

ASSAYED BOVINE MULTI-SERA - LEVEL I (BOV ASY CONTROL I)

Cat. No. ALI027 **Lot No.** 20ISL
Size: 20 x 5 ml **Expiry:** 2018-05

INTENDED USE

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

DEVICE DESCRIPTION

The Assayed Bovine Multi-sera is supplied at 3 levels, level 1, 2 and 3. Target values and ranges are supplied for the analytes listed in the value section at 3 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.

Assayed Bovine Multi-sera is manufactured from bovine sera. Human source material, which has been added, 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 -20°C (see Limitations).

LIMITATIONS

For Total and Prostatic Acid Phosphatase, the material should be stabilised by adding 1 drop (25 - 30 µl) of 0.7M Acetic acid solution to 1 ml of the serum. After stabilisation Total & 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 -20°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, Bilirubin is stable for 2 days at +2°C to +8°C. Do not store at +15°C to +25°C. Do not freeze.

PSA is stable for 4 days at +2°C to +8°C, or 28 days in aliquots frozen at -20°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.

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

PREPARATION FOR USE

The Assayed Bovine Multi-sera is supplied lyophilised.

1. Carefully reconstitute each vial of lyophilised serum with exactly 5 ml 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

Assayed Bovine Multi-sera - Level I 20 x 5 ml

MATERIALS REQUIRED BUT NOT PROVIDED

Volumetric pipette

ASSIGNED VALUES

Each lot of serum is submitted to a number of external laboratories. Values are assigned from a consensus of results obtained by these laboratories and internal testing conducted at Randox Laboratories Ltd. With each batch, a control range is provided for individual parameters and each parameter method. The control range is equivalent to the assigned mean ± 2 S.D.

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

Rev. 21 July '15 ne

ASSAYED BOVINE MULTI SERA - LEVEL 1 (BOV ASY CONTROL 1)

Cat. No. AL1027 Lot No. 201SL Size: 20 x 5 ml Expiry: 2018-05

Beckman Coulter AU Series®

Range

Analyte	unit	target	low	high	methods
Albumin	g/l	25.8	21.9	29.7	Bromocresol Green
	g/dl	2.58	2.19	2.97	
Alkaline Phosphatase	U/l	96	82	110	AMP optimised to IFCC 37°C
ALT (GPT)	U/l	28	22	34	Tris buffer without P5P 37°C
AST (GOT)	U/l	29	23	35	Tris buffer without P5P 37°C
Bicarbonate	mmol/l	13.9	11.0	16.8	Enzymatic
Bilirubin Direct	µmol/l	18.7	14.8	22.6	Diazotization with Sulphanilic Acid
	mg/dl	1.09	0.866	1.31	
Bilirubin Total	µmol/l	19.5	15.4	23.6	Dichlorophenyl Diazonium (DPD)
	mg/dl	1.14	0.900	1.38	
Calcium	mmol/l	1.74	1.57	1.91	Arsenazo III
	mg/dl	6.97	6.29	7.65	
Chloride	mmol/l	86.8	79.9	93.7	ISE indirect
CK Total	U/l	158	130	186	CK-NAC (IFCC) 37°C
Creatinine	µmol/l	91.7	73.4	110	Jaffe rate blanked
	mg/dl	1.04	0.830	1.24	
Gamma-GT	U/l	33	28	38	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
Glucose	mmol/l	3.51	2.98	4.04	Hexokinase
	mg/dl	63.3	53.7	72.9	
Iron	µmol/l	24.0	19.7	28.3	Colorimetric without ppt.
	µg/dl	134	110	158	
LD (LDH)	U/l	61	52	70	L->P IFCC 37°C
Magnesium	mmol/l	0.695	0.612	0.778	Xylidyl Blue
	mg/dl	1.69	1.49	1.89	
Phosphate Inorganic	mmol/l	0.902	0.767	1.04	Phosphomolybdate UV
	mg/dl	2.80	2.38	3.22	
Potassium	mmol/l	3.23	2.97	3.49	ISE indirect
Protein Total	g/l	44.5	35.6	53.4	Biuret reaction end point
	g/dl	4.45	3.56	5.34	
Sodium	mmol/l	127	121	133	ISE indirect
Urea	mmol/l	3.33	2.83	3.83	Urease kinetic
	mg/dl	20.0	17.0	23.0	
	mmol/l	3.33	2.83	3.83	BUN
	mg/dl	9.35	7.95	10.8	
Uric Acid (Urate)	mmol/l	0.225	0.200	0.250	Uricase peroxidase with ascorbate oxidase
	mg/dl	3.78	3.36	4.20	

ASSAYED BOVINE MULTI SERA - LEVEL 1 (BOV ASY CONTROL 1)

Cat. No. AL1027 Lot No. 201SL Size: 20 x 5 ml Expiry: 2018-05

COBAS INTEGRA®

Range

Analyte	unit	target	low	high	methods
Albumin	g/l	28.3	24.1	32.5	Bromocresol Green
	g/dl	2.83	2.41	3.25	
Alkaline Phosphatase	U/l	63	54	72	p-Nitrophenylphosphate AMP 37°C
	U/l	49	42	56	p-Nitrophenylphosphate AMP 30°C
	U/l	40	35	45	p-Nitrophenylphosphate AMP 25°C
ALT (GPT)	U/l	29	23	35	Tris buffer without P5P 37°C
	U/l	21	17	25	Tris buffer without P5P 30°C
	U/l	16	13	19	Tris buffer without P5P 25°C
Amylase Total	U/l	103	88	118	Roche liquid stable pNPG7 37°C
AST (GOT)	U/l	27	22	32	Tris buffer without P5P 37°C
	U/l	18	15	21	Tris buffer without P5P 30°C
	U/l	13	10	16	Tris buffer without P5P 25°C
Bicarbonate	mmol/l	14.0	11.1	16.9	Enzymatic
Bilirubin Direct	µmol/l	15.0	11.9	18.2	Diazo with Sulphanilic Acid
	mg/dl	0.878	0.696	1.06	
Bilirubin Total	µmol/l	17.3	13.7	20.9	Diazo with Sulphanilic Acid
	mg/dl	1.01	0.801	1.22	
Calcium	mmol/l	1.86	1.67	2.05	NM-BAPTA
	mg/dl	7.45	6.69	8.22	
Chloride	mmol/l	86.5	79.6	93.4	ISE indirect
Cholesterol	mmol/l	3.60	3.13	4.07	Cholesterol Oxidase
	mg/dl	139	121	157	
CK Total	U/l	151	124	178	CK-NAC (IFCC) 37°C
	U/l	95	78	111	CK-NAC (IFCC) 30°C
	U/l	64	53	76	CK-NAC (IFCC) 25°C
Creatinine	µmol/l	81.0	64.8	97.2	Alkaline picrate no deproteinization
	mg/dl	0.920	0.730	1.10	
Gamma-GT	U/l	34	29	39	Gamma glutamyl.-3-carboxy-4-nitroanilide 37°C
	U/l	27	23	31	Gamma glutamyl.-3-carboxy-4-nitroanilide 30°C
	U/l	21	18	24	Gamma glutamyl.-3-carboxy-4-nitroanilide 25°C
Glucose	mmol/l	3.53	3.00	4.06	Hexokinase
	mg/dl	63.6	54.1	73.1	
Iron	µmol/l	24.8	20.3	29.3	Colorimetric without ppt.
	µg/dl	139	113	165	
LD (LDH)	U/l	66	56	76	L->P IFCC 37°C
	U/l	48	40	55	L->P IFCC 30°C
	U/l	33	28	39	L->P IFCC 25°C
Lithium	mmol/l	0.600	0.530	0.670	Ion selective electrode
	mg/dl	0.420	0.370	0.470	
Magnesium	mmol/l	0.728	0.641	0.815	Chlorphosphonazo III
	mg/dl	1.77	1.56	1.98	
Phosphate Inorganic	mmol/l	0.952	0.809	1.09	Phosphomolybdate UV
	mg/dl	2.95	2.51	3.39	

ASSAYED BOVINE MULTI SERA - LEVEL 1 (BOV ASY CONTROL 1)

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COBAS INTEGRA®

Range

Analyte	unit	target	low	high	methods
Potassium	mmol/l	3.29	3.03	3.55	ISE indirect
Protein Total	g/l	45.3	36.2	54.4	Biuret reaction end point
	g/dl	4.53	3.62	5.44	
Sodium	mmol/l	126	120	132	ISE indirect
Triglycerides	mmol/l	0.650	0.546	0.754	Lipase/GPO-PAP no correction
	mg/dl	57.5	48.3	66.7	
Urea	mmol/l	2.77	2.35	3.19	Urease kinetic
	mg/dl	16.6	14.1	19.1	
	mmol/l	2.77	2.35	3.19	BUN
	mg/dl	7.77	6.60	8.94	
Uric Acid (Urate)	mmol/l	0.215	0.190	0.240	Uricase peroxidase with ascorbate oxidase
	mg/dl	3.61	3.19	4.03	

ASSAYED BOVINE MULTI SERA - LEVEL 1 (BOV ASY CONTROL 1)

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HITACHI SERIES®

Range

Analyte	unit	target	low	high	methods
Acid Phosphatase (non-prostatic)	U/l	5.34	3.58	7.10	1-Naphthyl Phosphate substrate Kinetic 37°C
	U/l	4.28	2.87	5.69	1-Naphthyl Phosphate, Kinetic with Pentane diol Activation 37°C
Acid Phosphatase (Prostatic)	U/l	5.96	3.99	7.93	1-Naphthyl Phosphate substrate Kinetic 37°C
	U/l	10.6	7.10	14.1	1-Naphthyl Phosphate, Kinetic with Pentane diol Activation 37°C
Acid Phosphatase (Total)	U/l	11.3	7.57	15.0	1-Naphthyl Phosphate substrate Kinetic 37°C
	U/l	14.9	10.0	19.8	1-Naphthyl Phosphate, Kinetic with Pentane diol Activation 37°C
Albumin	g/l	29.8	25.3	34.3	Bromocresol Green
	g/dl	2.98	2.53	3.43	
Alkaline Phosphatase	U/l	55	47	63	p-Nitrophenylphosphate AMP 37°C
	U/l	43	37	49	p-Nitrophenylphosphate AMP 30°C
	U/l	35	30	40	p-Nitrophenylphosphate AMP 25°C
	U/l	82	70	94	Randox AMP 37°C
	U/l	64	55	73	Randox AMP 30°C
	U/l	52	45	60	Randox AMP 25°C
ALT (GPT)	U/l	30	24	36	Tris buffer without P5P 37°C
	U/l	22	18	26	Tris buffer without P5P 30°C
	U/l	17	14	20	Tris buffer without P5P 25°C
Amylase Total	U/l	94	80	108	Roche liquid stable pNPG7 37°C
	U/l	96	82	110	Randox liquid stable pNPG7 37°C
AST (GOT)	U/l	27	22	32	Tris buffer without P5P 37°C
	U/l	18	15	21	Tris buffer without P5P 30°C
	U/l	13	10	16	Tris buffer without P5P 25°C
Bicarbonate	mmol/l	14.3	11.3	17.3	Enzymatic
Bile Acids	µmol/l	11.9	9.52	14.3	5th Generation Colorimetric
Bilirubin Direct	µmol/l	15.0	11.9	18.2	Oxidation to Biliverdin
	mg/dl	0.880	0.700	1.06	
Bilirubin Total	µmol/l	16.5	13.0	20.0	Diazo with Sulphanilic Acid
	mg/dl	0.965	0.761	1.17	
	µmol/l	18.0	14.2	21.8	Dichlorophenyl Diazonium (DPD)
	mg/dl	1.05	0.831	1.27	
Calcium	mmol/l	1.79	1.61	1.97	NM-BAPTA
	mg/dl	7.17	6.45	7.90	
Chloride	mmol/l	84.4	77.6	91.2	ISE indirect
Cholesterol	mmol/l	3.53	3.07	3.99	Cholesterol Oxidase
	mg/dl	136	119	153	
CK Total	U/l	145	119	171	CK-NAC (IFCC) 37°C
	U/l	91	74	108	CK-NAC (IFCC) 30°C
	U/l	62	51	73	CK-NAC (IFCC) 25°C
	U/l	140	115	165	CK-NAC substrate start (DGKC) 37°C
	U/l	88	72	103	CK-NAC substrate start (DGKC) 30°C
	U/l	60	49	70	CK-NAC substrate start (DGKC) 25°C
Creatinine	µmol/l	79.3	63.4	95.2	Alkaline picrate no deproteinization
	mg/dl	0.896	0.716	1.08	

ASSAYED BOVINE MULTI SERA - LEVEL 1 (BOV ASY CONTROL 1)

Cat. No. AL1027 Lot No. 201SL Size: 20 x 5 ml Expiry: 2018-05

HITACHI SERIES®

Range

Analyte	unit	target	low	high	methods
Gamma-GT	U/l	32	27	37	Gamma glutamyl.-3-carboxy-4-nitroanilide 37°C
	U/l	25	21	29	Gamma glutamyl.-3-carboxy-4-nitroanilide 30°C
	U/l	20	17	23	Gamma glutamyl.-3-carboxy-4-nitroanilide 25°C
	U/l	35	30	40	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
	U/l	28	24	32	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 30°C
	U/l	22	19	25	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 25°C
Glucose	mmol/l	3.85	3.27	4.43	Glucose oxidase
	mg/dl	69.4	58.9	79.9	
	mmol/l	4.12	3.50	4.74	Hexokinase
	mg/dl	74.2	63.1	85.4	
Iron	µmol/l	25.1	20.6	29.6	Colorimetric without ppt.
	µg/dl	140	115	165	
LD (LDH)	U/l	128	109	147	P->L German methods 37°C
	U/l	92	79	105	P->L German methods 30°C
	U/l	65	55	75	P->L German methods 25°C
	U/l	53	45	61	L->P IFCC 37°C
	U/l	38	32	44	L->P IFCC 30°C
	U/l	27	23	31	L->P IFCC 25°C
Lipase	U/l	24	19	29	Randox Colorimetric 37°C
Magnesium	mmol/l	0.733	0.645	0.821	Xylidyl Blue
	mg/dl	1.78	1.57	1.99	
	mmol/l	0.680	0.600	0.760	Chlorphosphonazo III
	mg/dl	1.65	1.46	1.85	
Phosphate Inorganic	mmol/l	0.899	0.764	1.03	Phosphomolybdate UV
	mg/dl	2.79	2.37	3.21	
Potassium	mmol/l	3.34	3.07	3.61	ISE indirect
Protein Total	g/l	46.7	37.4	56.0	Biuret reaction end point
	g/dl	4.67	3.74	5.60	
Sodium	mmol/l	130	124	137	ISE indirect
TIBC	µmol/l	24.6	19.4	29.8	Randox Direct
	µg/dl	138	108	167	
Triglycerides	mmol/l	0.656	0.551	0.761	Lipase/GPO-PAP no correction
	mg/dl	58.1	48.8	67.4	
Urea	mmol/l	2.89	2.46	3.32	Urease kinetic
	mg/dl	17.4	14.8	20.0	
	mmol/l	2.89	2.46	3.32	BUN
	mg/dl	8.11	6.89	9.33	
Uric Acid (Urate)	mmol/l	0.210	0.183	0.237	Uricase peroxidase with ascorbate oxidase
	mg/dl	3.53	3.07	3.99	

ASSAYED BOVINE MULTI SERA - LEVEL 1 (BOV ASY CONTROL 1)

Cat. No. AL1027 Lot No. 201SL Size: 20 x 5 ml Expiry: 2018-05

MEAN OF ALL INSTRUMENTS

			Range		
Analyte	unit	target	low	high	methods
Alpha-HBDH	U/l	74	58	90	Oxobutyrate < 10 mmol/l 37°C
	U/l	56	44	68	Oxobutyrate < 10 mmol/l 30°C
	U/l	42	33	51	Oxobutyrate < 10 mmol/l 25°C
Acid Phosphatase (non-prostatic)	U/l	5.34	3.58	7.10	1-Naphthyl Phosphate substrate Kinetic 37°C
	U/l	4.28	2.87	5.69	1-Naphthyl Phosphate, Kinetic with Pentane diol Activation 37°C
Acid Phosphatase (Prostatic)	U/l	5.96	3.99	7.93	1-Naphthyl Phosphate substrate Kinetic 37°C
	U/l	10.6	7.10	14.1	1-Naphthyl Phosphate, Kinetic with Pentane diol Activation 37°C
Acid Phosphatase (Total)	U/l	11.3	7.57	15.0	1-Naphthyl Phosphate substrate Kinetic 37°C
	U/l	14.9	9.98	19.8	1-Naphthyl Phosphate, Kinetic with Pentane diol Activation 37°C
Albumin	g/l	27.6	23.5	31.7	Bromocresol Green
	g/dl	2.76	2.35	3.17	
	g/l	11.1	9.44	12.8	Bromocresol Purple
	g/dl	1.11	0.944	1.28	
Alkaline Phosphatase	U/l	82	70	94	p-Nitrophenylphosphate AMP 37°C
	U/l	64	55	73	p-Nitrophenylphosphate AMP 30°C
	U/l	52	45	59	p-Nitrophenylphosphate AMP 25°C
	U/l	139	118	160	Diethanolamine buffer DEA 37°C
	U/l	108	92	124	Diethanolamine buffer DEA 30°C
	U/l	89	75	103	Diethanolamine buffer DEA 25°C
ALT (GPT)	U/l	32	26	38	Tris buffer with P5P 37°C
	U/l	24	19	29	Tris buffer with P5P 30°C
	U/l	18	15	21	Tris buffer with P5P 25°C
	U/l	29	23	35	Tris buffer without P5P 37°C
	U/l	21	17	25	Tris buffer without P5P 30°C
	U/l	16	13	19	Tris buffer without P5P 25°C
Amylase Total	U/l	117	99	135	Randox - Ethylidene pNPG7 37°C
	U/l	96	82	110	Randox liquid stable pNPG7 37°C
	U/l	97	82	112	Roche liquid stable pNPG7 37°C
AST (GOT)	U/l	30	24	36	Tris buffer with P5P 37°C
	U/l	20	16	24	Tris buffer with P5P 30°C
	U/l	14	11	17	Tris buffer with P5P 25°C
	U/l	28	22	34	Tris buffer without P5P 37°C
	U/l	19	15	23	Tris buffer without P5P 30°C
	U/l	13	10	16	Tris buffer without P5P 25°C
Bicarbonate	mmol/l	14.2	11.3	17.1	Enzymatic
Bile Acids	µmol/l	10.2	8.16	12.2	4th Generation Colorimetric
	µmol/l	11.9	9.52	14.3	5th Generation Colorimetric
Bilirubin Direct	µmol/l	14.5	11.5	17.5	Diazo with Sulphanilic Acid
	mg/dl	0.848	0.673	1.02	
	µmol/l	10.9	8.61	13.2	Modified Jendrassik
	mg/dl	0.640	0.500	0.770	
Bilirubin Total	µmol/l	19.1	15.1	23.1	Diazo with Sulphanilic Acid
	mg/dl	1.12	0.883	1.36	

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MEAN OF ALL INSTRUMENTS

Range

Analyte	unit	target	low	high	methods
Bilirubin Total	μmol/l	16.7	13.2	20.2	Dichlorophenyl Diazonium (DPD)
	mg/dl	0.977	0.772	1.18	
	μmol/l	21.4	16.9	25.9	Diazo with Dichloroaniline (DCA)
	mg/dl	1.25	0.990	1.52	
	μmol/l	22.1	17.5	26.7	Modified Jendrassik
	mg/dl	1.29	1.02	1.56	
Calcium	mmol/l	1.76	1.58	1.94	Arsenazo III
	mg/dl	7.05	6.33	7.77	
	mmol/l	1.75	1.58	1.93	Cresolphthalein complexone
	mg/dl	7.01	6.33	7.69	
	mmol/l	1.81	1.63	1.99	NM-BAPTA
	mg/dl	7.25	6.53	7.98	
Chloride	mmol/l	90.0	82.8	97.2	Colorimetric
	mmol/l	84.6	77.8	91.4	ISE indirect
	mmol/l	87.8	80.8	94.8	ISE direct
Cholesterol	mmol/l	3.48	3.03	3.93	Cholesterol Oxidase
	mg/dl	134	117	151	
CK Total	U/l	142	116	168	CK-NAC substrate start (DGKC) 37°C
	U/l	89	73	105	CK-NAC substrate start (DGKC) 30°C
	U/l	60	49	71	CK-NAC substrate start (DGKC) 25°C
	U/l	152	125	179	CK-NAC (IFCC) 37°C
	U/l	95	78	112	CK-NAC (IFCC) 30°C
	U/l	65	53	77	CK-NAC (IFCC) 25°C
Copper	μmol/l	13.5	10.8	16.2	Colorimetric
	μg/dl	85.9	68.7	103	
Cortisol	nmol/l	122	91.5	153	Roche Cobas E411
	μg/dl	4.39	3.29	5.49	
Creatinine	μmol/l	80.6	64.5	96.7	Alkaline picrate no deproteinization
	mg/dl	0.911	0.729	1.09	
	μmol/l	83.8	67.0	101	Randox Enzymatic UV method
	mg/dl	0.947	0.757	1.14	
	μmol/l	91.7	73.4	110	Jaffe rate blanked
	mg/dl	1.04	0.830	1.24	
	μmol/l	73.5	58.8	88.2	Jaffe rate blanked comp. (-26 μmol/l)
	mg/dl	0.830	0.660	1.00	
D-3-Hydroxybutyrate	mmol/l	0.845	0.718	0.972	Tris buffer 100mmol pH 8.5
Free T4	pmol/l	28.2	21.2	35.3	Roche Cobas E411
	ng/dl	2.20	1.65	2.75	
	pg/ml	22.0	16.5	27.5	
Gamma-GT	U/l	33	28	38	Gamma glutamyl.-3-carboxy-4-nitroanilide 37°C
	U/l	26	22	30	Gamma glutamyl.-3-carboxy-4-nitroanilide 30°C
	U/l	20	17	23	Gamma glutamyl.-3-carboxy-4-nitroanilide 25°C
	U/l	33	28	38	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
	U/l	26	22	30	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 30°C
	U/l	20	17	23	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 25°C

ASSAYED BOVINE MULTI SERA - LEVEL 1 (BOV ASY CONTROL 1)

Cat. No. AL1027 Lot No. 201SL Size: 20 x 5 ml Expiry: 2018-05

MEAN OF ALL INSTRUMENTS

Range

Analyte	unit	target	low	high	methods
Gamma-GT	U/l	35	30	40	Randox Gamma glutamyl.-3-carboxy-4-nitroanilide 37°C
	U/l	28	24	32	Randox Gamma glutamyl.-3-carboxy-4-nitroanilide 30°C
	U/l	22	19	25	Randox Gamma glutamyl.-3-carboxy-4-nitroanilide 25°C
GLDH	U/l	9	7	11	Triethanolamine buffer 50 mmol 37°C
	U/l	7	5	9	Triethanolamine buffer 50 mmol 30°C
	U/l	6	4	8	Triethanolamine buffer 50 mmol 25°C
Glucose	mmol/l	3.45	2.93	3.97	Hexokinase
	mg/dl	62.2	52.8	71.6	
	mmol/l	3.63	3.09	4.17	Glucose oxidase
	mg/dl	65.4	55.7	75.1	
Iron	µmol/l	24.3	19.9	28.7	Colorimetric without ppt.
	µg/dl	136	111	161	
Lactate	mmol/l	3.72	3.05	4.39	Colorimetric Lactate Oxidase
	mg/dl	33.5	27.5	39.6	
LD (LDH)	U/l	120	102	138	P->L German methods 37°C
	U/l	87	74	100	P->L German methods 30°C
	U/l	61	52	70	P->L German methods 25°C
	U/l	64	54	74	L->P IFCC 37°C
	U/l	46	39	53	L->P IFCC 30°C
	U/l	32	27	37	L->P IFCC 25°C
Lipase	U/l	24	19	29	Randox Colorimetric 37°C
	U/l	156	125	187	Randox Turbidimetric with colipase 37°C
Lithium	mmol/l	0.566	0.498	0.634	Colorimetric
	mg/dl	0.393	0.346	0.440	
	mmol/l	0.600	0.528	0.672	Ion selective electrode
	mg/dl	0.417	0.367	0.467	
Magnesium	mmol/l	0.704	0.620	0.788	Xylidyl Blue
	mg/dl	1.71	1.51	1.91	
	mmol/l	0.704	0.620	0.790	Chlorphosphonazo III
	mg/dl	1.71	1.51	1.92	
NEFA	mmol/l	1.48	1.26	1.70	Colorimetric
Osmolality	mOsm/kg	271	217	325	Freezing point depression
Phosphate Inorganic	mmol/l	0.895	0.761	1.03	Phosphomolybdate UV
	mg/dl	2.77	2.36	3.18	
Potassium	mmol/l	3.37	3.10	3.64	Enzymatic
	mmol/l	3.31	3.05	3.57	ISE direct
	mmol/l	3.30	3.04	3.56	ISE indirect
Protein Total	g/l	45.8	36.6	55.0	Biuret reaction end point
	g/dl	4.58	3.66	5.50	
PSA Total	ng/ml = µg/l	3.93	2.95	4.91	Roche Cobas E411
Sodium	mmol/l	129	123	135	Enzymatic
	mmol/l	125	119	131	ISE direct
	mmol/l	128	122	134	ISE indirect
TIBC	µmol/l	24.6	19.4	29.8	Randox Direct
	µg/dl	138	108	167	
	µmol/l	29.9	23.6	36.2	FE+UIBC(saturation with iron)
	µg/dl	167	132	202	

ASSAYED BOVINE MULTI SERA - LEVEL 1 (BOV ASY CONTROL 1)

Cat. No. AL1027 Lot No. 201SL Size: 20 x 5 ml Expiry: 2018-05

MEAN OF ALL INSTRUMENTS

Range

Analyte	unit	target	low	high	methods
Total T3	nmol/l	2.74	2.06	3.43	Roche Cobas E411
	ng/ml	1.78	1.34	2.23	
	ng/dl	178	134	223	
Total T4	nmol/l	62.7	47.0	78.4	Roche Cobas E411
	µg/dl	4.89	3.67	6.12	
	ng/ml	48.9	36.7	61.2	
Triglycerides	mmol/l	0.644	0.541	0.747	Lipase/GPO-PAP no correction
	mg/dl	57.0	47.9	66.1	
Urea	mmol/l	2.90	2.47	3.34	Urease kinetic
	mg/dl	17.4	14.8	20.0	
	mmol/l	5.34	4.54	6.14	Urease hypochlorite
	mg/dl	32.1	27.3	36.9	
	mmol/l	3.70	3.15	4.26	Urease Berthelot
	mg/dl	22.2	18.9	25.6	
Uric Acid (Urate)	mmol/l	2.90	2.47	3.34	BUN
	mg/dl	8.14	6.92	9.36	
	mmol/l	0.214	0.186	0.242	Uricase Peroxidase with ascorbate oxidase @ 546nm
	mg/dl	3.60	3.12	4.08	
	mmol/l	0.191	0.166	0.216	Uricase peroxidase no ascorbate oxidase
	mg/dl	3.21	2.79	3.63	
Vitamin B12	mmol/l	0.212	0.184	0.240	Uricase peroxidase with ascorbate oxidase
	mg/dl	3.56	3.09	4.03	
	pmol/l	464	371	557	Roche Cobas E411
Zinc	pg/ml	629	503	755	
	µmol/l	13.4	10.7	16.1	Colorimetric with deproteinisation
	µg/dl	87.5	69.9	105	

ASSAYED BOVINE MULTI SERA - LEVEL 1 (BOV ASY CONTROL 1)

Cat. No. AL1027 Lot No. 201SL Size: 20 x 5 ml Expiry: 2018-05

Roche Cobas 6000 c501 e601

Range

Analyte	unit	target	low	high	methods
Albumin	g/l	11.1	9.44	12.8	Bromocresol Purple
	g/dl	1.11	0.940	1.28	
Alkaline Phosphatase	U/l	54	46	62	p-Nitrophenylphosphate AMP 37°C
	U/l	42	36	48	p-Nitrophenylphosphate AMP 30°C
	U/l	35	29	40	p-Nitrophenylphosphate AMP 25°C
ALT (GPT)	U/l	29	23	35	Tris buffer without P5P 37°C
	U/l	21	17	26	Tris buffer without P5P 30°C
	U/l	16	13	20	Tris buffer without P5P 25°C
Amylase Total	U/l	96	82	110	Roche liquid stable pNPG7 37°C
AST (GOT)	U/l	31	25	37	Tris buffer without P5P 37°C
	U/l	21	17	25	Tris buffer without P5P 30°C
	U/l	15	12	18	Tris buffer without P5P 25°C
Bicarbonate	mmol/l	15.1	12.0	18.2	Enzymatic
Bilirubin Direct	µmol/l	14.2	11.2	17.2	Diazo with Sulphanilic Acid
	mg/dl	0.830	0.660	1.01	
Bilirubin Total	µmol/l	15.8	12.5	19.1	Diazo with Sulphanilic Acid
	mg/dl	0.920	0.730	1.12	
Calcium	mmol/l	1.74	1.57	1.91	Arsenazo III
	mg/dl	6.97	6.29	7.66	
Chloride	mmol/l	80.8	74.3	87.3	ISE indirect
Cholesterol	mmol/l	3.40	2.96	3.84	Cholesterol Oxidase
	mg/dl	131	114	148	
CK Total	U/l	165	135	195	CK-NAC (IFCC) 37°C
	U/l	103	85	122	CK-NAC (IFCC) 30°C
	U/l	70	57	83	CK-NAC (IFCC) 25°C
Creatinine	µmol/l	97.5	78.0	117	Randox Enzymatic UV method
	mg/dl	1.10	0.880	1.32	
Gamma-GT	U/l	35	30	40	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
	U/l	28	24	32	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 30°C
	U/l	22	19	25	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 25°C
Glucose	mmol/l	3.27	2.78	3.76	Hexokinase
	mg/dl	58.9	50.1	67.8	
Iron	µmol/l	24.0	19.7	28.3	Colorimetric without ppt.
	µg/dl	134	110	158	
LD (LDH)	U/l	117	99	135	P->L German methods 37°C
	U/l	84	71	97	P->L German methods 30°C
	U/l	59	50	68	P->L German methods 25°C
Magnesium	mmol/l	0.698	0.610	0.780	Xylidyl Blue
	mg/dl	1.70	1.48	1.90	
Phosphate Inorganic	mmol/l	0.838	0.710	0.960	Phosphomolybdate UV
	mg/dl	2.60	2.20	2.98	
Potassium	mmol/l	3.30	3.04	3.56	ISE indirect

ASSAYED BOVINE MULTI SERA - LEVEL 1 (BOV ASY CONTROL 1)

Cat. No. AL1027 Lot No. 201SL Size: 20 x 5 ml Expiry: 2018-05

Roche Cobas 6000 c501 e601

Range

Analyte	unit	target	low	high	methods
Protein Total	g/l	44.9	35.9	53.9	Biuret reaction end point
	g/dl	4.49	3.59	5.39	
Sodium	mmol/l	127	121	133	ISE indirect
Triglycerides	mmol/l	0.642	0.540	0.740	Lipase/GPO-PAP no correction
	mg/dl	56.8	47.8	65.5	
Urea	mmol/l	2.65	2.25	3.05	Urease kinetic
	mg/dl	15.9	13.5	18.3	
	mmol/l	2.65	2.25	3.05	BUN
	mg/dl	7.44	6.32	8.56	
Uric Acid (Urate)	mmol/l	0.203	0.180	0.230	Uricase peroxidase with ascorbate oxidase
	mg/dl	3.41	3.02	3.86	

ASSAYED BOVINE MULTI SERA - LEVEL 1 (BOV ASY CONTROL 1)

Cat. No. AL1027 Lot No. 201SL Size: 20 x 5 ml Expiry: 2018-05

RX DAYTONA®/IMOLA®/SUZUKA®

		Range			
Analyte	unit	target	low	high	methods
Albumin	g/l	27.0	23.0	31.1	Bromocresol Green
	g/dl	2.70	2.30	3.10	
Alkaline Phosphatase	U/l	139	118	160	Diethanolamine buffer DEA 37°C
	U/l	82	70	94	AMP optimised to IFCC 37°C
ALT (GPT)	U/l	30	24	36	Tris buffer without P5P 37°C
Amylase Total	U/l	96	82	110	Randox liquid stable pNPG7 37°C
AST (GOT)	U/l	28	22	34	Tris buffer without P5P 37°C
Bicarbonate	mmol/l	13.8	10.9	16.7	Enzymatic
Bile Acids	µmol/l	11.9	9.52	14.3	5th Generation Colorimetric
Bilirubin Direct	µmol/l	18.8	14.9	22.7	Diazo with Sulphanilic Acid
	mg/dl	1.10	0.872	1.33	
Bilirubin Total	µmol/l	20.9	16.5	25.3	Diazo with Sulphanilic Acid
	mg/dl	1.22	0.965	1.48	
Calcium	mmol/l	1.78	1.60	1.96	Arsenazo III
	mg/dl	7.13	6.41	7.85	
Chloride	mmol/l	87.8	80.8	94.8	ISE direct
Cholesterol	mmol/l	3.43	2.98	3.88	Cholesterol Oxidase
	mg/dl	132	115	149	
CK Total	U/l	144	118	170	CK-NAC substrate start (DGKC) 37°C
	U/l	152	125	179	CK-NAC (IFCC) 37°C
Creatinine	µmol/l	82.7	66.2	99.0	Alkaline picrate no deproteinization
	mg/dl	0.935	0.748	1.12	
	µmol/l	84.0	67.2	101	Randox Enzymatic UV method
	mg/dl	0.950	0.760	1.14	
Gamma-GT	U/l	35	30	40	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
Glucose	mmol/l	3.45	2.93	3.97	Hexokinase
	mg/dl	62.2	52.8	71.6	
	mmol/l	3.44	2.92	3.96	Glucose oxidase
	mg/dl	62.0	52.6	71.4	
Iron	µmol/l	23.5	19.3	27.7	Colorimetric without ppt.
	µg/dl	131	108	154	
Lactate	mmol/l	3.72	3.05	4.39	Colorimetric Lactate Oxidase
	mg/dl	33.5	27.5	39.6	
LD (LDH)	U/l	117	99	135	P->L German methods 37°C
	U/l	66	56	76	L->P IFCC 37°C
Lipase	U/l	24	19	29	Randox Colorimetric 37°C
Lithium	mmol/l	0.566	0.500	0.630	Colorimetric
	mg/dl	0.390	0.350	0.440	
Magnesium	mmol/l	0.665	0.585	0.745	Xylidyl Blue
	mg/dl	1.62	1.42	1.82	
Phosphate Inorganic	mmol/l	0.888	0.755	1.02	Phosphomolybdate UV
	mg/dl	2.75	2.34	3.16	

ASSAYED BOVINE MULTI SERA - LEVEL 1 (BOV ASY CONTROL 1)

Cat. No. AL1027 Lot No. 201SL Size: 20 x 5 ml Expiry: 2018-05

RX DAYTONA®/IMOLA®/SUZUKA®

Range

Analyte	unit	target	low	high	methods
Potassium	mmol/l	3.31	3.05	3.57	ISE direct
	mmol/l	3.37	3.10	3.64	Enzymatic
Protein Total	g/l	46.1	36.9	55.3	Biuret reaction end point
	g/dl	4.61	3.69	5.53	
Sodium	mmol/l	125	119	131	ISE direct
	mmol/l	129	123	135	Enzymatic
TIBC	µmol/l	24.6	19.4	29.8	Direct Colorimetric
	µg/dl	138	108	168	
Triglycerides	mmol/l	0.595	0.500	0.690	Lipase/GPO-PAP no correction
	mg/dl	52.7	44.3	61.1	
Urea	mmol/l	2.75	2.34	3.16	Urease kinetic
	mg/dl	16.5	14.1	18.9	
	mmol/l	2.75	2.34	3.16	BUN
	mg/dl	7.72	6.56	8.88	
Uric Acid (Urate)	mmol/l	0.212	0.180	0.240	Uricase Peroxidase with ascorbate oxidase @ 546nm
	mg/dl	3.56	3.02	4.03	
	mmol/l	0.191	0.170	0.220	Uricase peroxidase no ascorbate oxidase
	mg/dl	3.21	2.86	3.70	

ASSAYED BOVINE MULTI SERA - LEVEL 1 (BOV ASY CONTROL 1)

Cat. No. AL1027 Lot No. 201SL Size: 20 x 5 ml Expiry: 2018-05

SIEMENS ADVIA 1200/1650/2400®

Range

Analyte	unit	target	low	high	methods
Albumin	g/l	25.0	21.3	28.8	Bromocresol Green
	g/dl	2.50	2.13	2.87	
Alkaline Phosphatase	U/l	76	65	87	p-Nitrophenylphosphate AMP 37°C
	U/l	118	100	136	Diethanolamine buffer DEA 37°C
ALT (GPT)	U/l	28	22	34	Tris buffer without P5P 37°C
Amylase Total	U/l	90	77	104	pNP Maltotrioxide substrates 37°C
AST (GOT)	U/l	28	22	34	Tris buffer without P5P 37°C
Bilirubin Direct	µmol/l	11.5	9.09	13.9	Vanadate Oxidation
	mg/dl	0.670	0.530	0.810	
Bilirubin Total	µmol/l	17.7	14.0	21.4	Vanadate Oxidation
	mg/dl	1.04	0.820	1.25	
Calcium	mmol/l	1.75	1.58	1.93	Cresolphthalein complexone
	mg/dl	7.01	6.33	7.69	
	mmol/l	1.79	1.61	1.97	Arsenazo III
	mg/dl	7.17	6.45	7.90	
Cholesterol	mmol/l	3.37	2.93	3.81	Cholesterol Oxidase
	mg/dl	130	113	147	
CK Total	U/l	139	114	164	CK-NAC (IFCC) 37°C
Creatinine	µmol/l	73.5	58.8	88.2	Jaffe rate blanked comp. (-26 µmol/l)
	mg/dl	0.830	0.660	1.00	
Gamma-GT	U/l	29	25	33	Gamma Glutamyl-3-Carboxy-4-nitroanilide (IFCC) 37°C
Glucose	mmol/l	3.60	3.06	4.14	Glucose oxidase
	mg/dl	64.9	55.1	74.7	
	mmol/l	3.48	2.96	4.00	Hexokinase
	mg/dl	62.7	53.3	72.1	
Iron	µmol/l	24.3	19.9	28.7	Colorimetric without ppt.
	µg/dl	136	111	161	
LD (LDH)	U/l	59	50	68	L->P 37°C
	U/l	119	101	137	P->L German methods 37°C
Magnesium	mmol/l	0.730	0.642	0.818	Xylidyl Blue
	mg/dl	1.77	1.56	1.98	
Phosphate Inorganic	mmol/l	0.885	0.752	1.02	Phosphomolybdate UV
	mg/dl	2.74	2.33	3.15	
Protein Total	g/l	46.5	37.2	55.8	Biuret reaction end point
	g/dl	4.65	3.72	5.58	
Triglycerides	mmol/l	0.665	0.559	0.771	Lipase/GPO-PAP no correction
	mg/dl	58.9	49.5	68.3	
Urea	mmol/l	3.04	2.58	3.50	Urease kinetic
	mg/dl	18.3	15.5	21.1	
	mmol/l	3.04	2.58	3.50	BUN
	mg/dl	8.53	7.25	9.81	
Uric Acid (Urate)	mmol/l	0.216	0.188	0.244	Uricase Peroxidase with ascorbate oxidase @ 546nm
	mg/dl	3.63	3.16	4.10	