TRUE CONTROL

SERO PRODUCT CATALOGUE

SERO

The independent control sera specialist since 1963

We enable laboratories to stay in control

OUR CORE VALUES

ETHICAL

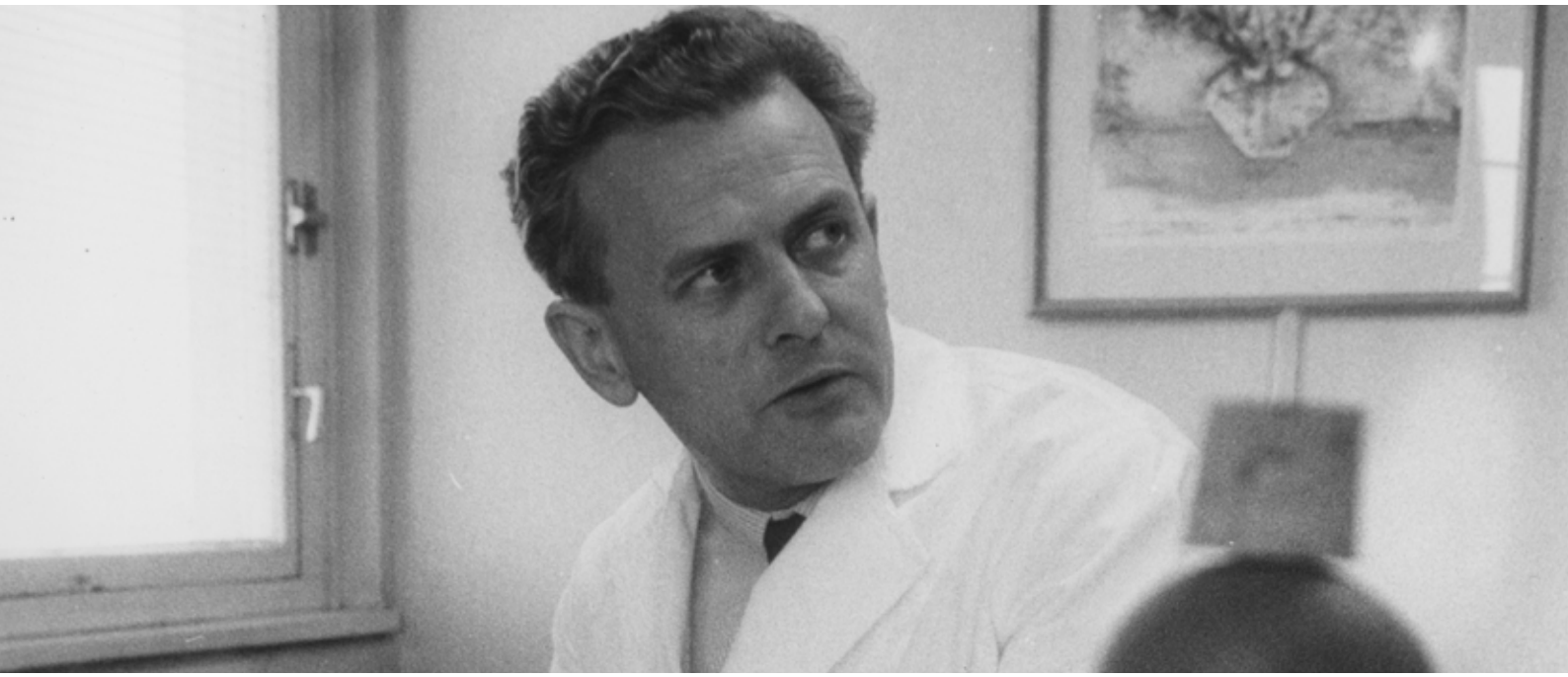
Ethics affects all we do. Traceability, accountability and independence are at the core of our business. We are proud to be independent. We know this is what laboratories respect and appreciate.

DEDICATED

We are passionately professionals knowing what it takes to provide high quality products: dedication from each and everyone of us, always.

FLEXIBLE

We are customer-oriented and always open to find new even better solutions for our customers and partners. We know our flexibility is the key to address the needs of a fast-changing laboratory market.



Professor Dr. Med. Lorentz Eldjarn, founder of SERO and pioneer in the field of QC materials for the laboratory.

WHO ARE WE?

SERO is built on a visionary idea dating back to the late 1950s of providing laboratories with tools to ensure reliability of laboratory results. Today, over 50 years later, our founder, Professor Dr. Med. Lorentz Eldjarn's vision and core values still provide the compass by which we navigate on a day to day basis.

WHAT DO WE DO?

Manufacturing quality control (QC) materials is our only production activity. This gives us the focus and expertise needed to produce world-class products that enable laboratories to stay in control.

WHAT IS OUR MISSION?

SERO's mission is to improve patient care by contributing to analyses that give reliable and comparable results from day to day, and between laboratories.

HOW DO WE PURSUE OUR MISSION?

Medical biochemistry and laboratory activities are constantly evolving, which requires strong focus on quality assurance. Good quality management leads to both you and the clinicians being able to trust your results and the decisions made based upon them. But it is when the analytical system fails that you need the QC material the most. And it is when the system fails that only a true quality control can be your safety net – to warn you that something is out of order. Just as you need an alarm when a critical situation occurs in your home.


Seronorm ™
Immunoassay
Liq
3 mL

Content

SERO – dedicated to laboratory quality since 1963

SERO is a Norwegian expertise-based biotechnology company manufacturing and marketing quality control materials worldwide.

SERO has been a pioneer in the field of QC materials for laboratories. SERO's founder, Professor Dr Med. Lorentz Eldjarn, started developing control sera as early as in the 1950s. Professor Eldjarn's extensive professional knowledge and passionate interest in laboratory quality led to the establishment of SERO in 1963. In 1975, he received the Clinical Chemistry Award from the IFCC (International Federation of Clinical Chemistry).

Over the decades, SERO has developed extensive experience as a specialized manufacturer of quality control materials– covering immunoassay, clinical chemistry, lipids, hormones, proteins, tumour markers, cardiac markers, diabetes, trace elements and drugs. To fulfill the needs of the rapidly evolving field of laboratory medicine, the number of analytes incorporated into these products has also steadily grown.

SERO's head office is situated in Norway, just outside the capital Oslo. Here we run an ISO 9001/ISO 13485 certified facility which ensures the best standards from product concept to product delivery for both processes and raw materials used. The SERO laboratory, accredited since 1994 as one of the first laboratories in Norway, has experience with a wide range of analytical methods including clinical chemistry, immunochemistry and trace elements analyses (ICP, AAS).

In addition to having a strong position in our Scandinavian home market, we export more than 90 % of our products to more than 60 countries worldwide.

The SERO staff at your service: competence, dedication, flexibility

Whereas most IVD companies are involved in many activities, producing control sera is SERO's dedicated production activity.

This allows us to focus exclusively on the knowledge and technical expertise needed to produce world-class control sera. SERO's staff are highly competent and dedicated; approximately 70 % of the employees hold a university degree and the average work experience at SERO is more than 15 years.

The SERO staff includes 12 different nationalities with an excellent command of English in addition to their native languages. The whole SERO staff is located at the one site, which allows for efficient communication between different departments and thereby a high degree of flexibility.

Together, all these factors make us unique and highly appreciated by the large number of customers we serve.


CT 150

SERO's product philosophy

The brand name Seronorm is recognised by many laboratories worldwide since the 1960s and has for many laboratory technicians been synonymous with QC material since the introduction of the first commercialized QC materials to laboratories.

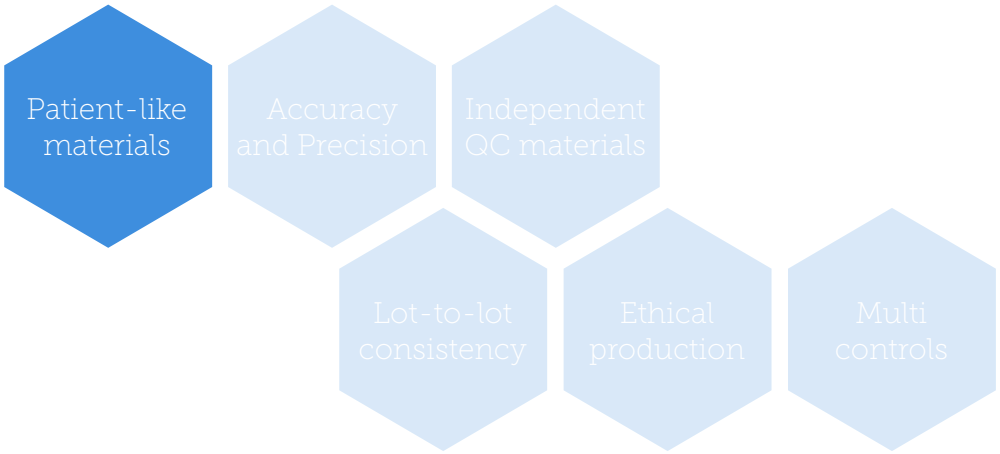
SERO's product philosophy reflects our mission:

To provide laboratories with high quality control materials that fulfills the original purpose of ensuring reliability of laboratory results. Because it is not the quantity of results, but the quality of each analytical result that matters.

That is why SERO puts quality first in each step of the production process - so that you as a laboratory personnel can trust the quality controls you use in your daily routine. Focus on quality is paramount in all steps - from the selection of raw material, production, inspections of incoming data for the product documentation to logistics operations.

The purpose of quality control materials in the clinical laboratory is to monitor the different phases of the analytical process in order to detect, reduce and correct any deficiencies that could lead to wrong clinical decision-making.

Different performance criteria should be considered when selecting quality control materials for the laboratory. Over the following pages, we will explain the background for our priorities when developing and producing QC materials, and why we believe these choices are of importance to the laboratory.



Patient-like quality control materials

Only a true commutable control material can be trusted to reveal how malfunctions in the analytical system may affect the patient samples.

Studies have shown that many commercially available QC materials do not fulfill this basic function, presumably as the materials were far from being patient-like, or commutable (Miller et al, 2011, Clinical Chemistry).

To ensure the best commutability, most of SERO's products contain more than 95 % genuine human serum with no stabilizers or preservatives added. A strict selection of raw materials based on our high level of expertise and highly controlled manufacturing processes ensures the high quality of SERO products.

ISO 15189 "Medical laboratories – Requirements for quality and competence" clearly states its recommendations with regards to the composition of quality control materials: *"The laboratory shall use quality control materials that react to the examining system in a manner as close as possible to patient samples"*.

Certain analytes such as bilirubin, PTH, C-peptide and various enzymes are biologically unstable in bodily fluids. Minor deviations in the preanalytical phase or in the performance of instruments or reagents may influence the measurement of such unstable analytes. In order to maintain control of the whole analytical process it is important to use a control with the same properties as patient samples.

Patient samples are complex biochemical mixtures with many metabolites and other substances with a potential of interfering with analytical methods. A specially tailored and often heavily buffered solution spiked with pure substances will perform much better than patient samples with most instruments. But can you rely on such materials for your quality assurance? Only a true control will show the real performance of your analytical system allowing you to stay in control.

Focus on accuracy

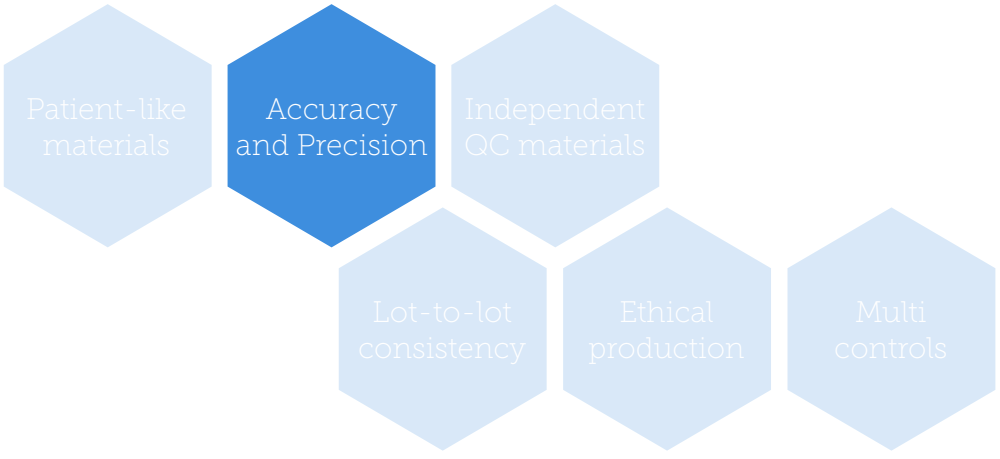
Trustworthy laboratory results through independent and traceable control sera

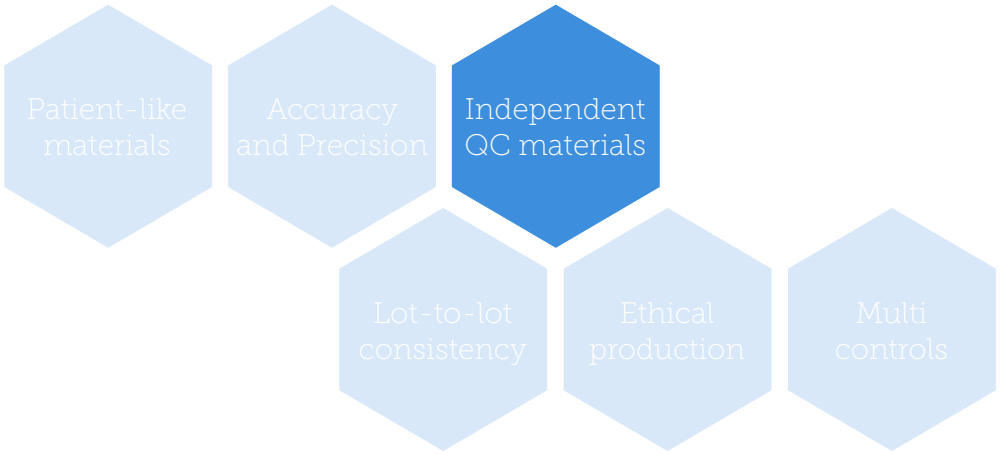
Laboratory quality control requires a focus on both precision and trueness as defined in ISO 5725-1/1994 & ISO Guide 99/2007. For most analytes and methods imprecision is a minor problem compared to the lack of trueness and comparability with other methods and laboratories. The right choice of control sera will enable an independent performance evaluation of instruments, reagents and calibrators.

SERO's accuracy controls can be used both for the verification of calibrators and for the monitoring of day to day precision. In addition, the information supplied with the controls can be used to compare the trueness of your analytical results with other instruments and reference methods. The SERO lot-specific product documentation provides specific information on analytical results, methods, an uncertainty budget and traceability in accordance with ISO 17511.

For many analytes, the analytical values are traceable to the highest level of the calibration hierarchy with reference methods and/ or reference materials, whenever available.

In other words – values everyone can trust.





True independent QC materials

SERO produces true independent controls. The analytical data in our product documentation come from independent trustworthy laboratories. The data is not obtained in collaboration with instrument manufacturers.

Thereby, the analytical data reflect the results of patient samples and provide an objective assessment of the entire analytical system. Of course, nor does the manufacturing of our QC materials involve collaborations with any instrument, reagent or calibrator manufacturer.

With the “black box system” that most instrument producers offer nowadays, the best way medical laboratories can control their laboratory system is through the use of third party quality controls. ISO 15189 “Medical laboratories – Requirements for quality and competence” clearly states its recommendations with regards to the selection of QC materials: *“.. Use of independent third party control materials should be considered, either instead of, or in addition to, any control materials supplied by the reagent or instrument manufacturer”*.

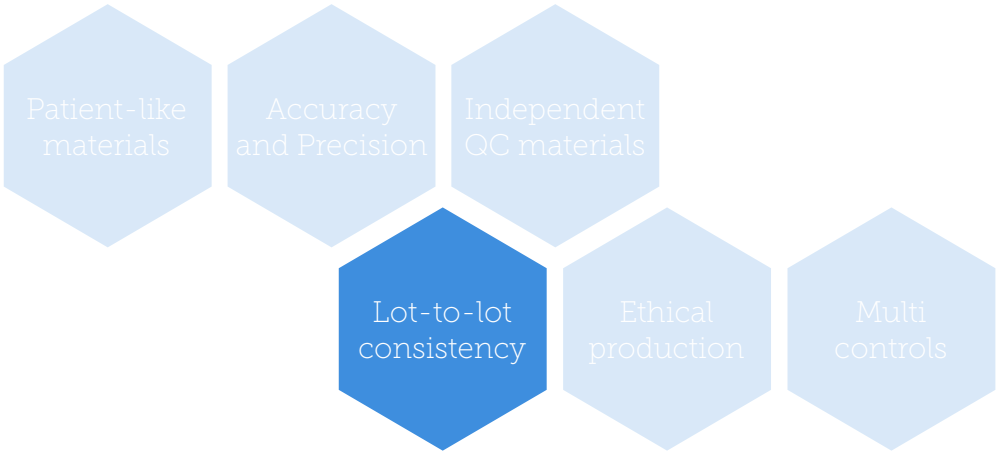
Minimal variation gives stability for the laboratory

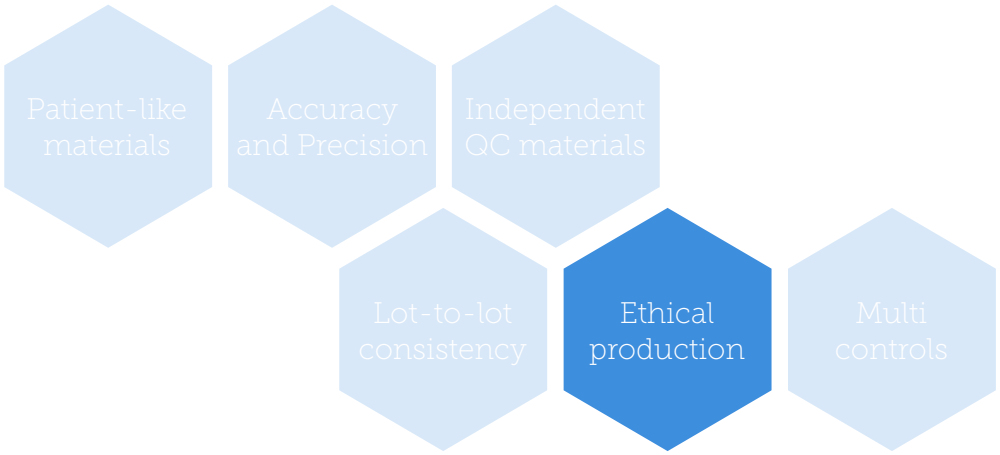
Changing to a new lot of QC material is a time-consuming effort for the laboratory and we at SERO know that laboratories prefers minimal lot-to-lot variation.

Selection of the raw material is a critical step. There is no go-between entity between blood donors and SERO and each bag of plasma is carefully evaluated. With regards to the spiking materials, we either produce or collaborate with top of the range specialized suppliers.

A fully integrated production facility under one roof including sterile rooms, filling and lyophilisation units, capping, labelling and large storage capacities at different temperatures ensures better control of each step of the process. Our production department continuously monitor and adjust our production processes to ensure high lot-to-lot consistency. And lastly, all production steps are controlled by SEROs own ISO 17025-accredited laboratory.

We know that all these factors play a part in ensuring that laboratories have QC materials with high lot-to-lot consistency.





Ethical production

SERO selects raw materials and suppliers based on ethical standards, accountability, traceability and biosafety.

The human serum used in our products is collected from healthy, voluntary, and unpaid donors in accordance with European standards and regulations for blood bank services. Human-based additives are only sourced from reputable companies that can document the safe and ethical origin of the materials.

Acquisition and use of blood, blood products and other human components as raw materials for medical products is carefully regulated by Norwegian law, which is derived from a number of detailed EU directives. These directives are designed to protect the health and human rights of both donors and potential recipients of therapeutic blood products and also regulate the use of products as raw materials for IVD products. According to these directives it is prohibited to use blood donated from diabetics treated with insulin as raw material to produce a quality control with elevated levels of HbA1c. SERO has chosen to offer an ethical alternative to other HbA1c controls on the market by producing a HbA1c control by in vitro glycation of human hemoglobin from healthy blood donors.

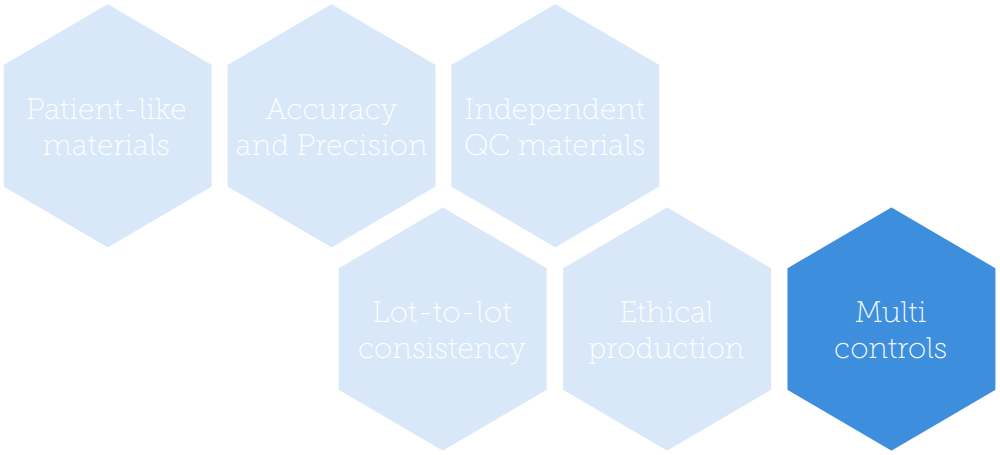
As the most important use of safe human blood products is for the treatment of patients, there is an unmet medical need for such products in many countries. Thus in line with recommendations from the WHO and medical authorities, and to give our customers an ethical choice, SERO also produces animal-based control sera when such products show full technical compatibility with human products for use as control materials. All animal raw materials are collected from veterinary-certified healthy animals at Norwegian facilities which are government approved according to EU-regulations.

Simplifying laboratory daily routine through multicontrols

In order to simplify daily laboratory life and reduce time spent on running QC materials, SERO focuses on producing multi-parameter control materials whenever it is technically feasible.

However, at SERO, commutability of QC materials comes first. To maintain product integrity for most analytes, a level of compromise may be necessary. In these situations, SERO may choose to offer separate QC materials for specific analytes.

By reducing the number of QC materials used to cover the test menu in the laboratory it is possible to reduce the waste to dead volume in the instrument. Here, significant financial benefits will be obtained.



Seronorm™ Immunoassay

The most complete routine immunoassay control in the market

Product features

- The "All-in-one" immunoassay control, combining hormones, cardiac and tumour markers
- Human serum with no preservatives or stabilizers added
- Comprehensive product documentation, providing assigned values for more than 50 analytes from the most frequently used instruments on the market
- Three (freeze-dried)/four (liquid) clinically relevant levels – each level available separately
- Seronorm™ Immunoassay Liq low – a product which complements Seronorm™ Immunoassay with clinically relevant low levels of Aldosterone, Androstenedione, Cortisol, Ferritin, IgE, 17-α-OH-Progesterone, PSA total, Testosterone, free T4, TSH, 25(OH) Vitamin D and Vitamin B12
- Long shelf life

Stability

- *Liquid material:*
  - 3 years stability when stored at ≤ - 20 °C (with a few exceptions)
  - Opened vials (with a few exceptions): 1 month at ≤ - 20 °C when refrozen within 30 minutes
    10 days at 2-8 °C
- *Freeze-dried material:*
  - 4 years stability when stored at 2-8 °C
  - After reconstitution (with a few exceptions): 1 month at ≤ - 20 °C
    10 days at 2-8 °C

Analytes:

17-α-OH-Progesterone*	IgE*
25(OH) Vitamin D*	IGF1
AFP	Insulin
Aldosterone*	LH
AMH	Methylmalonic acid
Androstenedione*	Myoglobin
Anti-Tg	NT-proBNP
Anti-TPO	Ostase
β2-microglobulin	Progesterone
β-hCG, total	Prolactin
CA 125	Prostatic acid phosphatase
CA 15-3	PSA, free
CA 19-9	PSA, total*
CEA	PTH, intact
CK-MB	SHBG
Cortisol*	T3, free
C-peptide	T3, total
DHEA-Sulfate	T4, free*
Digoxin	T4, total*
EPO	TBG
Estradiol	Testosterone*
Ferritin*	Theophylline
Folate	Thyreoglobulin
FSH	Troponin I
hCG, total	Troponin T
HE4	TSH*
hGH	Vitamin B12*
Homocysteine	

Refer to the package insert of currently available lots for specific analyte and stability claims.

* Also available in Seronorm™ Immunoassay Liq Low in clinically relevant low levels.

Order Information:

Art. no	Product Name	Size
207005	Seronorm™ Immunoassay Liq L-1	12 x 3 mL
207105	Seronorm™ Immunoassay Liq L-2	12 x 3 mL
207205	Seronorm™ Immunoassay Liq L-3	12 x 3 mL
207305	Seronorm™ Immunoassay Liq low	12 x 3 mL
206005	Seronorm™ Immunoassay Lyo L-1	12 x 3 mL
206105	Seronorm™ Immunoassay Lyo L-2	12 x 3 mL
206205	Seronorm™ Immunoassay Lyo L-3	12 x 3 mL

Seronorm™ Cardiac Acute Liq

The most complete acute control on the market

Product features

- Seronorm Cardiac Acute Liq is the most complete acute control on the market, combining the complete panel of cardiac markers and acute markers to rule out life threatening conditions such as sepsis, brain trauma, thrombosis and ectopic pregnancy.
- The product is a liquid material based on human serum.
- Product documentation is provided with assigned values for all analytes on the most frequently used clinical laboratory and point-of-care test systems on the market.
- As a result of lack of standardization, the various methods for the markers Troponin I, NT-proBNP and BNP give widely different results. To achieve better control of these critical markers in your laboratory, the low level is available in two variants (L-1A and L-1B) to ensure relevant levels on the various platforms.

Stability

- 2 years stability when stored at ≤ - 20 °C (with a few exceptions)
- Opened vials:
  • 14 days (with a few exceptions) at 2-8 °C

Analytes:

BNP	Homocysteine
β-HCG, total	Myoglobin
CK, total	NT-proBNP
CK-MB	Procalcitonin
CRP-hs	S100β
D-dimer	Troponin I
Digoxin	Troponin T

Refer to the package insert of currently available lots for specific analyte and stability claims.

Order Information:

Art. no	Product Name	Size
211005	Seronorm™ Cardiac Acute Liq L-1A	6 x 2 mL
211105	Seronorm™ Cardiac Acute Liq L-1B	6 x 2 mL
211205	Seronorm™ Cardiac Acute Liq L-2	6 x 2 mL
211305	Seronorm™ Cardiac Acute Liq L-3	6 x 2 mL

Seronorm™ Immunoprotein

Product features

- Protein control, containing more than 20 proteins, e.g. Cystatin C, anti-CCP, RF, CRP and ASL
- Human serum with no preservatives or stabilizers added
- Product documentation with assigned values on nephelometric and turbidimetric methods
- Two clinically relevant levels – each level available separately
- Available both as freeze-dried and liquid controls

Stability

– *Liquid material:*
  • 3 years stability when stored at ≤ - 20 °C
  • Opened vials (with a few exceptions):
    1 month at ≤ - 20 °C
    14 days at 2-8 °C

– *Freeze-dried material:*
  • 3 years stability when stored at 2-8 °C
  • After reconstitution (with a few exceptions):
    1 month at ≤ - 20 °C
    14 days at 2-8 °C

Analytes:

α1-acid-glycoprotein	Digitoxin
α1-antitrypsin	Ferritin
α2-macroglobulin	Haptoglobin
Albumin	IgA
Anti-CCP	IgE
Apolipoprotein A1	IgG
ASL	IgM
β2-microglobulin	Myoglobin
C3c	Prealbumin
C4	Protein, total
Ceruloplasmin	RF
CRP	Transferrin
Cystatin C	Electrophoresis*

Refer to the package insert of currently available lots for specific analyte and stability claims.
* only in Seronorm Immunoprotein Liq L-1

Order Information:

Art. no	Product Name	Size
210405	Seronorm™ Immunoprotein Liq L-1	6 x 1 mL
210505	Seronorm™ Immunoprotein Liq L-2	6 x 1 mL
202805	Seronorm™ Immunoprotein Lyo L-1	6 x 1 mL
202905	Seronorm™ Immunoprotein Lyo L-2	6 x 1 mL

Seronorm™ CRP Liquid

Straight from the fridge into the instrument

Product features

- CRP control of superior quality with > 98 % human serum
- The only CRP control on the market with storage temperature at 2-8 °C
- Good stability in opened vials
- Three clinically relevant levels with method-specific assigned values

Stability

- 3 years stability when stored at 2-8 °C
- Opened vials:
  - 28 days at 2-8 °C
  - 7 days at 15-25 °C

Analytes:

CRP

Refer to the package insert of currently available lots for specific analyte and stability claims.

Order Information:

Art. no	Product Name	Size
213005	Seronorm™ CRP Liquid L-1	12 x 1 mL
213105	Seronorm™ CRP Liquid L-2	12 x 1 mL
213205	Seronorm™ CRP Liquid L-3	12 x 1 mL

Seronorm™ Human

Multi component control with long shelf life

Product features

- Multi-component assayed control which covers most analytes analysed on clinical chemistry platforms
- Human serum with no preservatives or stabilizers added
- Product documentation with assigned values for more than 50 analytes, including genuine lipid, routine clinical chemistry analytes, enzymes, proteins, cardiac markers and therapeutic drugs
- Traceable values to reference methods for many of the analytes
- Two clinically relevant levels – each level available separately
- Freeze-dried material, offering long shelf life

Stability

- 4 years stability when stored at 2-8 °C
- After reconstitution:
  - 1 month at ≤ - 20 °C
  - 7 days at 2-8 °C

Analytes:

ALAT	CK-MB	Magnesium
Albumin	Copper	NEFA
ALP	Creatinine	Osmolality
Amylase, pancreas	CRP	Phospholipids
Amylase, total	Digoxin	Phosphorus
Apolipoprotein A1	Ferritin	Potassium
Apolipoprotein B	GGT	Protein, total
ASAT	GLDH	Sodium
Bile Acid	Glucose	Theophylline
Bilirubin, direct	HBDH	Transferrin
Bilirubin, total	IgA	Triglycerides
Calcium	IgG	UIBC
Chloride	IgM	Urea
Cholesterol, HDL	Iron	Uric Acid
Cholesterol, LDL	Lactate	Vitamin B12
Cholesterol, total	LDH	Zinc
Cholinesterase	Lipase	
CK	Lithium	

Refer to the package insert of currently available lots for specific analyte and stability claims.

Order Information:

Art. no	Product Name	Size
200805	Seronorm™ Human	10 x 5 mL
203005	Seronorm™ Human High	10 x 5 mL

Autonorm™ Human Liquid

A complete chemistry control ready to use

Product features

- Complete chemistry control, including clinical chemistry analytes, lipids, enzymes, proteins, hormones, cardiac markers and therapeutic drugs
- Human serum with no preservatives or stabilizers added
- Product documentation with assayed values for more than 60 analytes including genuine lipids, proteins (e.g. CRP, Apo A1 and Apo B) and therapeutic drugs
- Now available in 3 clinically relevant levels. Each level available separately
- Liquid material

Stability

- 2 years stability when stored at ≤ - 20 °C (with a few exceptions)
- Opened vials:
  - 1 month at ≤ - 20 °C
  - 14 days at 2-8 °C

Analytes:

α1-acid-glycoprotein
α1-antitrypsin
α2-macroglobulin
ALAT*
Albumin
ALP*
Amikacin
Amylase, pancreas
Amylase, total
Apolipoprotein A1
Apolipoprotein B
ASAT*
ASL
Bilirubin, direct
Bilirubin, total
C3c
C4
Calcium
Carbamazepine
Ceruloplasmin
Chloride
Cholesterol, HDL
Cholesterol, LDL
Cholesterol, total
Cholinesterase
CK*
CK-MB
Copper
Creatinine
CRP
Digoxin
Ethanol
Ferritin*
Gentamycine
GGT
Glucose
Haptoglobin
IgA
IgG
IgM
Iron
Lactate*
LDH*
Lipase
Lithium
Magnesium
Methotrexate
Osmolality
Paracetamol
Phenobarbitone
Phenytoin
Phosphorus
Potassium
Prealbumin
Protein, total
Quinidine
Salicylate
Sodium
Theophylline
Tobramycin
Transferrin
Triglycerides
UIBC
Urea
Uric Acid
Valproic Acid
Vancomycin
Zinc

Refer to the package insert of currently available lots for specific analyte and stability claims.
* Not available in Autonorm™ Human Liquid Low.

Order Information:

Art. no	Product Name	Size
202015	Autonorm™ Human Liquid Low	6 x 5 mL
202615	Autonorm™ Human Liquid L-1	10 x 8 mL
202715	Autonorm™ Human Liquid L-2	10 x 8 mL

Seronorm™ Paediatric

Specially made for the newborn

Product features

- Accuracy control serum specially made for the newborn
- Human serum with no preservatives or stabilizers added
- Product documentation including analytical data with documented traceability on all components
- Freeze-dried material, offering long shelf life

Stability

- 4 years stability when stored at 2-8 °C
- After reconstitution:
  - 1 month at ≤ - 20 °C
  - 7 days at 2-8 °C

Analytes:

ALP
Bilirubin, direct
Bilirubin, indirect
Bilirubin, total
Calcium
Chloride
Glucose
Magnesium
Phosphorus
Potassium
Sodium

Refer to the package insert of currently available lots for specific analyte and stability claims.

Order Information:

Art. no	Product Name	Size
208005	Seronorm™ Paediatric	6 x 3 mL

Seronorm™ Urine

Product features

- Urine control from human urine with stable creatinine
- Product documentation with assayed values for the most frequently used instruments on the market
- Two clinically relevant levels – each level available separately
- Liquid – ready to use from the fridge
- Good stability in opened vials

Stability

- 2 years stability when stored at 2-8 °C
- Opened vials:
  - 1 month at 2-8 °C

Analytes:

Albumin/Creatinine quota	Osmolality
Amylase	pH
Calcium	Phosphorus
Chloride	Potassium
Cortisol	Pregnancy
Cortisol, free	Protein, total
Creatinine	Sodium
Glucose	Specific gravity
Magnesium	Urea
Microalbumin	Uric Acid

Refer to the package insert of currently available lots for specific analyte and stability claims.

Order Information:

Art. no	Product Name	Size
208505	Seronorm™ Urine L-1	10 x 8 mL
208605	Seronorm™ Urine L-2	10 x 8 mL

Seronorm™

Product features

- Accuracy control serum for clinical chemistry
- Animal serum with no preservatives or stabilizers added
- Product documentation with analytical data for 38 of the most important analytes in clinical chemistry
- Independent and traceable values
- Most of the analytes are targeted at normal levels
- Freeze-dried material, offering long shelf life

Stability

- 4 years stability when stored at 2-8 °C
- After reconstitution:
  - 1 month at ≤ - 20 °C
  - 7 days at 2-8 °C

Order Information:

Art. no	Product Name	Size
100105	Seronorm™	10 x 5 mL

Analytes:

ALAT
Albumin
ALP
Amylase, pancreas
Amylase, total
ASAT
Bicarbonate
Bile Acid
Bilirubin, direct
Bilirubin, total
Calcium
Chloride
Cholesterol, HDL
Cholesterol, total
Cholinesterase
CK
Copper
Creatinine
GGT
GLDH
Glucose
HBDH
Iron
Lactate
LDH
Lipase
Lithium
Magnesium
Osmolality
Phosphorus
Potassium
Protein, total
Sodium
Triglycerides
UIBC
Urea
Uric Acid
Zinc

Refer to the package insert of currently available lots for specific analyte and stability claims.

Pathonorm™

Product features

- Accuracy control serum for clinical chemistry
- Animal serum with no preservatives or stabilizers added
- Product documentation with analytical data for 38 of the most important analytes in clinical chemistry
- Independent and traceable values
- Available in 2 clinically relevant levels, both levels available separately
- Freeze-dried material, offering long shelf life

Stability

- 4 years stability when stored at 2-8 °C
- After reconstitution:
  - 1 month at ≤ - 20 °C
  - 7 days at 2-8 °C

Order Information:

Art. no	Product Name	Size
100705	Pathonorm™ H	10 x 5 mL
100805	Pathonorm™ L	10 x 5 mL

Analytes:

ALAT
Albumin
ALP
Amylase, pancreas
Amylase, total
ASAT
Bicarbonate
Bile Acid
Bilirubin, direct
Bilirubin, total
Calcium
Chloride
Cholesterol, HDL
Cholesterol, total
Cholinesterase
CK
Copper
Creatinine
GGT
GLDH
Glucose
HBDH
Iron
Lactate
LDH
Lipase
Lithium (Only H)
Magnesium
Osmolality
Phosphorus
Potassium
Protein, total
Sodium
Triglycerides
UIBC
Urea
Uric Acid
Zinc

Refer to the package insert of currently available lots for specific analyte and stability claims.

Seronorm™ Lipid

Product features

- Accuracy control serum for lipid analyses
- Animal serum with no preservatives or stabilizers added
- Most of the analytical values for analytes are on the borderline between normal and pathologically high level
- Freeze-dried material, offering long shelf life

Stability

- 4 years stability when stored at 2-8 °C
- After reconstitution:
  - 1 month at ≤ - 20 °C
  - 7 days at 2-8 °C

Analytes:

Bile Acid
Cholesterol, HDL
Cholesterol, LDL
Cholesterol, total
NEFA
Phospholipids
Triglycerides

Refer to the package insert of currently available lots for specific analyte and stability claims.

Order Information:

Art. no	Product Name	Size
100205	Seronorm™ Lipid	12 x 3 mL

Autonorm™

Product features

- Quality control covering the most important analytes in the clinical chemistry laboratory
- Animal serum with no preservatives or stabilizers added
- Product documentation with assayed values list for about 30 analytes
- Analyte levels mainly in the normal range
- Pharmaca-free
- Freeze-dried material, offering long shelf life

Stability

- 4 years stability when stored at 2-8 °C
- After reconstitution (with a few exceptions):
  - 1 month at ≤ - 20 °C
  - 7 days at 2-8 °C

Order Information:

Art. no	Product Name	Size
103505	Autonorm™	10 x 5 mL

Analytes:

ALAT
Albumin
ALP
Amylase, total
ASAT
Bilirubin, direct
Bilirubin, total
Calcium
Chloride
Cholesterol, HDL
Cholesterol, total
Cholinesterase
CK
CK-MB
Copper
Creatinine
GGT
GLDH
Glucose
Iron
Lactate
LDH
Lipase
Lithium
Magnesium
Phosphorus
Potassium
Protein, total
Sodium
Triglycerides
UIBC
Urea
Uric Acid

Refer to the package insert of currently available lots for specific analyte and stability claims.

Seronorm™ HbA1c Liquid

Product features

- Human-based diabetes control
- Produced by in-vitro glycation of human blood, this QC material represents an ethical alternative to other materials on the market
- Product documentation with assayed values for immunological and Point of Care (PoC) methods
- Two clinically relevant levels – each available separately
- Liquid material
- Good stability in opened vials

Stability

- 3 years stability when stored at ≤ - 20 °C
- Opened vials:
  • 28 days at 2-8 °C

Analytes:

HbA1c

Refer to the package insert of currently available lots for specific analyte and stability claims.

Order Information:

Art. no	Product Name	Size
209005	Seronorm™ HbA1c Liquid L-1	3 x 1 mL
209105	Seronorm™ HbA1c Liquid L-2	3 x 1 mL

Seronorm™ Hb/Glucose

Quality control for Point of Care, straight from the fridge

Product features

- Quality control for Point of Care (PoC) combining Hemoglobin and Glucose in one control
- Two clinically relevant levels – each level available separately
- Liquid – ready to use from the fridge
- Good stability in opened vials

Stability

- 3 years stability when stored at 2-8 °C
- Opened vials:
  • 28 days at 2-8 °C

Analytes:

Glucose
Hemoglobin

Refer to the package insert of currently available lots for specific analyte and stability claims.

Order Information:

Art. no	Product Name	Size
103005	Seronorm™ Hb/Glucose L-1	6 x 1 mL
103105	Seronorm™ Hb/Glucose L-2	6 x 1 mL

Seronorm™ Trace Elements Serum

Product features

- Accuracy control and secondary reference material for the analyses of trace elements and heavy metals in serum.
- A wide variety of applications: nutrition, occupational health, environmental health, toxicology, food safety, veterinary and biological studies.
- Human serum with no preservatives or stabilizers added
- Product documentation with analytical values for more than 60 elements
- Independent analytical values traceable to international reference materials
- Two clinically relevant levels – each level available separately
- Freeze-dried material, excellent shelf life

Stability

- 7 years stability when stored at 2-8 °C
- After reconstitution:
  - 1 month at ≤ - 20 °C
  - 7 days at 2-8 °C

* The Trace Elements RUO products (Research Use Only) are not intended to be used for medical in vitro diagnostic purposes. For questions related to this, please contact your distributor or SERO.

The clinically most relevant analytes:

Aluminium
Calcium
Chromium
Cobalt
Copper
Fluoride
Iron
Lithium
Manganese
Magnesium
Mercury
Nickel
Selenium
Phosphorus
Potassium
Sodium
Zinc

Refer to analyte index (page 38) for a total of more than 60 elements.

Refer to the package insert of currently available lots for specific analyte and stability claims.

Order Information:

Art. no	Product Name	Size
201405	Seronorm™ Trace Elements Serum L-1	6 x 3 mL
203105	Seronorm™ Trace Elements Serum L-2	6 x 3 mL
201413	Seronorm™ Trace Elements Serum L-1 RUO*	6 x 3 mL
203113	Seronorm™ Trace Elements Serum L-2 RUO*	6 x 3 mL

Seronorm™ Trace Elements Whole Blood

Product features

- Accuracy control and secondary reference material for the analyses of trace elements and heavy metals in whole blood.
- A wide variety of applications: nutrition, occupational health, environmental health, toxicology, food safety, veterinary and biological studies.
- Human blood with no preservatives or stabilizers added
- Product documentation with analytical values for more than 60 elements
- Independent analytical values traceable to international reference materials
- Three clinically relevant levels – each level available separately
- Freeze-dried material, excellent shelf life

Stability

- 5 years stability when stored at 2-8 °C
- After reconstitution:
  - 1 month at ≤ - 20 °C
  - 7 days at 2-8 °C

* The Trace Elements RUO products (Research Use Only) are not intended to be used for medical in vitro diagnostic purposes. For questions related to this, please contact your distributor or SERO.

The clinically most relevant analytes:

Aluminium	Lead
Antimony	Manganese
Arsenic	Mercury
Beryllium	Methylmercury
Bismuth	Molybdenum
Cadmium	Nickel
Chromium	Selenium
Cobalt	Thallium
Copper	Tin
Fluoride	Vanadium
Iodine	Zinc

Refer to analyte index (page 38) for a total of more than 60 elements.
Refer to the package insert of currently available lots for specific analyte and stability claims.

Order Information:

Art. no	Product Name	Size
210105	Seronorm™ Trace Elements Whole Blood L-1	10 x 3 mL
210205	Seronorm™ Trace Elements Whole Blood L-2	10 x 3 mL
210305	Seronorm™ Trace Elements Whole Blood L-3	10 x 3 mL
210113	Seronorm™ Trace Elements Whole Blood L-1 RUO*	10 x 3 mL
210213	Seronorm™ Trace Elements Whole Blood L-2 RUO*	10 x 3 mL
210313	Seronorm™ Trace Elements Whole Blood L-3 RUO*	10 x 3 mL

Seronorm™ Trace Elements Urine

Product features

- Accuracy control and secondary reference material for the analyses of trace elements and heavy metals in urine.
- A wide variety of applications: nutrition, occupational health, environmental health, toxicology, food safety, veterinary and biological studies.
- Human urine with no preservatives or stabilizers added
- Product documentation with analytical values for more than 70 elements and toxic organic compounds
- Independent analytical values traceable to international reference materials
- Two clinically relevant levels – each level available separately
- Freeze-dried material, excellent shelf life

Stability

- 7 years stability when stored at 2-8 °C
- After reconstitution:
  - 1 month at ≤ - 20 °C
  - 7 days at 2-8 °C

* The Trace Elements RUO products (Research Use Only) are not intended to be used for medical in vitro diagnostic purposes. For questions related to this, please contact your distributor or SERO.

The clinically most relevant analytes:

Aluminium
Antimony
Arsenic
Beryllium
Bismuth
Cadmium
Chromium
Cobalt
Copper
Fluoride*
Iodine
Lead
Manganese
Mercury
Nickel
Selenium
Tellurium
Thallium
Tin
Vanadium
Zinc
1-hydroxypyrene*
Formic acid*
Phenol*
Mandelic acid
Tetrachloroethylene*
Trichloroacetic acid*

Refer to analyte index (page 38) for a total of more than 70 elements and toxic organic analytes.

Refer to the package insert of currently available lots for specific analyte and stability claims.

*Only in L-2

Order Information:

Art. no	Product Name	Size
210605	Seronorm™ Trace Elements Urine L-1	10 x 5 mL
210705	Seronorm™ Trace Elements Urine L-2	10 x 5 mL
210613	Seronorm™ Trace Elements Urine L-1 RUO*	10 x 5 mL
210713	Seronorm™ Trace Elements Urine L-2 RUO*	10 x 5 mL

Seronorm™ Pharmaca

"A Pharmacy in a bottle"...

Product features

- Pharmaca control containing 30 therapeutic drugs including antibiotics, antiepileptics, antiasthmatics, digitalis and psychotherapeutic drugs
- Product documentation with added amounts given on all analytes
- Two clinically relevant levels – each level available separately
- Freeze-dried material, offering long shelf life
- No preservatives or stabilizers added

Stability

- 4 years stability when stored at 2-8 °C
- After reconstitution:
  - 1 month at ≤ - 20 °C
  - 7 days at 2-8 °C

Analytes:

Amikacin
Caffeine
Carbamazepine
Chloramphenicol
Clonazepam
Cyclosporine
Desipramine
Diazepam
Digoxin
Disopyramide
Ethosuximide
Flecainide
Gentamycine
Haloperidol
Imipramine
Lidocaine
Lithium
Methotrexate
Nortriptyline
Paracetamol
Phenobarbitone
Phenytoin
Primidone
Procainamide
Quinidine
Salicylate
Theophylline
Tobramycin
Valproic acid
Vancomycin

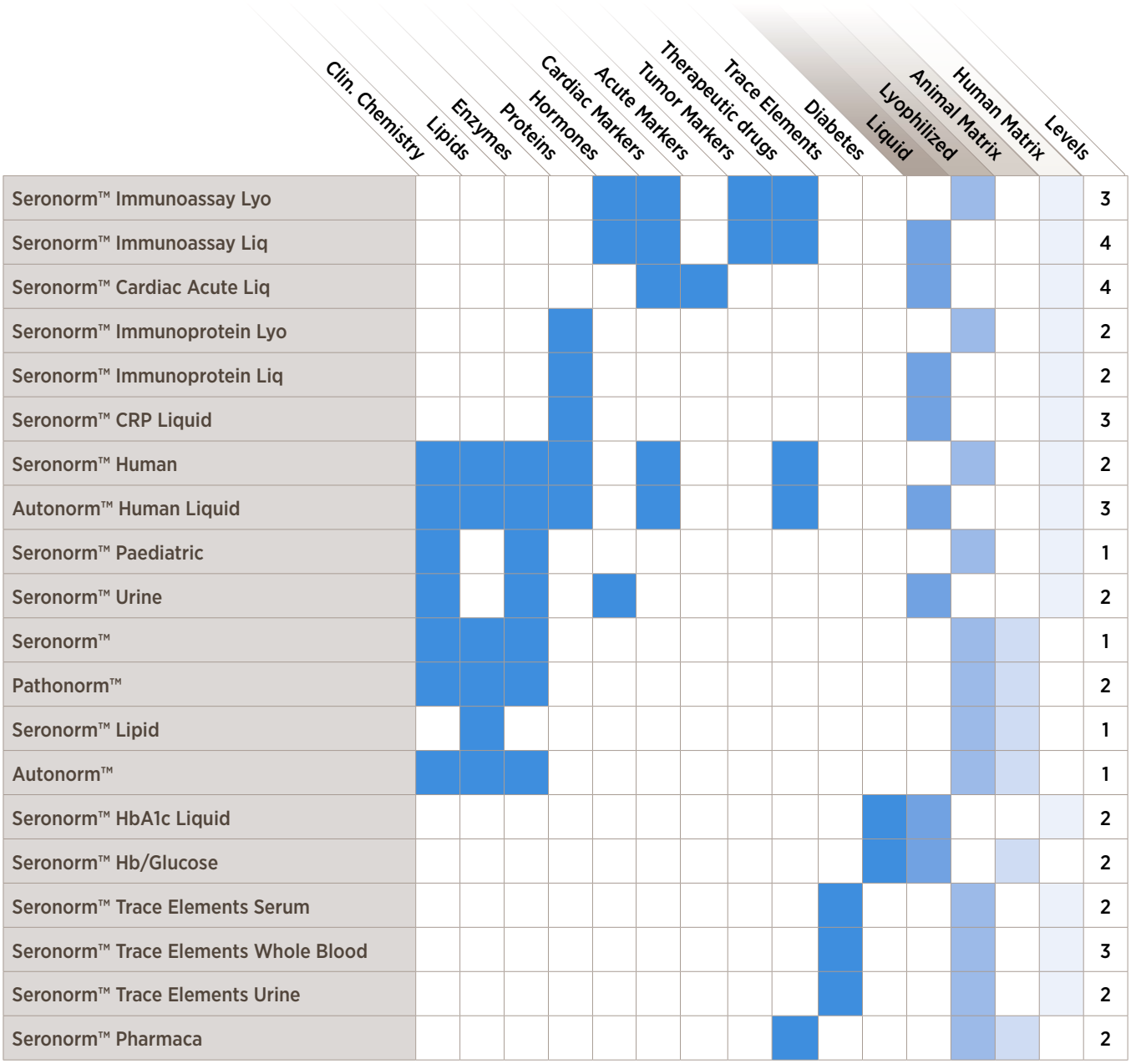
Refer to the package insert of currently available lots for specific analyte and stability claims.

Order Information:

Art. no	Product Name	Size
101405	Seronorm™ Pharmaca L-1	10 x 5 mL
101505	Seronorm™ Pharmaca L-2	10 x 5 mL


Autonorm
Seronorm™ Human
Pathonorm B
Seronorm™ Immunoassay Liq 1
Seronorm™ Immunoassay Liq 2
Seronorm™ Immunoassay Liq 3
3 mL

SERO's Branded Control Sera



Customized quality control materials

If you have specific needs which are not covered by our branded products, SERO can also provide you with customized quality control materials. These products benefit from the same reputation and have the same high standards as our branded controls. Among our main customer groups for our customized controls are EQA organizations and diagnostic companies in addition to large laboratories or group of laboratories.

Analyte index
A – B

See page number	Seronorm™ Immunoassay 18	Seronorm™ Immunoassay Liq low 18	Seronorm™ Cardiac Acute Liq 19	Seronorm™ Immunoprotein 20	Seronorm™ CRP Liquid 21	Seronorm™ Human 22	Autonorm™ Human Liquid 23	Seronorm™ Paediatric 24	Seronorm™ Urine 25	Seronorm™ 26	Pathonorm™ 27	Seronorm™ Lipid 28	Autonorm™ 29	Seronorm™ HbA1c Liquid 30	Seronorm™ Hb/Glucose 31	Seronorm™ Trace Elements Serum 32	Seronorm™ Trace Elements Whole Blood 33	Seronorm™ Trace Elements Urine 34	Seronorm™ Pharmaca 35
17-α-OH-Progesterone	O	O																	
1-Hydroxypyrene																		▲	
25(OH) Vitamin D	O	O																	
α1-acid-glycoprotein				O			O												
α1-antitrypsin				O			O												
α2-macroglobulin				O			O												
AFP	O																		
ALAT						O	▼			O	O		O						
Albumin				O		O	O			O	O		O						
Albumin/Creatinine quota									O										
Aldosterone	O	O																	
ALP						O	▼	O		O	O		O						
Aluminium																O	O	O	
AMH	O																		
Amikasin							O												O
Amylase, pancreas						O	O			O	O								
Amylase, total						O	O		O	O	O		O						
Androstenedione	O	O																	
Anti-CCP				O															
Antimony																O	O	O	
Anti-Tg	O																		
Anti-TPO	O																		
Apolipoprotein A1				O		O	O												
Apolipoprotein B						O	O												
Arsenic																O	O	O	
ASAT						O	▼			O	O		O						
ASL				O			O												
β2-microglobulin	O			O															
β-hCG, total	O		O																
Barium																O	O	O	
Beryllium																O	O	O	
Bicarbonate										O	O								
Bile Acid						O				O	O	O							
Bilirubin, direct						O	O	O		O	O		O						
Bilirubin, indirect								O											
Bilirubin, total						O	O	O		O	O		O						
Bismuth																O	O	O	
BNP			O																
Boron																O	O	O	
Bromine																O	O	O	

O Analyte present ■ Only present in L-1 ▲ Only present in L-2 ▼ Not present in Autonorm™ Human Liquid Low

• Only available in Pathonorm H.

The above index is updated as of June 2016.

Analyte index
C – D

See page number	18	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
	Seronorm™ Immunoassay	Seronorm™ Immunoassay Liq low	Seronorm™ Cardiac Acute Liq	Seronorm™ Immunoprotein	Seronorm™ CRP Liquid	Seronorm™ Human	Autonorm™ Human Liquid	Seronorm™ Paediatric	Seronorm™ Urine	Seronorm™	Pathonorm™	Seronorm™ Lipid	Autonorm™	Seronorm™ HbA1c Liquid	Seronorm™ Hb/Glucose	Seronorm™ Trace Elements Serum	Seronorm™ Trace Elements Whole Blood	Seronorm™ Trace Elements Urine	Seronorm™ Pharmaca
C3c				O			O												
C4				O			O												
CA 125	O																		
CA 15-3	O																		
CA 19-9	O																		
Cadmium																O	O	O	
Caffeine																			O
Calcium						O	O	O	O	O	O		O			O	O	O	
Carbamazepine							O												O
CEA	O																		
Cerium																O	O	O	
Ceruloplasmin				O			O												
Cesium																O	O	O	
Chloramphenicol																			O
Chloride						O	O	O	O	O	O		O						
Cholesterol, HDL						O	O			O	O	O	O						
Cholesterol, LDL						O	O					O							
Cholesterol, total						O	O			O	O	O	O						
Cholinesterase						O	O			O	O		O						
Chromium																O	O	O	
CK			O			O	▼			O	O		O						
CK-MB	O		O			O	O						O						
Clonazepam																			O
Cobalt																O	O	O	
Copper						O	O			O	O		O			O	O	O	
Cortisol	O	O							O										
Cortisol, free									O										
C-peptide	O																		
Creatinine						O	O		O	O	O		O						
CRP			O	O	O	O	O												
Cyclosporine																			O
Cystatin C				O															
Desipramine																			O
DHEA-Sulfate	O																		
Diazepam																			O
D-diner			O																
Digitoxin				O															
Digoxin	O		O			O	O												O
Disopyramide																			O
Dysprosium																O	O	O	

O Analyte present ■ Only present in L-1 ▲ Only present in L-2 ▼ Not present in Autonorm™ Human Liquid Low

● Only available in Pathonorm H.

The above index is updated as of June 2016.

Analyte index
E – I

	Seronorm™ Immunoassay	Seronorm™ Immunoassay Liq low	Seronorm™ Cardiac Acute Liq	Seronorm™ Immunoprotein	Seronorm™ CRP Liquid	Seronorm™ Human	Autonorm™ Human Liquid	Seronorm™ Paediatric	Seronorm™ Urine	Seronorm™	Pathonorm™	Seronorm™ Lipid	Autonorm™	Seronorm™ HbA1c Liquid	Seronorm™ Hb/Glucose	Seronorm™ Trace Elements Serum	Seronorm™ Trace Elements Whole Blood	Seronorm™ Trace Elements Urine	Seronorm™ Pharmaca
See page number	18	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Electrophoresis				■															
EPO	O																		
Erbium																O	O	O	
Estradiol	O																		
Ethanol							O												
Ethosuximide																			O
Europium																	O	O	
Ferritin	O	O		O		O	▼												
Flecainide																			O
Fluoride																O	O	▲	
Folate	O																		
Formic acid																		▲	
FSH	O																		
Gadolinium																O	O	O	
Gallium																O	O	O	
Gentamycine							O												O
GGT						O	O			O	O		O						
GLDH						O				O	O		O						
Glucose						O	O	O	O	O	O		O		O				
Gold																	O	O	
Hafnium																O	O	O	
Haloperidol																			O
Haptoglobin				O			O												
HbA1c														O					
HBDH						O				O	O								
hCG, total	O		O																
HE4	O																		
Hemoglobin															O				
hGH	O																		
Holmium																O	O	O	
Homocysteine	O		O																
IgA				O		O	O												
IgE	O	O		O															
IGF1	O																		
IgG				O		O	O												
IgM				O		O	O												
Imipramine																			O
Insulin	O																		
Iodine																O	O	O	
Iridium																O	O	O	
Iron						O	O			O	O		O			O	O		

O Analyte present ■ Only present in L-1 ▲ Only present in L-2 ▼ Not present in Autonorm™ Human Liquid Low

• Only available in Pathonorm H.

The above index is updated as of June 2016.

Analyte index
L – Prea

See page number	Seronorm™ Immunoassay 18	Seronorm™ Immunoassay Liq low 18	Seronorm™ Cardiac Acute Liq 19	Seronorm™ Immunoprotein 20	Seronorm™ CRP Liquid 21	Seronorm™ Human 22	Autonorm™ Human Liquid 23	Seronorm™ Paediatric 24	Seronorm™ Urine 25	Seronorm™ 26	Pathonorm™ 27	Seronorm™ Lipid 28	Autonorm™ 29	Seronorm™ HbA1c Liquid 30	Seronorm™ Hb/Glucose 31	Seronorm™ Trace Elements Serum 32	Seronorm™ Trace Elements Whole Blood 33	Seronorm™ Trace Elements Urine 34	Seronorm™ Pharmaca 35
Lactate						O	▼			O	O		O						
Lanthanum																O	O	O	
LDH						O	▼			O	O		O						
Lead																O	O	O	
LH	O																		
Lidocaine																			O
Lipase						O	O			O	O		O						
Lithium						O	O			O	•		O			O	O	O	O
Lutetium																O	O	O	
Magnesium						O	O	O	O	O	O		O			O	O	O	
Mandelic acid																		▲	
Manganese																O	O	O	
MeHg																	O		
Mercury																O	O	O	
Methotrexate							O												O
Methylmalonic acid	O																		
Microalbumin									O										
Molybdenum																O	O	O	
Myoglobin	O		O	O															
NEFA						O						O							
Neodymium																O	O	O	
Nickel																O	O	O	
Niobium																O	O	O	
Nortriptyline																			O
NT-proBNP	O		O																
Osmolality						O	O		O	O	O								
Ostase	O																		
Paracetamol							O												O
pH									O										
Phenobarbitone							O												O
Phenol																		▲	
Phenytoin							O												O
Phospholipids						O						O							
Phosphorus						O	O	O	O	O	O		O			O	O	O	
Platinum																O	O	O	
Potassium						O	O	O	O	O	O		O			O	O	O	
Praseodymium																O	O	O	
Prealbumin				O			O												

O Analyte present ■ Only present in L-1 ▲ Only present in L-2 ▼ Not present in Autonorm™ Human Liquid Low

• Only available in Pathonorm H.

The above index is updated as of June 2016.

Analyte index
Preg – Te

See page number	Seronorm™ Immunoassay 18	Seronorm™ Immunoassay Liq low 18	Seronorm™ Cardiac Acute Liq 19	Seronorm™ Immunoprotein 20	Seronorm™ CRP Liquid 21	Seronorm™ Human 22	Autonorm™ Human Liquid 23	Seronorm™ Paediatric 24	Seronorm™ Urine 25	Seronorm™ 26	Pathonorm™ 27	Seronorm™ Lipid 28	Autonorm™ 29	Seronorm™ HbA1c Liquid 30	Seronorm™ Hb/Glucose 31	Seronorm™ Trace Elements Serum 32	Seronorm™ Trace Elements Whole Blood 33	Seronorm™ Trace Elements Urine 34	Seronorm™ Pharmaca 35
Pregnancy									O										
Primidone																			O
Procainamide																			O
Progesterone	O																		
Procalcitonin			O																
Prolactin	O																		
Prostatic acid phosphatase	O																		
Protein, total				O		O	O		O	O	O		O						
PSA, free	O																		
PSA, total	O	O																	
PTH, intact	O																		
Quinidine							O												O
RF				O															
Rhenium																O	O	O	
Rhodium																O			
Rubidium																O	O	O	
Ruthenium																O			
S-100β			O																
Salicylate							O												O
Samarium																O	O	O	
Scandium																O			
Selenium																O	O	O	
SHBG	O																		
Silicon																O	O	O	
Silver																O	O	O	
Sodium						O	O	O	O	O	O		O			O	O	O	
Specific gravity									O										
Strontium																O	O	O	
Sulfur																O	O	O	
T3, free	O																		
T3, total	O																		
T4, free	O	O																	
T4, total	O	O																	
Tantalum																O	O	O	
TBG	O																		
Tellurium																O	O		
Terbium																O	O	O	
Testosterone	O	O																	
Tetrachloroethylene																		▲	

O Analyte present ■ Only present in L-1 ▲ Only present in L-2 ▼ Not present in Autonorm™ Human Liquid Low

• Only available in Pathonorm H.

The above index is updated as of June 2016.

Analyte index
Th – Z

See page number	Seronorm™ Immunoassay 18	Seronorm™ Immunoassay Liq low 18	Seronorm™ Cardiac Acute Liq 19	Seronorm™ Immunoprotein 20	Seronorm™ CRP Liquid 21	Seronorm™ Human 22	Autonorm™ Human Liquid 23	Seronorm™ Paediatric 24	Seronorm™ Urine 25	Seronorm™ 26	Pathonorm™ 27	Seronorm™ Lipid 28	Autonorm™ 29	Seronorm™ HbA1c Liquid 30	Seronorm™ Hb/Glucose 31	Seronorm™ Trace Elements Serum 32	Seronorm™ Trace Elements Whole Blood 33	Seronorm™ Trace Elements Urine 34	Seronorm™ Pharmaca 35
Thallium																O	O	O	
Theophylline	O					O	O												O
Thorium																O	O	O	
Thulium																O	O	O	
Thyreoglobulin	O																		
Tin																O	O	O	
Titanium																O	O	O	
Tobramycin							O												O
Transferrin				O		O	O												
Trichloroacetic acid																		▲	
Triglycerides						O	O			O	O	O	O						
Troponin I	O		O																
Troponin T	O		O																
TSH	O	O																	
Tungsten																O	O	O	
UIBC						O	O			O	O		O						
Uranium																O	O	O	
Urea						O	O		O	O	O		O						
Uric Acid						O	O		O	O	O		O						
Valproic Acid							O												O
Vanadium																O	O	O	
Vancomycin							O												O
Vitamin B12	O	O				O													
Ytterbium																O	O	O	
Yttrium																O	O	O	
Zinc						O	O			O	O					O	O	O	
Zirconium																O	O	O	

O Analyte present ■ Only present in L-1 ▲ Only present in L-2 ▼ Not present in Autonorm™ Human Liquid Low

● Only available in Pathonorm H.

The above index is updated as of June 2016.

orage.no

SEROs mission is to improve patient care by contributing to analyses that give reliable and comparable results from day to day, and between laboratories.

SERO's products are available in more than 60 countries through an international network of specialized distributors.

For additional product details, please contact your local distributor, contact information is listed on our website. No local distributor? Please contact us directly:

+(47) 66 85 89 00 or seronorm@sero.no

Interested in distributing SERO's products in your country? We are happy to receive your application.

Learn more about SERO at: www.sero.no

SERO

2016 Edition

Products are under continous development.
Updated information can be found on our website