

Code	Product	Unit																																																						
NIST-956B	<p>Electrolytes in frozen human serum</p> <p>This material is primarily intended for use in the calibration and validation of procedures and methods employed in clinical analysis for the determination of electrolytes in either diluted or undiluted human serum or plasma. It can be used for calibrating direct-reading ion-selective electrode analyzers [1] and for validating secondary reference materials. A unit consists of six sealed ampoules of frozen human serum, two ampoules each of three different concentration levels. Each ampoule contains approximately 2.0 mL of human serum. Certified values for elements at three levels.</p> <table border="1"> <thead> <tr> <th>Analytes</th> <th>level 1 mmol/L</th> <th>level 2 mmol/L</th> <th>level 3 mmol/L</th> </tr> </thead> <tbody> <tr> <td>Ca</td> <td>2.949</td> <td>2.456</td> <td>1.974</td> </tr> <tr> <td>Li</td> <td>1.920</td> <td>1.207</td> <td>0.488</td> </tr> <tr> <td>Mg</td> <td>1.522</td> <td>0.994</td> <td>0.458</td> </tr> <tr> <td>K</td> <td>5.973</td> <td>3.983</td> <td>1.887</td> </tr> <tr> <td>Na</td> <td>120.1</td> <td>141.0</td> <td>160.7</td> </tr> </tbody> </table>	Analytes	level 1 mmol/L	level 2 mmol/L	level 3 mmol/L	Ca	2.949	2.456	1.974	Li	1.920	1.207	0.488	Mg	1.522	0.994	0.458	K	5.973	3.983	1.887	Na	120.1	141.0	160.7	set (6)																														
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NIST-909B	<p>Human serum</p> <p>This material is primarily intended for use in evaluating the accuracy of clinical procedures for determination of specified constituents in human serum. It can also be used to validate working or secondary reference materials. A unit consists of six bottles of lyophilised human serum, three bottles each of two different analyte concentration levels and six bottles of deionised, autoclaved water for reconstitution. Certified values for trace metals and other clinical analytes; cholesterol, urea etc. are given in both mmol/L and mmol/L/g.</p> <table border="1"> <thead> <tr> <th>Analytes</th> <th>Level 1 mmol/L</th> <th>Level 2 mmol/L</th> </tr> </thead> <tbody> <tr> <td>Calcium</td> <td>2.218</td> <td>3.532</td> </tr> <tr> <td>Chloride</td> <td>89.11</td> <td>119.43</td> </tr> <tr> <td>Cholesterol</td> <td>3.787</td> <td>6.084</td> </tr> <tr> <td>Creatinine</td> <td>0.05618</td> <td>0.4674</td> </tr> <tr> <td>Lithium</td> <td>0.6145</td> <td>2.600</td> </tr> <tr> <td>Magnesium</td> <td>0.7634</td> <td>1.918</td> </tr> <tr> <td>Potassium</td> <td>3.424</td> <td>6.278</td> </tr> <tr> <td>Sodium</td> <td>120.76</td> <td>141.0</td> </tr> <tr> <td>Total glycerides</td> <td>0.949</td> <td>1.529</td> </tr> <tr> <td>Triglycerides</td> <td>0.804</td> <td>1.271</td> </tr> <tr> <td>Urea</td> <td>5.51</td> <td>30.75</td> </tr> <tr> <td>Uric acid</td> <td>0.2809</td> <td>0.7579</td> </tr> </tbody> </table> <p>Uncertified (information) values</p> <table border="1"> <tbody> <tr> <td>ALP</td> <td>88</td> <td>410 U/L</td> </tr> <tr> <td>LDH</td> <td>145</td> <td>480 U/L</td> </tr> <tr> <td>ALT</td> <td>49</td> <td>150 U/L</td> </tr> <tr> <td>AST</td> <td>43</td> <td>200 U/L</td> </tr> <tr> <td>CK</td> <td>92</td> <td>300 U/L</td> </tr> </tbody> </table> <p>pH 7.9 at 22.6 °C 7.8 at 22.9 °C</p>	Analytes	Level 1 mmol/L	Level 2 mmol/L	Calcium	2.218	3.532	Chloride	89.11	119.43	Cholesterol	3.787	6.084	Creatinine	0.05618	0.4674	Lithium	0.6145	2.600	Magnesium	0.7634	1.918	Potassium	3.424	6.278	Sodium	120.76	141.0	Total glycerides	0.949	1.529	Triglycerides	0.804	1.271	Urea	5.51	30.75	Uric acid	0.2809	0.7579	ALP	88	410 U/L	LDH	145	480 U/L	ALT	49	150 U/L	AST	43	200 U/L	CK	92	300 U/L	set (6x10 mL)
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Enzymes

BCR-647	<p>Adenosine deaminase (ADA 1), human</p> <p>The intended use of the material is to validate, to calibrate or to assess the performance of adenosine deaminase catalytic concentration measurement procedures. The user must confirm that the transfer procedure is satisfactory.</p> <p>Each sample is in lyophilised form and equivalent to about 1 mL of solution of purified adenosine deaminase (ADA 1) from human erythrocytes. The preparation has been stabilised by incorporation in a matrix of 50 mmol/L Tris/HCl buffer pH = 7.4 and human serum albumin 30 g/L.</p> <p>No contamination, as assessed by measurement of their catalytic activity, has been detected for the following enzymes: acid phosphatase, acetylcholinesterase, glutamate dehydrogenase, glucose-6-phosphate dehydrogenase and adenosine deaminase isoenzyme 2. L-lactate dehydrogenase, alanine aminotransferase and aspartate aminotransferase were found in trace amounts 0.39 %, 0.01 % and 0.09 %, respectively (% of total adenosine deaminase catalytic activity).</p> <p>Catalytic concentration..... 2.55 ± 0.09 µkat/L</p>	1 mL
ERM-AD454	<p>Alanine aminotransferase</p> <p>Each sample is in lyophilised form and equivalent to about 1 mL of a solution of purified alanine aminotransferase from pig heart. The material is kept under dry nitrogen in sealed glass ampoules. Catalytic concentration of alanine aminotransferase in reconstituted material as determined by the IFCC method at 37 °C</p> <p>U/L 186 ± 4 µkat/L 3.09 ± 0.07</p>	amp.
BCR-371	<p>Alkaline phosphatase from pig kidney</p> <p>Catalytic concentration (IFCC recommended method at 30 °C) of alkaline phosphatase in reconstituted material</p> <p>U/L 254 ± 8 µkat/L 4.23 ± 0.10</p> <p>Each sample is in lyophilised form and equivalent to about 1 mL of a solution of partially purified enzyme, stabilised by incorporation in a matrix of bovine serum albumin. The material is kept under nitrogen gas in sealed glass ampoules.</p>	amp.
IRMM/IFCC 456	<p>alpha-Amylase</p> <p>Each sample is in lyophilised form and equivalent to about 1 mL of a solution of a partially purified human pancreatic α-amylase. The material is kept under nitrogen gas in sealed glass ampoules. Catalytic concentration of α-amylase in reconstituted material as determined by the IFCC method at 37 °C</p> <p>U/L 546 ± 19 µkat/L 9.1 ± 0.3</p>	amp.
BCR-299	<p>Creatine kinase (CK-BB Isoenzyme) from human placenta</p> <p>Catalytic concentration (IFCC recommended method) of creatine kinase in reconstituted material</p> <p>U/L 325 ± 10 µkat/l 5.42 ± 0.17</p> <p>Each sample is in lyophilised form and equivalent to about 1 mL of solution of partially purified creatine kinase (CK-BB) from human placenta. The preparation has been stabilised by incorporation in a matrix of bovine serum albumin. The material is kept under nitrogen gas in rubber stoppered vials.</p>	amp.

Code	Product	Unit
ERM-AD455	Creatine kinase (CK-MB Isoenzyme) Each sample is in lyophilised form and equivalent to about 1 mL of a solution of purified creatine kinase from human heart. Material is kept under dry nitrogen gas in sealed glass ampoules. Catalytic concentration of creatine kinase-2 (CK-MB) in reconstituted material as determined by the IFCC method at 37 °C U/L 101 ± 4 µkat/L 1.68 ± 0.07	vial
ERM-AD452	gamma-Glutamyltransferase Each sample is in lyophilised form and equivalent to about 1 mL of a solution of a partially purified pig kidney γ-glutamyltransferase. The material is kept under nitrogen gas in sealed glass ampoules. Catalytic concentration of γ-glutamyltransferase in reconstituted material as determined by the IFCC method at 37 °C U/L 114.1 ± 2.4 µkat/L 1.80 ± 0.04	amp.
ERM-AD453	Lactate dehydrogenase isoenzyme 1 Each sample is in lyophilised form and equivalent to about 1 mL of a solution of purified lactate dehydrogenase from human erythrocytes. The material is kept under dry nitrogen in sealed glass ampoules. Catalytic concentration of lactate dehydrogenase isoenzyme 1 in reconstituted material as determined by the IFCC method at 37 °C U/L 502 ± 7 µkat/L 8.37 ± 0.12	amp.
BCR-693	Lipase (human pancreatic lipase from pancreatic juice) Each sample is in lyophilised form and equivalent to about 1 mL of solution of purified human pancreatic lipase from human pancreatic juice. The preparation has been stabilised by incorporation in a matrix of Tris 20 mmol/L, pH = 7.6 and BSA 40 g/L. No contamination, as assessed by measurement of their catalytic activity, has been detected for the following enzymes: ALP, ALT, α-Amylase, AST, esterase, GGT and LDH. The material is kept under dry nitrogen in neutral clear glass ampoules. Catalytic concentration..... 28.9 ± 1.2 µkat/L	amp.
BCR-694	Lipase (human recombinant pancreatic lipase) Each sample is in lyophilised form and equivalent to about 1 ml of solution of purified recombinant pancreatic lipase from V79-RHPL cell line. The preparation has been stabilised by incorporation in a matrix of Tris 20 mmol/L, pH = 7.6 and BSA 40 g/L. No contamination, as assessed by measurement of their catalytic activity, has been detected for the following enzymes: ALP, ALT, α-Amylase, AST, esterase, GGT and LDH. The material is kept under dry nitrogen in neutral clear glass ampoules. Certified value Catalytic concentration.....17.4 ± 1.0 µkat/L	amp.
BCR-410	Prostatic acid phosphatase from human prostate Each sample is in lyophilised form and equivalent to about 1 mL of a solution of enzyme, stabilised by incorporation in a matrix of human serum albumin. Material is kept under dry nitrogen in sealed glass ampoules. Catalytic concentration of prostatic acid phosphatase in reconstituted material U/L 28 ± 0.7 nkat/L.....0.466 ± 0.012	amp.

Enzymes in serum

HEC JCERM20327	Lactate dehydrogenase (LDH) in bovine serum albumine Lot No. 003 certified value (catalytic concentration) 398 ± 5 U/I	unit
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Metabolites and substrates

NIST-927D	Bovine serum albumin (7% solution) This material is intended primarily for use in the standardization of procedures employed in clinical analyses for total serum protein, for critical evaluation of daily working standards used in these procedures, and as a reference standard for assays of total protein by colorimetric methods. It is a solution (mass fraction 7 %) of known protein concentration and purity. The protein content of this material was determined using the biuret reference method that is recommended for use in standardizing laboratory-prepared protein solutions and "normal" serum pools. In addition to the measurement using the biuret method, NIST made measurements of the bovine serum albumine (BSA) concentration using amino acid analysis. A unit consists of 10 ampoules each containing 2.1 mL of solution. Certified bovine serum albumine concentration by amino acid analysis BSA concentration 65.41 g/L ± 0.82 g/L Reference total protein concentration by the biuret method Protein concentration 70.10 g/L ± 0.74 g/L	(10 x 2.1mL)																																								
NIST-2389	Amino acids mixture This material is a solution of 17 amino acids in a 0.1 mol/L aqueous solution of hydrochloric acid. It is intended primarily for the use in calibration of chromatographic instrumentation for the determination of amino acids. A unit consists of five 2 mL ampoules each containing approximately 1.2 mL of the solution. <table border="1"> <thead> <tr> <th>Amino acid</th> <th>concentration mmol/L</th> <th>Amino acid</th> <th>concentration mmol/L</th> </tr> </thead> <tbody> <tr> <td>Alanine.....</td> <td>2.51 ± 0.09</td> <td>Lysine.....</td> <td>2.47 ± 0.10</td> </tr> <tr> <td>Arginine.....</td> <td>2.94 ± 0.14</td> <td>Methionine.....</td> <td>2.43 ± 0.09</td> </tr> <tr> <td>Aspartic acid.....</td> <td>2.50 ± 0.09</td> <td>Phenylalanine.....</td> <td>2.44 ± 0.08</td> </tr> <tr> <td>Cystine.....</td> <td>1.19 ± 0.04</td> <td>Proline.....</td> <td>2.44 ± 0.09</td> </tr> <tr> <td>Glutamic acid.....</td> <td>2.47 ± 0.08</td> <td>Serine.....</td> <td>2.43 ± 0.09</td> </tr> <tr> <td>Glycine.....</td> <td>2.45 ± 0.08</td> <td>Threonine.....</td> <td>2.39 ± 0.08</td> </tr> <tr> <td>Histidine.....</td> <td>2.83 ± 0.11</td> <td>Tyrosine.....</td> <td>2.47 ± 0.09</td> </tr> <tr> <td>Isoleucine.....</td> <td>2.39 ± 0.07</td> <td>Valine.....</td> <td>2.44 ± 0.08</td> </tr> <tr> <td>Leucine.....</td> <td>2.48 ± 0.09</td> <td></td> <td></td> </tr> </tbody> </table>	Amino acid	concentration mmol/L	Amino acid	concentration mmol/L	Alanine.....	2.51 ± 0.09	Lysine.....	2.47 ± 0.10	Arginine.....	2.94 ± 0.14	Methionine.....	2.43 ± 0.09	Aspartic acid.....	2.50 ± 0.09	Phenylalanine.....	2.44 ± 0.08	Cystine.....	1.19 ± 0.04	Proline.....	2.44 ± 0.09	Glutamic acid.....	2.47 ± 0.08	Serine.....	2.43 ± 0.09	Glycine.....	2.45 ± 0.08	Threonine.....	2.39 ± 0.08	Histidine.....	2.83 ± 0.11	Tyrosine.....	2.47 ± 0.09	Isoleucine.....	2.39 ± 0.07	Valine.....	2.44 ± 0.08	Leucine.....	2.48 ± 0.09			set (5 x 2 mL)
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NIST-916A	Bilirubin This material consists of a sample of unconjugated bilirubin primarily intended for the use in determination of bilirubin. Bilirubin 98.3 ± 0.3 %	100 mg																																								
NIST-911C	Cholesterol This material is intended primarily for use in the calibration and standardization of procedures for the determination of cholesterol in clinical samples and for routine evaluations of daily working standards used in these procedures. A unit consists of 2 g of material. Certified purity (mass fraction) 99.2 ± 0.4 %	2 g																																								

Code	Product	Unit
NCS ZC76020B	Cholesterol Certified purity..... 99.7 ± 0.1 %	300 mg
NMIJ CRM6001-9	Cholesterol This material is intended for the use in calibration of analytical instruments and validation of analytical techniques and instruments. Each unit contains 1 g of high purity cholesterol filled in amber borosilicate glass vials and an aluminized bag with argon gas. Certified purity (mass fraction)..... 99.9 ± 0.1 %	1 g
NIST-RM 8444	Cotinine in human urine This standard is intended primarily for use in validating methods for the determination of Cotinine in human urine. One set consists of four vials, each containing Cotinine in 5 ml human urine, which has been freeze dried. Two vials are "blank" concentration levels, typical for non-smokers without exposure to cigarette smoke; one vial is a "low" concentration level corresponding to non-smokers with passive exposure to side-stream smoke; and one vial is a "high" level, typical of smokers. Analyte blank low high ng/mL ng/mL ng/mL Cotinine..... 0.8 54 488	4 x 5 mL
NIST-914A	Creatinine This material is intended primarily for use in the calibration and standardisation of procedures used for determination of creatinine. Creatinine..... 99.7 ± 0.3 %	10 g
ME 70002	Ethyl-β-D-6-glucuronide	2 mg
ME 70010	Ethyl-β-D-6-glucuronide	10 mg
ME 70502	Ethyl-β-D-6-glucuronide-D5	2 mg
ME 70510	Ethyl-β-D-6-glucuronide-D5	10 mg
NIST-917B	D-Glucose (dextrose, clinical) This material is intended primarily for use in the calibration and standardisation of procedures for glucose determinations. Certified purity (mass fraction)..... 99.7 ± 0.2 % α-D-Glucopyranose (mass fraction)..... 96.7 ± 0.2 % β-D-Glucopyranose (mass fraction)..... 3.0 ± 0.2 %	50 g
CEN DMR-190	Glucose in powder This material is used for analytical calibration as well as method validation in high performance liquid chromatography with refraction index detector and electrochemical detector employed in glucose measurements. Each unit contains 15 g of glucose in crystals in a transparent glass bottle as a calibrant for quantified glucose. Purity..... 99.40 %	15 g
NIST-925	4-Hydroxy-3-methoxy-DL-mandelic acid (VMA), clinical Certified purity..... 99.4 %	1 g
NIST-1595	Tripalmitin This material is intended primarily for use in the calibration and standardisation of procedures for the chemical analysis of serum for triglycerides, and for the critical evaluation of routine working or secondary reference materials used in these procedures. Certified purity (mass fraction)..... 99.5 ± 0.2 %	2 g
NIST-912A	Urea This material is intended primarily for calibrating apparatus and validating methods. Certified purity (mass fraction)..... 99.9 ± 0.1 wt% Moisture 0.02 ± 0.003 wt% Biuret..... 0.02 ± 0.02 wt% Ash..... 0.001 ± 0.0007 wt% Insoluble matter 0.0001 ± 0.00005 wt%	25 g
NCS ZC76009	Urea Certified purity..... 99.9 ± 0.2 %	6 g
NIST-913A	Uric acid This material is intended primarily for uric acid determinations. Certified purity (mass fraction)..... 99.6 ± 0.1 %	10 g
NCS ZC76010	Uric acid Purity..... 99.8 %	400 mg

Metabolites and substrates in serum

NIST-1952A	Cholesterol in human serum This material is intended for use in evaluating the accuracy of clinical procedures for the determination of cholesterol in serum, in calibrating instruments and equipment used in these procedures and in validating working or secondary standards. It consists of six vials of freeze-dried serum, two each of three different cholesterol levels. Concentrations are also given in mg/dL/g. Analyte low medium high Cholesterol (mmol·L ⁻¹ ·g ⁻¹) 13.89 21.29 28.91	set (6)
HEC JCCRM211	Cholesterol in human serum Certified values (amount-of-substance concentration) in the range 5.307 to 6.786 mmol/l with corresponding uncertainties of 0.023 to 0.031 mmol/l.	unit

Code	Product	Unit																								
NIST-968C	<p>Fat soluble cholesterol and vitamins in human serum</p> <p>This material is intended for use in validating methods for determining fat-soluble vitamins, carotenoids, and cholesterol in human serum and plasma. It can also be used for quality assurance when assigning values to in-house control material for these constituents. A unit consists of two vials of lyophilised human serum, one vial at each of two different concentration levels.</p> <table border="1"> <thead> <tr> <th>Analytes</th> <th>level I µg/mL</th> <th>level II µg/mL</th> </tr> </thead> <tbody> <tr> <td>trans-retinol</td> <td>0.841</td> <td>0.484</td> </tr> <tr> <td>δ-Tocopherol</td> <td>0.131</td> <td>0.527</td> </tr> <tr> <td>γ-Tocopherol</td> <td>3.90</td> <td>1.58</td> </tr> <tr> <td>α-Tocopherol</td> <td>7.47</td> <td>16.79</td> </tr> <tr> <td>trans-β-carotene</td> <td>0.157</td> <td>0.391</td> </tr> <tr> <td>Total β-carotene</td> <td>0.171</td> <td>0.438</td> </tr> <tr> <td>Cholesterol</td> <td>1335</td> <td>1669</td> </tr> </tbody> </table>	Analytes	level I µg/mL	level II µg/mL	trans-retinol	0.841	0.484	δ-Tocopherol	0.131	0.527	γ-Tocopherol	3.90	1.58	α-Tocopherol	7.47	16.79	trans-β-carotene	0.157	0.391	Total β-carotene	0.171	0.438	Cholesterol	1335	1669	set (2)
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NIST-967	<p>Creatinine in frozen in human serum</p> <p>This material is intended primarily for use in evaluating the accuracy of procedures for the determination of creatinine in human serum and also for use in validating working or secondary reference materials. A unit consists of four stoppered ampoules of frozen human serum, two ampoules each at two different creatinine concentration levels. One level corresponds to the normal range of serum creatinine levels, and the second level is intended to correspond to levels found in chronic kidney disease. Each ampoule contains 1.0 mL of human serum.</p> <table border="1"> <thead> <tr> <th>Concentrations</th> <th>mmol/L</th> </tr> </thead> <tbody> <tr> <td>Level I</td> <td>0.0665 ± 0.0019</td> </tr> <tr> <td>Level II</td> <td>0.3462 ± 0.0073</td> </tr> </tbody> </table>	Concentrations	mmol/L	Level I	0.0665 ± 0.0019	Level II	0.3462 ± 0.0073	set (4)																		
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ERM-DA252	<p>Creatinine in frozen human serum (low level)</p> <p>The material is intended for use in the validation and ongoing monitoring of methods of analysis for the determination of creatinine in human blood samples.</p> <p>Each units consists of 1 ml of human serum in a screw-cap plastic vial.</p> <table border="1"> <thead> <tr> <th>Constituent</th> <th>certified value</th> </tr> </thead> <tbody> <tr> <td>Creatinine</td> <td>3.1 ± 0.2 mg/kg</td> </tr> </tbody> </table> <p>(Available in autumn 2008)</p>	Constituent	certified value	Creatinine	3.1 ± 0.2 mg/kg	vial																				
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ERM-DA253	<p>Creatinine in frozen human serum (high level)</p> <p>The material is intended for use in the validation and ongoing monitoring of methods of analysis for the determination of creatinine in human blood samples.</p> <p>Each units consists of 1 ml of human serum in a screw-cap plastic vial.</p> <table border="1"> <thead> <tr> <th>Constituent</th> <th>certified value</th> </tr> </thead> <tbody> <tr> <td>Creatinine</td> <td>50 ± 1.4 mg/kg</td> </tr> </tbody> </table> <p>(Available in autumn 2008)</p>	Constituent	certified value	Creatinine	50 ± 1.4 mg/kg	vial																				
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BCR-573	<p>Creatinine in human serum (low)</p> <p>Each sample is the lyophilised form of approximately 1 mL portion of serum, with no additives. The mass of the lyophilised material contained in the ampoule is about 0.09 g.</p> <table border="1"> <thead> <tr> <th>Amount-of-substance concentration (µmol/L)</th> <th></th> </tr> </thead> <tbody> <tr> <td></td> <td>68.7 ± 1.4</td> </tr> </tbody> </table>	Amount-of-substance concentration (µmol/L)			68.7 ± 1.4	0.9 g																				
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BCR-574	<p>Creatinine in human serum (medium)</p> <p>Each sample is the lyophilised form of approximately 1 mL portion of serum, spiked with no further additives. The mass of the lyophilised material contained in the ampoule is about 0.09 g.</p> <table border="1"> <thead> <tr> <th>Amount-of-substance concentration (µmol/L)</th> <th></th> </tr> </thead> <tbody> <tr> <td></td> <td>105.0 ± 1.3</td> </tr> </tbody> </table>	Amount-of-substance concentration (µmol/L)			105.0 ± 1.3	0.9 g																				
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BCR-575	<p>Creatinine in human serum (high)</p> <p>Each sample is the lyophilised form of approximately 1 mL portion of serum spiked with exogenous creatine, with no further additives. The mass of the lyophilised material contained in the ampoule is about 0.09 g.</p> <table border="1"> <thead> <tr> <th>Amount-of-substance concentration</th> <th></th> </tr> </thead> <tbody> <tr> <td></td> <td>404.1 ± 7.1 µmol/L</td> </tr> </tbody> </table>	Amount-of-substance concentration			404.1 ± 7.1 µmol/L	0.9 g																				
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BCR-573I	<p>Set of creatinine interfering substances</p> <p>The set consists of three vials with lyophilised solutions.</p> <ul style="list-style-type: none"> - 0.025 mg calcium dobesilate / 1.2 cefoxitin - 0.044 mg sodium pyruvate - 0.108 mg bilirubin ditaurate 	3 vials																								
ME 41055	<p>Ethylglucuronide in human serum (Medidrug ETG 1/05-A S-plus)</p> <p>Lyophilised serum control prepared from human serum for accuracy and precision monitoring of ethylglucuronide determinations in serum. The reference value ranges were established by institutions of forensic medicine within the bounds of external proficiency testing by the GTFCh (Association of Toxicological and Forensic Chemistry)</p> <table border="1"> <thead> <tr> <th></th> <th>reference value</th> </tr> </thead> <tbody> <tr> <td>Ethylglucuronide</td> <td>1.7 mg/L</td> </tr> </tbody> </table>		reference value	Ethylglucuronide	1.7 mg/L	10 x 2.5 mL																				
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ME 41056	<p>Ethylglucuronide in human serum (Medidrug ETG 2/05-A S-plus)</p> <p>Lyophilised serum control prepared from human serum for accuracy and precision monitoring of ethylglucuronide determinations in serum. The reference value ranges were established by institutions of forensic medicine within the bounds of external proficiency testing by the GTFCh (Association of Toxicological and Forensic Chemistry)</p> <table border="1"> <thead> <tr> <th></th> <th>reference value</th> </tr> </thead> <tbody> <tr> <td>Ethylglucuronide</td> <td>0.91 mg/L</td> </tr> </tbody> </table>		reference value	Ethylglucuronide	0.91 mg/L	10 x 2.5 mL																				
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Ethylglucuronide	0.91 mg/L																									
NIST-965A	<p>Glucose in frozen human serum</p> <p>This material is intended primarily for use in evaluating the accuracy of procedures for the determination of glucose in human serum and for use in validating working or secondary reference materials. A unit consists of eight flame sealed ampoules of frozen human serum, two ampoules at each of three different glucose concentration levels.</p> <table border="1"> <thead> <tr> <th></th> <th>level 1</th> <th>level 2</th> <th>level 3</th> </tr> </thead> <tbody> <tr> <td>Glucose</td> <td>5.680</td> <td>11.097</td> <td>16.355 mmol/L</td> </tr> </tbody> </table>		level 1	level 2	level 3	Glucose	5.680	11.097	16.355 mmol/L	unit																
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Code	Product	Unit
HEC JCCRM521	Glucose in human serum Certified values (mass concentration) in the range 73.9 to 239 mg/l with corresponding uncertainties of 0.5 to 1.7 mg/l.	unit
NIST-1955	Homocysteine and folate in frozen human serum This material is intended primarily for use in evaluating the accuracy of clinical procedures for the determination of homocysteine and folate (in various forms) in human serum. It is also intended for use in validating working or secondary reference materials. A unit consists of three bottles of frozen human serum, each of three concentration levels. Each bottle contains 1 mL of human serum. Certified values (amount-of-substance concentration and mass concentration): Concentration levels for Homocysteine $\mu\text{mol/L}$ $\mu\text{g/mL}$ Level I 3.88 ± 0.18 0.538 ± 0.024 Level II..... 8.85 ± 0.60 1.196 ± 0.082 Level III..... 17.7 ± 1.1 2.39 ± 0.15 Concentration levels for 5-Methyltetrahydrofolic acid nmol/L ng/mL Level I 4.26 ± 0.25 1.96 ± 0.12 Level II 9.73 ± 0.24 4.47 ± 0.11 Level III 37.1 ± 1.4 17.03 ± 0.64 a	unit (3)
NIST-1951B	Lipids in frozen human serum This material is intended primarily for use in evaluating the accuracy of clinical procedures for the determination of total cholesterol, HDL-cholesterol, LDL-cholesterol, and triglycerides (both total glyceride species and triglycerides only) in human serum. It is also intended for use in validating working or secondary reference materials. A unit consists of four bottles of frozen human serum, two bottles each of two different analyte concentration levels. Each bottle contains 1 mL of human serum. Concentrations are also given in mg/dL. Analyte level I level II Total Cholesterol..... 4.804 ± 0.014 6.895 ± 0.022 mmol/L Total Glycerides 1.370 ± 0.015 2.988 ± 0.036 mmol/L Triglycerides only 1.208 ± 0.013 2.700 ± 0.027 mmol/L	unit (4 x 1mL)
CEN DMR-263A	Metabolites and substrates in frozen human serum (creatinine, cholesterol, glucose, urea, uric acid) This material is intended for the calibration and validation of clinical procedures, and for preparation of secondary reference materials. It can also be used in calibration and validation of glucose procedures based on high performance liquid chromatography with refraction index and electrochemical detection. Each unit consists of one cryogenic vial of 1 mL serum. Certified values: Analytes Glucose 82.9 mg/dL Cholesterol..... 159.73 mg/dL Creatinine..... 0.7512 mg/dL Uric acid 5.21 mg/dL Urea 27.07 mg/dL	unit
SERO100205	Seronorm Lipid (serum control for clinical chemistry) Animal assayed serum for the accurate control of lipid analyses. It is a stable freeze-dried all animal control serum providing analytical data for major lipid components. Each batch is supplied with a data key providing reference and analytical values for each component. The component levels are on the borderline between normal and pathological range. The analytical data are elaborated in collaboration with independent laboratories using reference or well accepted methods. The components are: - Bile acids - Cholesterol, total - HDL-cholesterol - LDL-cholesterol - Phospholipids - Triglycerides - Fatty acid composition of phospholipids and total lipids (palmitic acid, palmitoleic acid, stearic acid, oleic acid, linoleic acid, linolenic acid, dihomo-gammalinol acid, arachidonic acid, timnodonic acid, docosapentaenoic acid, docosahexaenoic acid, phytanic acid).	12 x 3mL
HEC JCCRM223	Triglycerides in human serum Certified values (amount-of-substance concentration) in the range 1.04 mmol/l to 2.64 mmol/l with corresponding uncertainties of 0.03 to 0.07 mmol/l.	unit
HEC JCLLS021	Uric acid in fresh human serum This set of three materials are primarily intended for use in evaluating reference methods for determining uric acid in human serum, and in validation of secondary reference materials. It is certified for uric acid at three concentration levels. The higher levels were prepared by adding high purity creatinine, uric acid and glucose into the low level fresh pooled human serum. Certified values: Medium concentration High concentration Abnormally high concentration 4.342 \pm 0.010 mg/dl 7.496 \pm 0.017 mg/dl 10.71 \pm 0.03 mg/dl 0.2583 \pm 0.0006 mmol/l 0.4460 \pm 0.0010 mmol/l 0.6374 \pm 0.0014 mmol/l	unit

Molecular biology products

NIST-2372	Human DNA quantitation standard This material is intended primarily for use in the value assignment of human genomic deoxyribonucleic acid (DNA) forensic quantitation materials. NIST-2372 consists of three well-characterized human genomic DNA materials solubilized in 10 mmol/L Tris HCl and 0.1 mmol/L disodium EDTA) using deionized water adjusted to pH 8.0 (TE-4, pH 8.0 buffer). The three component genomic DNA materials, labeled A, B, and C, are respectively derived from a single male donor, multiple female donors, and multiple male and female donors. Each unit of NIST-2372 consists of one sterile 2-mL vial of each component, each vial containing approximately 110 μL of DNA solution. Certified values for decadic attenuation (D10) are provided for the three components at five wavelengths. Information values for the conventional DNA mass concentrations are also provided. Certified value Wavelength (nm) Component A Component B Component C 230 0.458 ± 0.024 0.445 ± 0.024 0.446 ± 0.025 260 1.049 ± 0.017 1.073 ± 0.031 1.086 ± 0.018 270 0.859 ± 0.016 0.875 ± 0.021 0.893 ± 0.016 280 0.562 ± 0.014 0.571 ± 0.016 0.585 ± 0.015 330 0.005 ± 0.006 0.005 ± 0.005 0.005 ± 0.009 - 0.005 - 0.005	set (3 x 1 each)
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Code	Product	Unit
NIST-2390	<p>DNA profiling standard</p> <p>This material is intended for (1) standardization of forensic and paternity quality assurance procedures for Restriction Fragment Length Polymorphisms (RFLP) testing using HaeIII restriction enzymes, and (2) instructional law enforcement or nonclinical research purposes. It is not intended for any human/animal clinical diagnostic use.</p> <p>This new certificate of the material updates the band size values of the original SRM 2390 certification to reflect the evolution of forensic practice from 1991 to 1998.</p> <p>Each unit consists of 20 components. Quantitative allelic band sizes are provided for human DNA from two sources: (1) the female cell line K562, and (2) the male source "TAW." Three different forms of material from the two sources are provided: (1) cell pellet, (2) extracted genomic DNA, and (3) a HaeIII restriction digest "pre-cut" DNA. The remaining components are well-characterized consumable materials required for qualitative evaluation of the HaeIII RFLP measurement process. These components include standards for quantifying extracted DNA by use of yield gels, a DNA ladder for band size determination, materials for labeling the DNA size ladder, a viral DNA marker for assessment of electrophoretic separation, and agarose that is compatible with all DNA components.</p>	set
NIST-2391B	<p>PCR based DNA profiling</p> <p>This material is intended primarily for use in the standardization of forensic and paternity quality assurance procedures for Polymerase Chain Reaction (PCR)-based genetic testing and for instructional law enforcement or non-clinical research purposes. This material can also be used for quality assurance when assigning values to in-house control materials. It is not intended for any human or animal clinical diagnostic use. Note that NIST-2391b is slightly modified from NIST-2391, in that there is more emphasis on Short Tandem Repeats (STRs) and less emphasis on D1S80 [1,2] reflecting the growing interest and utility of STRs.</p> <p>It is composed of well-characterized human deoxyribonucleic acid (DNA) in two forms: genomic DNA and DNA to be extracted from cells spotted onto filter paper. Each unit is composed of 12 frozen components packaged in one box.</p>	set (12)
NIST-2392	<p>Mitochondrial DNA sequencing</p> <p>This material is intended to provide quality control when performing the polymerase chain reaction (PCR) and sequencing of human mitochondrial DNA (mtDNA) for forensic identifications, medical diagnosis, or mutation detection. It may also be used as a control when amplifying (PCR) and sequencing any DNA. It can also be used for quality assurance when assigning values to in-house control materials. It is certified for the sequences of the entire human mtDNA (16 569 base pairs) from two lymphoblastoid cell culture lines (CHR and GM0947A) from apparently normal individuals, plus the cloned HV1 region of CHR containing a C-stretch which is difficult to sequence. The SRM is packaged in a single box containing three components: (1) extracted DNA from cell culture line CHR (tube contains 60 µL of DNA at a concentration of 1 ng/µL); (2) extracted DNA from cell culture line GM0947A (tube contains 60 µL of DNA at a concentration of 1 ng/µL); and (3) cloned DNA from the CHR HV1 region containing the C-stretch (tube contains 10 µL of DNA at a concentration of 100 ng/µL).</p>	box (3)
NIST-2392-I	<p>Mitochondrial DNA sequencing (Human HL-60 DNA)</p> <p>This material is intended to provide quality control when performing the polymerase chain reaction (PCR) and sequencing of human mitochondrial DNA (mtDNA) for forensic identification, medical diagnosis, or mutation detection. It may also serve as a control when amplifying (PCR) and sequencing any DNA. It can also be used for quality assurance when assigning values to in-house control materials. It is certified for the sequences of the entire human mtDNA (16 569 base pairs) from a promyelocytic cell line (HL-60) prepared from the peripheral blood leukocytes from an individual with acute promyelocytic leukemia. Each unit consists of 65 µL of extracted DNA from cell culture line HL-60 at a nominal concentration of 1.4 ng/µL, which is contained in a vial packaged in a protective plastic box.</p> <p>For details please ask for the data sheet.</p>	box
NIST-2394	<p>Heteroplasmic Mitochondrial DNA Mutation Detection Standard (set of 10 tubes)</p> <p>This material is composed of human mitochondrial DNA mixtures which simulate different levels of heteroplasmy and is intended to provide quality control benchmarks for forensic, medical, and DNA scientists to assess the detection sensitivity of low-frequency mutations, single nucleotide polymorphisms (SNPs) in either mitochondrial DNA (mtDNA) or in pooled nuclear DNA samples, or heteroplasmic sites in mtDNA.</p> <p>The product is packaged in a single protective plastic box containing ten tubes: one tube containing the 100 % (by mass) polymorphic DNA, one tube containing the 100 % (by mass) CRS DNA, and eight tubes containing different mass percentages of the polymorphic/CRS mtDNA mixtures (mass % polymorphic levels are 1 %, 2.5 %, 5 %, 10 %, 20 %, 30 %, 40 % and 50 %). Each vial contains 25 µL of DNA at a concentration of 8 ng/µL in 10 mM Tris-HCl, pH 8.5.</p>	set (10)
NIST-2395	<p>Human Y-Chromosome DNA Profiling Standard</p> <p>This material is intended primarily for use in the standardization of forensic and paternity quality assurance procedures for Polymerase Chain Reaction (PCR)-based genetic testing and for instructional law enforcement or non-clinical research purposes that involve the human Y-chromosome. It can also be used for quality assurance when assigning values to in-house control materials. It is not intended for any human or animal clinical diagnostic use.</p> <p>It is composed of well-characterized human genomic deoxyribonucleic acid (DNA) in liquid form. Each unit is composed of 6 frozen components packaged in one box, five male samples and one female sample.</p>	box (6)
NIST-2396	<p>Oxidative DNA Damage Mass Spectrometry Standard (set of 12 vials)</p> <p>This material is intended for use in the measurement of oxidative DNA damage by gas chromatography/mass spectrometry (GC/MS), and liquid chromatography/mass spectrometry (LC/MS), using the isotope-dilution technique for quantification in both cases. Each unit is a set of twelve stable isotope-labeled components (ten analogues of oxidatively modified DNA bases, one analog of an oxidatively modified nucleoside and one analog of a normal DNA nucleoside) contained in a protective plastic box. Each vial of contains 0.2 mL of a designated component at a specified concentration.</p>	set (12)
NIST-2399	<p>Fragile X Human DNA Triplet Repeat Standard</p> <p>This material is intended to provide quality control by serving as a positive control to clinical laboratories that test human samples for Fragile X and who need to determine the number of CGG trinucleotide repeats present in samples. It is composed of human deoxyribonucleic acid (DNA) from fragile X cell lines or patient samples that have been amplified using polymerase chain reaction (PCR) techniques. Each unit consists of a single box containing 9 vials, designated A through I. Each vial contains 20 µL of a frozen PCR product with a different number of CGG repeats suspended in a buffer (10 mM Tris-Cl pH 8.5).</p> <p>The American College of Medical Genetics Guidelines requires a positive control for all genetic testing. In addition to medical diagnoses, the ability to detect the correct number of triplet repeats will help in genetic counseling and genetic research in the area of triplet repeats. NIST-2399 will also help to ensure the accuracy and comparability of results from different laboratories.</p>	set (9)
IRMM/IFCC-490	<p>PLASMID DNA for prothrombin wildtype (homozygous)</p> <p>This material is intended to be used as a negative control material (wildtype sequence) in PCR reactions for the identification of the Factor II (prothrombin) G20210A mutation by diagnostic PCR-derived methods. Each polypropylene vial contains approximately 1 ng plasmid DNA (pIRMM-0001) in a volume of 50 µL of a Tris/EDTA solution (10 mmol/L Tris, 1 mmol/L EDTA, pH 8.0). This solution was obtained after dilution of the stock of 1390 ± 29 µg/mL (concentration ± standard deviation) in Tris/EDTA buffer. The plasmid pIRMM-0001 is a pUC18 vector containing a 609-bp fragment of the human prothrombin gene from nucleotide 26302 to nucleotide 26910 (wildtype sequence) in the GeneBank database (accession number M17262).</p> <p>Certified property: $p < 3 \times 10^{-6}$</p>	vial

Code	Product	Unit
IRMM/IFCC-491	<p>PLASMID DNA for prothrombin mutation (homozygous)</p> <p>Each polypropylene vial contains approximately 1 ng plasmid DNA (pIRMM-0002) in a volume of 50 µL of a Tris/EDTA solution (10 mmol/L Tris, 1 mmol/L EDTA, pH 8.0). This solution was obtained after dilution of the stock of 1823 ± 29 µg/mL (concentration ± standard deviation) in Tris/EDTA buffer. The plasmid pIRMM-0002 is a pUC18 vector containing a 609-bp fragment of the human prothrombin gene from nucleotide 26302 to nucleotide 26910 (G→A point mutation at position 26784 in the GeneBank database (accession number M17262)). Another point mutation (A→G) is present at position 26628, but does not influence the genotyping.</p> <p>Certified property: $p < 3 \times 10^{-6}$</p>	vial
IRMM/IFCC-492	<p>PLASMID DNA for prothrombin mutation (homozygous)</p> <p>Each polypropylene vial contains approximately 1 ng plasmid DNA (pIRMM-0001 and pIRMM-0002) in a volume of 50 µL of a Tris/EDTA solution (10 mmol/L Tris, 1 mmol/L EDTA, pH 8.0). This solution was obtained after dilution of the stocks (concentration ± standard deviation) of IRMM/IFCC-490 of 1390 ± 29 µg/mL and IRMM/IFCC-491 of 1823 ± 29 µg/mL in Tris/EDTA buffer. The plasmids pIRMM-0001 and pIRMM-0002 are pUC18 vectors containing a 609-bp fragment of the human prothrombin gene from nucleotide 26302 to nucleotide 26910 in the GeneBank database (accession number M17262). They were mixed in equal volumes of identical mass concentrations (wildtype and G20210A point mutation sequences) to mimic a heterozygous control.</p> <p>Certified property: $p < 3 \times 10^{-6}$</p>	vial

Non-electrolyte metals

NIST-937	<p>Iron metal (clinical)</p> <p>This material is intended for use as an assay standard for iron. It is provided in the form of chips sized between 0.5 mm and 1.8 mm mesh.</p> <p>Certified purity (mass fraction)..... 99.90 ± 0.02 %</p>	50 g
NIST-928	<p>Lead nitrate (clinical)</p> <p>This material is certified for use as an assay standard for lead.</p> <p>Certified purity (mass fraction)..... 100.00 ± 0.03 %</p>	30 g

Non-electrolyte metals in blood

NIST-955C	<p>Lead in caprine blood</p> <p>This material is intended primarily for use in evaluating the accuracy of lead concentration determinations in blood and for use in validating working or secondary reference materials for lead in blood analysis. A unit consists of four vials of frozen caprine blood at four concentration levels: a base level and three progressively elevated levels that contain endogenous lead and spiked inorganic arsenic, cadmium, inorganic mercury, methylmercury, and ethylmercury. Certified values are provided for lead. Each vial contains approximately 2 mL of whole blood.</p> <table border="1"> <thead> <tr> <th>Certified concentration</th> <th>Lead (µg/dL)</th> <th>Lead (µmol/L)</th> </tr> </thead> <tbody> <tr> <td>Level 1</td> <td>0.424 ± 0.011</td> <td>0.02047 ± 0.00053</td> </tr> <tr> <td>Level 2</td> <td>13.950 ± 0.080</td> <td>0.6733 ± 0.0038</td> </tr> <tr> <td>Level 3</td> <td>27.76 ± 0.16</td> <td>1.3400 ± 0.0076</td> </tr> <tr> <td>Level 4</td> <td>45.53 ± 0.27</td> <td>2.198 ± 0.013</td> </tr> </tbody> </table>	Certified concentration	Lead (µg/dL)	Lead (µmol/L)	Level 1	0.424 ± 0.011	0.02047 ± 0.00053	Level 2	13.950 ± 0.080	0.6733 ± 0.0038	Level 3	27.76 ± 0.16	1.3400 ± 0.0076	Level 4	45.53 ± 0.27	2.198 ± 0.013	set (4 x 2 mL)
Certified concentration	Lead (µg/dL)	Lead (µmol/L)															
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Level 4	45.53 ± 0.27	2.198 ± 0.013															
ERM-CE194	<p>Lead and cadmium in bovine blood, low level</p> <p>Each sample is in lyophilised form equivalent to about 5.75 mL of bovine blood with additives, kept under nitrogen in rubber stoppered vials. Mass concentration in the reconstituted material</p> <p>Analytes</p> <p>Pb 126 ± 4 µg/L</p> <p>Cd 0.20 ± 0.06 µg/L</p>	amp.															
ERM-CE195	<p>Lead and cadmium in bovine blood, medium level</p> <p>Each sample is in lyophilised form equivalent to about 5.75 mL of bovine blood with additives, kept under nitrogen in rubber stoppered vials. Mass concentration in the reconstituted material</p> <p>Analytes</p> <p>Pb 416 ± 9 µg/L</p> <p>Cd 5.06 ± 0.15 µg/L</p>	amp.															
ERM-CE196	<p>Lead and cadmium in bovine blood, high level</p> <p>Each sample is in lyophilised form equivalent to about 5.75 mL of bovine blood with additives, kept under nitrogen in rubber stoppered vials. Mass concentration in the reconstituted material</p> <p>Analytes</p> <p>Pb 772 ± 11 µg/L</p> <p>Cd 12.33 ± 0.20 µg/L</p>	amp.															
BCR-634	<p>Lead and cadmium in reconstituted human blood (low)</p> <p>The material is supplied in lyophilised form in brown glass vials. Sodium-EDTA was used as anticoagulant. No other preservatives were added. The content of a vial is approximately 0.8 g dry matter with residual moisture content less than 2 % and equivalent to 3.0 mL of fresh whole blood. This material was produced from blood from healthy Danish blood donors. Each portion of blood was tested negative for Anti-HIV-1&2, Anti-HCV and Anti-HTLV-I&II. However, as all biological material of human origin the blood should be treated as contagious material.</p> <p>Analytes mass concentration</p> <p>Cd 1.4 µg/L</p> <p>Pb 46 µg/L</p>	vial															
BCR-635	<p>Lead and cadmium in reconstituted human blood (medium)</p> <p>The material is supplied in lyophilised form in brown glass vials. Sodium-EDTA was used as anticoagulant. No other preservatives were added. The content of a vial is approximately 0.8 g dry matter with residual moisture content less than 2 % and equivalent to 3.0 mL of fresh whole blood. This material was produced from blood from healthy Danish blood donors. Each portion of blood was tested negative for Anti-HIV-1&2, Anti-HCV and Anti-HTLV-I&II. However, as all biological material of human origin the blood should be treated as contagious material.</p> <p>Analytes mass concentration</p> <p>Cd 6.6 µg/L</p> <p>Pb 210 µg/L</p>	vial															

Code	Product	Unit
BCR-636	<p>Lead and cadmium in reconstituted human blood (high)</p> <p>The material is supplied in lyophilised form in brown glass vials. Sodium-EDTA was used as anticoagulant. No other preservatives were added. The content of a vial is approximately 0.6 g dry matter with residual moisture content less than 2 % and equivalent to 3.0 mL of fresh whole blood. This material was produced from blood from healthy Danish blood donors. Each portion of blood was tested negative for Anti-HIV-1&2, Anti-HCV and Anti-HTLV-I&II. However, as all biological material of human origin the blood should be treated as contagious material.</p> <p>Analytes mass concentration</p> <p>Cd 11.6 µg/L</p> <p>Pb 0.52 · 10³ µg/L</p>	vial
NIST-966	<p>Toxic metals in blood</p> <p>This material is intended for use in evaluating the accuracy of lead, cadmium and total mercury concentration determinations in whole blood. It can also be used for validating analytical methods and for providing traceability to working or secondary blood reference materials containing these constituents. It contains frozen whole bovine blood with below mentioned components at two concentration levels.</p> <p>Analytes level 1 level 2</p> <p>Pb 1.56 25.27 µg/dL</p> <p>Cd 0.032 5.22 µg/L</p> <p>Hg (total) 0.0445 31.4 µg/L</p>	unit
Non-electrolyte metals in urine		
NIST-2672A	<p>Mercury in urine</p> <p>This material is intended primarily for use as an analytical standard for the determination of mercury in urine. It consists of four bottles of freeze-dried urine containing mercury, two bottles each at low and elevated levels.</p> <p>Certified values after reconstitution</p> <p>low level elevated level</p> <p>Hg (0.002) 0.105 µg/L</p>	set (4)
NIST-2670A	<p>Toxic elements in freeze dried urine</p> <p>This material is primarily intended for use in evaluating the accuracy of clinical methods and for the calibration of apparatus used to determine the concentration of toxic metals and other elements in human urine or similar matrices. It can also be used to validate working or secondary reference materials. It consists of four bottles of freeze-dried urine, two bottles each at the low and high levels. The low level urine was prepared from human urine that was lyophilised after pooling and centrifugation. The high level urine was prepared by spiking an aliquot of the pooled and homogenized low-level urine with selected metals, followed by lyophilisation. Due to the centrifugation (which improved sample homogeneity), neither level represents a fresh urine pool from a normal human population.</p> <p>Analytes low elevated level</p> <p>Antimony 0.971 0.824 µg/L</p> <p>Cadmium 0.0591 4.862 µg/L</p> <p>Cesium 1.075 1.085 µg/L</p> <p>Cobalt 0.166 51.2 µg/L</p> <p>Iodine 88.2 88.2 µg/L</p> <p>Lead 0.49 233.2 µg/L</p> <p>Mercury 0.0663 95.1 µg/L</p> <p>Manganese 99 µg/L</p> <p>Molybdenum 114.1 µg/L</p> <p>Platinum 51.5 µg/L</p> <p>Selenium 229.5 µg/L</p> <p>Thallium 0.0182 5.417 µg/L</p> <p>Thorium 0.0053 0.01606 µg/L</p> <p>Uranium 0.1020 4.997 µg/L</p>	set (4 x 20 mL)
Non-peptide hormones		
NIST-921	<p>Cortisol (hydrocortisone)</p> <p>This material is intended primarily for use in the calibration and standardisation of procedures for cortisol determinations employed in clinical analysis and for routine evaluation of the daily working standards used in these procedures.</p> <p>Analyte</p> <p>Cortisol (hydrocortisone) 98.9 ± 0.2 %</p>	1 g
IRMM-468	<p>Thyroxine (T4)</p> <p>The material can be used as a calibrant by manufacturers and laboratories, e.g. for the preparation of lower order reference materials and for validation studies.</p> <p>The material consists of an off-white crystalline powder in an amber glass vial sealed under N₂ atmosphere. Each vial contains about 100 mg of the powder.</p> <p>Certified value (mass fraction) 98.6 ± 0.7 %</p>	vial
IRMM-469	<p>3,3',5 Triiodothyronine (T3)</p> <p>The material can be used as a calibrant by manufacturers and laboratories, e.g. for the preparation of lower order reference materials and for validation studies.</p> <p>The material consists of an off-white crystalline powder in an amber glass vial sealed under N₂ atmosphere. Each vial contains about 100 mg of the powder.</p> <p>Certified value (mass fraction) 91.1 ± 0.7 %</p>	vial
Non-peptide hormones in serum		
ERM-DA192	<p>Cortisol in human serum (unspiked)</p> <p>Each sample is the lyophilised form of a 1.25 mL portion of serum without additives kept under nitrogen in sealed glass ampoules. Cortisol concentration in the reconstituted material</p> <p>µg/L 98.8 ± 2.0</p> <p>nmol/L 273 ± 6</p>	amp.
ERM-DA193	<p>Cortisol in human serum (spiked)</p> <p>Each sample is the lyophilised form of a 1.25 mL portion of serum without additives kept under nitrogen in sealed glass ampoules. Cortisol concentration in the reconstituted material</p> <p>µg/L 277 ± 5</p> <p>nmol/L 763 ± 14</p>	amp.

Code	Product	Unit																																																																																																																																																
NIST-966	<p>Toxic metals in blood</p> <p>This material is intended for use in evaluating the accuracy of lead, cadmium and total mercury concentration determinations in whole blood. It can also be used for validating analytical methods and for providing traceability to working or secondary blood reference materials containing these constituents. It contains frozen whole bovine blood with below mentioned components at two concentration levels.</p> <p>Analytes</p> <table border="1"> <thead> <tr> <th></th> <th>level 1</th> <th>level 2</th> </tr> </thead> <tbody> <tr> <td>Pb.....</td> <td>1.56.....</td> <td>25.27 µg/dL</td> </tr> <tr> <td>Cd.....</td> <td>0.032.....</td> <td>5.22 µg/L</td> </tr> <tr> <td>Hg (total).....</td> <td>0.0445.....</td> <td>31.4 µg/L</td> </tr> </tbody> </table>		level 1	level 2	Pb.....	1.56.....	25.27 µg/dL	Cd.....	0.032.....	5.22 µg/L	Hg (total).....	0.0445.....	31.4 µg/L	unit																																																																																																																																				
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SERO102405	<p>Trace elements in whole blood, level 3</p> <p>These reference materials are produced from blood collected from thoroughly controlled voluntary blood donors of a Scandinavian blood bank. Each unit is separately controlled and found negative for HBS antigen and HIV I, II and hepatitis C antibodies. No preservatives are added to the samples. It contains all normal constituents which ensures the control and test samples to be analysed under the same conditions.</p> <p>Certified values after reconstitution</p> <table border="1"> <tbody> <tr><td>Al.....</td><td>93.6 µg/L</td><td>Ho.....</td><td>3.8 ng/L</td><td>Sm.....</td><td>15 ng/L</td></tr> <tr><td>Sb.....</td><td>82.7 µg/L</td><td>l.....</td><td>119 µg/L</td><td>Sc.....</td><td>75 ng/L</td></tr> <tr><td>As.....</td><td>25 µg/L</td><td>Ir.....</td><td>< 0.2 ng/L</td><td>Se.....</td><td>146 µg/L</td></tr> <tr><td>Ba.....</td><td>2371 µg/L</td><td>Fe.....</td><td>471 mg/L</td><td>Si.....</td><td>1.8 mg/L</td></tr> <tr><td>Be.....</td><td>10.6 µg/L</td><td>La.....</td><td>85 ng/L</td><td>Ag.....</td><td>45 ng/L</td></tr> <tr><td>Bi.....</td><td>10.2 µg/L</td><td>Pb.....</td><td>503 µg/L</td><td>Na.....</td><td>4157 mg/L</td></tr> <tr><td>B.....</td><td>254 µg/L</td><td>Li.....</td><td>4.1 µg/L</td><td>Sr.....</td><td>214 µg/L</td></tr> <tr><td>Br.....</td><td>9820 mg/L</td><td>Lu.....</td><td>0.9 ng/L</td><td>S.....</td><td>1368 mg/L</td></tr> <tr><td>Cd.....</td><td>10.8 µg/L</td><td>Mg.....</td><td>21.9 mg/L</td><td>Ta.....</td><td>10 ng/L</td></tr> <tr><td>Ca.....</td><td>72 mg/L</td><td>Mn.....</td><td>20.9 µg/L</td><td>Te.....</td><td>0.08 µg/L</td></tr> <tr><td>Ce.....</td><td>59 ng/L</td><td>Hg.....</td><td>17.9 µg/L</td><td>Tb.....</td><td>15 ng/L</td></tr> <tr><td>Cs.....</td><td>2.5 µg/L</td><td>Mo.....</td><td>21.5 µg/L</td><td>Tl.....</td><td>10.1 µg/L</td></tr> <tr><td>Co.....</td><td>11 µg/L</td><td>Nd.....</td><td>48 ng/L</td><td>Th.....</td><td>5 ng/L</td></tr> <tr><td>Cr.....</td><td>10.8 µg/L</td><td>Ni.....</td><td>10.1 µg/L</td><td>Tm.....</td><td>1 ng/L</td></tr> <tr><td>Cu.....</td><td>1740 µg/L</td><td>Nb.....</td><td>44 ng/L</td><td>Sn.....</td><td>10.6 µg/L</td></tr> <tr><td>Dy.....</td><td>7 ng/L</td><td>Pd.....</td><td>< 10 ng/L</td><td>Ti.....</td><td>13 µg/L</td></tr> <tr><td>Er.....</td><td>4.3 ng/L</td><td>P.....</td><td>214 mg/L</td><td>W.....</td><td>0.14 µg/L</td></tr> <tr><td>Eu.....</td><td>17 ng/L</td><td>Pt.....</td><td>4.1 ng/L</td><td>U.....</td><td>51 ng/L</td></tr> <tr><td>F (*).....</td><td>200 µg/L</td><td>K.....</td><td>451 mg/L</td><td>V.....</td><td>7.4 µg/L</td></tr> <tr><td>Gd.....</td><td>13 ng/L</td><td>Pr.....</td><td>15 ng/L</td><td>Yb.....</td><td>3.2 ng/L</td></tr> <tr><td>Ga.....</td><td>62 ng/L</td><td>Re.....</td><td>4.2 ng/L</td><td>Y.....</td><td>101 ng/L</td></tr> <tr><td>Ge.....</td><td>--</td><td>Rh.....</td><td>< 50 ng/L</td><td>Zn.....</td><td>8157 µg/L</td></tr> <tr><td>Au.....</td><td>10 ng/L</td><td>Rb.....</td><td>0.71 mg/L</td><td>Zr.....</td><td>84 ng/L</td></tr> <tr><td>Hf.....</td><td>1.3 ng/L</td><td>Ru.....</td><td>< 200 ng/L</td><td></td><td>(*) added amount, not analyzed</td></tr> </tbody> </table>	Al.....	93.6 µg/L	Ho.....	3.8 ng/L	Sm.....	15 ng/L	Sb.....	82.7 µg/L	l.....	119 µg/L	Sc.....	75 ng/L	As.....	25 µg/L	Ir.....	< 0.2 ng/L	Se.....	146 µg/L	Ba.....	2371 µg/L	Fe.....	471 mg/L	Si.....	1.8 mg/L	Be.....	10.6 µg/L	La.....	85 ng/L	Ag.....	45 ng/L	Bi.....	10.2 µg/L	Pb.....	503 µg/L	Na.....	4157 mg/L	B.....	254 µg/L	Li.....	4.1 µg/L	Sr.....	214 µg/L	Br.....	9820 mg/L	Lu.....	0.9 ng/L	S.....	1368 mg/L	Cd.....	10.8 µg/L	Mg.....	21.9 mg/L	Ta.....	10 ng/L	Ca.....	72 mg/L	Mn.....	20.9 µg/L	Te.....	0.08 µg/L	Ce.....	59 ng/L	Hg.....	17.9 µg/L	Tb.....	15 ng/L	Cs.....	2.5 µg/L	Mo.....	21.5 µg/L	Tl.....	10.1 µg/L	Co.....	11 µg/L	Nd.....	48 ng/L	Th.....	5 ng/L	Cr.....	10.8 µg/L	Ni.....	10.1 µg/L	Tm.....	1 ng/L	Cu.....	1740 µg/L	Nb.....	44 ng/L	Sn.....	10.6 µg/L	Dy.....	7 ng/L	Pd.....	< 10 ng/L	Ti.....	13 µg/L	Er.....	4.3 ng/L	P.....	214 mg/L	W.....	0.14 µg/L	Eu.....	17 ng/L	Pt.....	4.1 ng/L	U.....	51 ng/L	F (*).....	200 µg/L	K.....	451 mg/L	V.....	7.4 µg/L	Gd.....	13 ng/L	Pr.....	15 ng/L	Yb.....	3.2 ng/L	Ga.....	62 ng/L	Re.....	4.2 ng/L	Y.....	101 ng/L	Ge.....	--	Rh.....	< 50 ng/L	Zn.....	8157 µg/L	Au.....	10 ng/L	Rb.....	0.71 mg/L	Zr.....	84 ng/L	Hf.....	1.3 ng/L	Ru.....	< 200 ng/L		(*) added amount, not analyzed	10 x 5 mL
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NIST-955C	Lead in caprine blood This material is intended primarily for use in evaluating the accuracy of lead concentration determinations in blood and for use in validating working or secondary reference materials for lead in blood analysis. A unit consists of four vials of frozen caprine blood at four concentration levels: a base level and three progressively elevated levels that contain endogenous lead and spiked inorganic arsenic, cadmium, inorganic mercury, methylmercury, and ethylmercury. Certified values are provided for lead. Each vial contains approximately 2 mL of whole blood.	set (4 x 2 mL)															
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Level 4	45.63 ± 0.27	2.198 ± 0.013															
ERM-CE194	Lead and cadmium in bovine blood, low level Each sample is in lyophilised form equivalent to about 5.75 mL of bovine blood with additives, kept under nitrogen in rubber stoppered vials. Mass concentration in the reconstituted material	amp.															
	<p>Analytes</p> <p>Pb 126 ± 4 µg/L</p> <p>Cd 0.20 ± 0.05 µg/L</p>																
ERM-CE195	Lead and cadmium in bovine blood, medium level Each sample is in lyophilised form equivalent to about 5.75 mL of bovine blood with additives, kept under nitrogen in rubber stoppered vials. Mass concentration in the reconstituted material	amp.															
	<p>Analytes</p> <p>Pb 416 ± 9 µg/L</p> <p>Cd 5.06 ± 0.15 µg/L</p>																
ERM-CE196	Lead and cadmium in bovine blood, high level Each sample is in lyophilised form equivalent to about 5.75 mL of bovine blood with additives, kept under nitrogen in rubber stoppered vials. Mass concentration in the reconstituted material	amp.															
	<p>Analytes</p> <p>Pb 772 ± 11 µg/L</p> <p>Cd 12.33 ± 0.20 µg/L</p>																

Occupational health and hygiene materials in serum

ME 28341	Metals in human serum level 1 (low) Lyophilised human serum control (Medisafe® Metals S) in two different concentrations for quality control and calibration of trace element determinations from serum. The real assay values have been determined by independent laboratories of forensic medicine.	6 x 5 mL																																																																				
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NIST-1589A	PCBs, pesticides and dioxins/furans in human serum This standard is intended for use in evaluating analytical methods for the determination of selected polychlorinated biphenyl (PCB) congeners, chlorinated pesticides and total cholesterol in human serum and similar matrices. Reference values are also provided for selected polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs). All of the constituents for which certified and reference values are provided are naturally present in the freeze-dried human serum. A unit consists of five bottles of freeze-dried human serum.	set																																																																				
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SERO201405	Trace elements in serum, level 1 This reference material is produced from serum collected from thoroughly controlled voluntary blood donors of a Scandinavian blood bank. Each unit is separately controlled and found negative for HBS antigen and HIV I, II and hepatitis C antibodies. No preservatives are added to the samples. Contains all normal constituents which ensure the control and test samples to be analysed under the same conditions. Certified values after reconstitution	6 x 3 mL																																																																								
	<table border="0"> <tr> <td>Al..... 7.6 µg/L</td> <td>Hf..... 10 ng/L</td> <td>Ru..... < 100 ng/L</td> </tr> <tr> <td>Ar..... 0.39 µg/L</td> <td>Hg..... 1.1 µg/L</td> <td>S..... 1043 mg/L</td> </tr> <tr> <td>As..... 1.3 µg/L</td> <td>Ho..... 7 ng/L</td> <td>Sb..... 51.6 µg/L</td> </tr> <tr> <td>Au..... 526 µg/L</td> <td>I..... 61.2 µg/L</td> <td>Sc..... 27 ng/L</td> </tr> <tr> <td>B..... 38 µg/L</td> <td>Ir..... < 10 ng/L</td> <td>Se..... 59.2 µg/L</td> </tr> <tr> <td>Ba..... 124 µg/L</td> <td>K..... 112 mg/L</td> <td>Si..... 465 µg/L</td> </tr> <tr> <td>Be..... < 0.02 µg/L</td> <td>La..... 0.15 µg/L</td> <td>Sm..... 62 ng/L</td> </tr> <tr> <td>Bi..... 14 ng</td> <td>Li..... 5.20 mg/L</td> <td>Sn..... 1.24 µg/L</td> </tr> <tr> <td>Br..... 456 µg/L</td> <td>Mn..... 8.9 µg/L</td> <td>Sr..... 25.4 µg/L</td> </tr> <tr> <td>Ca..... 93.9 mg/L</td> <td>Mg..... 18.3 mg/L</td> <td>Ta..... 9 ng/L</td> </tr> <tr> <td>Cd..... 0.50 µg/L</td> <td>Mo..... 0.52 µg/L</td> <td>Te..... 505 ng/L</td> </tr> <tr> <td>Ce..... 0.13 µg/L</td> <td>Na..... 3040 mg/L</td> <td>Tb..... 9 ng/L</td> </tr> <tr> <td>Cr..... 0.54 µg/L</td> <td>Nb..... 78 ng/L</td> <td>Th..... 25 ng/L</td> </tr> <tr> <td>Cs..... 39 ng/L</td> <td>Nd..... 126 ng/L</td> <td>Ti..... 1.4 µg/L</td> </tr> <tr> <td>Co..... 0.23 µg/L</td> <td>Ni..... 4 µg/L</td> <td>Tl..... 29 ng/L</td> </tr> <tr> <td>Cu..... 1.17 mg/L</td> <td>Os..... < 20 ng/L</td> <td>Tm..... 4.4 ng/L</td> </tr> <tr> <td>Dy..... 24 ng/L</td> <td>Pa..... < 100 ng/L</td> <td>U..... 0.21 µg/L</td> </tr> <tr> <td>Er..... 29 ng/L</td> <td>P..... 59 mg/L</td> <td>Va..... 0.71 µg/L</td> </tr> <tr> <td>Eu..... 19 ng/L</td> <td>Pb..... 2.9 µg/L</td> <td>W..... 0.15 µg/L</td> </tr> <tr> <td>F..... 75 µg/L</td> <td>Pr..... 33 ng/L</td> <td>Y..... 0.19 µg/L</td> </tr> <tr> <td>Fe..... 1.2 mg/L</td> <td>Pt..... 12 ng/L</td> <td>Yb..... 21 ng/L</td> </tr> <tr> <td>Ga..... 19 ng/L</td> <td>Rb..... 3.3 µg/L</td> <td>Zn..... 1.22 mg/L</td> </tr> <tr> <td>Gd..... 18 ng/L</td> <td>Re..... 4.7 ng/L</td> <td>Zr..... 0.47 µg/L</td> </tr> <tr> <td>Ge..... < 0.5 µg/L</td> <td>Rh..... < 100 ng/L</td> <td></td> </tr> </table>	Al..... 7.6 µg/L	Hf..... 10 ng/L	Ru..... < 100 ng/L	Ar..... 0.39 µg/L	Hg..... 1.1 µg/L	S..... 1043 mg/L	As..... 1.3 µg/L	Ho..... 7 ng/L	Sb..... 51.6 µg/L	Au..... 526 µg/L	I..... 61.2 µg/L	Sc..... 27 ng/L	B..... 38 µg/L	Ir..... < 10 ng/L	Se..... 59.2 µg/L	Ba..... 124 µg/L	K..... 112 mg/L	Si..... 465 µg/L	Be..... < 0.02 µg/L	La..... 0.15 µg/L	Sm..... 62 ng/L	Bi..... 14 ng	Li..... 5.20 mg/L	Sn..... 1.24 µg/L	Br..... 456 µg/L	Mn..... 8.9 µg/L	Sr..... 25.4 µg/L	Ca..... 93.9 mg/L	Mg..... 18.3 mg/L	Ta..... 9 ng/L	Cd..... 0.50 µg/L	Mo..... 0.52 µg/L	Te..... 505 ng/L	Ce..... 0.13 µg/L	Na..... 3040 mg/L	Tb..... 9 ng/L	Cr..... 0.54 µg/L	Nb..... 78 ng/L	Th..... 25 ng/L	Cs..... 39 ng/L	Nd..... 126 ng/L	Ti..... 1.4 µg/L	Co..... 0.23 µg/L	Ni..... 4 µg/L	Tl..... 29 ng/L	Cu..... 1.17 mg/L	Os..... < 20 ng/L	Tm..... 4.4 ng/L	Dy..... 24 ng/L	Pa..... < 100 ng/L	U..... 0.21 µg/L	Er..... 29 ng/L	P..... 59 mg/L	Va..... 0.71 µg/L	Eu..... 19 ng/L	Pb..... 2.9 µg/L	W..... 0.15 µg/L	F..... 75 µg/L	Pr..... 33 ng/L	Y..... 0.19 µg/L	Fe..... 1.2 mg/L	Pt..... 12 ng/L	Yb..... 21 ng/L	Ga..... 19 ng/L	Rb..... 3.3 µg/L	Zn..... 1.22 mg/L	Gd..... 18 ng/L	Re..... 4.7 ng/L	Zr..... 0.47 µg/L	Ge..... < 0.5 µg/L	Rh..... < 100 ng/L		
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Occupational health and hygiene materials in urine

Code	Product	Unit								
NIST-RM 8444	Cotinine in human urine This standard is intended primarily for use in validating methods for the determination of Cotinine in human urine. One set consists of four vials, each containing Cotinine in 5 ml human urine, which has been freeze dried. Two vials are "blank" concentration levels, typical for non-smokers without exposure to cigarette smoke; one vial is a "low" concentration level corresponding to non-smokers with passive exposure to side-stream smoke; and one vial is a "high" level, typical of smokers.	4 x 5 mL								
	<table border="0"> <tr> <td>Analyte</td> <td>blank ng/mL</td> <td>low ng/mL</td> <td>high ng/mL</td> </tr> <tr> <td>Cotinine.....</td> <td>0.8</td> <td>54</td> <td>488</td> </tr> </table>	Analyte	blank ng/mL	low ng/mL	high ng/mL	Cotinine.....	0.8	54	488	
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NIST-2672A	Mercury in urine This material is intended primarily for use as an analytical standard for the determination of mercury in urine. It consists of four bottles of freeze-dried urine containing mercury, two bottles each at low and elevated levels. Certified values after reconstitution	set (4)						
	<table border="0"> <tr> <td></td> <td>low level</td> <td>elevated level</td> </tr> <tr> <td>Hg.....</td> <td>(0.002)</td> <td>0.105 mg/L</td> </tr> </table>		low level	elevated level	Hg.....	(0.002)	0.105 mg/L	
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ME 28351	<p>Metals in human urine, level 1 (low)</p> <p>Lyophilised human urine control in two different concentrations for quality control and calibration of trace element determinations from urine. The real assay values have been determined by independent laboratories of forensic medicine.</p> <p>Analyte level 1</p> <table border="0"> <tr> <td>Al.....80 µg/L</td> <td>Cu.....50 µg/L</td> <td>Pb.....130 µg/L</td> </tr> <tr> <td>As.....50 µg/L</td> <td>F.....10 mg/L</td> <td>Pd.....5 µg/L</td> </tr> <tr> <td>Ba.....21 µg/L</td> <td>Fe.....700 µg/L</td> <td>Se.....20 µg/L</td> </tr> <tr> <td>Cd.....13 µg/L</td> <td>Hg.....50 µg/L</td> <td>Sn.....5 µg/L</td> </tr> <tr> <td>Cr.....10 µg/L</td> <td>Mn.....25 µg/L</td> <td>Zn.....1.7 mg/L</td> </tr> <tr> <td>Co.....3 µg/L</td> <td>Ni.....25 µg/L</td> <td></td> </tr> </table>	Al.....80 µg/L	Cu.....50 µg/L	Pb.....130 µg/L	As.....50 µg/L	F.....10 mg/L	Pd.....5 µg/L	Ba.....21 µg/L	Fe.....700 µg/L	Se.....20 µg/L	Cd.....13 µg/L	Hg.....50 µg/L	Sn.....5 µg/L	Cr.....10 µg/L	Mn.....25 µg/L	Zn.....1.7 mg/L	Co.....3 µg/L	Ni.....25 µg/L		6 x 5 mL																											
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ME 28352	<p>Metals in human urine, level 2 (high)</p> <p>Lyophilised human urine control in two different concentrations for quality control and calibration of trace element determinations from urine. The real assay values have been determined by independent laboratories of forensic medicine.</p> <p>Analyte level 2</p> <table border="0"> <tr> <td>Al.....400 µg/L</td> <td>Cu.....250 µg/L</td> <td>Pb.....80 µg/L</td> </tr> <tr> <td>As.....250 µg/L</td> <td>F.....6 mg/L</td> <td>Pd.....50 µg/L</td> </tr> <tr> <td>Ba.....50 µg/L</td> <td>Fe.....200 µg/L</td> <td>Se.....200 µg/L</td> </tr> <tr> <td>Cd.....8 µg/L</td> <td>Hg.....10 µg/L</td> <td>Sn.....50 µg/L</td> </tr> <tr> <td>Cr.....2 µg/L</td> <td>Mn.....15 µg/L</td> <td>Zn.....0.8 mg/L</td> </tr> <tr> <td>Co.....18 µg/L</td> <td>Ni.....15 µg/L</td> <td></td> </tr> </table>	Al.....400 µg/L	Cu.....250 µg/L	Pb.....80 µg/L	As.....250 µg/L	F.....6 mg/L	Pd.....50 µg/L	Ba.....50 µg/L	Fe.....200 µg/L	Se.....200 µg/L	Cd.....8 µg/L	Hg.....10 µg/L	Sn.....50 µg/L	Cr.....2 µg/L	Mn.....15 µg/L	Zn.....0.8 mg/L	Co.....18 µg/L	Ni.....15 µg/L		6 x 5 mL																											
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BCR-640	<p>Trace elements (As, Cr) and 1-Hydroxypyrene in lyophilised human urine</p> <p>The CRM is supplied in lyophilised form in white plastic vials. No other preservatives are added. The content of a vial is approximately 0.3 g dry matter with residual moisture content less than 3 % and equivalent to 10.0 mL of fresh urine. This urine material was collected from healthy British donors. Based on the available information and knowledge, any infection danger resulting from an exposure to the material can be excluded, because of the treatment process applied.</p> <table border="0"> <tr> <td>Compound</td> <td>concentration</td> </tr> <tr> <td>Arsenic.....</td> <td>23 µg/L</td> </tr> <tr> <td>Chromium.....</td> <td>1.5 µg/L</td> </tr> <tr> <td>1-Hydroxypyrene.....</td> <td>0.62 nmol/L</td> </tr> </table> <p>This product is currently under recertification - not available at the moment</p>	Compound	concentration	Arsenic.....	23 µg/L	Chromium.....	1.5 µg/L	1-Hydroxypyrene.....	0.62 nmol/L	vial																																					
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BCR-641	<p>Trace elements (As, Cd, Cr, Co) and 1-Hydroxypyrene in lyophilised human urine</p> <p>The CRM is supplied in lyophilised form in white plastic vials. No other preservatives are added. The content of a vial is approximately 0.3 g dry matter with residual moisture content less than 3 % and equivalent to 10.0 mL of fresh urine. This urine material was collected from healthy British donors. Based on the available information and knowledge, any infection danger resulting from an exposure to the material can be excluded, because of the treatment process applied.</p> <table border="0"> <tr> <td>Compound</td> <td>concentration</td> </tr> <tr> <td>Arsenic.....</td> <td>76 µg/L</td> </tr> <tr> <td>Cadmium.....</td> <td>5.2 µg/L</td> </tr> <tr> <td>Chromium.....</td> <td>6.4 µg/L</td> </tr> <tr> <td>Cobalt.....</td> <td>10.4 µg/L</td> </tr> <tr> <td>1-Hydroxypyrene.....</td> <td>5.6 nmol/L</td> </tr> </table> <p>This product is currently under recertification - not available at the moment</p>	Compound	concentration	Arsenic.....	76 µg/L	Cadmium.....	5.2 µg/L	Chromium.....	6.4 µg/L	Cobalt.....	10.4 µg/L	1-Hydroxypyrene.....	5.6 nmol/L	vial																																	
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BCR-642	<p>Trace elements (As, Cd, Cr, Co) and 1-Hydroxypyrene in lyophilised human urine</p> <p>The CRM is supplied in lyophilised form in white plastic vials. No other preservatives are added. The content of a vial is approximately 0.3 g dry matter with residual moisture content less than 3 % and equivalent to 10.0 mL of fresh urine. This urine material was collected from healthy British donors. Based on the available information and knowledge, any infection danger resulting from an exposure to the material can be excluded, because of the treatment process applied.</p> <table border="0"> <tr> <td>Compound</td> <td>concentration</td> </tr> <tr> <td>Arsenic.....</td> <td>157 µg/L</td> </tr> <tr> <td>Cadmium.....</td> <td>10.1 µg/L</td> </tr> <tr> <td>Chromium.....</td> <td>21.0 µg/L</td> </tr> <tr> <td>Cobalt.....</td> <td>61 µg/L</td> </tr> <tr> <td>1-Hydroxypyrene.....</td> <td>21 nmol/L</td> </tr> </table> <p>This product is currently under recertification - not available at the moment</p>	Compound	concentration	Arsenic.....	157 µg/L	Cadmium.....	10.1 µg/L	Chromium.....	21.0 µg/L	Cobalt.....	61 µg/L	1-Hydroxypyrene.....	21 nmol/L	vial																																	
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NIST-2670A	<p>Toxic elements in freeze dried urine</p> <p>This material is primarily intended for use in evaluating the accuracy of clinical methods and for the calibration of apparatus used to determine the concentration of toxic metals and other elements in human urine or similar matrices. It can also be used to validate working or secondary reference materials. It consists of four bottles of freeze-dried urine, two bottles each at the low and high levels. The low level urine was prepared from human urine that was lyophilised after pooling and centrifugation. The high level urine was prepared by spiking an aliquot of the pooled and homogenized low-level urine with selected metals, followed by lyophilisation. Due to the centrifugation (which improved sample homogeneity), neither level represents a fresh urine pool from a normal human population.</p> <table border="0"> <tr> <td>Analytes</td> <td>low</td> <td>elevated level</td> </tr> <tr> <td>Antimony.....</td> <td>0.971</td> <td>0.824 µg/L</td> </tr> <tr> <td>Cadmium.....</td> <td>0.0591</td> <td>4.862 µg/L</td> </tr> <tr> <td>Cesium.....</td> <td>1.075</td> <td>1.085 µg/L</td> </tr> <tr> <td>Cobalt.....</td> <td>0.166</td> <td>51.2 µg/L</td> </tr> <tr> <td>Iodine.....</td> <td>88.2</td> <td>88.2 µg/L</td> </tr> <tr> <td>Lead.....</td> <td>0.49</td> <td>233.2 µg/L</td> </tr> <tr> <td>Mercury.....</td> <td>0.0663</td> <td>95.1 µg/L</td> </tr> <tr> <td>Manganese.....</td> <td></td> <td>99 µg/L</td> </tr> <tr> <td>Molybdenum.....</td> <td></td> <td>114.1 µg/L</td> </tr> <tr> <td>Platinum.....</td> <td></td> <td>51.5 µg/L</td> </tr> <tr> <td>Selenium.....</td> <td></td> <td>229.5 µg/L</td> </tr> <tr> <td>Thallium.....</td> <td>0.0162</td> <td>5.417 µg/L</td> </tr> <tr> <td>Thorium.....</td> <td>0.0053</td> <td>0.01606 µg/L</td> </tr> <tr> <td>Uranium.....</td> <td>0.1020</td> <td>4.997 µg/L</td> </tr> </table>	Analytes	low	elevated level	Antimony.....	0.971	0.824 µg/L	Cadmium.....	0.0591	4.862 µg/L	Cesium.....	1.075	1.085 µg/L	Cobalt.....	0.166	51.2 µg/L	Iodine.....	88.2	88.2 µg/L	Lead.....	0.49	233.2 µg/L	Mercury.....	0.0663	95.1 µg/L	Manganese.....		99 µg/L	Molybdenum.....		114.1 µg/L	Platinum.....		51.5 µg/L	Selenium.....		229.5 µg/L	Thallium.....	0.0162	5.417 µg/L	Thorium.....	0.0053	0.01606 µg/L	Uranium.....	0.1020	4.997 µg/L	set (4 x 20 mL)
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Code	Product	Unit
BCR-397	Trace elements in human hair The material consists of 3 g of human hair powder in glass bottles provided with a polyethene insert and a screw cap. Mass fraction of dry mass basis Cd 0.521 ± 0.024 µg/g Hg 12.3 ± 0.5 µg/g Pb 33.0 ± 1.2 µg/g Se 2.00 ± 0.08 µg/g Zn 199 ± 5 µg/g As (0.31) µg/g Cu (110) µg/g Ni (46.0) µg/g ~oe	3 g
NCSZC81002B	Trace elements in human hair Analytes µg/g Ag 0.037 ± 0.002 Al 23.2 ± 2.0 As 0.198 ± 0.023 Ba 11.1 ± 1.3 Br (0.59) Ca 1537 ± 68 Cl (48.2) Cd 0.072 ± 0.010 Co 0.153 ± 0.015 Cr 8.74 ± 0.97 Analytes µg/g Cu 33.6 ± 2.3 Fe 160 ± 16 Hg 1.06 ± 0.28 I 0.96 ± 0.20 K (14.4) La (0.029) Mg 264 ± 14 Mn 3.83 ± 0.39 Mo 1.06 ± 0.12 Na 445 ± 40 Analytes µg/g Ni (5.77) P 174 ± 43 S (4.62 in %) Pb 3.83 ± 0.18 Sb 0.12 ± 0.02 Se 0.59 ± 0.04 Sr 8.17 ± 0.69 V (0.089) Zn 191 ± 16	7 g
NCS DC73347-20	Trace elements in human hair powder This material is intended primarily for use in trace element analyses of hair. It consists of powdered human hair (<80 Mesh) supplied in a glass bottle containing 20 g. Certified values, ranging from per cent to ng/g level, are provided for: Ag, As, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cu, Fe, Hg, La, Li, Mg, Mn, Mo, N, Na, Ni, P, Pb, S, Sb, Sc, Se, Si, Sr, Ti, Y, and Zn). Indicative values are given for: Au, B, Br, Dy, Eu, K, Sm.	20 g
Proteins		
BCR-486	Alphafoetoprotein (AFP), human purified Each sample is in the lyophilised form and it contains purified AFP without additives. The material is kept under nitrogen gas in sealed glass ampoules. The protein mass per ampoule is equivalent to 100 ± 9 µg when the material is reconstituted. Carbohydrate mass of the molecule is not included. Protein mass per ampoule 100 ± 9 µg	amp.
BCR-393	Apolipoprotein AI, human Each sample is in the lyophilised form of a 1.5 mL portion of Apo AI solution without additives. The material is kept under nitrogen gas in sealed glass ampoules. Mass concentration in the reconstituted material 1.06 ± 0.05 g/L	amp.
BCR-394	Apolipoprotein AII, human Each sample is in the lyophilised form of a 1.5 mL portion of Apo A II solution without additives. The material is kept under nitrogen gas in sealed glass ampoules. Mass concentration in the reconstituted material 0.321 ± 0.019 g/L	amp.
HEC JDS2	HbA1c in haemoglobin in buffer JDS HbA1c Lot 2 is primarily intended for use in the calibration and standardization of procedures for measurement of Haemoglobin A1c in clinical specimens. It can also be used for validating working or secondary reference materials. The material consists of a lysed solution (carbonate buffer) of erythrocytes originating from human whole blood. The material is free from plasma components and without stabilisers. A single set of JDS HbA1c Lot 2 consists of five vials (0.1 mL) with concentrations levels 4-13%. Certified values: Level HbA1c (%) 1 4.04 ± 0.08 2 5.38 ± 0.05 3 7.32 ± 0.07 4 9.88 ± 0.10 5 12.63 ± 0.13	unit
BCR-273	Single cell protein The material consists of about 10 g single cell protein powder in a sealed argon filled ampoule. Certified values Ca 11.97 g/kg Fe 0.156 mg/kg K 2.22 g/kg N 121.6 g/kg P 26.8 g/kg Indicative values for Mg, N(Kjeldahl), Na, S	10 g
BCR-613	Prostate specific antigen (PSA) Each sample is in lyophilised form and it contains purified PSA without additives. The material is kept under argon gas in sealed glass ampoules. Carbohydrate mass of the molecule not included. Prostate specific antigen in the reconstituted material Protein mass / ampoule 70.8 ± 6 µg The expanded uncertainty, taking into account the uncertainty of calibrators using a coverage factor k=2.	amp.
BCR-457	Thyroglobulin (Tg), human Each sample is in lyophilised form and equivalent to about 100 µl of purified Tg without additives. The material is kept under nitrogen in sealed glass ampoules. Mass concentration in the reconstituted material 0.324 ± 0.018 g/L	amp.
Proteins in blood		
IRMM/IFCC-467	Haemoglobin HbA0 in whole blood isolate The intended use of this reference material is the calibration of the IFCC reference measurement procedure and those analogous methods targeting the N-terminal hexapeptide with a stable glycation. A unit of IRMM/IFCC-467 consists of a glass vial with deep frozen HbA0-containing buffered solution (50 mmol/L MES, 10 mmol/L KCN, 2 mmol/L EDTA, pH 8.2). It was prepared from whole blood obtained from healthy volunteers. The certified value, the amount-of-substance fraction of HbA ₀ (defined as defined as the non-glycated haemoglobin), is traceable to the SI. An indicative value for total haemoglobin mass fraction (119.7 ± 3.7 mg/g) is also provided. Certified value HbA ₀ (HbA ₀ + HbA _{1c}) > 976 mmol/mol	vial

Code	Product	Unit
IRMM/IFCC-466	Glycated haemoglobin HbA1c in whole blood isolate The intended use of this reference material is the calibration of the IFCC reference measurement procedure and those analogous methods targeting the N-terminal hexapeptide with a stable glycation. A unit of IRMM/IFCC-466 consists of a glass vial with deep frozen HbA1c-containing buffered solution (50 mmol/L MES, 10 mmol/L KCN, 2 mmol/L EDTA, pH 6.2). It was prepared from whole blood obtained from diabetic volunteers. The certified value, the amount-of-substance fraction of HbA _{1c} (defined as beta-N-(1-deoxyfructos-1-yl) haemoglobin), is traceable to the SI. An indicative value for total haemoglobin mass fraction (26.2 ± 0.9 mg/g) is also provided. Certified value HbA _{1c} /(HbA ₀ + HbA _{1c}) 934 ± 22 mmol/mol	vial
BCR-522	Haemoglobinocyanide (HiCN) in bovine blood lysate Each sample is in the form of bovine blood lysate and a mass concentration of about 800.3 mg/L haemoglobinocyanide with a volume of 10 mL. The material is kept in sealed brown neutral borosilicate glass ampoules. Molar mass and molar extinction coefficient of bovine haemoglobin and human haemoglobin have been shown to be equivalent. Absorbance at 540 nm HiCN 0.5457 ± 0.0009 Mass concentration HiCN 800.3 ± 1.3 mg/L HiCN (Fe).....49.61 ± 0.08 µmol/L	amp.

Proteins in serum

	<p>Seronorm Immunoprotein (serum controls for clinical chemistry)</p> <p>These materials are intended for use as control materials for clinical chemical work. They are provided at two relevant diagnostic levels and consist of freeze-dried human serum which should be reconstituted with water. The materials are suitable for analysis with electrophoresis. No preservatives or stabilisers are added. The materials are stable for three years at 2 - 8 °C in unopened vials. The content of opened vials is stable for seven days at 2 - 8 °C. The materials are characterised for the following proteins:</p> <table border="0"> <tr> <td>Alfa1-acid-glycoprotein</td> <td>C3c</td> <td>Ferritin</td> <td>Prealbumin</td> </tr> <tr> <td>Alfa1-antitrypsin</td> <td>C4</td> <td>Haptoglobin</td> <td>Protein, total</td> </tr> <tr> <td>Alfa2-macroglobulin</td> <td>CCP</td> <td>IgA</td> <td>RF</td> </tr> <tr> <td>Albumin</td> <td>CDT (only in L-1)</td> <td>IgE</td> <td>Transferrin</td> </tr> <tr> <td>Apolipoprotein A1</td> <td>Ceruloplasmin</td> <td>IgG</td> <td></td> </tr> <tr> <td>ASL/ASO</td> <td>CRP</td> <td>IgM</td> <td></td> </tr> <tr> <td>β₂-microglobulin</td> <td>Digitoxin</td> <td>Myoglobin</td> <td></td> </tr> </table>	Alfa1-acid-glycoprotein	C3c	Ferritin	Prealbumin	Alfa1-antitrypsin	C4	Haptoglobin	Protein, total	Alfa2-macroglobulin	CCP	IgA	RF	Albumin	CDT (only in L-1)	IgE	Transferrin	Apolipoprotein A1	Ceruloplasmin	IgG		ASL/ASO	CRP	IgM		β ₂ -microglobulin	Digitoxin	Myoglobin		
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SERO202805	Seronorm Immunoprotein Level 1 (serum control for clinical chemistry)	6 x 1 mL																												
SERO202905	Seronorm Immunoprotein Level 2 (serum control for clinical chemistry)	6 x 1 mL																												
SERO200905	<p>Seronorm protein (serum control for clinical chemistry)</p> <p>The material is intended for accuracy control of the most frequently analysed serum proteins. It is a stable freeze-dried human serum where both β- and pre β-lipoproteins have been removed. Most values are traceable to ERM-DA470 and each batch is supplied with a data key providing analytical values for each protein. The levels of each protein are targeted to improve analytical quality where it is of greatest importance for clinical decision, just outside the reference intervals. By an inversion of Albumin, the Total Protein is almost identical in Seronorm™ Protein. Assayed or reference values are provided for the following proteins:</p> <table border="0"> <tr> <td>albumin</td> <td>IgA</td> </tr> <tr> <td>α1-antitrypsin</td> <td>IgG</td> </tr> <tr> <td>β2-microglobulin*</td> <td>IgE</td> </tr> <tr> <td>C1q*</td> <td>IgM</td> </tr> <tr> <td>C3c</td> <td>α1-acid-glycoprotein (orosomucoid)</td> </tr> <tr> <td>C4</td> <td>α2-macroglobulin</td> </tr> <tr> <td>ceruloplasmin</td> <td>total protein</td> </tr> <tr> <td>CRP*</td> <td>transferrin</td> </tr> <tr> <td>ferritin</td> <td>transthyretin (prealbumin)</td> </tr> <tr> <td>haptoglobin</td> <td></td> </tr> </table>	albumin	IgA	α1-antitrypsin	IgG	β2-microglobulin*	IgE	C1q*	IgM	C3c	α1-acid-glycoprotein (orosomucoid)	C4	α2-macroglobulin	ceruloplasmin	total protein	CRP*	transferrin	ferritin	transthyretin (prealbumin)	haptoglobin		6 x 1 mL								
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NIST-2921	<p>Human cardiac Troponin complex</p> <p>This material is primarily intended for use in calibrating clinical procedures and devices for the determination of cardiac troponin I (cTnI) in human serum. It can also be used for value-assignment of calibrators and control materials. A unit consists of five vials, each containing approximately 115 µL of a dilute solution of human cardiac troponin complex.</p> <p>Analyte cTnI 31.2 mg/L ± 1.4 mg/L</p>	unit (5x115 µL)																												
ERM-DA470	<p>15 Plasma proteins in human serum</p> <p>Each sample is the lyophilised form of a 1.0 mL portion of serum with additives (sodium azide and aprotinin). The material is kept under nitrogen gas in threaded glass bottles with Chlorbutylcaoutchouc GT rubber stoppers and PP screw caps. The water mass fraction of the sample is below 0.008 g/g.</p> <p>Analyte mass concentration in g/L</p> <table border="0"> <tr> <td>Transthyretin (TTR)..... 0.243 ± 0.18</td> <td>Transferrin (TF) 2.45 ± 0.06</td> </tr> <tr> <td>Albumin (ALB)..... 39.7 ± 0.8</td> <td>Complement C3c (C3c) 1.091 ± 0.027</td> </tr> <tr> <td>Alpha1-acid Glycoprotein (A1AG)..... 0.656 ± 0.005</td> <td>Complement C4 (C4) 0.151 ± 0.005</td> </tr> <tr> <td>Alpha1 Trypsin (A1AT)..... 1.206 ± 0.011</td> <td>C-reactive protein (CRP)..... 0.0392 ± 0.0019</td> </tr> <tr> <td>Ceruloplasmin (CER)..... 0.205 ± 0.011</td> <td>Immunoglobulin G (IgG)..... 9.68 ± 0.10</td> </tr> <tr> <td>Alpha1-anti-chymotrypsin (ACT)..... 0.245 ± 0.015</td> <td>Immunoglobulin A (IgA)..... 1.96 ± 0.04</td> </tr> <tr> <td>Alpha2-Macroglobulin (A2M) 1.64 ± 0.05</td> <td>Immunoglobulin M (IgM)..... 0.797 ± 0.023</td> </tr> <tr> <td>Haptoglobin (HPT)..... 0.893 ± 0.009</td> <td></td> </tr> </table>	Transthyretin (TTR)..... 0.243 ± 0.18	Transferrin (TF) 2.45 ± 0.06	Albumin (ALB)..... 39.7 ± 0.8	Complement C3c (C3c) 1.091 ± 0.027	Alpha1-acid Glycoprotein (A1AG)..... 0.656 ± 0.005	Complement C4 (C4) 0.151 ± 0.005	Alpha1 Trypsin (A1AT)..... 1.206 ± 0.011	C-reactive protein (CRP)..... 0.0392 ± 0.0019	Ceruloplasmin (CER)..... 0.205 ± 0.011	Immunoglobulin G (IgG)..... 9.68 ± 0.10	Alpha1-anti-chymotrypsin (ACT)..... 0.245 ± 0.015	Immunoglobulin A (IgA)..... 1.96 ± 0.04	Alpha2-Macroglobulin (A2M) 1.64 ± 0.05	Immunoglobulin M (IgM)..... 0.797 ± 0.023	Haptoglobin (HPT)..... 0.893 ± 0.009		amp.												
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Code	Product	Unit
ERM-DA470K/IFCC	<p>Proteins in human serum</p> <p>This reference material is intended to replace ERM-DA470.</p> <p>The ERM-DA470 in combination with special value transfer procedures constitute the basis for the values assigned to the new material. Initially, certified values will be provided for eleven proteins: A2M, AAG, AAT, ALB, C3c, HPT, IgA, IgG, IgM, TRF, and TTR. Information about other components may become available later.</p> <p>Each sample is the lyophilised form of a 1.0 mL portion of serum with additives (4-(2-hydroxyethyl)-1-piperazineethanesulfonic acid (HEPES), sodium azide, bezamidine chloride and aprotinin). The material is kept under nitrogen gas in threaded glass bottles with rubber stoppers and polypropylene screw caps. The lyophilised material has to be reconstituted with (1.00 ± 0.01) mL of distilled water. Serum was produced from blood collected in blood collection centres according to a procedure ensuring healthy donors, and low lipid content. The serum was processed in five batches, pooled, spiked with B2M and CRP, and filled into vials (1 mL serum per vial) with screw caps. The serum was lyophilised in the vials and stored at -70 °C. Nephelometry, turbidimetry or spectrophotometry in different commercial platform/reagent combinations were used to measure protein concentrations.</p> <p>Available during 2008</p>	amp.

Proteins in other matrices

BCR-405	<p>Glycated haemoglobin (HbA_{1c}) in human haemolysate (RM)</p> <p>Each sample is in lyophilised form and equivalent to about 0.5 mL of a solution of haemolysate of human erythrocytes without preservatives. The material is kept under carbon monoxide in sealed glass ampoules.</p> <p>HbA_{1c} in reconstituted material..... 6.29 %</p>	amp.
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Therapeutic drug monitoring

TRC-A105000	Abacavir sulfate	5 mg
TLCS-064	Acetylsildenafil	25 mg
TLCT-101	Aminotadalafil	25 mg
TRC-A632950	Amiodarone hydrochloride	5 g
TRC-A632952	Amiodarone hydrochloride-D4	2.5 mg
TRC-A633250	Amisulpride	1 mg
TRC-A633252	Amisulpride-D5	10 mg
TRC-A634400	Amprenavir	5 mg
TRC-A634402	Amprenavir-D4	1 mg
TRC-A790051	Atazanavir	5 mg
TRC-A790052	Atazanavir-D5	1 mg
TRC-B276580	Benzyl fentanyl	1 mg
TRC-B276582	Benzyl fentanyl-D3	1 mg
AL-01382	Brompheniramine maleate	100 mg
TRC-B689450	Bucizine dihydrochloride	50 mg
TRC-C379965	Chloroquine diphosphate salt	100 mg
EJ-C282-1411	Clozapine-D3	unit
EJ-C283-1421	Clozapine-D8	unit
TRC-C781502	Creatinine-D3	2.5 mg
TRC-D193500	Darunavir	5 mg
TRC-D193502	Darunavir-D9	1 mg
TRC-D230625	Delavirdine	10 mg
TRC-D230630	Delavirdine mesylate	10 mg
TRC-D288735	Desethylchloroquine	2.5 mg
TLCS-062	Desmethylsildenafil	25 mg
TRC-D440960	Didesethylchloroquine	1 mg
TRC-E425000	Efavirenz	10 mg
TRC-E425002	rac-Efavirenz-D4	1 mg
TRC-E525000	Emtricitabine	10 mg
TRC-E525002	Emtricitabine-13C,15N2	0.5 mg
TRC-F274990	Fentanyl citrate	10 mg
TRC-F588480	p-Fluoro fentanyl	1 mg
TRC-F588482	p-Fluoro fentanyl-D3	1 mg
TRC-F597950	cis-(Z)-Flupentixol bromide, dihydrobromide	1 mg
TRC-F598000	cis-(Z)-Flupentixol bromide, methanethiosulfonate	1 mg
TRC-F597960	trans-(E)-Flupentixol bromide dihydrobromide	1 mg
TRC-F598010	trans-(E)-Flupentixol bromide methanethiosulfonate	0.25 mg
TRC-F727250	Fosamprenavir calcium salt	1 mg
TRC-F727252	Fosamprenavir calcium salt-D4	1 mg
TLCS-065	Homosildenafil	25 mg
TRC-H916900	Hydroxychloroquine sulfate	10 mg
TRC-H924500	trans-3'-Hydroxycotinine	10 mg

Code	Product	Unit
TRC-H924510	trans-3'-Hydroxycotinine methyl-D3	1 mg
TRC-H941825	rac 8-Hydroxy efavirenz	1 mg
TRC-H941827	rac 8-Hydroxy efavirenz-D4	1 mg
TRC-H942400	Hydroxy fentanyl	1 mg
TRC-H942402	Hydroxy fentanyl-D3	1 mg
TLCS-067	Hydroxyhomosildenafil	25 mg
TRC-H948625	2-Hydroxy nevirapine	2.5 mg
TRC-H953225	7-Hydroxy quetiapine	1 mg
TRC-H953227	7-Hydroxy quetiapine-D3	1 mg
TRC-996495	Hydroxyzine	1 g
TRC-996497	Hydroxyzine-D8	1 g
TRC-I465200	Imipenem monohydrate	10 mg
TRC-I525000	Indinavir sulphate	5 mg
TRC-I525006	Indinavir sulphate-D6	1 mg
TRC-L172500	Lamivudine	10 mg
TRC-L172502	Lamivudine-15N2,13C	1 mg
TRC-L331500	Levetiracetam	100 mg
TRC-L469480	Lopinavir	10 mg
TRC-L469485	Lopinavir -metabolite M-1	1 mg
TRC-L469490	Lopinavir metabolite M-3/M-4	1 mg
TRC-L469482	Lopinavir-D8	1 mg
TRC-M205502	Mefentanyl	1 mg
TRC-M225620	Meropenem sodium salt	10 mg
TRC-M305310	alpha-Methyl fentanyl	1 mg
TRC-M305312	alpha-Methyl fentanyl D3	1 mg
TRC-M330725	alpha-Methylthio fentanyl	1 mg
TRC-M330730	3-Methylthio fentanyl	1 mg
TRC-N389760	Nelfinavir hydroxy-tert-butylamide	1 mg
TRC-N389750	Nelfinavir mesylate	10 mg
TRC-N389752	Nelfinavir-D3	1 mg
TRC-N391275	Nevirapine	5 mg
TRC-N391277	Nevirapine-D5	1 mg
TLCS-066	Norneosildenafil	25 mg
TRC-D292145	O-Desmethyl Quinine	5 mg
TRC-O415000	Ohmefentanyl	1 mg
TRC-O415002	Ohmefentanyl-D3	1 mg
EJ-O139-0121	Olanzapine D3	unit
TRC-O695300	Orphenadrine citrate salt	5 g
TRC-O695302	Orphenadrine citrate salt-D3	1 mg
TRC-P755800	Prochlorperazine	10 mg
TLCV-051	Pseudovardenafil	25 mg
TRC-5100002	Quetiapine fumarate-D8	1 mg
TRC-Q510000	Quetiapine hemifumarate	1 g
TRC-Q694000	Quinine	1 g
EJ-Q646-0311	Quinine-D3	unit
TRC-CQ694017	Quinine N-oxide-D3	1 mg
TRC-Q694012	Quinine 1-oxide-D3	1 mg
TRC-694002	Quinine methoxy-D3	5 mg
TRC-Q694015	Quinine N-oxide	2.5 mg
TRC-Q694010	Quinine-1 oxide	2.5 mg
TRC-R142002	Reboxetine mesylate-D5	1 mg
TRC-R142000	Reboxetine mesylate	10 mg
TRC-RS143500	Remifentanyl HCl	5 mg
TRC-R525002	Risperidone-D4	2.5 mg
TRC-R535000	Ritonavir	10 mg
TRC-R535003	Ritonavir-13C3	0.5 mg
TRC-R535002	Ritonavir-D6	0.5 mg
TRC-S088127	Salicylic acid-D4	5 mg
TRC-S135000	Saquinavir mesylate	10 mg
TRC-S135002	Saquinavir-D9	1 mg

如需帮助, 请 email: fapas_cn@yahoo.com.cn 或致电: 021-58816707*806 / (0)13311603693

Code	Product	Unit
EJ-191-0631	Sildenafil-D8	unit
TLCS-063	Sildenafil-D8	25 mg
TLCS-061	Sildenafil citrate	25 mg
TRC-S685250	Stavudine	10 mg
TRC-S685252	Stavudine-D3	1 mg
TLCT-103	Tadalafil	25 mg
TRC-T018500	Tenofovir	5 mg
TRC-T018510	Tenofovir diphosphate	1 mg
TRC-T018502	Tenofovir-D6	1 mg
TRC-T345600	Thienyl fentanyl HCl	1 mg
TRC-T345602	Thienyl fentanyl-D3 HCl	1 mg
TRC-T444900	Tipranavir	1 mg
TRC-T444902	Tipranavir-D4	1 mg
TLCV-053	Vardenafil-D5	25 mg
TRC-Z140000	Zalcitabine	10 mg
TRC-Z145000	Zaleplon	100 mg
TRC-Z145002	Zaleplon-D5	1 mg
TLCX-011	Xanthoanthrafil	25 mg

A wide variety of substances for Therapeutic Drug Monitoring available on request!

Seronorm pharmaca

(serum controls for clinical chemistry)

The Seronorm Pharmaca materials are intended for checking precision of methods routinely used for therapeutic drug monitoring. It is available at two levels (L-1 and L-2), containing an animal-based matrix spiked with more than 30 drugs. No stabilisers or preservatives are added. Unopened vials can be stored for three years at 2-8 °C. After opening, the material is stable for seven days at 2-8 °C. The materials can be frozen in small portions.

Components:

Amikacin	Digoxin	Methotrexate	Quinidine
Amiodarone	Disopyramide	Netilmicin (only L-1)	Salicylate
Caffeine	Ethosuximide	Nortriptyline	Theophylline
Carbamazepine	Flecainide	Paracetamol	Tobramycin
Chloramphenicol	Gentamycin	Phenobarbital	Valproic Acid
Clonazepam	Haloperidol	Phenytoin	Vancomycin
Cyklosporine	Imipramine	Primidone	
Desipramine	Lidocaine	Procainamide	
Diazepam	Lithium	Propranolol	

SERO101405	Seronorm Pharmaca L-1 (serum control for clinical chemistry)	6 x 1 mL
SERO101505	Seronorm Pharmaca L-2 (serum control for clinical chemistry)	6 x 1 mL

Veterinary materials

BCR-386	Diethylstilboestrol (DES) in bovine urine, blank Diethylstilboestrol concentration in the reconstituted material < 0.1 µg/L The material consists of lyophilised bull urine obtained from animals which have never been treated with stilbenes. It is supplied in vials with a content equivalent to about 2.0 mL urine, sealed under nitrogen.	vial
BCR-389	Diethylstilboestrol (DES) in bovine urine, positive Diethylstilboestrol concentration in the reconstituted material 12.6 ± 2.5 µg/L The material consists of lyophilised bull urine mixed with friesland steer urine biologically incurred with diethylstilbestrol. It is supplied in vials with a content equivalent to about 2.0 mL urine, sealed under nitrogen.	vial
BCR-387	Dienoestrol (DE) in bovine urine, blank Dienoestrol concentration in the reconstituted material < 0.1 µg/L The material consists of lyophilised calf urine obtained from animals which have never been treated with stilbenes. It is supplied in vials with a content equivalent to about 2.0 mL urine, sealed under nitrogen.	vial
BCR-390	Dienoestrol (DE) in bovine urine, positive The material consists of lyophilised calf urine mixed with friesland steer urine biologically incurred with dienioestrol. It is supplied in vials with a content equivalent to about 2.0 mL urine, sealed under nitrogen. Dienioestrol concentration in the reconstituted material 34 ± 7 µg/L.	vial
BCR-388	Hexoestrol (HEX) in bovine urine, blank Hexoestrol concentration in the reconstituted material < 0.1 µg/L The material consists of lyophilised cow urine obtained from animals which have never been treated with stilbenes. It is supplied in vials with a content equivalent to about 2.0 mL urine, sealed under nitrogen.	vial
BCR-391	Hexoestrol (HEX) in bovine urine, positive The material consists of lyophilised cow urine mixed with friesland steer urine biologically incurred with hexoestrol. It is supplied in vials with a content equivalent to about 2.0 mL urine, sealed under nitrogen. Hexoestrol concentration in the reconstituted material 13.3 ± 3.1 µg/L.	vial
NMIAD926	5(10)-Estrene-3b,17a-diol	1 mg

Vitamins and micronutrients

NIST-970	Ascorbic acid in frozen human serum This material is intended primarily for use in validating methods for determine ascorbic acid in human serum and similar matrices. It can also be used for quality assurance when assigning values to in-house control materials. A unit consists of four ampoules of frozen human serum, two ampoules each of level I (high normal) and level II (low normal). Each ampoule contains approximately 2.2 mL of solution, a 1:1 mixture of human serum and 100 g/L (10 % mass concentration) aqueous metaphosphoric acid (MPA). The MPA is present to stabilize and preserve the ascorbic acid. Certified concentration values for total ascorbic acid (TAA) (ascorbic acid + dehydroascorbic acid). Levels value 95 % confidence level I, µmol/L of solution 8.41..... 7.75 to 9.07 level II, µmol/L of solution 28.05..... 27.56 to 28.54	set (4)
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NIST-968C	Fat soluble cholesterol and vitamins in human serum This material is intended for use in validating methods for determining fat-soluble vitamins, carotenoids, and cholesterol in human serum and plasma. It can also be used for quality assurance when assigning values to in-house control material for these constituents. A unit consists of two vials of lyophilised human serum, one vial at each of two different concentration levels. Analytes level I level II µg/mL µg/mL trans-retinol 0.841 0.484 β-Tocopherol 0.131 0.527 γ-Tocopherol 3.90 1.58 α-Tocopherol 7.47 18.79 trans-β-carotene 0.157 0.391 Total β-carotene 0.171 0.438 Cholesterol 1335 1669	set (2)
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Various control materials

SERO203005	Seronorm Human, high (serum control for clinical chemistry) Freeze dried human serum control covering over 40 of the most frequently analysed components at levels of clinical interest. The human serum from which this product has derived is from thoroughly controlled voluntary, unpaid donors of Scandinavian blood centres. Each unit is tested negative to HB _s antigen, HCV - HIV-I - HIV-II antibodies by approved tests. Analytes: ALAT CK-MB IgM T3, free Albumin Copper IgG T3, total ALP Creatinine Iron T4, free Amylase, pancreas CRP Lactate T4, total Amylase, total Digoxin LDH Testosterone ASAT Estradiol Lipase Theophylline Bile Acid Ferritin Lithium TIBC Bilirubin, direct Folate Magnesium Transferrin Bilirubin, total GGT Osmolality Triglycerides Calcium GLDH Phenylalanin TSH Chloride Glucose Phosphorus UIBC Cholesterol, HDL/LDL HBDH Potassium Urea Cholesterol, total hCG, total Progesterone Uric acid Cholinesterase Homocysteine Protein, total Vitamin B ₁₂ CK IgA Sodium Zinc	10 x 5 mL
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Seronorm Immunoassay (serum controls for clinical chemistry)

Liquid human serum control. Immunoassay control combining hormones, cardiac, and tumour markers and covering over 40 of the most frequently analysed components at levels of clinical interest. The human based matrix has been produced with focus on compatibility with patient samples. No preservatives or stabilisers are added

Human serum, from which this product has derived, is from thoroughly controlled voluntary unpaid donors of Scandinavian Blood Centres.

Each unit is tested negative for HB_s antigen, HCV - HIV-I - HIV-II antibodies by approved tests.

Three levels of clinical significance - each level available separately.

Freeze-dried (assayed values) or liquid control (approx values) available.

Analytes:

17-OH-Progesterone	C-peptide	IgE	T3 free
AFP	Cortisol	Insulin	T3 total
Aldosterone	DHEA-Sulphate	LH	T4 free
Androstendione	Digoxin	Methylmalonic acid	T4 total
Anti-TPO	Estradiol	Myoglobin	TBG
β2-microglobulin	Estradiol, free	NT-pro-BNP	Testosterone
β-hCG, total	Ferritin	Progesterone	Theophylline
CA 125	Folate	Prolactin	Thyroglobulin
CA 15-3	FSH	PTH (intact)	Troponin I
CA 19-9	hCG, total	PSA, free	Troponin T
CEA	hGH	PSA, total	TSH
CK-MB	Homocysteine	SHBG	Vitamin B ₁₂

SERO207005	Seronorm Immunoassay Liquid L-1 (serum control for clinical chemistry)	12 x 3 mL
SERO207205	Seronorm Immunoassay Liquid L-3 (serum control for clinical chemistry)	12 x 3 mL
SERO206005	Seronorm Immunoassay Lyo L-1 (serum control for clinical chemistry)	12 x 3 mL
SERO206105	Seronorm Immunoassay Lyo L-2 (serum control for clinical chemistry)	12 x 3 mL
SERO206205	Seronorm Immunoassay Lyo L-3 (serum control for clinical chemistry)	12 x 3 mL
SERO203405	Seronorm Immunoassay L-3 low (serum control for clinical chemistry)	12 x 3 mL

Code	Product	Unit																																																																																																																																																
SERO201505	Trace elements in whole blood, level 1 This reference material is produced from blood collected from thoroughly controlled voluntary blood donors of a Scandinavian blood bank. Each unit is separately controlled and found negative for HBS antigen and HIV I, II and hepatitis C antibodies. No preservatives are added to the samples. It contains all normal constituents which ensures the control and test samples to be analysed under the same conditions. Certified values after reconstitution	10 x 5 mL																																																																																																																																																
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SERO201405	Trace elements in serum, level 1 This reference material is produced from serum collected from thoroughly controlled voluntary blood donors of a Scandinavian blood bank. Each unit is separately controlled and found negative for HBS antigen and HIV I, II and hepatitis C antibodies. No preservatives are added to the samples. Contains all normal constituents which ensure the control and test samples to be analysed under the same conditions. Certified values after reconstitution	6 x 3 mL																																																																											
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SERO201305	Trace elements in urine, level 1 This reference material is produced from human urine from thoroughly controlled voluntary Norwegian donors. Each unit is controlled by official authorities and found negative for presence of HBS antigen and HIV I, II and hepatitis C antibodies. No preservatives are added to the samples. It contains all normal constituents which ensure the control and test samples to be analysed under the same conditions. Certified values after reconstitution	10 x 5 mL																																																																											
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Code	Product	Unit																																																																																	
SERO201205	Trace elements in urine, level 2 This reference material is produced from human urine from thoroughly controlled voluntary Norwegian donors. Each unit is controlled by official authorities and found negative for presence of HBS antigen and HIV I, II and hepatitis C antibodies. No preservatives are added to the samples. It contains all normal constituents which ensure the control and test samples to be analysed under the same conditions. Certified values after reconstitution	10 x 5 mL																																																																																	
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Blood cell size reference material

BCR-165	Latex spheres, nominal 2 µ Each vial contains 2 mL of an aqueous suspension of latex spheres at a mass concentration of about 0.2 g/L. About 0.5% of the particles are agglomerated doublets. Average particle diameter..... 2.223 ± 0.013 µm	vial
BCR-166	Latex spheres, nominal 4.8 µ Each vial contains 2 mL of an aqueous suspension of latex spheres at a mass concentration of about 0.2 g/L. About 0.5% of the particles are agglomerated doublets. Average particle diameter..... 4.821 ± 0.019 µm	vial
BCR-167	Latex spheres, nominal 9.6 µ Each vial contains 2 mL of an aqueous suspension of latex spheres at a mass concentration of about 1.4 g/L. About 0.5% of the particles are agglomerated doublets. Average particle diameter..... 9.475 ± 0.018 µm	vial