency Virus (HIV 1, HIV 2) antibody, Hepatitis B Surface Antigen (HbsAg), and Hepatitis C Virus (HCV) antibody and found to be NON-REACTIVE. FDA approved methods have been used to conduct these tests.

However, since no method can offer complete assurance as to the absence of infectious agents, this material and all patient samples should be handled as though capable of transmitting infectious diseases and disposed of accordingly.

Health and Safety Data Sheets are available on request.

STORAGE AND STABILITY

OPENED: Store refrigerated (+2°C to +8°C). Reconstituted serum is stable for 8 hours at +15°C to +25°C or 7 days at +2°C to +8°C, and 28 days when frozen once at –18°C to –24°C. (See Limitations)

UNOPENED: Store refrigerated (+2°C to +8°C). Stable to expiration date printed on individual vials.

LIMITATIONS

For Total & Prostatic Acid Phosphatase, the material should be stabilised by adding 1 drop (25µl - 30µl) of 0.7M Acetic acid solution to 1ml of the serum exactly 30 minutes after reconstitution. After stabilisation Total and Prostatic Acid Phosphatase is stable for 2 hours at +15°C to +25°C, 2 days at +2°C to +8°C, and 28 days when frozen once at –18°C to –24°C.
Alkaline Phosphatase levels in the reconstituted serum will rise over the stability period. It is recommended that the reconstituted serum is allowed to stand for 1 hour at +15°C to +25°C before measurement.
Bilirubin in the serum is light sensitive, and it is recommended that the serum is stored in the dark. Stored in the dark, it is stable for 4 days at +2°C to +8°C. Do not store at +15°C to +25°C. Do not freeze.
GLDH is stable for 2 days at +2°C to +8°C.
NEFA is stable for 1 day at +2°C to +8°C.
Total PSA is stable for 4 days at +2°C to +8°C, or 28 days in aliquots frozen at –18°C to –24°C.
AST (GOT) is stable for 4 days at +2°C to +8°C, 8 hours at +15°C to +25°C or 28 days when frozen once at -18°C to -24°C.

Bacterial contamination of the reconstituted serum will cause reductions in the stability of many components.
Different lot numbers of this control should not be interchanged, as the values assigned to the controls vary from lot to lot.
The control should not be used as a calibration material.

Due to the zinc content in some batches of rubber stoppers, the QC and calibrator material should be aliquoted into polypropylene tubes and stored at +2°C to +8°C to ensure stable zinc levels throughout the stability period.

Lipase may generate error flags when run on Dry Chemistry systems. If error flags are generated, the control should be diluted 1:1 with distilled water.

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PREPARATION FOR USE

The Human Assayed Multi-sera is supplied lyophilised.

1. Carefully reconstitute each vial of lyophilised serum with exactly 5ml of distilled water at +15°C to +25°C. Close the bottle and allow to stand for 30 minutes before use. Ensure contents are completely dissolved by swirling gently. Avoid formation of foam. Do not shake.

2. Refer to the Control section of the individual analyser application.

3. Refrigerate any unused material. Prior to reuse, mix contents thoroughly.

MATERIALS PROVIDED

Human Assayed Multi-sera - Level 3 20 x 5ml / 5 x 5ml

MATERIALS REQUIRED BUT NOT PROVIDED

Volumetric pipette

ASSIGNED VALUES

Due to the variation caused by test equipment, test reagents and laboratory technique, the quoted ranges are provided for guidance. It is recommended that these ranges are used until each laboratory has established its own ranges, based on individual laboratory requirements.

Each batch of Assayed Human Serum Control is assigned at Randox Laboratories and a number of external laboratories. Values are assigned from a consensus of results obtained by these laboratories.

With each batch, a control range is provided for individual parameters and each parameter method. The control range is equivalent to the assigned mean ±2S.D.

If an instrument specific value is not available, refer to the Method section. If necessary, contact Randox Laboratories - Technical Services, Northern Ireland, tel: +44 (0) 28 9445 1070 or email Technical.Services@randox.com.

NOTES

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(1) Applies only in Germany. Ranges established according to the Guidelines of the Federal Chamber of Physicians in Germany.
(2) Values established by reference laboratories officially recognised by the Federal Chamber of Physicians in Germany.
(3) DGKC: German Society for Clinical Chemistry.
(4) IFCC: International Federation of Clinical Chemistry.
(5) SCE: Scandinavian Committee on Enzymes.

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Rev. 11 Feb '26 me

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Table of Content

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All enzyme values are quoted to a temperature of 37°C, unless otherwise stated

RANDOX

Abbott Alinity Alinity c

Human Assayed Multi-Sera - Level 3

Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28

Size: 20 x 5ml

Analyte	Unit	Target	Range Low	Range High	1SD	2SD	Method
Albumin	g/dl	2.84	2.41	3.27	0.215	0.430	Abbott Alinity Albumin BCG 2
	g/l	28.4	24.1	32.7	2.15	4.30	
	g/dl	2.70	2.30	3.10	0.200	0.400	Abbott Alinity Albumin BCP 2
	g/l	27.0	23.0	31.0	2.00	4.00	
	g/dl	2.83	2.41	3.25	0.210	0.420	Bromocresol Green
	g/l	28.3	24.1	32.5	2.10	4.20	
	g/dl	2.77	2.35	3.19	0.210	0.420	Bromocresol Purple
	g/l	27.7	23.5	31.9	2.10	4.20	
Alkaline Phosphatase	U/l	397	337	457	30.0	60.0	Abbott Alinity Alkaline Phosphatase 2
	U/l	384	326	442	29.0	58.0	AMP non-optimised
	U/l	399	339	459	30.0	60.0	AMP optimised to IFCC
ALT (GPT)	U/l	129	103	155	13.0	26.0	Abbott Alinity ALT 2
	U/l	146	117	175	14.5	29.0	Tris Buffer With P5P
	U/l	131	105	157	13.0	26.0	Tris Buffer Without P5P
Amylase Pancreatic	U/l	243	207	279	18.0	36.0	Amyloclastic Methods
Amylase Total	U/l	290	247	333	21.5	43.0	Abbott Alinity Amylase 2
	U/l	292	248	336	22.0	44.0	Other 2-chloro-pNPG3
AST (GOT)	U/l	159	127	191	16.0	32.0	Abbott Alinity AST 2
	U/l	189	151	227	19.0	38.0	Tris Buffer With P5P
	U/l	162	130	194	16.0	32.0	Tris Buffer Without P5P
Bicarbonate	mmol/l	13.8	10.9	16.7	1.45	2.90	PEP Carboxylase
Cholesterol	mg/dl	279	243	315	18.0	36.0	Abbott Alinity Cholesterol 2
	mmol/l	7.23	6.29	8.17	0.470	0.940	
	mg/dl	278	242	314	18.0	36.0	Cholesterol Oxidase - Abell Kendall
	mmol/l	7.20	6.26	8.14	0.470	0.940	
Cholinesterase	U/l	6286	5029	7543	629	1257	Colorimetric - Butyrylthiocholine
CK Total	U/l	548	449	647	49.5	99.0	Abbott CK-NAC (IFCC)
	U/l	556	456	656	50.0	100	CK-NAC (IFCC)
gamma-GT	U/l	158	134	182	12.0	24.0	Abbott Alinity GGT 2
	U/l	162	138	186	12.0	24.0	Gamma glut.-3-carb.-4-nitro.
Glucose	mg/dl	265	225	305	20.0	40.0	Hexokinase
	mmol/l	14.7	12.5	16.9	1.10	2.20	
HDL - Cholesterol	mg/dl	83.8	71.2	96.4	6.30	12.6	HDL Ultra/Accel Selective Detergent
	mmol/l	2.17	1.84	2.50	0.165	0.330	
Lactate	mg/dl	57.5	47.2	67.8	5.15	10.3	Colorimetric - Lactate oxidase
	mmol/l	6.38	5.23	7.53	0.575	1.15	
Lipase	U/l	72	58	86	7.00	14.0	Other Colorimetric
Lithium	mg/dl	1.40	1.23	1.57	0.085	0.170	Spectrophotometric
	mmol/l	2.02	1.78	2.26	0.120	0.240	

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RANDOX

Abbott Alinity Alinity c

Human Assayed Multi-Sera - Level 3

Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28

Size: 20 x 5ml

Analyte	Unit	Target	Range Low	Range High	1SD	2SD	Method
Magnesium	mg/dl	4.37	3.85	4.89	0.260	0.520	Enzymatic
	mmol/l	1.80	1.58	2.02	0.110	0.220	
Phosphate Inorganic	mg/dl	6.79	5.77	7.81	0.510	1.02	Phosphomolybdate Enzymatic
	mmol/l	2.19	1.86	2.52	0.165	0.330	
	mg/dl	6.85	5.82	7.88	0.515	1.03	Phosphomolybdate UV
	mmol/l	2.21	1.88	2.54	0.165	0.330	
Potassium	mmol/l	6.14	5.65	6.63	0.245	0.490	Ion Selective Electrode
Protein Total	g/dl	4.70	3.76	5.64	0.470	0.940	Abbott Alinity Total Protein 2
	g/l	47.0	37.6	56.4	4.70	9.40	
Sodium	mmol/l	157	149	165	4.00	8.00	Ion Selective Electrode
TIBC	µg/dl	248	196	300	26.0	52.0	FE+UIBC(saturation with iron)
	µmol/l	44.4	35.1	53.7	4.65	9.30	
Triglycerides	mg/dl	255	214	296	20.5	41.0	Lipase/GPO-PAP No Correction
	mmol/l	2.88	2.42	3.34	0.230	0.460	
Urea	mg/dl	121	103	139	9.00	18.0	Abbott Architect Urea Nitrogen 2
	mg/dl (BUN)	56.3	47.9	64.7	4.20	8.40	
	mmol/l	20.1	17.1	23.1	1.50	3.00	
	mg/dl	126	107	145	9.50	19.0	Urease - kinetic
	mg/dl (BUN)	58.8	50.0	67.6	4.40	8.80	
	mmol/l	21.0	17.9	24.1	1.55	3.10	
Uric Acid (Urate)	mg/dl	8.97	7.80	10.1	0.565	1.13	Abbott Alinity Uric Acid 2
	mmol/l	0.534	0.465	0.603	0.035	0.069	
	µmol/l	534	465	603	34.5	69.0	
	mg/dl	9.13	7.94	10.3	0.585	1.17	Uricase perox. no ascorb. ox.
	mmol/l	0.543	0.472	0.614	0.036	0.071	
	µmol/l	543	472	614	35.5	71.0	
	mg/dl	9.01	7.84	10.2	0.595	1.19	Uricase Perox. with ascorb. ox
	mmol/l	0.536	0.466	0.606	0.035	0.070	
	µmol/l	536	466	606	35.0	70.0	

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RANDOX

Abbott Architect c Systems

Human Assayed Multi-Sera - Level 3

Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28

Size: 20 x 5ml

			Range				
Analyte	**Unit**	**Target**	**Low**	**High**	**1SD**	**2SD**	**Method**
Alkaline Phosphatase	U/l	405	344	466	30.5	61.0	Abbott Architect Alkaline Phosphatase 2
	U/l	401	341	461	30.0	60.0	AMP non-optimised
	U/l	391	332	450	29.5	59.0	AMP optimised to IFCC
ALT (GPT)	U/l	129	103	155	13.0	26.0	Abbott Architect ALT 2
	U/l	131	105	157	13.0	26.0	Tris Buffer Without P5P
Amylase Total	U/l	292	248	336	22.0	44.0	Abbott Architect Amylase 2
AST (GOT)	U/l	160	128	192	16.0	32.0	Abbott Architect AST 2
	U/l	160	128	192	16.0	32.0	Tris Buffer Without P5P

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Human Assayed Multi-Sera - Level 3

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Size: 20 x 5ml

			Range				
Analyte	Unit	Target	Low	High	1SD	2SD	Method
Thyroid Stimulating Hormone	µU/ml = mIU/l	1.05	0.840	1.26	0.105	0.210	Abbott Architect

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Beckman Coulter AU Series

Human Assayed Multi-Sera - Level 3

Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28

Size: 20 x 5ml

			Range				
Analyte	**Unit**	**Target**	**Low**	**High**	**1SD**	**2SD**	**Method**
Albumin	g/dl	2.84	2.41	3.27	0.215	0.430	Bromocresol Green
	g/l	28.4	24.1	32.7	2.15	4.30	
Alkaline Phosphatase	U/l	413	351	475	31.0	62.0	AMP optimised to IFCC
	U/l	418	355	481	31.5	63.0	Beckman AMP (Calibrator)
	U/l	531	451	611	40.0	80.0	Diethanolamine buffer DEA
ALT (GPT)	U/l	141	113	169	14.0	28.0	Beckman IFCC Ref. with P5P
	U/l	145	116	174	14.5	29.0	Beckman Mod. IFCC Ref. without P5P
Amylase Total	U/l	279	237	321	21.0	42.0	Beckman CNPG3 (Master Cal)
	U/l	280	238	322	21.0	42.0	Beckman Olympus blocked pNPG7
	U/l	275	234	316	20.5	41.0	Other 2-chloro-pNPG3
AST (GOT)	U/l	152	122	182	15.0	30.0	Beckman Mod. IFCC Ref. without P5P
Bicarbonate	mmol/l	16.0	12.7	19.3	1.65	3.30	PEP Carboxylase
Cholesterol	mg/dl	283	246	320	18.5	37.0	Cholesterol Oxidase - Abell Kendall
	mmol/l	7.33	6.38	8.28	0.475	0.950	
	mg/dl	295	257	333	19.0	38.0	Cholesterol Oxidase - IDMS
	mmol/l	7.63	6.64	8.62	0.495	0.990	
CK Total	U/l	576	472	680	52.0	104	Beckman CK-NAC (IFCC)
GLDH	U/l	33	26	40	3.50	7.00	Triethanolamine buffer
Glucose	mg/dl	267	227	307	20.0	40.0	Glucose Oxidase
	mmol/l	14.8	12.6	17.0	1.10	2.20	
	mg/dl	267	227	307	20.0	40.0	Hexokinase
	mmol/l	14.8	12.6	17.0	1.10	2.20	
Lactate	mg/dl	53.9	44.2	63.6	4.85	9.70	Colorimetric - Lactate oxidase
	mmol/l	5.98	4.90	7.06	0.540	1.08	
LD (LDH)	U/l	787	669	905	59.0	118	P to L Scandinavian & Dutch
Lipase	U/l	69	55	83	7.00	14.0	Other Colorimetric
Magnesium	mg/dl	4.25	3.74	4.76	0.255	0.510	Xylidyl Blue
	mmol/l	1.75	1.54	1.96	0.105	0.210	
Phosphate Inorganic	mg/dl	6.82	5.80	7.84	0.510	1.02	Phosphomolybdate UV
	mmol/l	2.20	1.87	2.53	0.165	0.330	
TIBC	µg/dl	252	199	305	26.5	53.0	Direct Colorimetric
	µmol/l	45.0	35.6	54.4	4.70	9.40	
	µg/dl	250	198	302	26.0	52.0	FE+UIBC(saturation with iron)
	µmol/l	44.8	35.4	54.2	4.70	9.40	
Triglycerides	mg/dl	261	219	303	21.0	42.0	Lipase/GK UV. no correction
	mmol/l	2.95	2.48	3.42	0.235	0.470	
	mg/dl	260	218	302	21.0	42.0	Lipase/GPO-PAP No Correction
	mmol/l	2.94	2.47	3.41	0.235	0.470	

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Beckman Coulter AU Series

Human Assayed Multi-Sera - Level 3

Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28

Size: 20 x 5ml

			Range				
Analyte	Unit	Target	Low	High	1SD	2SD	Method
Urea	mg/dl	123	105	141	9.00	18.0	Urease - end point
	mg/dl (BUN)	57.1	48.5	65.7	4.30	8.60	
	mmol/l	20.4	17.3	23.5	1.55	3.10	
	mg/dl	124	105	143	9.50	19.0	Urease - kinetic
	mg/dl (BUN)	58.0	49.3	66.7	4.35	8.70	
	mmol/l	20.7	17.6	23.8	1.55	3.10	
Uric Acid (Urate)	mg/dl	9.31	8.10	10.5	0.595	1.19	Beckman AU Non US calibrator (66300)
	mmol/l	0.554	0.482	0.626	0.036	0.072	
	µmol/l	554	482	626	36.0	72.0	
	mg/dl	9.26	8.06	10.5	0.620	1.24	Uricase perox. no ascorb. ox.
	mmol/l	0.551	0.479	0.623	0.036	0.072	
	µmol/l	551	479	623	36.0	72.0	
	mg/dl	9.24	8.04	10.4	0.580	1.16	Uricase Perox. with ascorb. ox
	mmol/l	0.550	0.479	0.621	0.036	0.071	
	µmol/l	550	479	621	35.5	71.0	

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Method							Human Assayed Multi-Sera - Level 3
Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28							
Size: 20 x 5ml			Range				
Analyte	Unit	Target	Low	High	1SD	2SD	Method
Albumin	g/dl	2.84	2.41	3.27	0.215	0.430	Abbott Alinity Albumin BCG 2
	g/l	28.4	24.1	32.7	2.15	4.30	
	g/dl	2.70	2.30	3.10	0.200	0.400	Abbott Alinity Albumin BCP 2
	g/l	27.0	23.0	31.0	2.00	4.00	
	g/dl	2.87	2.44	3.30	0.215	0.430	Abbott Architect Albumin BCG 2
	g/l	28.7	24.4	33.0	2.15	4.30	
	g/dl	3.06	2.60	3.52	0.230	0.460	Bromocresol Green
	g/l	30.6	26.0	35.2	2.30	4.60	
	g/dl	2.77	2.35	3.19	0.210	0.420	Bromocresol Purple
	g/l	27.7	23.5	31.9	2.10	4.20	
	g/dl	3.02	2.57	3.47	0.225	0.450	Ortho Vitros Microslide Systems
	g/l	30.2	25.7	34.7	2.25	4.50	
	g/dl	2.72	2.31	3.13	0.205	0.410	Turbidimetric Assays
	g/l	27.2	23.1	31.3	2.05	4.10	
Alkaline Phosphatase	U/l	397	337	457	30.0	60.0	Abbott Alinity Alkaline Phosphatase 2
	U/l	404	343	465	30.5	61.0	Abbott Architect Alkaline Phosphatase 2
	U/l	397	337	457	30.0	60.0	AMP non-optimised
	U/l	389	331	447	29.0	58.0	AMP optimised to IFCC
	U/l	418	355	481	31.5	63.0	Beckman AMP (Calibrator)
	U/l	320	272	368	24.0	48.0	Ortho Vitros Microslide Systems
	U/l	338	287	389	25.5	51.0	Other Dry Chemistry
	U/l	336	286	386	25.0	50.0	Roche AMP buffer IFCC
	U/l	367	312	422	27.5	55.0	Siemens Dimension AMP buffer
ALT (GPT)	U/l	129	103	155	13.0	26.0	Abbott Alinity ALT 2
	U/l	130	104	156	13.0	26.0	Abbott Architect ALT 2
	U/l	145	116	174	14.5	29.0	Beckman Mod. IFCC Ref. without P5P
	U/l	150	120	180	15.0	30.0	Ortho Vitros MicroSlide visible
	U/l	145	116	174	14.5	29.0	Other Dry Chemistry
	U/l	148	118	178	15.0	30.0	Tris Buffer With P5P
	U/l	138	110	166	14.0	28.0	Tris Buffer Without P5P
Amylase Pancreatic	U/l	241	205	277	18.0	36.0	Immunoinhibition EPS Substrate
	U/l	237	201	273	18.0	36.0	Roche Liquid Stable pNPG7
Amylase Total	U/l	290	247	333	21.5	43.0	Abbott Alinity Amylase 2
	U/l	291	247	335	22.0	44.0	Abbott Architect Amylase 2
	U/l	279	237	321	21.0	42.0	Beckman CNPG3 (Master Cal)
	U/l	267	227	307	20.0	40.0	BM/Roche Colorimetric pNPG7
	U/l	166	141	191	12.5	25.0	Ortho Vitros Microslide Systems
	U/l	282	240	324	21.0	42.0	Other 2-chloro-pNPG3
	U/l	267	227	307	20.0	40.0	Roche Integra 2-chloro-pNPG7

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Method							Human Assayed Multi-Sera - Level 3
Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28							
Size: 20 x 5ml			Range				
Analyte	Unit	Target	Low	High	1SD	2SD	Method
Amylase Total	U/l	265	225	305	20.0	40.0	Roche Liquid Stable pNPG7
	U/l	306	260	352	23.0	46.0	Siemens Advia/Atellica
	U/l	319	271	367	24.0	48.0	Siemens Dimension EXL/RxL/Vista
AST (GOT)	U/l	159	127	191	16.0	32.0	Abbott Alinity AST 2
	U/l	161	129	193	16.0	32.0	Abbott Architect AST 2
	U/l	152	122	182	15.0	30.0	Beckman Mod. IFCC Ref. without P5P
	U/l	182	146	218	18.0	36.0	Ortho Vitros MicroSlide visible
	U/l	125	100	150	12.5	25.0	Other Dry Chemistry
	U/l	176	141	211	17.5	35.0	Tris Buffer With P5P
	U/l	147	118	176	14.5	29.0	Tris Buffer Without P5P
Bilirubin Total	mg/dl	4.42	3.49	5.35	0.465	0.930	Abbott Alinity Total Bilirubin 2
	µmol/l	75.6	59.7	91.5	7.95	15.9	
	mg/dl	4.45	3.52	5.38	0.465	0.930	Abbott Architect Total Bilirubin 2
	µmol/l	76.1	60.1	92.1	8.00	16.0	
	mg/dl	4.33	3.42	5.24	0.455	0.910	Diazo With Dichloroaniline
	µmol/l	74.0	58.5	89.5	7.75	15.5	
	mg/dl	4.04	3.19	4.89	0.425	0.850	Diazonium Ion
	µmol/l	69.1	54.6	83.6	7.25	14.5	
	mg/dl	3.97	3.14	4.80	0.415	0.830	Dichlorophenyl Diazonium
	µmol/l	67.8	53.6	82.0	7.10	14.2	
	mg/dl	4.64	3.67	5.61	0.485	0.970	DPD (Beckman AU)
	µmol/l	79.4	62.7	96.1	8.35	16.7	
	mg/dl	4.50	3.56	5.44	0.470	0.940	Ortho Vitros MicroSlide Total Bil
	µmol/l	76.9	60.8	93.0	8.05	16.1	
	mg/dl	4.87	3.85	5.89	0.510	1.02	Oxidation to Biliverdin/Vanadate
	µmol/l	83.2	65.7	101	8.90	17.8	
Calcium	mg/dl	12.3	11.1	13.5	0.600	1.20	Arsenazo
	mmol/l	3.08	2.77	3.39	0.155	0.310	
	mg/dl	12.7	11.4	14.0	0.650	1.30	Cresolphthalein Complexone
	mmol/l	3.16	2.84	3.48	0.160	0.320	
	mg/dl	12.7	11.4	14.0	0.650	1.30	NM-BAPTA
	mmol/l	3.17	2.85	3.49	0.160	0.320	
	mg/dl	12.6	11.3	13.9	0.650	1.30	Ortho Vitros Microslide Systems
	mmol/l	3.14	2.83	3.45	0.155	0.310	
Chloride	mmol/l	111	102	120	4.50	9.00	Ion Selective Electrode
	mmol/l	113	104	122	4.50	9.00	Ortho Vitros Microslide Systems
Cholesterol	mg/dl	279	243	315	18.0	36.0	Abbott Alinity Cholesterol 2
	mmol/l	7.23	6.29	8.17	0.470	0.940	

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RANDOX

Method							Human Assayed Multi-Sera - Level 3
Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28							
Size: 20 x 5ml			Range				
Analyte	Unit	Target	Low	High	1SD	2SD	Method
Cholesterol	mg/dl	280	244	316	18.0	36.0	Abbott Architect Cholesterol 2
	mmol/l	7.26	6.32	8.20	0.470	0.940	
	mg/dl	283	246	320	18.5	37.0	Cholesterol Oxidase - Abell Kendall
	mmol/l	7.33	6.38	8.28	0.475	0.950	
	mg/dl	283	246	320	18.5	37.0	Cholesterol Oxidase - IDMS
	mmol/l	7.34	6.39	8.29	0.475	0.950	
	mg/dl	275	239	311	18.0	36.0	Ortho Vitros Microslide Systems
	mmol/l	7.13	6.20	8.06	0.465	0.930	
	mg/dl	270	235	305	17.5	35.0	Siemens Dimension
	mmol/l	7.00	6.09	7.91	0.455	0.910	
CK Total	U/l	544	446	642	49.0	98.0	Abbott CK-NAC (IFCC)
	U/l	575	472	678	51.5	103	Beckman CK-NAC (IFCC)
	U/l	519	426	612	46.5	93.0	CK-NAC (IFCC)
	U/l	523	429	617	47.0	94.0	CK-NAC substrate start (DGKC)
	U/l	523	429	617	47.0	94.0	Creatine Phosphate Substrate Start
	U/l	436	358	514	39.0	78.0	Ortho Vitros Microslide Systems
Creatinine	mg/dl	3.95	3.16	4.74	0.395	0.790	Abbott Alinity Creatinine 2
	µmol/l	350	280	420	35.0	70.0	
	mg/dl	3.91	3.13	4.69	0.390	0.780	Abbott Architect Creatinine 2
	µmol/l	346	277	415	34.5	69.0	
	mg/dl	3.84	3.07	4.61	0.385	0.770	Alkaline picrate no deproteinisation
	µmol/l	340	272	408	34.0	68.0	
	mg/dl	4.09	3.27	4.91	0.410	0.820	Enzymatic
	µmol/l	362	290	434	36.0	72.0	
	mg/dl	3.89	3.11	4.67	0.390	0.780	IDMS Traceable
	µmol/l	344	275	413	34.5	69.0	
	mg/dl	3.81	3.05	4.57	0.380	0.760	Jaffe Rate Blanked
	µmol/l	337	270	404	33.5	67.0	
	mg/dl	3.95	3.16	4.74	0.395	0.790	Jaffe rate blanked comp. (-26umol/l)
	µmol/l	350	280	420	35.0	70.0	
	mg/dl	3.90	3.12	4.68	0.390	0.780	Jaffe rate comp. (-18umol/l)
	µmol/l	345	276	414	34.5	69.0	
	mg/dl	3.54	2.83	4.25	0.355	0.710	Other Dry Chemistry
	µmol/l	313	250	376	31.5	63.0	
	mg/dl	4.12	3.30	4.94	0.410	0.820	Roche Creatinine Plus
	µmol/l	365	292	438	36.5	73.0	
	mg/dl	3.92	3.14	4.70	0.390	0.780	Vitros - IDMS traceable
	µmol/l	347	278	416	34.5	69.0	
D-3-Hydroxybutyrate	mmol/l	1.14	0.969	1.31	0.085	0.170	Tris buffer 100mmol pH 8.5

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RANDOX

Method							Human Assayed Multi-Sera - Level 3
Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28							
Size: 20 x 5ml			Range				
Analyte	Unit	Target	Low	High	1SD	2SD	Method
Free T4	ng/dl	4.06	3.05	5.07	0.505	1.01	Abbott Alinity
	pg/ml	40.6	30.5	50.7	5.05	10.1	
	pmol/l	52.0	39.0	65.0	6.50	13.0	
	ng/dl	6.73	5.05	8.41	0.840	1.68	Roche Cobas 4000/e411
	pg/ml	67.3	50.5	84.1	8.40	16.8	
	pmol/l	86.3	64.7	108	10.9	21.7	
	ng/dl	6.54	4.91	8.17	0.815	1.63	Roche Cobas e402/e801
	pg/ml	65.4	49.1	81.7	8.15	16.3	
	pmol/l	83.8	62.9	105	10.6	21.2	
gamma-GT	U/l	158	134	182	12.0	24.0	Abbott Alinity GGT 2
	U/l	158	134	182	12.0	24.0	Abbott Architect GGT 2
	U/l	150	128	172	11.0	22.0	Gamma glut.-3-carb.-4-nitro.
	U/l	162	138	186	12.0	24.0	Gamma glut'3-carb'4-nitro (IFCC)
	U/l	175	149	201	13.0	26.0	Ortho Vitros Microslide Systems
GLDH	U/l	33	26	40	3.50	7.00	Triethanolamine buffer
Glucose	mg/dl	272	231	313	20.5	41.0	Glucose Oxidase
	mmol/l	15.1	12.8	17.4	1.15	2.30	
	mg/dl	267	227	307	20.0	40.0	Hexokinase
	mmol/l	14.8	12.6	17.0	1.10	2.20	
	mg/dl	256	218	294	19.0	38.0	Ortho Vitros Microslide Systems
	mmol/l	14.2	12.1	16.3	1.05	2.10	
HDL - Cholesterol	mg/dl	83.4	70.9	95.9	6.25	12.5	Direct HDL Clearance method
	mmol/l	2.16	1.84	2.48	0.160	0.320	
	mg/dl	91.5	77.8	105	6.75	13.5	Direct HDL Immunoseparation
	mmol/l	2.37	2.01	2.73	0.180	0.360	
	mg/dl	101	85.9	116	7.50	15.0	Direct HDL PEGME
	mmol/l	2.62	2.23	3.01	0.195	0.390	
	mg/dl	85.3	72.5	98.1	6.40	12.8	Direct HDL PPD
	mmol/l	2.21	1.88	2.54	0.165	0.330	
	mg/dl	106	90.1	122	8.00	16.0	Direct HDL Roche 4th gen.
	mmol/l	2.74	2.33	3.15	0.205	0.410	
	mg/dl	86.9	73.9	99.9	6.50	13.0	HDL Ultra/Accel Selective Detergent
	mmol/l	2.25	1.91	2.59	0.170	0.340	
	mg/dl	86.9	73.9	99.9	6.50	13.0	Vitros dHDL - PTA/MgCl2 direct precip.
	mmol/l	2.25	1.91	2.59	0.170	0.340	
Iron	µg/dl	226	185	267	20.5	41.0	Abbott Alinity Iron 2
	µmol/l	40.4	33.1	47.7	3.65	7.30	
	µg/dl	224	184	264	20.0	40.0	Abbott Architect Iron 2
	µmol/l	40.0	32.8	47.2	3.60	7.20	

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Method							Human Assayed Multi-Sera - Level 3
Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28							
Size: 20 x 5ml			Range				
Analyte	Unit	Target	Low	High	1SD	2SD	Method
Iron	µg/dl	215	176	254	19.5	39.0	Colorimetric with ppt.
	µmol/l	38.4	31.5	45.3	3.45	6.90	
	µg/dl	216	177	255	19.5	39.0	Colorimetric without ppt.
	µmol/l	38.6	31.7	45.5	3.45	6.90	
Lactate	mg/dl	55.2	45.3	65.1	4.95	9.90	Colorimetric - Lactate oxidase
	mmol/l	6.13	5.03	7.23	0.550	1.10	
	mg/dl	55.3	45.3	65.3	5.00	10.0	Enzymatic Electrode
	mmol/l	6.14	5.03	7.25	0.555	1.11	
LD (LDH)	U/l	412	350	474	31.0	62.0	Ortho Vitros IFCC Traceable
	U/l	786	668	904	59.0	118	P to L Scandinavian & Dutch
Lipase	U/l	90	72	108	9.00	18.0	Colorimetric Randox
	U/l	74	59	89	7.50	15.0	Colorimetric Sentinel NG OC (04Y85-20)
	U/l	662	531	793	65.5	131	Ortho Vitros Microslide Systems
	U/l	71	57	85	7.00	14.0	Other Colorimetric
	U/l	73	59	87	7.00	14.0	Roche Colorimetric
Lithium	mg/dl	1.45	1.28	1.62	0.085	0.170	Ion Selective Electrode
	mmol/l	2.09	1.84	2.34	0.125	0.250	
	mg/dl	1.43	1.26	1.60	0.085	0.170	Spectrophotometric
	mmol/l	2.06	1.81	2.31	0.125	0.250	
Magnesium	mg/dl	4.25	3.74	4.76	0.255	0.510	Chlorphosphonazo III
	mmol/l	1.75	1.54	1.96	0.105	0.210	
	mg/dl	4.35	3.83	4.87	0.260	0.520	Enzymatic
	mmol/l	1.79	1.58	2.00	0.105	0.210	
	mg/dl	4.30	3.78	4.82	0.260	0.520	Methylthymol Blue
	mmol/l	1.77	1.56	1.98	0.105	0.210	
	mg/dl	4.45	3.92	4.98	0.265	0.530	Ortho Vitros Microslide Systems
	mmol/l	1.83	1.61	2.05	0.110	0.220	
	mg/dl	4.28	3.77	4.79	0.255	0.510	Xylidyl Blue
	mmol/l	1.76	1.55	1.97	0.105	0.210	
NEFA	mmol/l	0.580	0.464	0.696	0.058	0.116	Colorimetric
Osmolality	mOsm/Kg	353	282	424	35.5	71.0	Calculated
	mOsm/Kg	387	310	464	38.5	77.0	Freezing Point Depression
Phosphate Inorganic	mg/dl	6.82	5.80	7.84	0.510	1.02	Abbott Alinity Phos 2
	mmol/l	2.20	1.87	2.53	0.165	0.330	
	mg/dl	6.91	5.87	7.95	0.520	1.04	Abbott Architect Phos 2
	mmol/l	2.23	1.90	2.56	0.165	0.330	

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Method							Human Assayed Multi-Sera - Level 3
Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28							
Size: 20 x 5ml			Range				
Analyte	Unit	Target	Low	High	1SD	2SD	Method
Phosphate Inorganic	mg/dl	6.63	5.64	7.62	0.495	0.990	Ortho Vitros Microslide Systems
	mmol/l	2.14	1.82	2.46	0.160	0.320	
	mg/dl	6.82	5.80	7.84	0.510	1.02	Phosphomolybdate Enzymatic
	mmol/l	2.20	1.87	2.53	0.165	0.330	
	mg/dl	6.79	5.77	7.81	0.510	1.02	Phosphomolybdate UV
	mmol/l	2.19	1.86	2.52	0.165	0.330	
Potassium	mmol/l	6.17	5.68	6.66	0.245	0.490	Ion Selective Electrode
	mmol/l	6.08	5.59	6.57	0.245	0.490	Ortho Vitros Microslide Systems
Protein Total	g/dl	4.70	3.76	5.64	0.470	0.940	Abbott Alinity Total Protein 2
	g/l	47.0	37.6	56.4	4.70	9.40	
	g/dl	4.80	3.84	5.76	0.480	0.960	Abbott Architect total Protein 2
	g/l	48.0	38.4	57.6	4.80	9.60	
	g/dl	4.52	3.62	5.42	0.450	0.900	Biuret Reaction End Point
	g/l	45.2	36.2	54.2	4.50	9.00	
	g/dl	4.46	3.57	5.35	0.445	0.890	Biuret Reaction Kinetic
	g/l	44.6	35.7	53.5	4.45	8.90	
	g/dl	4.72	3.78	5.66	0.470	0.940	Ortho Vitros Microslide Systems
	g/l	47.2	37.8	56.6	4.70	9.40	
PSA Total	ng/ml = µg/l	22.3	16.7	27.9	2.80	5.60	Roche Cobas 4000/e411
	ng/ml = µg/l	22.1	16.6	27.6	2.75	5.50	Roche Cobas e402/e801
Sodium	mmol/l	157	149	165	4.00	8.00	Ion Selective Electrode
	mmol/l	153	145	161	4.00	8.00	Ortho Vitros Microslide Systems
Thyroid Stimulating Hormone	µU/ml = mIU/l	1.06	0.848	1.27	0.105	0.210	Abbott Alinity
	µU/ml = mIU/l	1.05	0.840	1.26	0.105	0.210	Abbott Architect
	µU/ml = mIU/l	1.45	1.16	1.74	0.145	0.290	Roche Cobas 4000/e411
	µU/ml = mIU/l	1.41	1.13	1.69	0.140	0.280	Roche Cobas e402/e801
	µU/ml = mIU/l	1.43	1.14	1.72	0.145	0.290	Roche Cobas e601/ 602

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Method							Human Assayed Multi-Sera - Level 3
Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28							
Size: 20 x 5ml			Range				
Analyte	Unit	Target	Low	High	1SD	2SD	Method
TIBC	µg/dl	246	194	298	26.0	52.0	Calculated from Transferrin
	µmol/l	44.0	34.8	53.2	4.60	9.20	
	µg/dl	266	210	322	28.0	56.0	Direct Colorimetric
	µmol/l	47.6	37.6	57.6	5.00	10.0	
	µg/dl	241	190	292	25.5	51.0	FE+UIBC(saturation with iron)
	µmol/l	43.1	34.0	52.2	4.55	9.10	
Transferrin	g/l	1.80	1.44	2.16	0.180	0.360	Turbidimetric (IFCC Cal.)
	mg/dl	180	144	216	18.0	36.0	
Triglycerides	mg/dl	255	217	293	19.0	38.0	Abbott Alinity Triglyceride 2
	mmol/l	2.88	2.45	3.31	0.215	0.430	
	mg/dl	254	213	295	20.5	41.0	Abbott Architect Triglyceride 2
	mmol/l	2.87	2.41	3.33	0.230	0.460	
	mg/dl	263	221	305	21.0	42.0	Lipase/GK UV. no correction
	mmol/l	2.97	2.49	3.45	0.240	0.480	
	mg/dl	263	221	305	21.0	42.0	Lipase/GPO-PAP No Correction
	mmol/l	2.97	2.49	3.45	0.240	0.480	
	mg/dl	299	251	347	24.0	48.0	Ortho Vitros Microslide Systems
	mmol/l	3.38	2.84	3.92	0.270	0.540	
	mg/dl	277	235	319	21.0	42.0	Siemens Atellica Trig_2
	mmol/l	3.13	2.66	3.60	0.235	0.470	
Urea	mg/dl	128	109	147	9.50	19.0	Abbott Architect Urea Nitrogen 2
	mg/dl (BUN)	59.6	50.7	68.5	4.45	8.90	
	mmol/l	21.3	18.1	24.5	1.60	3.20	
	mg/dl	115	97.8	132	8.50	17.0	Ortho Vitros Microslide Systems
	mg/dl (BUN)	53.8	45.7	61.9	4.05	8.10	
	mmol/l	19.2	16.3	22.1	1.45	2.90	
	mg/dl	136	116	156	10.0	20.0	Other Dry Chemistry
	mg/dl (BUN)	63.3	53.8	72.8	4.75	9.50	
	mmol/l	22.6	19.2	26.0	1.70	3.40	
	mg/dl	123	105	141	9.00	18.0	Urease - end point
	mg/dl (BUN)	57.1	48.5	65.7	4.30	8.60	
	mmol/l	20.4	17.3	23.5	1.55	3.10	

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Method							Human Assayed Multi-Sera - Level 3
Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28							
Size: 20 x 5ml			Range				
Analyte	Unit	Target	Low	High	1SD	2SD	Method
Urea	mg/dl	124	105	143	9.50	19.0	Urease - kinetic
	mg/dl (BUN)	57.7	49.0	66.4	4.35	8.70	
	mmol/l	20.6	17.5	23.7	1.55	3.10	
Uric Acid (Urate)	mg/dl	8.97	7.80	10.1	0.565	1.13	Abbott Alinity Uric Acid 2
	mmol/l	0.534	0.465	0.603	0.035	0.069	
	µmol/l	534	465	603	34.5	69.0	
	mg/dl	8.96	7.80	10.1	0.570	1.14	Abbott Architect Uric Acid 2
	mmol/l	0.533	0.464	0.602	0.035	0.069	
	µmol/l	533	464	602	34.5	69.0	
	mg/dl	9.31	8.10	10.5	0.595	1.19	Beckman AU Non US calibrator (66300)
	mmol/l	0.554	0.482	0.626	0.036	0.072	
	µmol/l	554	482	626	36.0	72.0	
	mg/dl	8.67	7.54	9.80	0.565	1.13	Ortho Vitros Microslide Systems
	mmol/l	0.516	0.449	0.583	0.034	0.067	
	µmol/l	516	449	583	33.5	67.0	
	mg/dl	9.13	7.94	10.3	0.585	1.17	Uricase @ 293 nm
	mmol/l	0.543	0.472	0.614	0.036	0.071	
	µmol/l	543	472	614	35.5	71.0	
	mg/dl	8.99	7.82	10.2	0.605	1.21	Uricase perox. no ascorb. ox.
	mmol/l	0.535	0.465	0.605	0.035	0.070	
	µmol/l	535	465	605	35.0	70.0	
	mg/dl	8.97	7.80	10.1	0.565	1.13	Uricase Perox. with ascorb. ox
	mmol/l	0.534	0.465	0.603	0.035	0.069	
	µmol/l	534	465	603	34.5	69.0	
	mg/dl	8.84	7.69	9.99	0.575	1.15	Uricase Perox. with ascorb. ox @ 546nm
	mmol/l	0.526	0.458	0.594	0.034	0.068	
	µmol/l	526	458	594	34.0	68.0	

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Ortho Clinical Diag Ortho Vitros 46/56/XT 7600 (Microslide)

Human Assayed Multi-Sera - Level 3

Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28

Size: 20 x 5ml

			Range				
Analyte	**Unit**	**Target**	**Low**	**High**	**1SD**	**2SD**	**Method**
Alkaline Phosphatase	U/l	321	273	369	24.0	48.0	Ortho Vitros Microslide Systems
ALT (GPT)	U/l	149	119	179	15.0	30.0	Ortho Vitros Microslide Systems
	U/l	148	118	178	15.0	30.0	Ortho Vitros MicroSlide visible
Amylase Total	U/l	166	141	191	12.5	25.0	Ortho Vitros Microslide Systems
AST (GOT)	U/l	183	146	220	18.5	37.0	Ortho Vitros MicroSlide visible

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Randox RX series — Human Assayed Multi-Sera - Level 3

Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28

Size: 20 x 5ml — **Range**

Analyte	Unit	Target	Low	High	1SD	2SD	Method
Albumin	g/dl	3.01	2.56	3.46	0.225	0.450	Bromocresol Green
	g/l	30.1	25.6	34.6	2.25	4.50	
Alkaline Phosphatase	U/l	414	352	476	31.0	62.0	AMP optimised to IFCC
ALT (GPT)	U/l	154	123	185	15.5	31.0	Tris Buffer Without P5P
Amylase Total	U/l	303	258	348	22.5	45.0	Randox Liquid Ethylidene pNPG7
AST (GOT)	U/l	155	124	186	15.5	31.0	Tris Buffer Without P5P
Calcium	mg/dl	12.9	11.6	14.2	0.650	1.30	Cresolphthalein Complexone
	mmol/l	3.21	2.89	3.53	0.160	0.320	
Cholesterol	mg/dl	299	260	338	19.5	39.0	Cholesterol Oxidase - Abell Kendall
	mmol/l	7.74	6.73	8.75	0.505	1.01	
CK Total	U/l	551	452	650	49.5	99.0	CK-NAC (IFCC)
	U/l	560	459	661	50.5	101	CK-NAC substrate start (DGKC)
D-3-Hydroxybutyrate	mmol/l	1.10	0.935	1.27	0.085	0.170	Tris buffer 100mmol pH 8.5
gamma-GT	U/l	170	145	195	12.5	25.0	Gamma Glutamyl-4-Nitroanilide
Glucose	mg/dl	283	241	325	21.0	42.0	Glucose Oxidase
	mmol/l	15.7	13.3	18.1	1.20	2.40	
	mg/dl	283	241	325	21.0	42.0	Hexokinase
	mmol/l	15.7	13.3	18.1	1.20	2.40	
Lipase	U/l	94	75	113	9.50	19.0	Colorimetric Randox
Magnesium	mg/dl	4.23	3.72	4.74	0.255	0.510	Xylidyl Blue
	mmol/l	1.74	1.53	1.95	0.105	0.210	
Phosphate Inorganic	mg/dl	6.88	5.85	7.91	0.515	1.03	Phosphomolybdate UV
	mmol/l	2.22	1.89	2.55	0.165	0.330	
TIBC	µg/dl	243	192	294	25.5	51.0	Randox Colorimetric
	µmol/l	43.5	34.4	52.6	4.55	9.10	
Triglycerides	mg/dl	268	225	311	21.5	43.0	Lipase/GPO-PAP No Correction
	mmol/l	3.03	2.55	3.51	0.240	0.480	
Urea	mg/dl	116	98.6	133	8.50	17.0	Urease - kinetic
	mg/dl (BUN)	54.0	45.9	62.1	4.05	8.10	
	mmol/l	19.3	16.4	22.2	1.45	2.90	
Uric Acid (Urate)	mg/dl	9.46	8.23	10.7	0.620	1.24	Uricase Perox. with ascorb. ox @ 546nm
	mmol/l	0.563	0.490	0.636	0.037	0.073	
	µmol/l	563	490	636	36.5	73.0	

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RANDOX

Roche Cobas c111

Human Assayed Multi-Sera - Level 3

Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28

Size: 20 x 5ml

			Range				
Analyte	**Unit**	**Target**	**Low**	**High**	**1SD**	**2SD**	**Method**
Albumin	g/dl	3.10	2.64	3.56	0.230	0.460	Bromocresol Green
	g/l	31.0	26.4	35.6	2.30	4.60	
Alkaline Phosphatase	U/l	349	297	401	26.0	52.0	Roche AMP buffer IFCC
ALT (GPT)	U/l	130	104	156	13.0	26.0	Tris Buffer Without P5P
AST (GOT)	U/l	137	110	164	13.5	27.0	Tris Buffer Without P5P
Calcium	mg/dl	12.6	11.3	13.9	0.650	1.30	NM-BAPTA
	mmol/l	3.14	2.83	3.45	0.155	0.310	
Cholesterol	mg/dl	277	241	313	18.0	36.0	Cholesterol Oxidase - Abell Kendall
	mmol/l	7.17	6.24	8.10	0.465	0.930	
Glucose	mg/dl	276	235	317	20.5	41.0	Hexokinase
	mmol/l	15.3	13.0	17.6	1.15	2.30	
Triglycerides	mg/dl	270	227	313	21.5	43.0	Lipase/GPO-PAP No Correction
	mmol/l	3.05	2.56	3.54	0.245	0.490	
Urea	mg/dl	124	105	143	9.50	19.0	Urease - kinetic
	mg/dl (BUN)	57.7	49.0	66.4	4.35	8.70	
	mmol/l	20.6	17.5	23.7	1.55	3.10	
Uric Acid (Urate)	mg/dl	9.28	8.07	10.5	0.610	1.22	Uricase perox. no ascorb. ox.
	mmol/l	0.552	0.480	0.624	0.036	0.072	
	µmol/l	552	480	624	36.0	72.0	

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Roche Cobas c303/c503/c703

Human Assayed Multi-Sera - Level 3

Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28

Size: 20 x 5ml

			Range				
Analyte	**Unit**	**Target**	**Low**	**High**	**1SD**	**2SD**	**Method**
Alkaline Phosphatase	U/l	332	282	382	25.0	50.0	Colorimetric
	U/l	323	275	371	24.0	48.0	Roche AMP buffer IFCC
ALT (GPT)	U/l	148	118	178	15.0	30.0	Tris Buffer With P5P
	U/l	147	118	176	14.5	29.0	Tris Buffer Without P5P
Amylase Total	U/l	267	227	307	20.0	40.0	BM/Roche Colorimetric pNPG7
	U/l	264	224	304	20.0	40.0	Roche Integra 2-chloro-pNPG7
	U/l	264	224	304	20.0	40.0	Roche Liquid Stable pNPG7
AST (GOT)	U/l	174	139	209	17.5	35.0	Tris Buffer With P5P
	U/l	174	139	209	17.5	35.0	Tris Buffer Without P5P
Cholinesterase	U/l	5230	4184	6276	523	1046	Colorimetric - Butyrylthiocholine

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RANDOX

Roche Cobas c311

Human Assayed Multi-Sera - Level 3

Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28

Size: 20 x 5ml

			Range				
Analyte	**Unit**	**Target**	**Low**	**High**	**1SD**	**2SD**	**Method**
Albumin	g/dl	3.13	2.66	3.60	0.235	0.470	Bromocresol Green
	g/l	31.3	26.6	36.0	2.35	4.70	
Alkaline Phosphatase	U/l	348	296	400	26.0	52.0	Roche AMP buffer IFCC
ALT (GPT)	U/l	135	108	162	13.5	27.0	Tris Buffer Without P5P
Amylase Total	U/l	268	228	308	20.0	40.0	Roche Liquid Stable pNPG7
AST (GOT)	U/l	142	114	170	14.0	28.0	Tris Buffer Without P5P
Calcium	mg/dl	12.7	11.4	14.0	0.650	1.30	NM-BAPTA
	mmol/l	3.18	2.86	3.50	0.160	0.320	
Cholesterol	mg/dl	283	246	320	18.5	37.0	Cholesterol Oxidase - Abell Kendall
	mmol/l	7.34	6.39	8.29	0.475	0.950	
	mg/dl	283	246	320	18.5	37.0	Cholesterol Oxidase - IDMS
	mmol/l	7.34	6.39	8.29	0.475	0.950	
CK Total	U/l	525	431	619	47.0	94.0	CK-NAC (IFCC)
Glucose	mg/dl	270	230	310	20.0	40.0	Hexokinase
	mmol/l	15.0	12.8	17.2	1.10	2.20	
Lactate	mg/dl	54.3	44.5	64.1	4.90	9.80	Colorimetric - Lactate oxidase
	mmol/l	6.03	4.94	7.12	0.545	1.09	
Magnesium	mg/dl	4.28	3.77	4.79	0.255	0.510	Xylidyl Blue
	mmol/l	1.76	1.55	1.97	0.105	0.210	
Phosphate Inorganic	mg/dl	6.82	5.80	7.84	0.510	1.02	Phosphomolybdate UV
	mmol/l	2.20	1.87	2.53	0.165	0.330	
Potassium	mmol/l	6.17	5.68	6.66	0.245	0.490	Ion Selective Electrode
Sodium	mmol/l	157	149	165	4.00	8.00	Ion Selective Electrode
TIBC	µg/dl	237	187	287	25.0	50.0	FE+UIBC(saturation with iron)
	µmol/l	42.4	33.5	51.3	4.45	8.90	
Triglycerides	mg/dl	265	223	307	21.0	42.0	Lipase/GPO-PAP No Correction
	mmol/l	2.99	2.51	3.47	0.240	0.480	
Urea	mg/dl	126	107	145	9.50	19.0	Urease - kinetic
	mg/dl (BUN)	58.8	50.0	67.6	4.40	8.80	
	mmol/l	21.0	17.9	24.1	1.55	3.10	
Uric Acid (Urate)	mg/dl	8.94	7.78	10.1	0.580	1.16	Uricase Perox. with ascorb. ox
	mmol/l	0.532	0.463	0.601	0.035	0.069	
	µmol/l	532	463	601	34.5	69.0	
	mg/dl	8.97	7.80	10.1	0.565	1.13	Uricase Perox. with ascorb. ox @ 546nm
	mmol/l	0.534	0.465	0.603	0.035	0.069	
	µmol/l	534	465	603	34.5	69.0	

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RANDOX

Roche Cobas c501/c502

Human Assayed Multi-Sera - Level 3

Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28

Size: 20 x 5ml

			Range				
Analyte	**Unit**	**Target**	**Low**	**High**	**1SD**	**2SD**	**Method**
Alkaline Phosphatase	U/l	356	303	409	26.5	53.0	Roche AMP buffer IFCC
ALT (GPT)	U/l	143	114	172	14.5	29.0	Tris Buffer With P5P
	U/l	135	108	162	13.5	27.0	Tris Buffer Without P5P
Amylase Total	U/l	266	226	306	20.0	40.0	Roche Liquid Stable pNPG7
AST (GOT)	U/l	190	152	228	19.0	38.0	Tris Buffer With P5P
	U/l	141	113	169	14.0	28.0	Tris Buffer Without P5P
D-3-Hydroxybutyrate	mmol/l	1.15	0.978	1.32	0.085	0.170	Tris buffer 100mmol pH 8.5

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Roche Cobas c701 / c702 / c711

Human Assayed Multi-Sera - Level 3

Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28

Size: 20 x 5ml

			Range				
Analyte	**Unit**	**Target**	**Low**	**High**	**1SD**	**2SD**	**Method**
Alkaline Phosphatase	U/l	335	285	385	25.0	50.0	Roche AMP buffer IFCC
ALT (GPT)	U/l	140	112	168	14.0	28.0	Tris Buffer With P5P
	U/l	134	107	161	13.5	27.0	Tris Buffer Without P5P
Amylase Total	U/l	264	224	304	20.0	40.0	Roche Liquid Stable pNPG7
AST (GOT)	U/l	184	147	221	18.5	37.0	Tris Buffer With P5P
	U/l	139	111	167	14.0	28.0	Tris Buffer Without P5P

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RANDOX

Roche Cobas e411

Human Assayed Multi-Sera - Level 3

Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28

Size: 20 x 5ml

			Range				
Analyte	Unit	Target	Low	High	1SD	2SD	Method
Thyroid Stimulating Hormone	µU/ml = mIU/l	1.45	1.16	1.74	0.145	0.290	Roche Cobas 4000/e411

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RANDOX

Roche Integra

Human Assayed Multi-Sera - Level 3

Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28

Size: 20 x 5ml

			Range				
Analyte	**Unit**	**Target**	**Low**	**High**	**1SD**	**2SD**	**Method**
Albumin	g/dl	3.08	2.62	3.54	0.230	0.460	Bromocresol Green
	g/l	30.8	26.2	35.4	2.30	4.60	
Alkaline Phosphatase	U/l	364	309	419	27.5	55.0	Roche AMP buffer IFCC
ALT (GPT)	U/l	130	104	156	13.0	26.0	Tris Buffer Without P5P
Amylase Total	U/l	270	230	310	20.0	40.0	Roche Liquid Stable pNPG7
AST (GOT)	U/l	137	110	164	13.5	27.0	Tris Buffer Without P5P
Calcium	mg/dl	12.8	11.5	14.1	0.650	1.30	NM-BAPTA
	mmol/l	3.19	2.87	3.51	0.160	0.320	
Cholesterol	mg/dl	281	244	318	18.5	37.0	Cholesterol Oxidase - Abell Kendall
	mmol/l	7.29	6.34	8.24	0.475	0.950	
	mg/dl	281	244	318	18.5	37.0	Cholesterol Oxidase - IDMS
	mmol/l	7.28	6.33	8.23	0.475	0.950	
CK Total	U/l	523	429	617	47.0	94.0	CK-NAC (IFCC)
Glucose	mg/dl	272	231	313	20.5	41.0	Hexokinase
	mmol/l	15.1	12.8	17.4	1.15	2.30	
Magnesium	mg/dl	4.18	3.68	4.68	0.250	0.500	Chlorphosphonazo III
	mmol/l	1.72	1.51	1.93	0.105	0.210	
Phosphate Inorganic	mg/dl	7.04	5.98	8.10	0.530	1.06	Phosphomolybdate UV
	mmol/l	2.27	1.93	2.61	0.170	0.340	
Potassium	mmol/l	6.18	5.69	6.67	0.245	0.490	Ion Selective Electrode
Sodium	mmol/l	156	148	164	4.00	8.00	Ion Selective Electrode
Triglycerides	mg/dl	265	223	307	21.0	42.0	Lipase/GPO-PAP No Correction
	mmol/l	2.99	2.51	3.47	0.240	0.480	
Urea	mg/dl	121	103	139	9.00	18.0	Urease - kinetic
	mg/dl (BUN)	56.3	47.9	64.7	4.20	8.40	
	mmol/l	20.1	17.1	23.1	1.50	3.00	
Uric Acid (Urate)	mg/dl	9.13	7.94	10.3	0.585	1.17	Uricase perox. no ascorb. ox.
	mmol/l	0.543	0.472	0.614	0.036	0.071	
	µmol/l	543	472	614	35.5	71.0	
	mg/dl	9.19	8.00	10.4	0.605	1.21	Uricase Perox. with ascorb. ox
	mmol/l	0.547	0.476	0.618	0.036	0.071	
	µmol/l	547	476	618	35.5	71.0	

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Siemens Atellica Solution

Human Assayed Multi-Sera - Level 3

Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28

Size: 20 x 5ml

			Range				
Analyte	**Unit**	**Target**	**Low**	**High**	**1SD**	**2SD**	**Method**
Alkaline Phosphatase	U/l	361	307	415	27.0	54.0	AMP optimised to IFCC
ALT (GPT)	U/l	149	119	179	15.0	30.0	Tris Buffer With P5P
	U/l	158	126	190	16.0	32.0	Tris Buffer Without P5P
Amylase Total	U/l	306	260	352	23.0	46.0	Siemens Advia/Atellica
AST (GOT)	U/l	197	158	236	19.5	39.0	Tris Buffer With P5P
	U/l	155	124	186	15.5	31.0	Tris Buffer Without P5P

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RANDOX

Siemens Dimension EXL/200

Human Assayed Multi-Sera - Level 3

Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28

Size: 20 x 5ml

			Range				
Analyte	Unit	Target	Low	High	1SD	2SD	Method
Alkaline Phosphatase	U/l	368	313	423	27.5	55.0	Siemens Dimension AMP buffer
ALT (GPT)	U/l	157	126	188	15.5	31.0	Tris Buffer With P5P
Amylase Total	U/l	319	271	367	24.0	48.0	Siemens Dimension EXL/RxL/Vista
AST (GOT)	U/l	172	138	206	17.0	34.0	Tris Buffer With P5P

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Thermo Fisher Sci / Binding Site Konelab 20/30/60/Indiko

Human Assayed Multi-Sera - Level 3

Lot. No: 1513UE Cat. No: HE1532 Expiry: 2029/12/28

Size: 20 x 5ml

			Range				
Analyte	**Unit**	**Target**	**Low**	**High**	**1SD**	**2SD**	**Method**
Albumin	g/dl	2.90	2.47	3.33	0.215	0.430	Bromocresol Green
	g/l	29.0	24.7	33.3	2.15	4.30	
ALT (GPT)	U/l	147	118	176	14.5	29.0	Tris Buffer Without P5P
AST (GOT)	U/l	155	124	186	15.5	31.0	Tris Buffer Without P5P
Cholesterol	mg/dl	300	261	339	19.5	39.0	Cholesterol Oxidase - Abell Kendall
	mmol/l	7.78	6.77	8.79	0.505	1.01	
CK Total	U/l	556	456	656	50.0	100	CK-NAC (IFCC)
Magnesium	mg/dl	4.35	3.83	4.87	0.260	0.520	Xylidyl Blue
	mmol/l	1.79	1.58	2.00	0.105	0.210	
Phosphate Inorganic	mg/dl	6.76	5.75	7.77	0.505	1.01	Phosphomolybdate UV
	mmol/l	2.18	1.85	2.51	0.165	0.330	
Triglycerides	mg/dl	265	223	307	21.0	42.0	Lipase/GPO-PAP No Correction
	mmol/l	3.00	2.52	3.48	0.240	0.480	
Urea	mg/dl	121	103	139	9.00	18.0	Urease - kinetic
	mg/dl (BUN)	56.3	47.9	64.7	4.20	8.40	
	mmol/l	20.1	17.1	23.1	1.50	3.00	

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