



**Values for humans,
animals and environment.**

Parameter index

edition 2007-08

Table of contents

About synlab	4 - 5
Methods	6
Information for analytical sample handling	7 - 8

Parameter index

Drugs	9 - 27
Genetics	27 - 32
Hormons	32 - 35
Metals	35 - 40
Tumormarker	40 - 42
Vitamins	42 - 43
Alphabetical	44 - 123

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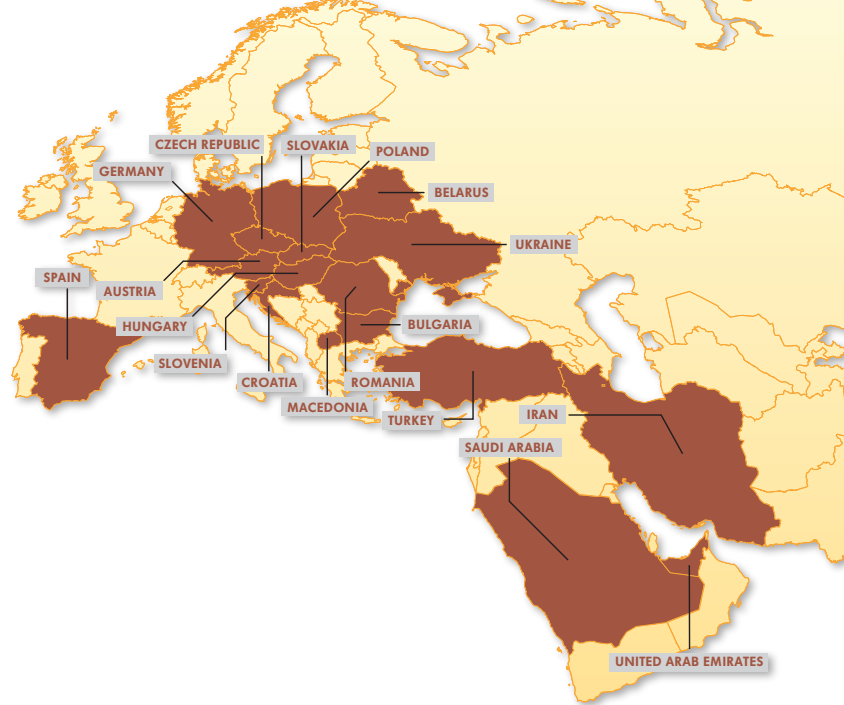
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Laboratory services for certain results

Quality, innovation, regional proximity and efficiency in all fields of modern laboratory diagnostics

- ❑ Human medical laboratory analysis
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- ❑ Environmental and food analysis
- ❑ Specialized analysis
- ❑ Human genetics analysis
- ❑ Molecular biological analysis and order service
- ❑ Routine diagnostics for hospitals, practice networks and lab cooperations
- ❑ Preventive medicine laboratory analysis
- ❑ Medical specialist store
- ❑ Sterility diagnostic



What synlab stands for



COMPETENCE

- Laboratory analysis with newest perception
- Basic routine labs are strengthened by competence centres
- More than 100 clinical pathologists and scientists
- Laboratory provider for more than 160 hospitals
- More than 4000 analysis parameters

SERVICE

- Innovative and individual service
- Individual evaluation by clinical physician
- Reliable pick up and delivery service
- Continuous information for the physician
- Requirements for the doctor's office

QUALITY

- Certified synlab laboratories
- Regional structure setup assures good customer relationship
- Corporate quality management warrants safety in sample transportations
- Lab-Network guarantees excellent transfer of know-how
- Enduring advanced trainings of our employees

Quality assurance

- State of the art laboratory equipment at all subsidiaries
- All laboratories are certified by DIN EN ISO 17025
- Two or more quality management employees in each laboratory

Service of our laboratories

- Analysis of human samples
- Analysis of animal samples
- Analysis of environmental samples
- Clinic consulting
- Purchase collaboration
- Medical products trading

Facts

- Founded in 1998
- 1500 employees
- 55 laboratories in Germany
- N° locations abroad: 18
- N° clients: approx. 11.000 in Germany
- Turnover in 2006: € 145 Mio.
- Client structure: doctors' practices, hospitals, university hospitals, veterinary practices, business enterprises, research institutes.
- Over 70 Mio. samples analyzed per year

METHODS

AAS	Atomic Absorption Spectrophotometry	GC	Gas chromatography	LCR	Ligase chain reaction
AU	Arbitrary Units	GCMS	Gas chromatography - mass spectrometry	LIA	Luminescence Immunoassay
b-DNA	branched-DNA	HAG	Heat aggregated IgG	LightCycler	special PCR
BCT	measured by Behring coagulation timer	HIR	Haemolysis Inhibition Reaction	MEIA	Microparticle Enzyme Immuno Assay
CDC	Complement determined cytotoxicity	HT	Haemagglutination Inhibition Test	MIF	Micro-Immune-Fluorescence
CEDIA	Cloned Enzyme Donor Immuno-Assay	HPLC	High-Performance/Pressure Liquid Chromatography	MONA	Multiple Of Nonspecific Activity
CF	Complement fixation	ICP-MS	Inductively coupled plasma mass spectroscopy	NAT	nucleic acid amplification technique
CIE	Counterimmunoelectrophoresis	IFT	Immunofluorescence Test	NBT	nitroblue tetrazolium test
CLEIA	Chemiluminescence enzyme immunoassay	IFCC	International Federation of Clinical Chemistry	NEPH	nephelometric assay
CLIA	Chemiluminescence immunoassay	IHA	Indirect Haemagglutination	NT	Neutralization Test
DCC	Dextran coated charcoal	ILMA	Immunoluminometric assay	PCR	Polymerase Chain Reaction
DPD	Dichlorophenyl diazonium salt	IRMA	Immuno Radiometric Assay	PHO	Photometry
ECL	Electro chromatic ligase Immuno-Assay	ISAGA	Immunosorbent Agglutination Assay	REA	Radio Enzymatic Assay
EIA	Enzyme Immunoassay	ISE	Ion selective electrode	RIA	Radio Immuno Assay
EIT	Enzyme Immunotest	KBR	complement binding reaktion	RID	Radial Immuno-Diffusion
ELISA	Enzyme-linked Immunosorbent Assay	KOAG	coagulation	RU	Relative Units
FIA	Fluorescent Enzyme Immuno Assay	LA	Latex Agglutination	TANDEM MS	Tandem Mass Spectrometry
FLOW	flow cytometric analysis	LCMS	Liquid chromatography mass spectroscopy	TRACE	Time Resolved Amplified Cryptate Emission
FPIA	Fluorescent Polarisation Immunoassay			Westernblot	Immuno-Blot-Testing

Information for analytical sample handling

Collection and transport of specimens

The materials required for the collection and transport of specimens (e.g. serum, EDTA and heparin tubes, special bags for tissue samples) are put at your disposal free of charge. Please use the special request forms provided for this purpose. Our drivers have cooled transport boxes. This ensures an unbroken cold chain from your office to our laboratory.

Labelling of specimens

Each sample must be labelled and sent with a request form with the patient identification as indicated on the form.

Specimen material

The collection of specimen materials for all parameters listed in the Parameter index are referring to this chapter. All indications about test duration are approximately.

■ Serum

Collect a sample of whole blood - minimum coagulation period 20 min., maximum 1 hour - and centrifuge (approx. 15 min., 3000 rpm). Remove supernatant (serum), place it into our yellow tubes and store it appropriately.

■ Plasma, frozen

EDTA-plasma, citrated plasma, lithium-heparin-plasma, NaF-plasma: Collect whole blood in appropriate tube (EDTA-, citrate-, lithium-heparin-, NaF-tube), mix well and centrifuge immediately (approx. 15 min., 3000 rpm). Separate supernatant (plasma), place it into yellow tube and freeze it.

■ 24-hour urine, not frozen or acidified

Start collection of urine at 7 a.m., reject first morning urine. Collection of complete urine volume until the next morning, including the morning urine of the next day. Mix after collection period, remove 10 mL. Do not freeze or acidify. Note total volume.

■ 24-hour urine, frozen, acidified

Start collection of urine at 7 a.m., reject first morning urine. Collect urine over 10 mL of 10% HCl. Collection of complete urine volume until the next morning, including the morning urine of the next day. Mix after collection period, remove and freeze in 10 mL. Note total volume.

■ **24-hour urine, frozen, not acidified**

Start collection of urine at 7 a.m., reject first morning urine. Collection of complete urine volume until the next morning, including the morning urine of the next day. Mix after collection period, remove and freeze 10 ml; do not acidify the urine. Note total volume.

■ **Spermatic fluid**

Dilute spermatic fluid 1+1 in physiological NaCl-solution and fill into fluoride tube.

■ **Analyses with molecular-biological methods**

For analyses of the viro-serological and molecular-genetical kind originally unopened test tubes should be submitted (in order to avoid mix-up or contamination).

For molecular-biological methods of examination please do not submit test tubes with Heparine as anticoagulant since this substance is known to inhibit the PCR. Rather submit whole blood with EDTA or Citrate additive!

Parameter index

The tests and investigations are listed in alphabetical order. The specimen volume quoted is sufficient for repeat or subsequent testing. The „minimal volume“ indicates the specimen volume actually required to perform one test, excluding any repeat or subsequent analysis or testing (e.g. serial dilution). Collection time of blood specimen: If drugs are administered orally, blood collection should be performed after a saturation period (generally one week) and within a given period of time after administration of the last dose. This period of time depends upon several factors. In this context, we use the term „sampling time“. Blood collection may also be performed prior to the next oral administration.

Results and reporting of results

The majority of analyses will be completed or at least started on the day the specimen is received. The conveyance of the findings may take place via mail, fax, long distance data transmission or in emergency Gases by telephone, even on Sundays and public holidays. Information about changes and modifications concerning materials and the introduction of new analyses will be given in good time and will also be included in the new edition of the laboratory test index.

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
DRUGS					
Acetazolamid	1.0 (2.0) ml	serum	see report	mg/l	HPLC
Aciclovir	1.0 (2.0) ml	serum	see report	see report	LCMS
Ajmalin	1.0 (2.0) ml	serum	0.05 - 1.0	mg/l	HPLC
Albendazol	1.0 (2.0) ml	serum	see report	see report	HPLC
Alcohol, ethanol (C ₂ H ₅ OH)	2.0ml	serum	< 0.1	permille	GC headspace
Allopurinol	1.0 (2.0) ml	serum	2.0 - 20.0	mg/l	HPLC
Alprazolam	1.0 (2.0) ml	serum	see report	ng/ml	HPLC
Alprazolam	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Amantadine	1.0 (2.0) ml	serum	300 - 600	µg/l	LCMS
Amikacin	1.0 (2.0) ml	serum	< 5.0	mg/l	HPLC
Amiodarone	1.0 (2.0) ml	serum	0.5 - 2.5	mg/l	HPLC
Amisulprid	1.0 (2.0) ml	serum	50 - 600	µg/l	HPLC
Amitriptylin	1.0 (2.0) ml	serum	50 - 250	µg/l	HPLC

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Amitryptilin	10 (20) ml	spontaneous urine	see report	see report	HPLC
Amoxicillin	1.0 (2.0) ml	serum	0.5 - 1.0	mg/l65l	HPLC
Atenolol	1.0 (2.0) ml	serum	0.05 - 1.0	µg/ml	HPLC
Azathioprin	1.0 (2.0) ml	serum	0.1 - 2.0	mg/l	HPLC
Baclofen	1.0 (2.0) ml	serum	0.10 - 0.60	mg/l	HPLC
Barbiturate	1.0 (2.0) ml	serum	< 0.5	mg/l	HPLC
Barbiturate	10 (20) ml	spontaneous urine	< 0.50	mg/l	HPLC
Benperidol	1.0 (2.0) ml	serum	< 30.0	µg/l	HPLC
Benzbromaron	1.0 (2.0) ml	serum	see report	see report	HPLC
Benzodiazepine	10 (20) ml	spontaneous urine	< 100	µg/l	HPLC
Benzodiazepine	1.0 (2.0) ml	serum	< 50.0	µg/l	LCMS
Biperiden	1.0 (2.0) ml	serum	10.0 - 100.0	µg/l	HPLC
Bisoprolol	1.0 (2.0) ml	serum	see report	see report	HPLC
Brallobarbital	10 (20) ml	spontaneous urine	see report	mg/l	HPLC
Bromazepam	10 (20) ml	spontaneous urine	see report	µg/l	HPLC

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Bromazepam	1.0 (2.0) ml	serum	50 - 200	µg/l	LCMS
Bromocriptin	1.0 (2.0) ml	serum	9.0 - 54.0	µg/l	HPLC
Bromperidol	1.0 (2.0) ml	serum	3.0 - 20.0	µg/l	HPLC
Brotizolam	1.0 (2.0) ml	serum	2.00 - 10.00	µg/l	GCMS
Bupivacaine	1.0 (2.0) ml	serum	0.50 - 1.50	mg/l	HPLC
Buprenorphine	10 (20) ml	spontaneous urine	<1.0	µg/l	HPLC
Cannabis (THC)	10 (20) ml	spontaneous urine	< 13.0	µg/l	MEIA
Carbamazepine	1.0 (2.0) ml	serum	4.0 - 10.0	mg/l	HPLC
Carbidopa	1.0 (2.0) ml	serum	20 - 200	µg/l	HPLC
Carbimazol	1.0 (2.0) ml	serum	-700	µg/l	HPLC
Ceftazidime	1.0 (2.0) ml	serum	50 - 200	mg/l	HPLC
Ceftriaxon	1.0 (2.0) ml	serum	10 - 100	mg/l	HPLC
Chloramphenicol	1.0 (2.0) ml	serum	1.0 - 5.0	see report	HPLC
Chlordiazepoxid	1.0 (2.0) ml	serum	400 - 3000	µg/l	HPLC

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Chlordiazepoxid	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Chloroquin	1.0 (2.0) ml	serum	20 - 200	µg/l	HPLC
Chlorpropamid	1.0 (2.0) ml	serum	see report	see report	LCMS
Chlorprothixen	1.0 (2.0) ml	serum	40 - 200	µg/l	LCMS
Chlorpyrifos	1.0 (2.0) ml	serum	see report	fmg/l	GC
Citalopram	1.0 (2.0) ml	serum	25 - 250	µg/l	LCMS
Clindamycin	1.0 (2.0) ml	serum	see report	mg/l	LCMS
Clobazam	1.0 (2.0) ml	serum	100 - 400	µg/l	LCMS
Clomethiazol	1.0 (2.0) ml	serum	0.5 - 3.0	mg/l	HPLC
Clomipramine	1.0 (2.0) ml	serum	20 - 140	µg/l	HPLC
Clonazepam	1.0 (2.0) ml	serum	15 - 60	µg/l	LCMS
Clonidine	1.0 (2.0) ml	serum	1.0 - 2.0	µg/l	LCMS
Clopendthixol	1.0 (2.0) ml	serum	see report	µg/l	LCMS
Clorazepat/Desmethyl	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Clotiazepam	1.0 (2.0) ml	serum	10 - 150	µg/l	HPLC

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Clozapin	1.0 (2.0) ml	serum	50 - 700	µg/l	HPLC
Cocain	1.0 (2.0) ml	serum	< 10.0	µg/l	HPLC
Cocain	10 (20) ml	spontaneous urine	< 0.30	mg/l	HPLC
Codein	1.0 (2.0) ml	serum	30 - 200	µg/l	HPLC
Codein	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Coffein	1.0 (2.0) ml	serum	2.0 - 10.0	mg/l	HPLC
Cyclophosphamid	1.0 (2.0) ml	serum	see report	mg/l	HPLC
Cyclosporine A	1.0 (2.0) ml	EDTA	70 - 300	µg/l	LCMS
Dantrolen	1.0 (2.0) ml	serum	0.40 - 1.50	mg/l	HPLC
Desalkyl-flurazepam	1.0 (2.0) ml	serum	30.0 - 80.0	µg/l	HPLC
Desalkyl-flurazepam	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Desipramine	1.0 (2.0) ml	serum	30.0 - 300	µg/l	HPLC
Desmethyl-Clobazam	1.0 (2.0) ml	serum	1000 - 4000	µg/l	HPLC
Desmethyldiazepam	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Dextropropoxyphen	1.0 (2.0) ml	serum	50.0 - 300	µg/l	HPLC

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Diazepam	1.0 (2.0) ml	serum	200 - 500	µg/l	HPLC
Dibenzepin	1.0 (2.0) ml	serum	50.0 - 250	µg/l	HPLC
Diclofenac	1.0 (2.0) ml	serum	0.10 - 2.50	mg/l	HPLC
Digitoxin	1.0 (2.0) ml	serum	10.0 - 30.0	µg/l	LIA
Digoxin	1.0 (2.0) ml	serum	0.50 - 2.00	µg/l	ECL
Dihydrocodein	1.0 (2.0) ml	serum	30.0 - 250	µg/l	HPLC
Dihydrocodeine	10 (20) ml	spontaneous urine	see report	mg/l	HPLC
Dihydromorphine	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Diphenhydramine	1.0 (2.0) ml	serum	30.0 - 300	µg/l	HPLC
Diphenhydramine	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Disopyramid	1.0 (2.0) ml	serum	2.00 - 5.00	µg/ml	HPLC
Doxepin	1.0 (2.0) ml	serum	50.0 - 250	µg/l	HPLC
Drug screening	2.0 ml	serum	see report	see report	method depend on detected substances
Drug screening	20 ml	spontaneous urine	see report	see report	method depend on detected substances

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Ecstasy	10 (20) ml	spontaneous urine	< 100	µg/l	GCMS/HPLC
Enalaprilat	1.0 (2.0) ml	serum	< 40.0	µg/l	LCMS
Ethambutol	1.0 (2.0) ml	serum	see report	mg/l	HPLC
Ethanolamine	1.0 (2.0) ml	serum	< 100.0	µmol/l	HPLC
Ethanolamine	10 (20) ml	spontaneous urine	see report	µmol/l	HPLC
Ethosuximide	1.0 (2.0) ml	serum	40 - 100	mg/l	HPLC
Ethylenglykol	1.0 (2.0) ml	EDTA	< 10.0	mg/l	GC
Felbamate	1.0 (2.0) ml	serum	10.0 - 100	mg/l	HPLC
Fenetyllin	1.0 (2.0) ml	serum	< 60	µg/l	HPLC
Flecainid	1.0 (2.0) ml	serum	0.20 - 1.00	mg/l	HPLC
Fluconazol	1.0 (2.0) ml	serum	< 10.0	mg/l	HPLC
Flucytosine	1.0 (2.0) ml	serum	see report	see report	HPLC
Flunitrazepam	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Flunitrazepam	1.0 (2.0) ml	serum	5.00 - 40.0	µg/l	LCMS
Fluoxetin	1.0 (2.0) ml	serum	60.0 - 450	µg/l	HPLC

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Flupentixol	1.0 (2.0) ml	serum	1.00 - 5.00	µg/l	LCMS
Fluphenazine	1.0 (2.0) ml	serum	1.00 - 10.0	µg/l	LCMS
Fluspirilen	1.0 (2.0) ml	serum	see report	see report	LCMS
Fluvoxamine	1.0 (2.0) ml	serum	30 - 300	ng/ml	HPLC
Furosemid	1.0 (2.0) ml	serum	1.00 - 10.0	mg/l	HPLC
Gabapentin	1.0 (2.0) ml	serum	2.0 - 12.0	mg/l	LCMS
Gentamicin	1.0 (2.0) ml	serum	see report	mg/l	FPIA
Glibenclamid	1.0 (2.0) ml	serum	100 - 300	µg/l	HPLC
Glimepirid	1.0 (2.0) ml	serum	see report	µg/l	HPLC
Haloperidol	1.0 (2.0) ml	serum	2.00 - 25.0	µg/l	LCMS
Hashish	5.0	spontaneous urine	< 13.0	µg/l	EMIT
Heptabarbital	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Hydrocodon	10 (20) ml	spontaneous urine	see report	see report	HPLC
Hydromorphone	10 (20) ml	spontaneous urine	see report	see report	HPLC
Ibuprofen	1.0 (2.0) ml	serum	15 - 30	mg/l	HPLC

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Imipenem	1.0 (2.0) ml	serum frozen	see report	mg/l	
Imipramin	1.0 (2.0) ml	serum	50 - 150	µg/l	HPLC
Isoniazid	1.0 (2.0) ml	serum	see report	see report	HPLC
Itraconazole	1.0 (2.0) ml	serum	0.4 - 2.0	mg/l	LCMS
Lamotrigin	1.0 (2.0) ml	serum	1.00 - 12.0	mg/l	HPLC
Laxatives	10 (20) ml	spontaneous urine	see report	see report	HPLC
Leflunomid	1.0 (2.0) ml	serum	see report	mg/l	HPLC
Levetiracetam	1.0 (2.0) ml	serum	5.0 - 30.0	mg/l	HPLC
Levodopa (L-Dopa)	1.0 (2.0) ml	serum	0.20 - 2.50	mg/l	HPLC
Levomepromacin	1.0 (2.0) ml	serum	10.0 - 140	µg/l	HPLC
Lidocain	1.0 (2.0) ml	serum	1.50 - 5.00	mg/l	HPLC
Lithium	10 (20) ml	spontaneous urine	see report	see report	AAS
Lithium (therapeutic)	1.0 (2.0) ml	serum	0.60 - 1.20	mmol/l	AAS
Lorazepam	1.0 (2.0) ml	serum	20.0 - 250	µg/l	HPLC
Lorazepam	10 (20) ml	spontaneous urine	see report	µg/l	HPLC

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Lormetazepam	1.0 (2.0) ml	serum	2.00 - 25.0	µg/l	HPLC
LSD	10 (20) ml	spontaneous urine	< 0.50	µg/l	MEIA
Marihuana	10 ml	spontaneous urine	< 13.0	µg/l	EIA
Maprotilin	1.0 (2.0) ml	serum	50.0 - 250	µg/l	HPLC
Mebendazol	1.0 (2.0) ml	EDTA	< 150	µg/l	HPLC
Medazepam	1.0 (2.0) ml	serum	100 - 500	µg/l	HPLC
Melperon	1.0 (2.0) ml	serum	100 - 200	µg/l	HPLC
Metamizol (Aminoantipyrin)	1.0 (2.0) ml	serum	1.00 - 12.0	mg/l	HPLC
Metanephrine	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Methadon	1.0 (2.0) ml	serum	see report	µg/l	HPLC
Methadon	10 (20) ml	spontaneous urine	< 0.25	mg/l	HPLC
Methamphetamine	1.0 (2.0) ml	serum	see report	µg/l	HPLC
Methamphetamine	10 (20) ml	spontaneous urine	< 100	µg/l	HPLC
Methanol	10 (20) ml	spontaneous urine	see report	see report	GC
Methotrexat	1.0 (2.0) ml	serum	see report	see report	HPLC

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Methyl dioxy amphetamine	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Methyl dioxy amphetamine	1.0 (2.0) ml	serum	see report	µg/l	HPLC
Methyl dioxy ethylamphetamine	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Methyl dioxy methamphetamine (MDMA)	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Methylendioxyamphetamine	1.0 (2.0) ml	serum	see report	see report	HPLC
Methylphenidat	1.0 (2.0) ml	serum	5.00 - 60.0	µg/l	LCMS
Metoprolol	1.0 (2.0) ml	serum	< 300	µg/l	HPLC
Metsuximid	1.0 (2.0) ml	serum	10.0 - 40.0	mg/l	HPLC
Mexiletin	1.0 (2.0) ml	serum	0.50 - 2.00	mg/l	HPLC
Mianserin	1.0 (2.0) ml	serum	30.0 - 120	µg/l	HPLC
Midazolam	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Midazolam	1.0 (2.0) ml	serum	see report	see report	HPLC
Mirtazapin	1.0 (2.0) ml	serum	< 60.0	µg/l	LCMS
Moclobemid	1.0 (2.0) ml	serum	< 1800	µg/l	HPLC
Morphine	-	hairs	< 0.10	µg/mg	GCMS

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Morphine	1.0 (2.0) ml	serum	< 10.0	µg/l	GCMS
Morphine / Heroine	10 (20) ml	spontaneous urine	< 100	µg/l	GCMS
Mycophenolat	1.0 (2.0) ml	EDTA	1.50 - 5.00	mg/l	HPLC
Naproxen	1.0 (2.0) ml	serum	25 - 75	mg/l	HPLC
Nefazodon	1.0 (2.0) ml	serum	50 - 500	µg/l	HPLC
Netilmycin	1.0 (2.0) ml	serum	see report	µg/ml	FPIA
Nicotine	10.0 ml	spontaneous urine	up to 200	µg/l	GC-MS
Nicotinamid	1.0 (2.0) ml	serum	10 - 100	µg/l	HPLC
Nifedipin	1.0 (2.0) ml	serum	10 - 200	µg/l	HPLC
Nitrazepam	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Nitrazepam	1.0 (2.0) ml	serum	40 - 180	µg/l	LCMS
Nitrendipin	1.0 (2.0) ml	serum	see report	see report	HPLC
Nordoxepin	1.0 (2.0) ml	serum	50 - 250	µg/l	HPLC
Norfluoxetin	1.0 (2.0) ml	serum	50 - 400	µg/l	HPLC
Normetanephrin	10 (20) ml	spontaneous urine	see report	µg/l	HPLC

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Nortriptylin	1.0 (2.0) ml	serum	50 - 250	µg/l	HPLC
Olanzapin	1.0 (2.0) ml	serum	5 - 100	µg/l	LCMS
Omeprazol	1.0 (2.0) ml	serum	< 400	µg/l	HPLC
Opiates	–	hairs	see report	see report	GCMS
Opiates	1.0 (2.0) ml	serum	< 25	µg/l	HPLC
Opiates	10 (20) ml	spontaneous urine	< 300	µg/l	HPLC
Opioid analgetics	10 (20) ml	spontaneous urine	see report	see report	GC
Opipramol	1.0 (2.0) ml	serum	50 - 200	µg/l	HPLC
Paracetamol	1.0 (2.0) ml	serum	5.00 - 25.0	mg/l	HPLC
Paracetamol	10 (20) ml	spontaneous urine	see report	mg/l	HPLC
Paroxetin	1.0 (2.0) ml	serum	30.0 - 500	µg/l	LCMS
Pemolin	1.0 (2.0) ml	serum	< 1.50	mg/l	HPLC
Pentachlorphenol	1.0 (2.0) ml	serum	< 12.0	µg/l	LCMS
Pentachlorphenol	10 (20) ml	spontaneous urine	< 25.0	ug/l	LCMS
Pentobarbital	10 (20) ml	spontaneous urine	see report	see report	HPLC

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Pentoxifyllin	1.0 (2.0) ml	serum	see report	see report	HPLC
Perazin	1.0 (2.0) ml	serum	50.0 - 250	µg/l	LCMS
Permethrin	1.0 (2.0) ml	EDTA	< 0.30	µg/l	HPLC
Perphenazin	1.0 (2.0) ml	serum	< 30.0	µg/l	HPLC
Pethidin	10 (20) ml	spontaneous urine	see report	see report	HPLC
Phenacetin	2.0 ml	serum	5.0 - 25.0	mg/l	HPLC
Phencyclidin	1.0 (2.0) ml	serum	see report	mg/l	HPLC
Phencyclidin	10 (20) ml	spontaneous urine	< 25.0	µg/l	MEIA
Phenobarbital	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Phenobarbital	1.0 (2.0) ml	serum	15.0 - 40.0	mg/l	HPLC
Phenothiazine	10 (20) ml	spontaneous urine	18.0 - 220	µg/l	HPLC
Phenprocoumen	1.0 (2.0) ml	serum	1.00 - 3.00	mg/l	HPLC
Phenylbutazone in serum	2.0 ml	serum	40 - 100	µg/ml	HPLC
Phenytoin	1.0 (2.0) ml	serum	10.0 - 20.0	mg/l	HPLC
Phenytoin (DPH)	1.0 (2.0) ml	serum	0.50 - 2.00	mg/l	HPLC

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Phenytoin (DPH)	1.0 (2.0) ml	serum	see report	see report	HPLC
Pipamperon	1.0 (2.0) ml	serum	20.0 - 200	µg/l	HPLC
Piracetam	1.0 (2.0) ml	serum	< 10.0	mg/l	HPLC
Piroxicam	1.0 (2.0) ml	serum	see report	see report	HPLC
Primidon	1.0 (2.0) ml	serum	5.00 - 12.0	mg/l	HPLC
Procainamid	1.0 (2.0) ml	serum	4.00 - 10.0	mg/l	HPLC
Promethazin	1.0 (2.0) ml	serum	< 100	µg/l	LCMS
Propafenon	1.0 (2.0) ml	serum	0.05 - 1.00	mg/l	HPLC
Properdin	1.0 (2.0) ml	serum	see report	see report	RID
Propranolol	1.0 (2.0) ml	serum	20.0 - 300	µg/l	HPLC
Prothipendyl	1.0 (2.0) ml	serum	50.0 - 250	µg/l	HPLC
Psilocybin	10 (20) ml	spontaneous urine	see report	see report	GCMS
Pyrazinamid	1.0 (2.0) ml	serum	see report	see report	HPLC
Quetiapin	1.0 (2.0) ml	serum	20 - 300	µg/l	HPLC
Quinidine	0.5 ml	serum	1.0 - 5.0	mg/l	HPLC

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Reboxetin	1.0 (2.0) ml	serum		µg/l	HPLC
Rifampicin	1.0 (2.0) ml	serum	0.1 - 1.0	see report	HPLC
Risperidon	1.0 (2.0) ml	serum	2.0 - 10.0	µg/l	
Salbutamol	1.0 (2.0) ml	serum	see report	see report	LCMS
Secobarbital	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Sertralin	1.0 (2.0) ml	serum	20 - 250	µg/l	HPLC
Sirolimus	2.0 ml	EDTA-blood	< 1:20	Titer	IFT
Sotalol, extraction	1.0 (2.0) ml	serum	1.0 - 3.0	mg/l	HPLC
Spirolactone	1.0 (2.0) ml	serum	50 - 200	µg/l	HPLC
Sulfamethoxazole	1.0 (2.0) ml	serum	see report	mg/l	HPLC
Sulfasalazine	1.0 (2.0) ml	serum	20 - 50	mg/l	HPLC
Sulforidazine	1.0 (2.0) ml	serum	200 - 600	µg/l	HPLC
Sulpirid	1.0 (2.0) ml	serum	50 - 750	µg/l	HPLC
Sultiam	1.0 (2.0) ml	serum	1.0 - 6.0	mg/l	HPLC
Tacrolimus	1.0 (2.0) ml	EDTA	see report	µg/l	LCMS

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Teicoplanin	1.0 (2.0) ml	serum	5.0 - 30.0	mg/l	HPLC
Temazepam	1.0 (2.0) ml	serum	200 - 800	µg/l	HPLC
Temazepam	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Tetrazepam	1.0 (2.0) ml	serum	100 - 600	µg/l	HPLC
Theophylline	1.0 (2.0) ml	serum	8.0 - 20.0	mg/l	HPLC
Thiamazol	1.0 (2.0) ml	serum	see report	see report	HPLC
Thiopental	1.0 (2.0) ml	serum	1.0 - 10.0	see report	HPLC
Thiopental	10 (20) ml	spontaneous urine	see report	see report	HPLC
Thioridazin	1.0 (2.0) ml	serum	100 - 2500	µg/l	HPLC
Tiagabin	1.0 (2.0) ml	serum	see report	µg/l	LCMS
Tiaprid	1.0 (2.0) ml	serum	1.0 - 2.0	mg/l	HPLC
Ticlopidin	1.0 (2.0) ml	serum	1.0 - 2.0	mg/l	HPLC
Tilidin	1.0 (2.0) ml	serum	50 - 100	µg/l	LCMS
Timolol	1.0 (2.0) ml	serum	20 - 100	ng/ml	HPLC
Tobramycin	1.0 (2.0) ml	serum	5.0 - 8.0	mg/l	EIA

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Tocainid	1.0 (2.0) ml	serum	1.0 - 10.0	mg/l	HPLC
Topiramate	1.0 (2.0) ml	serum	1.0 - 10.0	mg/l	LCMS
Tramadol	1.0 (2.0) ml	serum	200 - 600	ng/ml	HPLC
Tramadol	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Trazodon	1.0 (2.0) ml	serum	0.3 - 2.5	mg/l	HPLC
Triamteren	1.0 (2.0) ml	serum	10 - 150	µg/l	HPLC
Triazolam	1.0 (2.0) ml	serum	see report	µg/l	HPLC
Trifluoperazin	1.0 (2.0) ml	serum	5.0 - 50.0	µg/l	HPLC
Triflupromazin	1.0 (2.0) ml	serum	20 - 100	µg/l	HPLC
Trimethoprim	1.0 (2.0) ml	serum	1.0 - 5.0	mg/l	HPLC
Trimipramin	1.0 (2.0) ml	serum	20 - 200	µg/l	HPLC
Vancomycin	1.0 (2.0) ml	serum	5 - 10	mg/l	FIA
Venlafaxin	1.0 (2.0) ml	serum	30 - 175	µg/l	LCMS
Verapamil	1.0 (2.0) ml	serum	50 - 350	µg/l	HPLC
Vigabatrin	1.0 (2.0) ml	serum	see report	mg/l	LCMS

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Vinylbital	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Zolpidem	1.0 (2.0) ml	serum	20 - 150	µg/l	LCMS
Zopiclon	1.0 (2.0) ml	serum	see report	µg/l	LCMS
Zotepin	1.0 (2.0) ml	serum	5.0 - 25.0	µg/l	LCMS
GENETICS					
21-Hydroxylase					
Aarskog (facio-genital dysplasia)	5 ml	EDTA blood	see report	see report	
Adrenal hyperplasia, congenital	5 ml	EDTA blood	see report	see report	
Adrenogenital syndrome	5 ml	EDTA blood	see report	see report	PCR
Alpha thalassaemia	5 ml	EDTA blood	see report	see report	PCR
Alpha-1-antitrypsin genotype	5 ml	EDTA blood	see report	see report	PCR
Alpha-1-antitrypsin phenotype	5 ml	EDTA blood	see report	see report	PCR
Angelman syndrome	5 ml	EDTA blood	see report	see report	PCR
Ankylosing spondylitis	5 ml	EDTA blood	see report	see report	
Apolipoprotein B-100 Deficiency	5 ml	EDTA blood	see report	see report	LightCycler

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Apolipoprotein E polymorphism	5 ml	EDTA blood	see report	see report	PCR
Azoospermia factor	5 ml	EDTA blood	see report	see report	PCR
BCR-ABL rearrangement	–	bone marrow	see report	see report	PCR
Beta thalassaemia	5 ml	EDTA blood	see report	see report	PCR
Chorea Huntington	5 ml	EDTA blood	see report	see report	PCR
Chromosomal analysis	10 (15) ml	amniotic fluid	see report	see report	culture, chromosomal analysis
Chromosomal analysis	biopsy	chorion villae	see report	see report	culture, chromosomal analysis
Chromosomal analysis	biopsy	skin	see report	see report	culture, chromosomal analysis
Chromosomal analysis	5 ml	heparin blood (lymphocytes)	see report	see report	culture, chromosomal analysis

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Chronic progressive external ophthalmoplegia (CPEO)	5 ml	EDTA blood	see report	see report	
Congenitale bilaterale aplasia of vas deferens (CBAVD)	5 ml	EDTA blood	see report	see report	multiplex PCR
Cystic fibrosis (CF)	5 ml	EDTA blood	see report	see report	multiplex PCR
Deleted in azoospermia	5 ml	EDTA blood	see report	see report	multiplex PCR
Diabetes and deafness syndrome	5 ml	EDTA blood	see report	see report	
Dihydropyrimidin-dehydrogenase deficiency	5 ml	EDTA blood	see report	see report	LightCycler
Dystrophia myotonica type 1	5 ml	EDTA blood	see report	see report	Southern blot + PCR
Factor 2 mutation	5 ml	EDTA blood	see report	see report	PCR
Factor 5 Leiden-mutation	5 ml	EDTA blood	see report	see report	PCR
Familial mediterranean fever	5 ml	EDTA blood	see report	see report	
Fragile site mental retardation (FRAXA)	5 ml	EDTA blood	see report	see report	
Fragile site rare (FRAXE)	5 ml	EDTA blood	see report	see report	
Gilbert syndrome	5 ml	EDTA blood	see report	see report	

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Glutathion-S-transferase M1	5 ml	EDTA blood	see report	see report	multiplex PCR
Glutathion-S-transferase T1	5 ml	EDTA blood	see report	see report	multiplex PCR
Glycoprotein IIIa genotyping	5 ml	EDTA blood	see report	see report	PCR
Haemochromatose (C282Y; H63D, S65C)	5 ml	EDTA blood	see report	see report	PCR
Hemoglobin alpha locus 1	5 ml	EDTA blood	see report	see report	
Hemoglobin alpha locus 2	5 ml	EDTA blood	see report	see report	
Hemoglobin beta locus	5 ml	EDTA blood	see report	see report	
Hemophilia					
Homocysteinemia	5 ml	EDTA blood	see report	see report	LightCycler
Huntington Chorea	5 ml	EDTA blood	see report	see report	
Hyperlipoproteinemia type III	5 ml	EDTA blood	see report	see report	LightCycler
Kennedy, spinal and bulbar muscular dystrophy	5 ml	EDTA blood	see report	see report	
Leigh syndrome	5 ml	EDTA blood	see report	see report	
Liver optic atrophy	5 ml	EDTA blood	see report	see report	
Mediterranean fever	5 ml	EDTA blood	see report	see report	PCR

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Meulengracht syndrome	5 ml	EDTA blood	see report	see report	PCR
MELAS	5 ml	EDTA blood	see report	see report	
MTHFR mutation analysis	5 ml	EDTA blood	see report	see report	PCR
Multiple endocrine neoplasia type 2	5 ml	EDTA blood	see report	see report	
Muscular dystrophy type Duchenne and Becker	5 ml	EDTA blood	see report	see report	multiplex PCR
Myoclonic epilepsy with ragged red fibers syndrome	5 ml	EDTA blood	see report	see report	
N-Acetyltransferase 2 (Isoniazid inactivation)	5 ml	EDTA blood	see report	see report	
Neuropathy, ataxia and retinitis pigmentosa syndrome	5 ml	EDTA blood	see report	see report	
Osteoporosis	5 ml	EDTA blood	see report	see report	
PAI-1 genotyping	5 ml	EDTA blood	see report	see report	PCR
Pancreatitis, hereditary	5 ml	EDTA blood	see report	see report	
Papillary thyroid carcinoma	5 ml	EDTA blood	see report	see report	

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Phenylketonuria (PKU)	5 ml	EDTA blood	see report	see report	PCR
Philadelphia chromosome	5 ml	EDTA blood	see report	see report	
Prader-Willi syndrome	5 ml	EDTA blood	see report	see report	PCR
Sickle cell anemia	5 ml	EDTA blood	see report	see report	LightCycler
Spinal muscular atrophy type 1, type 2 and type 3 (SMA)	5 ml	EDTA blood	see report	see report	LightCycler
Thiopurine-S-methyltransferase deficiency	5 ml	EDTA blood	see report	see report	LightCycler
Thrombophilia	5 ml	EDTA blood	see report	see report	PCR
Uniparental disomy 15 (UPD15)	5 ml	EDTA blood	see report	see report	
Wilson disease	5 ml	EDTA blood	see report	see report	LightCycler
HORMONS					
17-Hydroxy progesterone		Guthrie test card	< 30.0	nmol/l	FIA
17-Hydroxy progesterone	1.0 (2.0) ml	serum	0.10 - 1.53	ng/ml	RIA
ACTH (adrenocorticotropic hormone)	1.0 ml	EDTA plasma frozen	9.0 - 52.0	pg/ml	RIA
Aldosterone in serum	1.0 ml	serum or EDTA	7.5 - 150	ng/l	RIA

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Aldosterone and derivatives in urine	10.0 ml	spontaneous urine	2.5 - 25.0	µg/24 hrs.	RIA
Androgen index, free			2.3 - 3.9		
Androstenedione	1.0 (2.0) ml	serum	see report	ng/ml	RIA
Antidiuretic hormone	2.0 ml	EDTA plasma frozen	1.0 - 7.8	pg/ml	RIA
Catecholamine, free, in urine	20.0 ml	spontaneous urine	see report	µg/24 hrs.	HPLC
Cortisol	10 (20) ml	spontaneous urine	see report	µg/l	IRMA
Cortisol	1.0 (2.0) ml	serum	50 - 250	ng/ml	LIA
Dehydroepiandrosterone-Sulfate (DHEAS)	1.0 (2.0) ml	serum	0.03 - 0.85	µg/ml	ECL
Erythropoietin	1.0 (2.0) ml	serum	6.0 - 25.0	mU/ml	LIA
Epinephrine in plasma	2.0 ml	EDTA plasma frozen	< 50	pg/ml	HPLC
Epinephrine in urine	20.0 ml	spontaneous urine	up to 20	µg/die	HPLC
Estradiol, 17-beta (E2)	1.0 (2.0) ml	serum	20.0 - 59.5	pg/ml	ECL
Estriol free (E3)	1.0 (2.0) ml	serum	see report	ng/ml	FIA
Estrone (E1)	1.0 (2.0) ml	serum	30.0 - 60.0	pg/ml	RIA
Free cortisol	10 (20) ml	spontaneous urine	see report	µg/l	IRMA

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
FSH, follicle stimulating hormone, Follitropin	0.2 ml	serum	see report	mU/ml	ECL
Gastrin	1.0 (2.0) ml	serum frozen	< 150	ng/l	RIA
Insulin	1.0 (2.0) ml	liquor amnii	< 20	μU/ml	MEIA
Insulin	1.0 (2.0) ml	serum frozen	see report	μU/ml	RIA
Ketosteroids	10 (20) ml	spontaneous urine	0.9 - 7.0	mg/24h	PHO
LH (luteinizing hormone)	1.0 (2.0) ml	serum	see report	mU/ml	ECL
Medroxy progesteron	1.0 (2.0) ml	serum	100 - 500	μg/l	HPLC
Melatonin	1.0 (2.0) ml	serum	8.5 - 16.0	pg/ml	RIA
Parathyroid hormone intact, (PTH)	1.0 (2.0) ml	serum frozen	15.0 - 65.0	pg/ml	ECL
Parathyroid hormone related protein (PTHrP)	-	EDTA plasma frozen	< 1.30	see report	
Prednisolone	1.0 (2.0) ml	serum	5.00 - 30.0	μg/l	HPLC
Pregnantriol, Pregnan diol	10 (20) ml	spontaneous urine	see report	mg/24h	HPLC
Pregnenolon		saliva	see report	see report	
Progesterone	1.0 (2.0) ml	serum	see report	see report	ECL
Proinsulin	1.0 (2.0) ml	serum frozen	see report	see report	

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Prolactin	1.0 (2.0) ml	serum	100 - 500	ng/ml	LIA
Renin	1.0 (2.0) ml	EDTA plasma frozen	see report	μU/ml	RIA
Renin (activ)	1.0 (2.0) ml	EDTA plasma frozen	see report	see report	RIA
T3, free, free Tri-iodine-thyronine	1.0 ml	serum	2.2 - 5.5	ng/l	Elisa
T4, free, free Tri iodine-thyroxine	1.0 ml	serum	0.60 - 1.80	ng/dl	Elisa
Testosterone, total	1.0 (2.0) ml	serum	0.02 - 0,82	ng/ml	ECL
Aldosterone	1.0 (2.0) ml	serum frozen	7.5 - 150	(liegend)	RIA
Aldosterone	10 (20) ml	spontaneous urine	see report	μg/l	RIA
METALS					
Aluminium	1.0 (2.0) ml	serum	< 30.0 - 100.0	see report	AAS
Aluminium	10 (20) ml	spontaneous urine	< 35	μg/l	AAS
Arsenic	1.0 (2.0) ml	Heparin blood	< 5.0	μg/l	AAS
Arsenic	10 (20) ml	spontaneous urine	< 25.0	μg/l	AAS
Arsenic (after DMPS)	10 (20) ml	spontaneous urine	< 25.0	μg/l	AAS
Barium	1.0 (2.0) ml	serum	see report	see report	AAS

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Barium	10 (20) ml	spontaneous urine	< 5.7	µg/l	AAS
Bismuth	1.0 (2.0) ml	Heparin blood	< 2.5	µg/l	AAS
Bromide	1.0 (2.0) ml	serum	400 - 2000	mg/l	photometric
Cadmium	1.0 (2.0) ml	EDTA	< 3.0	µg/l	AAS
Cadmium	10 (20) ml	spontaneous urine	< 4.0	µg/l	AAS
Caesium	5 g	faeces	see report	see report	GCMS
Caesium (after DMPS)	10 (20) ml	spontaneous urine	see report	see report	GCMS
Chloride	1.0 (2.0) ml	serum	93 - 113	mmol/l	coulometric
Chloride	10 (20) ml	spontaneous urine	100 - 250	mmol/l	coulometric
Chromium	1.0 (2.0) ml	serum	< 3.0	µg/l	AAS
Chrome	10 (20) ml	spontaneous urine	< 4.0	µg/l	AAS
Cis platinum	1.0 ml	serum	up to 0.5	µg/l	AAS
Cobalt	1.0 (2.0) ml	serum	< 2.0	µg/l	AAS
Cobalt	10 (20) ml	spontaneous urine	< 3.0	µg/l	AAS
Copper	1.0 (2.0) ml	serum	70 - 140	µg/dl	AAS

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Copper	5 g	faeces	see report	see report	AAS
Copper	10 (20) ml	spontaneous urine	see report	µg/l	AAS
Copper (after Dimalval)		saliva	see report	µg/l	AAS
Copper (before Dimaval)		saliva	see report	µg/l	AAS
Fluorid	10 (20) ml	spontaneous urine	< 1.00	mg/l	ISE
Fluoride	1.0 (2.0) ml	serum	see report	µg/l	ISE
Gold	1.0 (2.0) ml	serum	< 3.0	see report	AAS
Gold	10 (20) ml	spontaneous urine	< 50	µg/l	AAS
Gold (after DMPS)	10 (20) ml	spontaneous urine	< 50	µg/l	AAS
Iodine	10 (20) ml	spontaneous urine	see report	µg/l	
Iodine	1.0 (2.0) ml	serum	46.0 - 70.0	µg/l	EIA
Iron	10 (20) ml	spontaneous urine	< 0.10	mg/l	AAS
Iron	10 (20) ml	spontaneous urine	see report	see report	AAS
Iron	1.0 (2.0)	serum	37 - 156	µg/dl	PHO
Lead	2.0 ml	EDTA	up to approx 150	µg/g	AAS

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Lead in urine	10 ml	spontaneous urine	to 40	µg/l	AAS
Manganese	1.0 ml	heparin blood	up to 10	µg/l	AAS
Magnesium	1.0 (2.0) ml	serum	0.60 - 1.30	mmol/l	AAS
Magnesium	10 (20) ml	spontaneous urine	0.50 - 7.50	mmol/l	AAS
Magnesium in blood	1.0 (2.0) ml	EDTA	see report	mmol/l	AAS
Manganese	1.0 (2.0) ml	EDTA	< 10.0	µg/l	AAS
Mercury	1.0 (2.0) ml	EDTA	see report	µg/l	AAS
Mercury	10 (20) ml	spontaneous urine	see report	µg/l	AAS
Mercury after chewing test		saliva	< 10.0	µg/l	AAS
Nickel	1.0 (2.0) ml	serum	< 2.0	µg/l	AAS
Nickel	10 (20) ml	spontaneous urine	< 5.0	µg/l	AAS
Platinum	10 (20) ml	spontaneous urine	see report	see report	AAS
Platinum	1.0 (2.0) ml	serum	see report	µg/l	AAS
Plumbum (lead)	1.0 (2.0) ml	EDTA	see report	see report	AAS
Plumbum (lead)	5 g	faeces	see report	see report	AAS

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Plumbum (lead)	10 (20) ml	spontaneous urine	< 40.0	µg/l	AAS
Selenium	1.0 (2.0) ml	serum	50 - 100	µg/l	AAS
Selenium	10 (20) ml	spontaneous urine	see report	µg/l	AAS
Selenium after DMPS (Dimaval)	10 (20) ml	spontaneous urine	see report	µg/l	AAS
Silver	1.0 (2.0) ml	serum	< 2.0	see report	AAS
Silver	10 (20) ml	spontaneous urine	< 0.9	µg/l	AAS
Strontium	1.0 (2.0) ml	serum	see report	µg/l	LCMS
Strontium	5 g	FAECES	see report	see report	LCMS
Strontium	10 (20) ml	spontaneous urine	< 30	µg/l	LCMS
Sulphur	1.0 (2.0) ml	serum	see report	see report	LCMS
Sulphur	10 (20) ml	spontaneous urine	1240 - 1490	mg/d	LCMS
Thallium	1.0 (2.0) ml	serum	< 0.30	µg/l	AAS
Thallium	10 (20) ml	spontaneous urine	< 1.0	µg/l	AAS
Tin	1.0 (2.0) ml	serum	< 2.0	µg/l	AAS
Tin	10 (20) ml	spontaneous urine	< 2.0	µg/l	AAS

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Tin after MPS (Dimaval)	10 (20) ml	spontaneous urine	< 15	µg/l	AAS
Titan	1.0 (2.0) ml	serum	< 7.7	µg/l	AAS
Uranium	1.0 (2.0) ml	serum	see report	see report	HPLC
Uranium	10 (20) ml	spontaneous urine	see report	see report	HPLC
Vanadium	1.0 (2.0) ml	serum	< 11	µg/l	ICP MS
Vanadium	10 (20) ml	spontaneous urine	< 1.0	µg/l	AAS
Zinc	1.0 (2.0) ml	serum	70 - 150	µg/dl	AAS
Zinc	10 (20) ml	spontaneous urine	250 - 850	µg/l	AAS
Zinc after chewing test		saliva	see report	µg/dl	AAS
Zinc after Dimaval (DMPS)	10 (20) ml	spontaneous urine	250 - 850	µg/l	AAS
Zinc before chewing test		saliva	see report	µg/dl	AAS
Zinc in erythrocytes	1.0 (2.0) ml	EDTA - or Heparinblood	see report	µg/dl	AAS
Zinc-Protoporphyrine		EDTA	0.70 - 4.00	µg/g Hb	
TUMORMARKER					
5-hydroxyindolacetic acid (5-HIAA)	10 (20) ml	24-hour urine, frozen, acidified (10 ml 10% HCl)	< 8.50	mg/l	HPLC

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
AFP (alpha fetoprotein, tumormarker)	1.0 (2.0) ml	serum	< 10	ng/ml	EIA
Angiotensin converting enzyme (ACE)	1.0 (2.0) ml	serum	5.0 - 33.0	U/l	enzymatic
Beta-hcg, tumor associated	1.0 (2.0) ml	serum	< 5.00	mU/ml	LIA
Beta-hcg, tumor associated	1.0 (2.0) ml	punctate	see report	see report	LIA
CA 125	1.0 (2.0) ml	serum, dialysate, punctate	< 35.0	U/ml	LIA
CA 15-3	1.0 (2.0) ml	serum, punctate	< 36.0	U/ml	LIA
CA 195	1.0 (2.0) ml	serum	< 10	U/ml	EIA
CA 19-9	1.0 (2.0) ml	serum, punctate	< 37.0	U/ml	LIA
CA 242	1.0 (2.0) ml	serum	< 25	U/ml	EIA
CA 50	1.0 (2.0) ml	serum	< 25.0	U/ml	RIA
CA 54-9	1.0 (2.0) ml	serum	< 12.0	U/ml	RIA
CA 72-4	1.0 (2.0) ml	serum	< 4.0	U/ml	ECL
Calcitonin	1.0 (2.0) ml	serum frozen	< 10	pg/ml	RIA
Calprotectin	5 g	faeces	< 50	mg/kg	EIA
CEA	1.0 (2.0) ml	serum	< 4.0	ng/ml	LIA

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
CEA (carcinoembryonic antigen)	2.0 ml	punctate	see report	see report	LIA
Cyfra-21-1	1.0 (2.0) ml	serum	< 4.0	ng/ml	ECL
M2-Pyruvatkinase	5 g	faeces	< 4.0	U/ml	EIA
MCA (mucin-like carcinoma ass. Antigen)		parameter not any more available, we recommend CA 15-3			
Neopterin	1.0 (2.0) ml	serum frozen	< 10.0	nmol/l	RIA
p53 tumorsuppressor protein	1.0 (2.0) ml	serum	see report	see report	EIA
PSA, complexed (cPSA)	1.0 (2.0) ml	serum	< 2.6	ng/ml	LIA
S 100-protein	1.0 (2.0) ml	serum	< 0.16	µg/l	LIA
SCC (squamosus cell carcinoma antigen)	1.0 (2.0) ml	serum	< 2.00	µg/l	RIA
TNF (tumor necrosis factor)	1.0 (2.0) ml	serum frozen	<4.0	see report	LIA
Tumor necrosis factor	1.0 (2.0) ml	serum frozen	< 8.1	pg/ml	ECL
VIP (vasoactive intestinal peptide)	1.0 (2.0) ml	heparine blood	23 - 63	ng/l	RIA
VITAMINS					
Folic acid	1.0 (2.0) ml	serum frozen	see report	see report	LIA

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Folic acid	1.0 (2.0) ml	EDTA	see report	see report	LIA
Niacin	1.0 (2.0) ml	serum	see report	µg/l	LCMS
Vitamin A (retinol)	1.0 (2.0) ml	serum	250 - 1100	ng/ml	HPLC
Vitamin B1 (thiamin)	1.0 (2.0) ml	EDTA	20 - 100	ng/ml	HPLC
Vitamin B12	1.0 (2.0) ml	serum frozen	200 - 1000	pg/ml	LIA
Vitamin B2 (riboflavin)	1.0 (2.0) ml	EDTA	75 - 300	ng/ml	HPLC
Vitamin B5	1.0 (2.0) ml	serum	25.0 - 80.0	µg/l	LCMS
Vitamin B6 (pyridoxal phosphate)	1.0 (2.0) ml	EDTA	7.0 - 30.0	ng/ml	HPLC
Vitamin C	1.0 (2.0) ml	EDTA plasma frozen	see report	mg/l	HPLC
Vitamin D3 (1.25-OH)	1.0 (2.0) ml	serum frozen	15 - 50	pg/ml	RIA
Vitamin D3 (25-OH)	1.0 (2.0) ml	serum	see report	ng/ml	LIA
Vitamin E	1.0 (2.0) ml	serum	5.0 - 18.0	µg/ml	HPLC
Vitamin H (Biotin)	1.0 (2.0) ml	serum	> 100	ng/l	
Vitamin K	1.0 (2.0) ml	serum	see report	ng/l	LCMS

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
ALPHABETICAL					
AAB to ENA SSA (Ro)	1.0 (2.0) ml	serum	< 20	RE/ml	ELISA
AAB to ENA SSB (La)	1.0 (2.0) ml	serum	< 20	RE/ml	ELISA
AAB to ENA U1-RNP	1.0 (2.0) ml	serum	see report	see report	ELISA
AAB to IgA tissue transglutaminase	2.0 ml	serum	< 20.0	U/ml	EIA
AAB to IgG tissue transglutaminase	2.0 ml	serum	< 20.0	U/ml	EIA
AAB to myocardium (cardiac muscle)	1.0 (2.0) ml	serum	1:<80	Titer	IFT
AAB to Purkinje cells (anti-Yo)	1.0 (2.0) ml	serum	1:<100	Titer	IFT
AAB to smooth muscle (SMA)	1.0 (2.0) ml	serum	< 20	RE/ml	EIA
AAB to smooth muscle (SMA)	1.0 (2.0) ml	serum	1:<20	Titer	IFT
AAB to spermatic fluid	1.0 ml	ejaculate	< 75.0	U/ml	EIA
AAB to spermatic fluid	1.0 (2.0) ml	serum	< 75.0	U/ml	EIA
AAB to thyroglobulin	1.0 (2.0) ml	serum	< 100	U/ml	RIA
Acetin Antibody	1.0 (2.0) ml	serum	< 1:80	titer	IFT
Acetylcholin receptor-AB	1.0 (2.0) ml	serum	< 0.40	nmol/l	RIA

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Acetylcholinesterase (ACHE)	1-2 ml	amniotic fluid	see report	see report	electrophoretic
Acetylsalicylic acid	1.0 (2.0) ml	serum	< 50	see report	HPLC
Acid phosphatase	1.0 (2.0) ml	serum	see report	see report	photometric
Actinomyces bovis-IgG-AB	1.0 (2.0) ml	serum	< 160	Titer	IFT
Actinomyces israeli IgG-AB	1.0 (2.0) ml	serum	< 160	Titer	IFT
Adenovirus antigen test		nasal swap	see report	see report	IFT
Adenovirus IgA-AB	1.0 (2.0) ml	serum	< 90.0	U/ml	ELISA
Adenovirus IgG-AB	1.0 (2.0) ml	serum	< 100.0	U/ml	ELISA
Adenovirus-antigen	5 g	faeces	see report	see report	ELISA
ADH (antidiuretic hormone)	1.0 (2.0) ml	EDTA plasma	1.0 - 7.8	pg/ml	RIA
Adrenaline	10 (20) ml	24-hour urine, frozen, acidified (10 ml 10% HCl)	see report	µg/l	HPLC
Adrenaline	1.0 (2.0) ml	EDTA plasma frozen	< 110	ng/l	HPLC
Adrenocorticotrophic hormone	2.0 ml	EDTA plasma frozen	08:00 h: 9 - 52 18:00 h: 50%	pg/ml	RIA
Afipia felis IgG-AB	1.0 (2.0) ml	serum	see report	Titer	IFT

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Afipia felis IgM-AB	1.0 (2.0) ml	serum	see report	Titer	IFT
AFP (alpha fetoprotein)	1.0 (2.0) ml	serum	see report	ng/ml	EIA
AFP (alpha fetoprotein)	1-2 ml	amniotic fluid	Median 5.9	µg/ml	LIA
Albumin	1.0 (2.0) ml	serum	3200 - 5500	mg/dl	nephelometric
Albumin	1.0 (2.0) ml	dialysate	see report	mg/l	nephelometric
Albumin	1-2 ml	amniotic fluid	see report	mg/l	nephelometric
Albumin	1.0 (2.0) ml	punctate	see report	see report	nephelometric
Albumin	10 (20) ml	spontaneous urine	< 15.0	mg/l	nephelometric
Albumin	1.0 ml	CFS	see report	mg/dl	nephelometric
Alcohol, ethanol (C ₂ H ₅ OH)	2.0 ml	serum	< 0.1	per mille	GC, heads-pace
Aldolase	1.0 (2.0) ml	serum	< 7.6	U/l	enzymatic
Aldosterone in serum	1.0 ml	serum or EDTA plasma	7.5 - 150	ng/l	RIA
Aldosterone and derivatives in urine	10.0 ml	spontaneous urine	2.8 - 25.0	µg/24 hrs	RIA
Alkaline leucocyte phosphatase	1.0 (2.0) ml	EDTA	see report	index	staining

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Alkaline phosphatase	1.0 (2.0) ml	serum	110 - 500	U/l	photometric
Alpha-1-antitrypsin	1.0 (2.0) ml	serum	90 - 200	mg/dl	nephelometric
Alpha-1-glycoprotein	1.0 (2.0) ml	serum	55 - 140	mg/dl	nephelometric
Alpha-1-microglobulin	10 (20) ml	spontaneous urine	< 12.0	mg/l	nephelometric
Alpha-1-microglobulin	1.0 (2.0) ml	serum	< 4.5	mg/dl	nephelometric
Alpha-2-macroglobulin	1.0 (2.0) ml	serum	130 - 300	mg/dl	nephelometric
Alpha-amylase	1.0 (2.0) ml	serum	28 - 100	U/l	enzymatic
Alpha-amylase	10 (20) ml	spontaneous urine	< 460	U/l	enzymatic
Alpha-HBDH	1.0 (2.0) ml	serum	55.0 - 140	U/l	enzymatic
AMA (antimitochondrial AB)	1.0 (2.0) ml	serum	see report	see report	Blot
AMA-M2	1.0 (2.0) ml	serum	see report	see report	Blot
AMA-M4	1.0 (2.0) ml	serum	see report	see report	Blot
AMA-M9	1.0 (2.0) ml	serum	< 25.0	U/ml	Blot
Amino acid screening	1.0 (2.0) ml	serum	see report	see report	Aa - analyser
Amino acid screening	10 (20) ml	spontaneous urine	see report	see report	Aa - analyser

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Ammonia	5 ml	EDTA	see report	µmol/l	enzymatic
Amoeba antibodies	0.5 ml	serum	< 1:32	Titer	IHA
Amoeba proff in stool					
Amphetamine	1.0 (2.0) ml	serum	< 300	µg/l	HPLC
Amphetamine	10 (20) ml	spontaneous urine	< 100	µg/l	HPLC
Amphotericin B	1.0 (2.0) ml	serum	0.1 - 3.7	mg/l	HPLC
Amylase	1.0 (2.0) ml	punctate	< 100	U/ml	enzymatic
Amylase isoenzymes	2.0 ml	serum	see report		electroph.
ANA (antinuclear AB)	1.0 (2.0) ml	serum	see report	see report	Blot
Androgen index, free			2.3 - 3.9		
ANP	3.0 ml	EDTA plasma frozen	to 43.0	pgl/ml	RIA
Antibody identification (Coombs test)	10 ml	whole blood	see report	see report	ICT
Antidiuretic hormone	2.0 ml	EDTA plasma frozen	1.0 - 7.8	pg/ml	RIA
Anti-factor Xa-activity	1.0 ml	citrate plasma frozen	0.15 - 0.35	U/m	photometric
Antihyaluronidase	1.0 (2.0) ml	serum	< 300	U/ml	agglutination

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Antinuclear AB,ANA-screening	1.0 (2.0) ml	serum	see report	see report	IFT
Antinuclear AB, IgA (ANA)	1.0 (2.0) ml	serum	1:<80	Titer	IFT
Antinuclear AB, IgG (ANA)	1.0 (2.0) ml	serum	1:<80	Titer	IFT
Antinuclear AB, IgM (ANA)	1.0 (2.0) ml	serum	1:<80	Titer	IFT
Antioxidative capacity, complete	2 ml	serum	20 - 180	µmol/l	photometric
Antistaphylosin (ASTL)	1.0 (2.0) ml	serum	< 2.0	IU/ml	agglutination
Antisteptococci hyaluronidase	1.0 ml	serum	up to 300	U/ml	agglutination
Antistreptodornase B	1.0 (2.0) ml	serum	< 200	U/ml	nephelometric
Antistreptolysin	1.0 (2.0) ml	serum	< 200	U/ml	nephelometric
Antistreptolysin O	1.0 (2.0) ml	punctate	< 200	U/ml	nephelometric
Antiithrombin III-activity	1.0 ml	citrate plasma frozen	70 - 130	%	nephelometric
APC-resistance	1.0 ml	citrate plasma frozen	über 2.0	Ratio	Clotting test
Apolipoprotein A1	1.0 (2.0) ml	serum	100 - 215	mg/dl	nephelometric
Apolipoprotein A2	1.0 (2.0) ml	serum	25 - 55	mg/dl	nephelometric
Apolipoprotein B	1.0 (2.0) ml	serum	60 - 155	mg/dl	nephelometric

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Arylsulfatase A	1.0 (2.0) ml	serum	3.6 - 9.4	nmol/h/ml	photometric
Arylsulfatase A	10 (20) ml	spontaneous urine	41 - 178	nmol/h/ml	photometric
Ascarides-antibodes	1.0 (2.0) ml	serum	see report	see report	EIA
Ascaris lumbricodes-AB	1.0 (2.0) ml	serum	see report	Titer	EIA
Ascaris suis-AB	1.0 (2.0) ml	serum	see report	Titer	EIA
Asialoglycoprotein receptro antibody	1.0 ml	serum	< 1:80	Titier	IFT
Aspergillu fumigatus IgG antibody	0.5 ml	serum	to 10	µg/ml	EIA
Astrovirus antigen	5 g	faeces	see report	see report	ELISA
Atrial natriuretic peptide (ANP)	1.0 ml	EDTA plasma frozen	< 15.0	pmol/l	RIA
Babesia microti-AB	1.0 (2.0) ml	serum	see report	Titer	IFT
Barbexaclon/Phenobarbital	1.0 (2.0) ml	serum	15.0 - 400	mg/l	HPLC
Bartonella henselae DNA	2.0 ml	punctate	see report	see report	PCR
Bartonella henselae IgG-AB	1.0 (2.0) ml	serum	1:<64	Titer	IFT
Bartonella henselae IgM-AB	1.0 (2.0) ml	serum	1:<20	Titer	IFT
Bartonella quintana IgG-AB	1.0 (2.0) ml	serum	1:<100	Titer	IFT

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Bartonella quintana IgM-AB	1.0 (2.0) ml	serum	1:<20	Titer	IFT
Benzene	1.0 (2.0) ml	EDTA	< 2.0	µg/l	GC
Beta-1-glycoprotein	1.0 (2.0) ml	serum	see report	see report	EIA
Beta-2-glycoprotein IgA-AB	1.0 (2.0) ml	serum	< 20.0	U/ml	EIA
Beta-2-glycoprotein IgM-AB	1.0 (2.0) ml	serum	< 20.0	U/ml	EIA
Beta-2-glycoprotein-1-AB	1.0 (2.0) ml	serum	< 1.0	Ratio	EIA
Beta-2-glycoprotein-AB	1.0 (2.0) ml	serum	see report	see report	EIA
Beta-2-microglobulin	1.0 ml	CFS	see report	see report	nephelometric
Beta-2-microglobulin	10 (20) ml	spontaneous urine	< 200.0	µg/l	nephelometric
Beta-2-microglobulin	1.0 (2.0) ml	serum	< 2.0	mg/l	nephelometric
Beta-2-transferrin	1.0 ml	CFS	see report	see report	electrophoretic
Beta-alanin	1.0 (2.0) ml	serum	< 10.0	µmol/l	LCMS
Beta-alanin	10 (20) ml	spontaneous urine	see report	µmol/l	LCMS
Beta-carotin	1.0 (2.0) ml	serum	500 - 2500	ng/ml	HPLC
Beta-HCG	1.0 (2.0) ml	serum	see report	IU/l	FIA

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Beta-hcg, pregnancy	1.0 (2.0) ml	serum	< 5	mU/ml	ECL
Beta-hcg, pregnancy	10 ml	spontaneous urine	< 5.00	mU/ml	LIA
Beta-interferon	1.0 (2.0) ml	serum	120 - 475	MIU/ml	ELISA
Beta-Interferon-AB	1.0 (2.0) ml	serum	120 - 475	MIU/ml	EIA
Bile acids	1.0 (2.0) ml	serum	< 6.0	µmol/l	photometric
Bile acids	5 g	faeces	410 - 1210	µmol/100g	photometric
Bilirubin	1.0 (2.0) ml	punctate	see report	see report	photometric
Bilirubin, direct	1.0 (2.0) ml	serum	< 0.30	mg/dl	photometric
Bilirubin, neonatale	1.0 (2.0) ml	serum	see report	mg/dl	photometric
Bilirubin, total	1.0 (2.0) ml	serum	0.10 - 1.00	mg/dl	photometric
Bilirubinoids	1-2 ml	amniion fluid	see report	&t E	photometric
Biotinidase		Guthrie test card	über 30	%	photometric
Blastocystis hominis		stool vessel			
Blastomyces derm.-AB	1.0 (2.0) ml	serum	see report	Titer	electrophoretic
Blastomyces derm.-AB	1.0 (2.0) ml	serum	see report	Titer	electrophoretic

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Blastomyces dermatitidis-AB	1.0 (2.0) ml	serum	see report	see report	electrophoretic
Blood count	3.0 ml	EDTA blood	see report	see report	Coulter STKS, GEN - S
Blood count	3.0 ml	EDTA blood	see report	see report	Coulter STKS, GEN - S
Blood group (ABO and rhesus-system)	2.7 ml	EDTA	see report	see report	agglutination
Blood group (ABO system)	10.0 ml	EDTA	see report	see report	agglutination
Blood in stool, Haemocult	5.0 g	stool	not detectable		Gujac test
Blood in stool, immunological test	2.0 g	stool	<10.0	µg/ml stool	ELISA
BNP-NT-Propeptid	1.0 (2.0) ml	serum	see report	pg/ml	EIA
Bone alkaline phosphatase, BAP	1.0 (2.0) ml	serum	see report	see report	EIA
Bordetella parapertussis IgA-AB	1.0 (2.0) ml	serum	see report	see report	Westernblot
Bordetella parapertussis IgG-AB	1.0 (2.0) ml	serum	see report	Titer	IFT
Bordetella parapertussis IgG-AB	1.0 (2.0) ml	serum	see report	see report	Westernblot
Bordetella parapertussis-DNA		high nasal swab (dry, in a sterile vial)	see report	see report	PCR

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Bordetella pertussis IgA-AB	1.0 (2.0) ml	serum	< 15.0	U/ml	ELISA
Bordetella pertussis IgA-westernblot	1.0 (2.0) ml	serum	see report	see report	Westernblot
Bordetella pertussis IgG-AB	1.0 (2.0) ml	serum	< 20.0	U/ml	ELISA
Bordetella pertussis IgG-westernblot	1.0 (2.0) ml	serum	see report	see report	Westernblot
Bordetella pertussis IgM-AB	1.0 (2.0) ml	serum	< 9.00	U/ml	ELISA
Bordetella pertussis IgM-AB	1.0 (2.0) ml	serum	see report	see report	Westernblot
Bordetella pertussis-DNA		high nasal swab (dry, in a sterile vial)	see report	see report	PCR
Borrelia burgdorferi-IgG	1.0 (2.0) ml	serum	see report	see report	Blot
Borrelia burgdorferi-IgG	1.0 ml	CFS	see report	see report	Blot
Borrelia burgdorferi-IgG-AB	1.0 (2.0) ml	serum	< 7.0	U/ml	ELISA
Borrelia burgdorferi-IgG-AB	1.0 ml	CFS	see report	U/ml	ELISA
Borrelia burgdorferi-IgM	1.0 ml	CFS	see report	see report	Blot
Borrelia burgdorferi-IgM-AB	1.0 (2.0) ml	serum	see report	see report	Blot
Borrelia burgdorferi-IgM-AB	1.0 ml	CFS	see report	U/ml	ELISA

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Borrelia burgdorferi-IgM-AB	1.0 (2.0) ml	serum	< 30.0	U/ml	ELISA
Borrelia-DNA	2.0 ml	punctate, spontaneous urine, CFS	see report	see report	PCR
Borrelia-DNA, sensu lato-DNA		tick	see report	see report	PCR
Bromide in the serum	1.0 ml	serum	400 - 2000	mg/l	photometric
Brucella IgG-AB	1.0 (2.0) ml	serum	< 20.0	U/ml	ELISA
Brucella IgM-AB	1.0 (2.0) ml	serum	< 20.0	U/ml	ELISA
C1-esterase inhibitor activity	1.0 ml	citrate frozen	70 - 130	%	photometric
C1-esterase inhibitor protein	1.0 (2.0) ml	serum	15.0 - 35.0	mg/dl	photometric
C1q-binding	1.0 (2.0) ml	serum	< 12.2	mg/dl	RID
C1q-complement	1.0 (2.0) ml	serum	5.0 - 30.0	mg/dl	ELISA
C1q-Präzipitation	1.0 (2.0) ml	serum	< 12.3	mg/dl	RID
C2-complement	1.0 (2.0) ml	serum	1.4 - 2.5	mg/dl	RID
C3 nephritis factor	1.0 (2.0) ml	serum	see report	see report	IEP
C3-complement	1.0 (2.0) ml	punctate	90 - 180	mg/dl	nephelometric

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
C4-complement	1.0 (2.0) ml	punctate	see report	mg/dl	nephelometric
C4-complement	1.0 (2.0) ml	serum	see report	mg/dl	nephelometric
Calcium	10 (20) ml	spontaneous urine	1.50 - 6.25	mmol/l	AAS
Calcium	1.0 (2.0) ml	serum	2.0 - 3.00	mmol/l	photometric
CAMP, cyclic adenosin mono phosphate in urin	10.0 - 20.0 ml	spontaneous urine	< 6y : 5.0 - 11.0 6-16y: 2.5 - 8.0 adult : 2.1 - 5.5	µmol/l	RIA
Campylobacter intestinalis-AB	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Campylobacter jejunii-AB	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Candida albicans IgA-AB	1.0 (2.0) ml	serum	< 60.0	U/ml	ELISA
Candida albicans IgG-AB	1.0 (2.0) ml	serum	< 40.0	U/ml	ELISA
Candida albicans IgM-AB	1.0 (2.0) ml	serum	< 60.0	U/ml	ELISA
Carbamazepine	1.0 ml	serum	4.0 - 10.0	mg/l	HPLC
Carboxy-Hemoglobin	5.0 ml	EDTA blood	up to 2.0	%	photometric
Cardiolipin IgA-AB	1.0 (2.0) ml	serum	< 25.0	APL - U/ml	ELISA
Cardiolipin IgG-AB	1.0 (2.0) ml	serum	< 12.0	GPL - U/ml	ELISA

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Cardiolipin IgM-AB	1.0 (2.0) ml	serum	< 12.0	MPL - U/ml	ELISA
Cardiolipin IgM-AB	1.0 ml	CFS	< 25.0	U/ml	ELISA
Carnitine	1.0 (2.0) ml	serum	3.00 - 9.00	mg/l	photometric
Carnitine	1.0 ml	ejaculate	< 40.0	mg/l	photometric
CASA (cancer associated antigen)	1.0 (2.0) ml	serum	< 4.0	U/ml	EIA
Catecholamine, free, in urine					
1. Epinephrine	20.0 ml	24-h-collected-urine	4.0 - 20.0	µg/24 h	HPLC
2. Norepinephrine	20.0 ml	24-h-collected-urine	23 - 105	µg/24 h	HPLC
3. Dopamine	20.0 ml	24-h-collected-urine	190 - 450	µg/24 h	HPLC
Cathepsin G-AB	1.0 (2.0) ml	serum	see report	see report	EIA
CCP, antibody against cyclic citrullin peptide	1 ml	serum			ELISA
CDT (carbohydrate deficient transferrin)	1.0 (2.0) ml	serum	< 2.60	%	HPLC
CEA, Carcinogenic embryonic antigen	0.5 ml	serum	up to 4.0	ng/ml	LIA
Centromere autoantibody	2 ml	serum	negative		IFT
CH-100 (total hemolytic activity)	1.0 (2.0) ml	serum frozen	see report	see report	KBR

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
CH-50	1.0 (2.0) ml	serum frozen	80 - 120	%	KBR
Chinidine, extraction	1.0 (2.0) ml	serum	1.0 - 5.0	mg/l	HPLC
Chlamydia IgA-AB	1.0 (2.0) ml	serum	see report	see report	ELISA
Chlamydia IgG-AB	1.0 (2.0) ml	serum	see report	see report	ELISA
Chlamydia pneumoniae DNA		nasal swap, BAL, spontaneous urine, tissue	see report	see report	PCR
Chlamydia pneumoniae IgA-AB	1.0 (2.0) ml	serum	< 1.1	Ratio	ELISA
Chlamydia pneumoniae IgG-AB	1.0 (2.0) ml	serum	< 1.2	Ratio	ELISA
Chlamydia pneumoniae IgM-AB	1.0 (2.0) ml	serum	see report	Ratio	ELISA
Chlamydia psittaci-AB	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Chlamydia trachomatis		spontaneous urine, nasal swap, microbiologic swap, BAL	see report	see report	PCR
Chlorinated solvents	1.0 (2.0) ml	EDTA	see report	see report	GC
Cholesterol	1.0 (2.0) ml	serum	75 - 150	mg/dl	photometric
Cholesterol	1.0 (2.0) ml	punctate	see report	mg/dl	photometric
Cholesterol HDL	1.0 (2.0) ml	serum	über 40.0	mg/dl	photometric

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Cholinesterase	1.0 (2.0) ml	serum	3500 - 8500	U/l	photometric
Chrome in urine	10.0 ml	urine	up to 4.0	µg/l	AAS
Chromogranin A	1.0 (2.0) ml	serum	< 110.0	µg/l	ELISA
Chymotrypsin	5 g	faeces	see report	U/g faeces	EIA
Circulating immune complexes	1.0 (2.0) ml	serum	< 7.0	mg/l	RID
Cis platinum	2.0 ml	serum	up to 5.0	µg/l	AAS
Citrate	1.0 (2.0) ml	serum	see report	see report	enzymatic
Citrate	1.0 ml	ejaculate	02.10.2000	g/l	enzymatic
Citrate	10 (20) ml	spontaneous urine	45 - 500	mg/l	enzymatic
Citrullin	1.0 (2.0) ml	serum	< 35	µmol/l	HPLC
Citrullin	10 (20) ml	spontaneous urine	see report	µmol/l	HPLC
CK (creatin kinase), NAC act.	1.0 (2.0) ml	serum	see report	U/l	enzymatic
CK-BB-isoenzyme	1.0 (2.0) ml	serum	< 10	U/l	electrophoretic
CK-MB	1.0 (2.0) ml	serum	< 10	U/l	electrophoretic
Clostridium difficile toxin	5 g	stool	see report	see report	ELISA

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
CoEnzym Q 10	1.0 (2.0) ml	serum	120 - 300	ng/ml	HPLC
Coeruloplasmin	1.0 (2.0) ml	serum	20 - 60	mg/dl	nephelometric
Coeruloplasmin	1.0 ml	ejaculate	see report	mg/dl	nephelometric
CO-hemoglobin	1.0 (2.0) ml	EDTA	< 2.0	%	photometric
Cold antibodies	2.7 ml	EDTA blood	see report		
Collagen-I-Telopeptide, I-Collagen-I-Telopeptide	0.5 ml	serum	1.8 - 5.0	µg/l	RIA
Coombstest, direct	2.7 ml	EDTA blood	negative		Coombs tubule
Coombstest, indirect	5.0 ml	serum or plasma	negative		Coombs tubule
Copper in serum	1.0 ml	serum	women: 85 - 155 men: 70 - 140	µg/dl	AAS
Coproporphyrine	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Coproporphyrine	5 g	faeces	< 6.0	µg/g	HPLC
Cotinine	1.0 (2.0) ml	serum	see report	µg/	GCMS
Cotinine	10 (20) ml	spontaneous urine	see report	µg	GCMS
Coxiella AB	1.0 ml	CFS	see report	Titer	KBR

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Coxiella burneti AB (Q-fever)	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Coxiella IgG phase 1-AB	1.0 (2.0) ml	serum	1:<16	Titer	IFT
Coxiella IgG phase 2-AB	1.0 (2.0) ml	serum	1:<16	Titer	IFT
Coxiella IgM phase 1-AB	1.0 (2.0) ml	serum	1:<16	Titer	IFT
Coxiella IgM phase 2-AB	1.0 (2.0) ml	serum	1:<16	Titer	IFT
Coxsackie A IgG-AB	1.0 (2.0) ml	serum	1:<100	Titer	IFT
Coxsackie A IgM-AB	1.0 (2.0) ml	serum	1:<10	Titer	IFT
Coxsackie A9-AB	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Coxsackie B1-AB	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Coxsackie B2-AB	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Coxsackie B3-AB	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Coxsackie B4-AB	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Coxsackie B5-AB	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Coxsackie B6-AB	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Coxsackie pool screening	1.0 (2.0) ml	serum	1:<8	Titer	KBR

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
C-Peptide	1.0 (2.0) ml	serum frozen	1.0 - 3.0	ng/ml	RIA
Creatine	1.0 (2.0) ml	serum	0.3 - 0.8	mg/dl	photometric
Creatine	10 (20) ml	spontaneous urine	see report	see report	photometric
Creatinine	1.0 (2.0) ml	dialysate	see report	mg/dl	photometric
Creatinine	1.0 (2.0) ml	serum	0.3 - 0.7	mg/dl	photometric
Creatinine	1.0 (2.0) ml	punctate	see report	see report	photometric
Creatinine	10 (20) ml	spontaneous urine	0.30 - 1.90	g/l	photometric
Creatinine clearance	1.0 / 10 ml	serum, 24h - urine	70 - 160	ml/min	photometric
Crosslaps c-terminal	1.0 (2.0) ml	serum	see report	µg/l	ECL
Crossmatch, B-lymphocytes	5.6 ml	femal serum / male CPDA1	< 30.0	%pos.	Flowcytometry
Crossmatch, T-lymphocytes	5.6 ml	femal serum / male CPDA1	< 30	%pos.	Flowcytometry
CRP	1.0 (2.0) ml	serum	< 1.00	mg/dl	nephelometric
CRP	1.0 (2.0) ml	punctate	< 1.0	mg/dl	nephelometric
CRP supersensitive	1.0 (2.0) ml	serum	< 0.50	mg/dl	nephelometric
Cyclic antidepressive drugs	10 (20) ml	spontaneous urine	see report	see report	HPLC

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Cyclic antidepressive drugs	1.0 (2.0) ml	serum	see report	see report	HPLC
Cyfra 21-1	2.0 ml	serum	up to 4.0	ng/ml	ECL
Cysticerkosis	1.0 (2.0) ml	serum	see report	Titer	Haemagglutination
Cysticerkosis IgG-AB	1.0 (2.0) ml	serum	< 6.0	MONA	EIA
Cystine	10 (20) ml	spontaneous urine	see report	µmol/l	photometric
Cytomegalie IgG-AB	1.0 (2.0) ml	serum	< 0.40	IU/ml	EIA
Cytomegalie IgM-AB	1.0 (2.0) ml	serum	negativ	Index	EIA
Cytomegalie-antibodies	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Cytomegalie-DNA, qualitativ	10 ml	EDTA, spontaneous urine			PCR
Cytomegalie-DNA, quantitativ	10 ml	EDTA, spontaneous urine	< 400	geq/ml	PCR
Cytomegalovirus, CMV	1.0 ml	serum whole blood umbilical vein blood	> 1:16 0.8 - 1.0 negative	Titer U/l	KBR ELISA-IgG ELISA-IgM
Cytoplasmatic autoantibodies	2.0 ml	serum	C-ANAC: negat. P-ANAC: negat.		ITF

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Dehydroepiandrosterone	1.0 (2.0) ml	serum	0.20 - 2.00	ng/ml	RIA
Delta-aminolevulinic acid	10.0 ml	spontaneous urine	0.4 - 5.0	mg/24h	photometric
Dengue-fever IgG/IgM IFT-test	1.0 (2.0) ml	serum	< 1:<8	Titer	IFL
Dengue virus (Arbivirus)		serum or whole blood	see report		IFL
Deoxyipyridinoline	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Dermatophytes		small nail, skin particles in sterile vial	see report	see report	cultural
Diamine oxidase activity	DAO	serum Vit.-B6 EDTA-blood	> 10.0 7.0 - 30.0	U/ml ng/ml	radioimmuno. HPLC
Dibucain inhibition of cholinesterase	2.0 ml	serum	Type UU: >70% Type UA: 40-65% Type AA: < 20%		
Differential blood count	3.0 ml	EDTA	see report	see report	Coulter STKS, GEN - S
Differentiation of AB	1.0 (2.0) ml	serum	see report	see report	ICT
Diphenylhydantoinine	1.0 ml	serum	5.0 - 20.0	µg/ml	HPLC

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Diphtherie toxoid AB	1.0 (2.0) ml	serum	> 1.0 immunity	IU/ml	ELISA
Direct Coombs test	1.0 ml	EDTA	see report	see report	DCT
Disialo-gangliosid IgG-AB (GD1a)	1.0 (2.0) ml	serum	see report	see report	EIA
Disialo-gangliosid IgG-AB (GD1b)	1.0 (2.0) ml	serum	< 25.0	U/ml	EIA
Disialo-gangliosid IgM-AB (GD1a)	1.0 (2.0) ml	serum	see report	see report	EIA
Disialo-gangliosid-AB (GD1a)	1.0 (2.0) ml	serum	see report	see report	EIA
Disialo-gangliosid-AB (GD1b)	1.0 (2.0) ml	serum	see report	see report	EIA
Disialo-gangliosid-AB (GD1b)	1.0 (2.0) ml	serum	< 25.0	U/ml	EIA
Dipropylacetate	2.0 ml	serum	50 -100	µg/l	ICP MS
Disc polyacrylamide gel electrophoresis	10.0 ml	24-hour urine			
Diuretics screening	10 (20) ml	spontaneous urine	see report	see report	HPLC
Dopamine	10 (20) ml	24-hour urine, frozen, acidified (10 ml 10% HCl)	see report	µg/l	HPLC
Double-strand DNA antibody	0.1 ml	serum	see report	%	ELISA
ds-DNA-AB	1.0 (2.0) ml	serum	< 7.5	IU/ml	RIA
Dysbiosis in stool	5.0 g	normal stool tubules			

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Ebola virus-AB	1.0 (2.0) ml	serum	see report	Titer	IFT
EBV-DNA	5 ml	EDTA	see report	see report	PCR
EBV-early antigen IgG-AB	1.0 (2.0) ml	serum	< 20.0	AU/ml	EIA
EBV-EBNA-1-IgG-AB	1.0 (2.0) ml	serum	< 20.0	U/ml	EIA
EBV-VCA IgG-AB	1.0 (2.0) ml	serum	< 20.0	U/ml	EIA
EBV-VCA IgM-AB	1.0 (2.0) ml	serum	< 20.0	U/ml	EIA
Echinococcus granulosus and multilocularis screen	1.0 (2.0) ml	serum	1:<32	Titer	IHA
Echinococcus multilocularis AB	1.0 (2.0) ml	serum	< 0.9	Index	ELISA
ECHO-virus-pool-AB	1.0 (2.0) ml	serum	1:<20	Titer	KBR
ECP (Eosinofil Cationic Protein)	1.0 (2.0) ml	serum	1.8 - 18.0	µg/l	CAP
Ecstasy	10.0 ml	urine	< 100	µg/l	GCMS or HPLC
Ehrlichia IgG-AB	1.0 (2.0) ml	serum	1:<64	Titer	IFT
Ehrlichia IgM-AB	1.0 (2.0) ml	serum	1:<20	Titer	IFT

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Elastase in ejaculate	0.5 ml	ejaculate	up to 500	ng/ml	EIA
Elastase in serum (pancreas elastase-1)	1.0 (2.0) ml	serum	< 3.50	µg/l	EIA
Elastase in stool (pancreas elastase-1)	5 g	faeces	> 200	µg/g faeces	ELISA
Electrophoresis	1 ml 1 ml 10 ml 10 ml	serum whole blood urine CFS	albumen: 55-69 α1globulin: 1.6-5.8 α2globulin: 5.8-11.0 βglobulin: 7.8-14 γglobulin: 11-18	rel. %	electrophoretic separation
Elastase-PMN	1.0 (2.0) ml	EDTA plasma	see report	see report	EIA
ENA, extractable nuclear antigens	1.0 (2.0) ml	serum	see report	see report	EIA / Blot
Endomysium autoantibody	2.0 ml	serum	negative		IFT
Entamoeba histolytica antigen	5 g	faeces	see report	see report	ELISA
Entamoeba-AB	1.0 (2.0) ml	serum	1:<32	see report	IHA
Enterohaemorrhagic E. coli (EHEC), SLT1 + SLT2 DNA			see report	see report	
Enterovirus-RNA	1.0 ml	CFS	see report	see report	PCR

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Enterovirus-RNA		nasal swap, nasal fluid, vesicle fluid, faeces, amniotic fluid	see report	see report	PCR
Eosinophilic granulocytes	5.0 ml	EDTA blood	< 1 y: 1.0 - 7.0 1-15y: 1.0 - 15.0 > 15y: 1.0 - 4.0	%	automatic differentiation
Epidermal basement membrane autoantibodies	1.0 ml	serum	< 1:20	Titer	IFT
Epidemic parotitis-IgG-AB	1.0 (2.0) ml	serum	< 230	U/l	EIA
Epidemic parotitis-IgM-AB	1.0 (2.0) ml	serum	< 1.00	Index	EIA
Epinephrine in plasma	2.0 ml	serum	< 50	pg/ml	HPLC
Epinephrine in urine	20 ml	24 hours-collecting urine	up to 20	µg/die	HPLC
Eosinophilic cationic protein	2.0 ml	serum	negative		CAP
Erythrocyte sedimentation rate	3.0 ml	citrate	< 10	mm/h	sedimentation
Ethosuximide	1.0 ml	serum	10 - 100	mg/l	HPLC
Ethyl acetat	1.0 (2.0) ml	EDTA	see report	mg/l	GC
Ethyl alcohol	1.0 (2.0) ml	serum	see report	%o	GC
Ethyl alcohol	10 (20) ml	spontaneous urine	see report	%o	GC

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Ethyl benzene	1.0 (2.0) ml	EDTA	see report	see report	GC
Ethylglucuronide	0.5 ml	spontaneous urine			LC-MS/MS
Factor 10 (Stuart-Prower-factor)	1.0 ml	citrate plasma frozen	70.0 - 140	%	electrophoretic
Factor 10a	1.0 ml	citrate plasma frozen	70.0 - 120	%	electrophoretic
Factor 11 (Plasmathromboplastin)	1.0 ml	citrate plasma frozen	70.0 - 120	%	Coagulation test
Factor 12 (Hageman-factor)	1.0 ml	citrate plasma frozen	70.0 - 130	%	Coagulation test
Factor 13 (Fibrinase)	1.0 ml	citrate plasma frozen	70.0 - 120	%	photometric
Factor 2 (Prothrombin)	1.0 ml	citrate plasma frozen	70.0 - 130	%	Coagulation test
Factor 5 (Proaccelerin)	1.0 ml	citrate plasma frozen	70.0 - 140	%	Coagulation test
Factor 7 (Proconvertin)	1.0 ml	citrate plasma frozen	70.0 - 180	%	Coagulation test
Factor 8 (antihemophilic factor A)	1.0 ml	citrate plasma frozen	70.0 - 200	%	Coagulation

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Factor 8 associated antigen	1.0 ml	citrate plasma frozen	50.0 - 150	%	EID
Factor 8 ristocetin cofactor	1.0 ml	citrate plasma frozen	70.0 - 200	%	ELISA
Factor 8, Willebrand factor multimer	1.0 ml	citrate plasma frozen	see report	see report	electrophoretic
Factor 9 (antihemophilic factor B)	1.0 ml	citrate plasma frozen	70.0 - 200	%	Coagulation
Fasciola hepatica IgG-AB	1.0 (2.0) ml	serum	< 6.00	MONA	ELISA
Fasciola-hepatica-AB	1.0 (2.0) ml	serum	1:<160	Titer	Haemagglutination
Fatty acids	1.0 (2.0) ml	serum	< 0.70	mmol/l	GCMS
Felbamate	1.0 ml	serum	10 - 100	mg/l	HPLC
Ferritin	1.0 (2.0) ml	serum	see report	see report	ELISA
Fibrin-monomer complex	1.0 ml	citrate plasma frozen	see report	see report	Agglutination
Fibrinogen (factor I)	1.0 ml	citrate plasma frozen	180 - 350	mg/dl	Coagulation test
Fibronectin	1.0 (2.0) ml	EDTA	25.0 - 40.0	mg/dl	photometric
Fibronectin	1.0 (2.0) ml	punctate	see report	mg/l	photometric
Filariosis-AB (IFT)	1.0 (2.0) ml	serum	see report	Titer	IFT

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
First trimester screening incl. risk calculation	1.0 (2.0) ml	serum	see report	see report	EIA
First trimester screening without risk calculation	1.0 (2.0) ml	serum	see report	see report	EIA
Folic acid in RBC	2.0 ml	EDTA blood	2-20 or 30 - 80	µg/l	HPCL
Formaldehyde	10.0 ml	spontaneous urine	up to 15	mg/l	enzymatic
Formic acid	10 (20) ml	spontaneous urine	< 15.0	mg/l	enzymatic
Francisella tularensis-AB	1.0 (2.0) ml	serum	see report	Titer	RIA
Free glycerol		EDTA plasma frozen	see report	see report	enzymatic
Free hemoglobin	1.0 (2.0) ml	Heparine plasma	< 10.0	see report	spectral photometric
Free light chains		serum, whole blood, urine	1.29 - 2.61		nephelometric
Fructosamine	1.0 (2.0) ml	serum	< 285	umol/l	photometric
Fructose		sodium fluoride (NAF)	see report	mg/dl	photometric
Fructose	1.0 ml	ejaculate	1200 - 4500	µg/ml	photometric
FSH, follic stimulating hormone, Follitropin	0.2 ml	serum	see report	mU/ml	ECL

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
FTA-abs test	0.5 ml	serum	< 1:5	Titer	IFT
FTA-ABS IgM	1.0 ml	serum	< 1:5	Titer	FTA-abs
Galactose		Guthrie test card screening	< 15	mg/dl	photometric
Galactose	10 (20) ml	spontaneous urine	see report	mg/dl	photometric
Galactose-1-phosphouridyl transferase	3.0 ml	citrate	see report	see report	enzymatic
Galaktokinase	3.0 ml	citrate	see report	mU/g Hb	enzymatic
Gall stone		Stone concrements			
Gamma amino butyric acid	1.0 (2.0) ml	EDTA plasma	< 100	µmol/l	HPLC
Gamma amino butyric acid	10 (20) ml	spontaneous urine	see report	µmol/l	HPLC
Gamma aminobutyric acid	1.0 (2.0) ml	serum	< 50.0	µmol/l	HPLC
Gamma linolic acid	1.0 (2.0) ml	serum	über 4.0	mg/l	GCMS
Gamma-GT (Gamma-glutamyl-transferase	1.0 (2.0) ml	serum	4.0 - 18.0	U/l	enzymatic
Gamma-Interferon	1.0 (2.0) ml	EDTA plasma frozen	see report	see report	
Gangliosid IgG-AB	1.0 (2.0) ml	serum	see report	see report	EIA
Gangliosid IgM-AB	1.0 (2.0) ml	serum	see report	see report	EIA

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Gastric juice on TBC		probe	negative		Cultural MGITT
Gastric mucous membrane autoantibodies	1.0 ml	serum	< 1:10		Titer
GLDH (Glutamat-dehydrogenase)	1.0 (2.0) ml	serum	1.5 - 3.0	U/l	enzymatic
Gliadin IgA-AB	5 g	faeces	< 250	U/g faeces	EIA
Gliadin IgA-AB	1.0 (2.0) ml	serum	< 50.0	U/ml	EIA
Gliadin IgG-AB	1.0 (2.0) ml	serum	< 25.0	U/ml	EIA
Gliadin IgM-AB	1.0 (2.0) ml	serum	< 25.0	U/ml	EIA
Glomerular basement membrane-AB	1.0 (2.0) ml	serum	< 20	RE/ml	EIA
Glucagon	1.0 (2.0) ml	EDTA plasma frozen	40 - 130	pg/ml	EIA
Glucose	1.0 (2.0) ml	punctate	50 - 105	mg/dl	enzymatic
Glucose		sodium fluoride (NAF)	60 - 100	mg/dl	enzymatic
Glucose	10 (20) ml	spontaneous urine	< 0.15	g/l	enzymatic
Glucose	1.0 (2.0) ml	liquor amnii	45 - 76	mg/dl	enzymatic
Glucose	1.0 (2.0) ml	dialysate	45 - 70	mg/dl	enzymatic

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Glucose	1.0 ml	CFS	50.0 - 90.0	mg/dl	enzymatic
Glucose-6-phosphate-dehydrogenase	3.0 ml	citrate	see report	see report	photometric
Glutamat decarboxylase-AB	1.0 (2.0) ml	serum	see report	Titer	
Glutamat-decarboxylase-AB	1.0 (2.0) ml	serum	< 1.0	U/ml	
Glutamic acid	1.0 (2.0) ml	serum	< 70	µmol/l	
Glutamic acid	10 (20) ml	spontaneous urine	see report	µmol/l	
Glutamine	1.0 (2.0) ml	serum	< 650	µmol/l	
Glutamine	10 (20) ml	spontaneous urine	see report	µmol/l	
Glutathione (GSH)	1.0 (2.0)	EDTA	0.97 - 1.90	mmol/l	
Glutathione peroxidase	1.0 (2.0) ml	EDTA plasma	27.5 - 73.6	U/g Hb	
Glutathione reductase	1.0 (2.0) ml	EDTA	0.7 - 1.7	U/g Hb	
Glutathione S transferrin	1.0 (2.0) ml	Heparin	see report	%	
Glutathione, reduced	1.0 (2.0) ml	EDTA	620 - 970	µmol/l	HPLC
Glutathione, total	1.0 (2.0) ml	EDTA	760 - 1190	µmol/l	HPLC
Glycine	1.0 (2.0) ml	serum	< 250	µmol/l	

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Glycine	10 (20) ml	spontaneous urine	see report	µmol/l	
Glycoprotein, alpha 1	1.0 ml	serum	55 - 140	mg/dl	Laser nephelometry
Glycoprotein, IIIa genotyping	5.0 ml	heparin blood	see report		Multiplex PRC
Glycosyl aminoglycane	10 (20) ml	spontaneous urine	< 60	µmol/g Crea	
Gonococcus antibody proof		serum	< 1:8	Titer	KBR
GOT	1.0 (2.0) ml	serum	see report	U/l	enzymatic
GPT	1.0 (2.0) ml	serum	see report	U/l	enzymatic
Granulocyte-myeloperoxidase-AB	1.0 (2.0) ml	serum	see report	see report	
Granulocytic-(PMN)-Elastase	1.0 (2.0) ml	EDTA plasma	< 80.0	µg/l	EIA
Growth hormone (hGH, STH)	1.0 (2.0) ml	serum frozen	see report	µU/ml	RIA
21-Hydroxylase	5.0 ml	EDTA blood	see report		Human genetic examination
Hantavirus IgG-AB	1.0 (2.0) ml	serum	1:<16	Titer	IFT
Hantavirus-IgM-AB	1.0 (2.0) ml	serum	1:<16	Titer	IFT

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Haptoglobin	1.0 (2.0) ml	serum	30.0 - 200	mg/dl	nephelometric
Hashish	5.0 ml	urin	< 13	µg/l	HPLC
Hb + Hb-Haptoglobin-complex	5 g	faeces	see report	see report	ELISA
HbA1	1.0 (2.0) ml	EDTA	see report	see report	HPLC
HbA1c	1.0 (2.0) ml	EDTA	3.90 - 6.10	%	HPLC
Helicobacter C13 breath test		breath air	< 3.00	see report	MS
Helicobacter pylori antigen	5 g	faeces	see report	see report	ELISA
Helicobacter pylori IgG-AB	1.0 (2.0) ml	serum	< 10.0	U/ml	ELISA
Hematocrit		EDTA blood	see report	%	
Hemoglobin		EDTA	10.1 - 12.9	g/dl	photometric
Hemoglobin A0 (incl. blood count)		EDTA	Fetus	%	electrophoretic
Hemoglobin A2 (incl. blood count)		EDTA	0.20 - 0.50	%	electrophoretic
Hemoglobin F (incl. blood count)		EDTA	1.00 - 20.0	%	electrophoretic
Hemoglobin S (incl. blood count)	3.0 ml	citrate	see report	%	electrophoretic

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Hemolysing antibodies, hemolysins	2.7 ml 10.0 ml	EDTA blood serum	negative		
Hemopexin	1.0 (2.0) ml	serum	50.0 - 115	mg/dl	RID
Hemosiderine	10 (20) ml	spontaneous urine	see report	see report	
Hepatitis A IgM-AB	1.0 (2.0) ml	serum	see report	see report	MEIA
Hepatitis A virus RNA, qualitativ	5 g	faeces	see report	see report	PCR
Hepatitis A-AB	1.0 (2.0) ml	serum	< 20.0	U/l	ELISA
Hepatitis B core-IgM-AB	1.0 (2.0) ml	serum	see report	see report	MEIA
Hepatitis B surface-AB	1.0 (2.0) ml	serum	< 10.0	IU/l	MEIA
Hepatitis B virus e-AB	1.0 (2.0) ml	serum	see report	see report	MEIA
Hepatitis B virus e-antigen, HBEag	1.0 (2.0) ml	serum	see report	see report	MEIA
Hepatitis B virus genotyping	5 ml	EDTA	see report	see report	PCR
Hepatitis B virus Lamivudin resistance	5 ml	EDTA	see report	see report	PCR
Hepatitis B virus PreCore mutations	5 ml	EDTA	see report	see report	PCR
Hepatitis B virus surface antigen (HBSag)	1.0 (2.0) ml	serum	see report	see report	MEIA

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Hepatitis B virus-DNA, quantitative virusload	5 ml	EDTA	see report	copies/ml	PCR
Hepatitis C virus-RNA genotyping	5 ml	EDTA	see report	see report	PCR
Hepatitis C virus-RNA qualitative	5 ml	EDTA plasma frozen, no whole blood, no serum !	see report	see report	PCR
Hepatitis C virus-RNA quantitative	5 ml	EDTA plasma frozen, no whole blood, no serum !	see report	see report	PCR
Hepatitis D virus IgM-AB	1.0 (2.0) ml	serum	see report	see report	ELISA
Hepatitis D virus-AB	1.0 (2.0) ml	serum	see report	see report	ELISA
Hepatitis D virus-RNA qualitative	5 ml	EDTA	see report	see report	PCR
Hepatitis E virus AB	1.0 (2.0) ml	serum	see report	see report	ELISA
Hepatitis E virus IgG-AB	1.0 (2.0) ml	serum	see report	see report	Blot
Hepatitis E virus IgM-AB	1.0 (2.0) ml	serum	see report	see report	Blot
Hepatitis E virus-RNA	5 ml	EDTA	see report	see report	PCR
Hepatitis G virus RNA qualitative	5 ml	EDTA	see report	see report	PCR
Hepatitis G virus-AB	1.0 (2.0) ml	serum	see report	see report	EIA
Heptacarboxy-porphyrins	10 (20) ml	spontaneous urine	see report	µg/l	HPLC

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Herpes simplex II IgG-AB	1.0 (2.0) ml	serum	< 1.0	c.o. Index	ELISA
Herpes simplex virus DNA, type 6	5 ml	EDTA	see report	see report	PCR
Herpes simplex virus DNA, type 7	5 ml	EDTA	see report	see report	PCR
Herpes simplex virus I/II		PCR - vial	see report	see report	PCR
Herpes simplex virus I/II IgM-AB	1.0 (2.0) ml	serum	< 1.00	c.o. Index	ELISA
Herpes simplex virus I/II-AB	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Hexacarboxy-porphyrins	10 (20) ml	spontaneous urine	< 7	µg/24h	
Hexachlorbenzole		EDTA	< 1.00	µg/l	
Hippuric acid	10 (20) ml	spontaneous urine	see report	g/l	HPLC
Hirudin	1.0 ml	citrate plasma frozen	500 - 1500	ng/ml	
Histamine	1.0 (2.0) ml	EDTA plasma	< 10.0	nmol/l	
Histamine	10 (20) ml	spontaneous urine	75.0 - 255	nmol/l	
Histidine	1.0 (2.0) ml	serum	0.80 - 1.90	mg/dl	
Histidine	10 (20) ml	spontaneous urine	see report	µmol/l	
Histon-AB	1.0 (2.0) ml	serum	< 20.0	U/ml	EIA

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Histoplasma capsulatum AB	1.0 (2.0) ml	serum	see report	Titer	Agglutination
Histoplasma-AB	1.0 (2.0) ml	serum	see report	Titer	KBR
Histoplasma-AB	1.0 (2.0) ml	serum	see report	see report	RID
Histoplasma-AB	1.0 (2.0) ml	serum	see report	see report	RID
Histoplasmosis-AB	1.0 (2.0) ml	serum	see report	see report	Agglutination
HIV II-westernblot	1.0 ml	CFS	see report	see report	Westernblot
HIV II-westernblot	1.0 (2.0) ml	serum	see report	see report	Westernblot
HIV I-RNA quantitative	2 ml	EDTA plasma frozen, no whole blood, no serum !	see report	copies/ml	PCR
HIV I-westernblot	1.0 ml	CFS	see report	see report	Westernblot
HIV I-westernblot	1.0 (2.0) ml	serum	see report	see report	Westernblot
HLA class I (A,B,C typing)	5 ml	EDTA blood	see report	see report	PCR
HLA class I, single antigens	5 ml	EDTA blood	see report	see report	PCR
HLA class II (HLA-DR /DQ), low resist. typing (DNA)	5 ml	EDTA blood	see report	see report	PCR
HLA class II single antigens	5 ml	EDTA blood	see report	see report	PCR

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Homocitrulline	1.0 (2.0) ml	serum	< 10.0	µmol/l	
Homocitrulline	10 (20) ml	spontaneous urine	see report	µmol/l	
Homocysteine	1.0 (2.0) ml	serum	< 10.00	µmol/l	LCMS
Homocysteine I		saliva	see report	see report	LCMS
Homocysteine II		saliva	see report	see report	LCMS
Homocystine	1.0 (2.0) ml	serum	< 10.0	µmol/l	HPLC
Homocystine	10 (20) ml	spontaneous urine	see report	µmol/l	HPLC
Homogentisic acid	10 (20) ml	spontaneous urine	< 300	mg/l	
Homovanillic acid	10 (20) ml	spontaneous urine	see report	mg/l	HPLC
HPL (human placenta lactogen)	1.0 (2.0) ml	serum	0.07 - 0.50	µg/ml	RIA
HTLV I/II IgG-AB	1.0 (2.0) ml	serum	see report	see report	EIA
Hu D-AB/ANNA Typ	1.0 (2.0) ml	serum	1:<100	Titer	IFT
Human herpes virus 6 IgG-AB	1.0 (2.0) ml	serum	1:<16	Titer	IFT
Human herpes virus 6 IgM-AB	1.0 (2.0) ml	serum	1:<20	Titer	IFT
Human herpes virus 8 IgG-AB	1.0 (2.0) ml	serum	see report	Titer	IFT

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Human papilloma virus high risk types		PCR - tube	see report	see report	PCR
Human papilloma virus, all types		PCR - tube	see report	see report	PCR
Hyaluronic acid	1.0 (2.0) ml	serum	7.00 - 65.0	mg/dl	
Hydrochlorothiazid	1.0 (2.0) ml	serum	50.0 - 150	µg/l	HPLC
Hydroxycholecalciferol	5.0 ml	serum	adult: 18-62 up to 1y: 20 - 135	pg/ml	RIA
Hydroxy lysine	1.0 (2.0) ml	serum	< 100	µmol/l	
Hydroxy lysine	10 (20) ml	spontaneous urine	see report	µmol/l	
Hydroxyprolin	10 (20) ml	spontaneous urine	see report	µmol/l	HPLC
Hydroxyprolin		serum	< 0.4	mg/dl	MS
Hyperlipoproteinemia Type III	5.0 ml	EDTA blood	see report		LightCycler
I-Collagen telopeptid	1.0 (2.0) ml	serum	1.8 - 5.0	µg/l	RIA
IgA secretoric		saliva	see report	µg/ml	RID
IgA-AB	1.0 (2.0) ml	serum	see report	see report	PHA
IgA-AB	5 g	faeces	< 5.0	mg/dl	

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
IGF-1 (Somatomedin)	1.0 (2.0) ml	serum frozen	100 - 494	ng/ml	
IGFBP-3	1.0 (2.0) ml	serum frozen	1.03 - 3.09	µg/ml	
Immunelectrophoresis (+ Immunfixation)	1.0 (2.0) ml	serum	see report	see report	Electrophoresis
Immunelectrophoresis (+ Immunfixation)	10 (20) ml	spontaneous urine	see report	see report	Electrophoresis
Immunoglobulin A	1.0 ml	CFS	0.15 - 0.61	mg/dl	nephelometric
Immunoglobulin A	1.0 (2.0) ml	serum	30 - 140	mg/dl	nephelometric
Immunoglobulin A-1	1.0 (2.0) ml	serum	60 - 420	mg/dl	nephelometric
Immunoglobulin A-2	1.0 (2.0) ml	serum	20 - 160	mg/dl	nephelometric
Immunoglobulin D	1.0 (2.0) ml	serum	< 100	kU/l	nephelometric
Immunoglobulin E	1.0 (2.0) ml	serum		kU/l	LIA
Immunoglobulin G	1.0 ml	CFS	2.0 - 4.0	mg/dl	nephelometric
Immunoglobulin G	10 (20) ml	spontaneous urine	< 30.0	mg/l	nephelometric
Immunoglobulin G	1.0 (2.0) ml	serum	160 - 730	mg/dl	nephelometric
Immunoglobulin G-1	1.0 (2.0) ml	serum	180 - 670	mg/dl	nephelometric
Immunoglobulin G-2	1.0 (2.0) ml	serum	21 - 281	mg/dl	nephelometric

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Immunoglobulin G-3	1.0 (2.0) ml	serum	10 - 121	mg/dl	nephelometric
Immunoglobulin G-4	1.0 (2.0) ml	serum	3 - 106	see report	nephelometric
Immunoglobulin M	1.0 ml	CFS	< 0.3	mg/dl	nephelometric
Immunoglobulin M	1.0 (2.0) ml	serum	see report	mg/dl	nephelometric
Immunohecolysin	2.7 ml 10.0 ml	EDTA blood serum	negative		
Immune complex, circulating	2.0 ml	serum	to 7.0	mg/l	RID
Imunfixation	1.0 ml	CFS	see report	see report	Immunelectro- phoresis
Indometacin	1.0 (2.0) ml	serum	0.3 - 2.5	mg/l	HPLC
Influenza (A+B) virus RNA, first typing		nasal swap, sputum	see report	see report	PCR
Influenza (A+B) virus RNA, second typing		nasal swap, sputum	see report	see report	PCR
Influenza A-AB	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Influenza B-AB	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Inhibin B	1.0 (2.0) ml	serum	see report	pg/ml	EIA

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Insulin IgG-AB	1.0 (2.0) ml	serum	< 1.0	U/ml	RIA
Insulin receptor	1.0 (2.0) ml	serum	see report	see report	RIA
Insulin receptor IgG-AB	1.0 (2.0) ml	serum	see report	see report	EIA
Insulin-AB (human)	1.0 (2.0) ml	serum	see report	nU/ml	RIA
Insulin-AB (neat)	1.0 (2.0) ml	serum	< 25.0	U/ml	EIA
Insulin-AB (pig)	1.0 (2.0) ml	serum	< 25.0	U/ml	EIA
Intercellular substance autoantibodies					
Interleukin 1-beta		EDTA plasma frozen	< 20	pg/ml	
Interleukin 2-receptor	1.0 (2.0) ml	serum	223 - 710	U/ml	EIA
Interleukin 2-receptor	1.0 (2.0) ml	serum	223 - 710	U/ml	EIA
Interleukin 2-receptor		EDTA	13 - 15	%	FLOW
Interleukin 6	1.0 (2.0) ml	serum	< 5.5	pg/ml	EIA
Intrinsic factor-AB	1.0 (2.0) ml	serum	see report	Titer	IFT
Islet-cell-AB (ICA)	1.0 (2.0) ml	serum	< 5.0	JDF - U	IFT
Islet-cell-surface-AB	1.0 (2.0) ml	serum	< 5.0	JDF - E.	

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Isoamylase	2.0 ml 10.0 ml	serum urine	see report		electrophoresis
isoelectric focusing on oligoclonal immunoglobulins	1.0 ml	CFS and serum	see report	see report	
Isoleucin	1.0 (2.0) ml	serum	< 80	µmol/l	
Isoleucin	10 (20) ml	spontaneous urine	see report	µmol/l	
Isoniazid	1.0 ml	serum	Base: 0.2 - 1.0 Top: 1.5 - 10.0	mg/l	HPLC
Jo-1 AB	1.0 (2.0) ml	serum	< 20	RE/ml	EIA
Kappa chains		EDTA - Heparinate	see report	%	FLOW
Kappa chains	1.0 (2.0) ml	serum	200 - 440	mg/dl	NEPH
Kappa chains	10 (20) ml	spontaneous urine	< 1.0	mg/dl	NEPH
Kappa-lambda quotient	1.0 ml	serum	1.35 - 2.65		calculative determination
Kell-antigen		whole blood	see report	see report	
Ku-AB	1.0 (2.0) ml	serum	see report	Titer	IFT

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Kynurenin	1.0 (2.0) ml	serum	< 10.0	µmol/l	
Kynurenin	10 (20) ml	spontaneous urine	see report	µmol/l	
Lactate	10 (20) ml	spontaneous urine	see report	see report	enzymatic
Lactate		sodium fluoride (NAF)	0.50 - 2.20	mmol/l	PHO
Lactate	1.0 ml	CFS	1.20 - 2.10	mmol/l	PHO
Lactate	1.0 (2.0) ml	punctate	see report	see report	PHO
Lactoferrin		EDTA - blood, Heparinate blood	see report	%	
Lactoferrin-AB	1.0 (2.0) ml	serum	see report	see report	EIA
Lambda chains		EDTA - blood, Heparinate - blood	see report	%	FLOW
Lambda-light-chains	1.0 (2.0) ml	serum	110 - 240	mg/dl	NEPH
Lambda-light-chains	10 (20) ml	spontaneous urine	< 1.00	mg/dl	NEPH
Lamblia intestinalis-IgG- AB	1.0 (2.0) ml	serum	1:<16	Titer	ELISA
Lamblia intestinalis-IgM- AB	1.0 (2.0) ml	serum	see report	Titer	ELISA

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
LAP (leucinaminopeptidase)	1.0 (2.0) ml	serum	11.0 - 35.0	U/l	PHO
Lassa-Josiah virus-AB	1.0 (2.0) ml	serum	see report	Titer	IFT
Lassa-virus-AB	1.0 (2.0) ml	serum	see report	Titer	IFT
LCM virus-IgG-AB	1.0 (2.0) ml	serum	see report	Titer	IFT
LCM virus-IgG-AB	1.0 ml	CFS	see report	Titer	IFT
LCM virus-IgM-AB	1.0 (2.0) ml	serum	see report	Titer	IFT
LCM-virus-IgM	1.0 ml	CFS	see report	Titer	IFT
LCM-virus-RNA	1.0 ml	CFS	see report	see report	PCR
LDH (Lactate dehydrogenase)	1.0 (2.0) ml	serum	100 - 300	U/l	enzymatic
LDH (Lactate dehydrogenase)	1.0 ml	CFS	see report	see report	enzymatic
LDH (Lactate dehydrogenase)	1.0 (2.0) ml	punctate	<200	U/ml	enzymatic
LDH isoenzymes	1.0 (2.0) ml	serum	20.0 - 33.0	%	GEL
LDL-Cholesterin	1.0 (2.0) ml	serum	100 - 250	mg/dl	PHO
Lead	2.0 ml	EDTA blood	up to 150 up to 350	µg/l	AAS

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Lead in urine	10.0 ml	urine		µg/l	AAS
Lecithine in amiotic fluid	2.0 ml	amniotic fluid	see report	mg/g	FPIA
Legionella pneumophila pool AB	1.0 (2.0) ml	serum	see report	see report	IFT
Legionella-DNA		sputum, tracheal secretion	see report	see report	PCR
Leishmaniasis-DNA	5 ml	EDTA	see report	see report	PCR
Leishmaniasis-IgM	1.0 (2.0) ml	serum	see report	Titer	IFT
Leishmaniasis IgG-AB	1.0 (2.0) ml	serum	see report	Titer	IFT
Leptospira pool AB	1.0 (2.0) ml	serum	see report	see report	KBR
Leptospira-DNA	5 ml	EDTA	see report	see report	PCR
Leucin	1.0 (2.0) ml	serum	< 140	µmol/l	HPLC
Leucin	10 (20) ml	spontaneous urine	see report	µmol/l	HPLC
Leucocyte elastase	1.0 ml	ejaculate	see report	see report	
Leukocyte phosphatase, alkaline		EDTA blood	women: 35 - 104 men: 40 - 129 children: see report	ALP index	Activity staining for microscopy

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Levodopa	1.0 ml	serum	0.2 - 2.5	mg/l	HPLC
Lidocaine	1.0 ml	serum	1.5 - 5.0	mg/l	HPLC
Lindane (α-Hexachlorocyclohexane)	1.0 (2.0) ml	EDTA	< 0.10	µg/l	LCMS
Lindane (γ-Hexachlorocyclohexane)	1.0 (2.0) ml	EDTA	< 0.10	µg/l	LCMS
Lindane (β-Hexachlorocyclohexane)	1.0 (2.0) ml	EDTA	< 0.30	µg/l	LCMS
Linolic acid	1.0 (2.0) ml	serum	23.0 - 42.9	%	GCMS
Lipase	1.0 (2.0) ml	serum	0.0 - 250	U/l	enzymatic
Lipase	10 (20) ml	spontaneous urine	see report	see report	enzymatic
Lipase	1.0 (2.0) ml	punctate	see report	see report	enzymatic
liponic acid	1.0 (2.0) ml	serum	< 10.0	µg/l	HPLC
Lipoprotein A	1.0 (2.0) ml	serum	< 30.0	mg/dl	Electrophoresis
Lipoprotein X	1.0 (2.0) ml	serum	< 10.0	ng/dl	Electrophoresis
Listeria monocytogenes-DNA	1.0 ml	CFS	see report	see report	PCR
Listeria monocytogenes-DNA		microbiological smear, amniotic fluid	see report	see report	PCR

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Listeria-AB	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Liver alkaline phosphatase	1.0 (2.0) ml	serum	< 100	U/l	Electrophoresis
Lues Cardiolipin-mikroflocculation-test	1.0 (2.0) ml	serum	1:<4	Titer	CMT
Lues TPPA (TPHA)	1.0 (2.0) ml	serum	1:<80	Titer	TPPA
Lues-FTA-abs	1.0 ml	CFS	1:<2	Titer	FTA - abs
Lues-FTA-abs	1.0 (2.0) ml	serum	1:<5	Titer	FTA - abs
Lues-Treponema pallidum-IgM-AB	1.0 (2.0) ml	serum	see report	see report	Westernblot
Lupus-anticoagulant	1.0 ml	citrate plasma frozen	negativ	see report	KOAG
Lysine	1.0 (2.0) ml	serum	1.60 - 4.00	mg/dl	HPLC
Lysine	10 (20) ml	spontaneous urine	see report	µmol/l	HPLC
Lysozyme	10 (20) ml	spontaneous urine	< 0.30	mg/l	PHO
Lysozyme	1.0 ml	CFS	< 3.00	mg/l	PHO
Lysozyme	1.0 (2.0) ml	serum	10.0 - 17.0	mg/l	
Lysozyme	5 g	faeces	< 6.00	µg/g Stuhl	
Lysozyme AB	1.0 (2.0) ml	serum	see report	see report	Immunelisa

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
M2-Pyruvatkinase	1.0 (2.0) ml	EDTA	< 15.0	U/ml	EIA
Macroamylase	0.5 ml	serum	28 - 100	U/l	Enzyme kinetic
Macroglobulin	1.0 ml	serum	130 - 300	mg/dl	Laser nephelometry
Makro-Creatinkinase typ 1	1.0 (2.0) ml	serum	< 10.0	U/l	Electrophoresis
Makro-Creatinkinase typ 2	1.0 (2.0) ml	serum	< 10.0	U/l	Electrophoresis
Malaria					
1. Malaria, thick drop, microscopic pathogene proof		blood smear	see report		
2. Malaria, antibody, IgG	1.0 ml	serum	< 1:40	Titer	IFT
Malondialdehyde	1.0 (2.0) ml	EDTA plasma frozen	< 1.00	µmol/l	HPLC
Malformation diagnostics					
1. Screening in the 1st trimester					
- Biochemical test	2.0 ml	serum			
- Combinated risk calculation	2.0 ml	serum			

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
2. Screening in the 2nd trimester					
- AFP	2.0 ml	serum			
	5.0 ml	serum			
Mandelic acid	10 (20) ml	spontaneous urine	<600	mg/g Krea	HPLC
Manganese	1.0 ml	heparin blood	up to 10	µg/l	AAS
Marihuana	10.0 ml	urine	< 13	µg/l	EIA
MCA, Mucin carcinoma antigen	This test is no longer available, alternative fate CA 153				
Measles-AB	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Measles-IgG-AB	1.0 (2.0) ml	serum	< 150	U/L	EIA
Measles-IgM-AB	1.0 (2.0) ml	serum	< 1.00	Index	EIA
Melanin, Melanogens	50 ml	urine	not provable		Colour reaction
Methemoglobin	1.0 (2.0) ml	EDTA	< 1.00	%	photometric
Methylether, methylic ester	10 ml	spontaneous urine	up to 15	mg/l	enzymatic
Methyl histamine	10 (20) ml	spontaneous urine	see report	see report	LCMS/MS
Mi 2 autoantibody	2.0 ml	serum	negative	see report	Blot

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Microglobulin	see Alpha-1 microglobulin, Beta-2 microglobulin				
Mitochondrial-AB	1.0 (2.0) ml	serum	1:<20	Titer	IFT
Molybdenum	1.0 (2.0) ml	serum	0.30 - 1.20	µg/l	AAS
Monosialo-gangliosid IgG-AB (GM1)	1.0 (2.0) ml	serum	< 800	BTU	Blot
Monosialo-gangliosid IgG-AB (GM2)	1.0 (2.0) ml	serum	see report	see report	Blot
Monosialo-gangliosid IgG-AB (GM3)	1.0 (2.0) ml	serum	see report	see report	Blot
Monosialo-gangliosid IgM-AB (GM1)	1.0 (2.0) ml	serum	< 800	BTU	Blot
Monosialo-gangliosid IgM-AB (GM2)	1.0 (2.0) ml	serum	see report	see report	Blot
Monosialo-gangliosid IgM-AB (GM3)	1.0 (2.0) ml	serum	see report	see report	Blot
Monosialo-gangliosid-AB (GM1)	1.0 (2.0) ml	serum	< 25.0	U/ml	Blot
Monosialo-gangliosid-AB (GM2)	1.0 (2.0) ml	serum	see report	see report	Blot
Monosialo-gangliosid-AB (GM3)	1.0 (2.0) ml	serum	see report	see report	Blot
MRSA (mecA + Staph. aureus)		microbiological swap in PCR - tube	see report	see report	

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
MTHFR		microbiological swap in PCR - tube	see report	see report	PCR
MTP Cardiovascular profile			see report	see report	
MTP Detoxification panel			see report	see report	
MTP Osteo panel			see report	see report	
Mumps antibody					
1. Mumps IgM antibody	1.0 ml	serum	up to 1.0	Index	EIA
2. Mumps IgG antibody	1.0 ml	serum	< 27	U/I	ELISA
Mycobacterium tuberculosis, cultural test		microbial specimen like sputum, BAL, tracheal secretion, gastric juice, aspirate, CFS, urine, biopsy, other materials on request. No serum!	see report	see report	MGITT
Mycobacterium tuberculosis-DNA		sputum, BAL, tracheal secretion, gastric juice, aspirate, CFS, urine, biopsy	see report	see report	PCR
Mycoplasma genitalum-DNA		microbiological swap in PCR - tube	see report	see report	PCR
Mycoplasma hominis-DNA		microbiological swap in PCR - tube	see report	see report	PCR

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Mycoplasma pneumoniae IgG-AB	1.0 (2.0) ml	serum	< 11.0	VE	ELISA
Mycoplasma pneumoniae IgM-AB	1.0 (2.0) ml	serum	< 11.0	VE	ELISA
Mycoplasma pneumoniae-DNA		microbiological swap in PCR - tube	see report	see report	PCR
Myelin-ass.-glycoprotein	1.0 (2.0) ml	serum	< 1000	BTU	EIA
Myeloperoxidase-AB (MPO)	1.0 (2.0) ml	serum	< 20.0	U/ml	EIA
Myocardial autoantibody	1.0 ml	serum	< 1:20	Titer	IFT
Myoglobulin	1.0 (2.0) ml	serum	< 70.0	µg/l	nephelometric
Myoglobulin	10 (20) ml	spontaneous urine	< 8.00	µg/l	RIA
Myosin-AB	1.0 (2.0) ml	serum	< 25.0	U/ml	EIA
N-acetylglucosaminidase (β-NAG)	10 (20) ml	spontaneous urine	see report	U/l	photometric
N-Acetylprocainamid	1.0 (2.0) ml	serum	5.0 - 30.0	µg/l	HPLC
NAT (Nutrition IgG-Antibody Test)	1.0 (2.0) ml	serum	see report	see report	EIA
N-Desmeth.-Clomipramin	1.0 (2.0) ml	serum	20.0 - 300	µg/l	HPLC
Neisseria gonorrhoeae-AB	1.0 (2.0) ml	serum	1:<8.0	Titer	KBR

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Neisseria gonorrhoeae-DNA		Swab in PCR - vial	see report	see report	PCR
Netilmicin	2.0 ml	serum	up to 2.0	µg/ml	FPIA
Neuron-specific enolase (NSE)	1.0 (2.0) ml	serum	< 13	µg/l	RIA
Newborne screening		Guthrie test card	see report	see report	LCMS
Nicotin	1.0 (2.0) ml	serum	< 0.1	µg/l	HPLC
Nicotin	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
None chlorinated solvents	1.0 (2.0) ml	EDTA	see report	see report	GC
Noradrenalin	1.0 (2.0) ml	EDTA plasma frozen	120 - 500	ng/l	HPLC
Noradrenalin	10 (20) ml	24-hour urine, frozen, acidified (10 ml 10% HCl)	see report	µg/l	HPLC
Nortriptyline	2.0 ml	serum	20 - 250	µg/l	HPLC
Norwalk-Virus-DNA	5 g	faeces	see report	see report	PCR
N-Telopeptide	10 (20) ml	spontaneous urine	see report	nmol BCE/l	EIA
Nuclear matrix protein 22	10 (20) ml	urine stabilized	<10.0	U/ml	EIA
Oilic acid	1.0 (2.0) ml	serum	13.0 - 27.0	%	GCMS
Organic acids	10 (20) ml	spontaneous urine	see report	see report	LCMS

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Organics	1.0 (2.0) ml	EDTA	see report	see report	HPLC
Ornithin	1.0 (2.0) ml	serum	< 80	µmol/l	HPLC
Ornithin	10 (20) ml	spontaneous urine	see report	µmol/l	HPLC
Osteocalcin	1.0 (2.0) ml	serum frozen	see report	µg/l	ECL
Oxalic acid	1.0 (2.0) ml	serum	0.80 - 3.70	mg/l	PHO
Oxalic acid	10 (20) ml	spontaneous urine	9.0 - 32.0	mg/l	PHO
Oxazepam	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Oxazepam	1.0 (2.0) ml	serum	500 - 2000	µg/l	LCMS
Oxcarbazepin-10-OH-	1.0 (2.0) ml	serum	see report	mg/l	HPLC
PAI-1 genotyping	5.0 ml	EDTA blood	to 0.2	µg/l	AAS
Palladium	1.0 (2.0) ml	serum	< 0.20	µg/l	AAS
Palladium	10 (20) ml	spontaneous urine	< 1.00	µg/l	AAS
Pancreatic amylase	1.0 (2.0) ml	serum	26 - 58	%	GEL
Pancreatic amylase	1.0 (2.0) ml	serum	13.0 - 64.0	U/l	PHO
Pancreatic elastase 1	1.0 ml	serum	< 3.5	µg/l	EIA

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Pancreatic elastase 1 in stool	1.0 g	stool	> 200	µg/g stool	EIA
Pantothenic acid	2.0 ml	serum	25.0 - 80.0	µg/l	LCMS
Papilloma virus DNA, typing		swab in PCR - tube	see report	see report	PCR
PAPP-A, pregnancy associated polypeptide A	see Malformation diagnostics				
Pappataci-Virus-AB	1.0 (2.0) ml	serum	see report	Titer	HA
Parainfluenza-1-AB	1.0 (2.0) ml	serum	1:<32	Titer	KBR
Parainfluenza-1-antigen test		nasal swap, sputum	see report	see report	IFT
Parainfluenza-2-AB	1.0 (2.0) ml	serum	1:<32	Titer	KBR
Parainfluenza-2-antigen test		nasal swap, sputum	see report	see report	IFT
Parainfluenza-3-AB	1.0 (2.0) ml	serum	1:<32	Titer	KBR
Parainfluenza-3-antigen test		nasal swap, sputum	see report	see report	IFT
Para-Nitrophenol	10 (20) ml	spontaneous urine	see report	see report	HPLC
Parasites in blood	5 ml	EDTA, blood smear	see report	see report	microskop.
Parathormone, PTH, intact	1.0 ml	serum	11.0 - 65.5	pg/ml	RIA
Parathormone, biol. intact	1.0 ml	serum	6.0 - 40.0	pg/ml	LIA

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Parietal cell autoantibody	1.0 ml	serum	negative		IFT
Parodontal diagnostics					
1. Proof and differentiation of parodontitis marker germs		Sulcus content			PCR
2. Parodontitis - risk factor test		special swap of mouth	negative/positive		PCR
Parodontosis marker germs		paper tips from sulcus content		see report	PCR
Parodontosis risk factor		swap in PCR - tube		see report	PCR
Partial thromboplastine time (PTT)	3.0 ml	citrate plasma frozen	20.0 - 42.0	sec.	KOAG
Parvovirus-B19-DNA	5 ml	EDTA	see report	see report	PCR
Parvovirus-B19-IgG-AB	1.0 (2.0) ml	serum	< 2.5	IU/ml	EIA
Parvovirus-B19-IgG-BLOT	1.0 (2.0) ml	serum	see report	see report	Westernblot
Parvovirus-B19-IgM-AB	1.0 (2.0) ml	serum	< 20	U/ml	EIA
Parvovirus-B19-IgM-BLOT	1.0 (2.0) ml	serum	see report	see report	Westernblot
PBNP, Pro Brain-Natriuretic Peptide, N-terminal propeptide					

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
1. NT-pro-BNP	1.0 ml	serum	see report	pg/ml	EIA
2. BNP, B-type natriuretic	1.0 ml	EDTA plasma frozen			EIA
PBC-specific antibody (AMA M2)	1.0 (2.0) ml	serum	< 5.00	U/ml	IFT
Pentacarboxy porphyrins	10 (20) ml	spontaneous urine	< 5	µg/24h	HPLC
Peroxidase-antibody (MAK)	1.0 (2.0) ml	serum	< 50	U/ml	RIA
Phenol	10 (20) ml	spontaneous urine	5.00 - 30.0	mg/l	HPLC
Phenacetin	2.0 ml	serum	5 - 25	mg/l	HPLC
Phenylalanin	1.0 (2.0) ml	serum	see report	see report	HPLC
Phenylalanin	1.0 (2.0) ml	serum	< 120	µmol/l	HPLC
Phenylalanin	10 (20) ml	spontaneous urine	see report	µmol/l	HPLC
Phenylglyoxyl acid	10 (20) ml	spontaneous urine	see report	see report	LCMS
Phenylketonuria	5.0 ml	EDTA blood	see report		PCR
Phenylbutazone in serum	2.0 ml	serum	40 - 100	µg/ml	HPLC
Phenylmercaptur acid	10 (20) ml	spontaneous urine	see report	µg/l	LCMS
Philadelphia chromosome translocation	5 - 10 ml	EDTA blood	see report	see report	RT-PCT

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Phosphate	1.0 (2.0) ml	serum	0.80 - 1.50	mmol/l	PHO
Phosphate	10 (20) ml	spontaneous urine	17.0 - 42.0	mmol/l	PHO
Phosphate after dialysis	1.0 (2.0) ml	serum	see report	see report	PHO
Phosphatase, acidic, in leukocytes	1.0 ml	non-hemolytic serum	see report	see report	cytochemic colouring
Phosphatase, alkaline	1.0 ml	serum	see report	U/l	photometric
Phosphatase, alkaline, isoenzymes	2.0 ml	serum	Adult: 10 - 140 Children: up to 680 Liver AP: up to 100 Gall AP: see report Intstine AP: up to 40 Fast liver AP: report	U/l	Gel electro- phoresis
Phosphatase, alkaline leucocyte		EDTA blood	women: 35 - 104 men: 40 - 129 Children: report	ALP index	Activity staining for microscopy
Phosphatidylcholin-IgG AB	1.0 (2.0) ml	serum	< 10.0	AK - Ratio	EIA
Phosphatidylcholin-IgM AB	1.0 (2.0) ml	serum	< 10.0	AK - Ratio	EIA

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Phosphatidyl-Ethanolamin IgG-AB	1.0 (2.0) ml	serum	< 10.0	Ak - Ratio	EIA
Phosphatidyl-Ethanolamin IgM-AB	1.0 (2.0) ml	serum	< 10.0	Ak - Ratio	EIA
Phosphatidyl-Glycerol-IgG-AB	1.0 (2.0) ml	serum	< 10.0	AK - Ratio	EIA
Phosphatidyl-Glycerol-IgM-AB	1.0 (2.0) ml	serum	< 10.0	AK - Ratio	EIA
Phosphatidyl-Inositol-IgG-AB	1.0 (2.0) ml	serum	< 10.0	AK - Ratio	EIA
Phosphatidyl-Serin-IgA-AB	1.0 (2.0) ml	serum	< 12.0	U/ml	EIA
Phosphatidyl-Serin-IgG-AB	1.0 (2.0) ml	serum	< 10.0	AK - Ratio	EIA
Phosphatidyl-Serin-IgM-AB	1.0 (2.0) ml	serum	< 10.0	AK - Ratio	EIA
Phosphoethanolamin	1.0 (2.0) ml	serum	< 10.0	µmol/l	HPLC
Phosphoethanolamin	10 (20) ml	spontaneous urine	see report	µmol/l	HPLC
Phosphohexose-Isomerase	1.0 (2.0) ml	serum	< 67.0	U/l	PHO
Phosphoinositol IgM-AB	1.0 (2.0) ml	serum	< 10.0	AK - Ratio	EIA
Phospholipid antibody	see Cardiolipin antibodies, Lupus anticoagulants				
Phosphoserin	1.0 (2.0) ml	serum	< 10.0	µmol/l	HPLC
Phosphoserin	10 (20) ml	spontaneous urine	see report	µmol/l	HPLC

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Phytanic acid	1.0 (2.0) ml	serum	< 5.00	mg/l	GCMS
Phytohaemagglutinin		EDTA- or Heparinblood	> 50.0	SI	
Picorna-pool-AB	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Pimozid	1.0 (2.0) ml	serum	< 20.0	µg/l	HPLC
Plasminogen		citrate plasma frozen	80.0 - 130	%	PHO
Plasminogen activator inhibitor 1 (PAI-1)		citrate plasma frozen	0.30 - 3.50	U/ml	PHO
Plasmodium falciparum antibody, IgG	1.0 ml	serum	< 1:20	Titer	IFT
Platinum	2.0 ml	serum	up to 0.5	µg/l	AAS
PM/Scl	1.0 (2.0) ml	serum	< 20.0	RE/ml	EIA
PM/Scl p100	1.0 (2.0) ml	serum	see report	see report	Westernblot
PM/Scl p75	1.0 (2.0) ml	serum	see report	see report	Westernblot
PM1/PM-Scl-AB	1.0 (2.0) ml	serum	see report	Titer	IFT
Pneumocystis carinii		EDTA, BAL	see report	see report	PCR
Pneumokokken-IgG-AB	1.0 (2.0) ml	serum	see report	mg/l	EIA
Polio virus RNA	5 ml	EDTA blood	see report	see report	PCR

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Poliomyelitis-1-AB	1.0 (2.0) ml	serum	1:<4	Titer	NT
Poliomyelitis-3-AB	1.0 (2.0) ml	serum	1:<4	Titer	NT
Poliovirus-2-AB	1.0 (2.0) ml	serum	1:<4	Titer	NT
Polychlorated biphenyl (PBC)	1.0 (2.0) ml	EDTA	< 10.0	µg/l	GC
Polycyclic aromatic carbohydrates (PAC)	1.0 (2.0) ml	EDTA	see report	see report	GCMS
Polycyclic aromatic carbohydrates (PAC)	10 (20) ml	spontaneous urine	see report	see report	HPLC
Polyoma-BKV Virus-DNA		spontaneous urine, EDTA	see report	see report	PCR
Polyoma-JCV Virus-DNA		spontaneous urine, EDTA	see report	see report	PCR
Polyoma-Virus-AB	1.0 (2.0) ml	serum	see report	Titer	KBR
Porphobilinogen		spontaneous urine	see report	mg/l	SPHO
Porphyrine total	1.0 (2.0) ml	serum	< 2.00	µg/ ` dl	photometric
Porphyrine total	10 (20) ml	urine	see report	µg/l	photometric
Porphyrines in erythrocytes	1.0 (2.0) ml	EDTA	< 400	µg/l	HPLC
Porphyrines in faeces	5 g	faeces	< 34.0	µg/g Stuhl	
Potassium	1.0 (2.0) ml	serum	2.80 - 4.50	mmol/l	ISE

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Potassium	10 (20) ml	spontaneous urine	17.0 - 71.0	mmol/l	ISE
PPLO, Pleuro-Pneumonia Like-Organism	see Mycoplasma pneumonia				
Praealbumin	1.0 (2.0) ml	serum	see report	see report	NEPH
Precipiting antibody, precipitins	2.0 ml	serum	see report	see report	CAP system
Pregnancy associated plasma polypeptide		serum	see report	mU/l	see first trimester screening
Pregnancy test	10 ml 1.0 ml	urine serum	neg.: < 5 grey: 5 - 10 positive: > 10	IU/l	EIA
Pregnantriol/Pregnandioli	see Ketosteriodes, fractionated				
Procalcitonin	1.0 (2.0) ml	serum frozen	< 0.50	µg/l	EIA
Procalcitonin-screen	1.0 (2.0) ml	serum	see report	see report	CEIA
Procollagen-I-Carboxypeptide	1.0 (2.0) ml	serum	67 - 383	µg/l	RIA
Progesterone in serum	1.0 ml	serum	see report	ng/ml	EIA
ProGRP	1.0 (2.0) ml	serum	< 38.0	pg/ml	EIA
Proinsulin-AB	1.0 (2.0) ml	serum	see report	see report	

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Prokollagen-III-Peptide	1.0 (2.0) ml	serum	see report	U/ml	IRMA
Prolin	1.0 (2.0) ml	serum	< 220	µmol/l	HPLC
Prolin	10 (20) ml	spontaneous urine	see report	µmol/l	HPLC
Prostate phosphatase			< 3.5	U/l	(calculated)
Prostate specific antigen (PSA)	1.0 (2.0) ml	serum	< 4.00	ng/ml	LIA
Prostatic phosphatase	1.0 (2.0) ml	serum	< 2.00	ng/ml	FIA
Protein	1.0 (2.0) ml	dialysate	see report	mg/dl	enzymatic
Protein	10 (20) ml	spontaneous urine	< 80.0	mg/l	enzymatic
Protein	1.0 ml	CFS	15 - 45	mg/dl	PHO
Protein C	1.0 ml	citrate plasma frozen	see report	see report	EIA
Protein electrophoresis	1.0 (2.0) ml	serum	see report	see report	
Protein S activity	1.0 ml	citrate plasma frozen	70 - 130	%	KOAG
Protein, total	1.0 (2.0) ml	serum	5.5 - 7.5	g/dl	enzymatic
Protein, total	1.0 (2.0) ml	liquor amnii	ca.5.0	g/l	enzymatic
Protein, total	1.0 (2.0) ml	punctate	1.0 - 2.0	g/dl	PHO

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Proteinase 3-AB	1.0 (2.0) ml	serum	< 20.0	RE/ml	EIA
Protein-C-activity		citrate plasma frozen	70.0 - 130	%	KOAG
Proteus-OX-19-AB	1.0 (2.0) ml	serum	see report	Titer	AGGL
Proteus-OX-2-AB	1.0 (2.0) ml	serum	see report	Titer	AGGL
Proteus-OX-K-AB	1.0 (2.0) ml	serum	see report	Titer	AGGL
Prothrombin time, thromboplastin time					
1. Quick test	3.0 ml	citrate plasma frozen	70 - 130	%	coagulometric
2. Quick test after Marcumar	3.0 ml	citrate plasma frozen	20 - 34	% and INR	coagulometric
Protoporphyrine	10 (20) ml	spontaneous urine	< 13.0	µg/l	
PSA, free, (prostate specific antigen)	1.0 (2.0) ml	serum	see report	ng/ml	
Puumalavirus-IgG-AB	1.0 (2.0) ml	serum	1:<16	Titer	IFT
Puumalavirus-IgM-AB	1.0 (2.0) ml	serum	1:<16	Titer	IFT
Pyrethroid-Metabolit	10 (20) ml	spontaneous urine	see report	µg/l	GCMS
Pyridinolin	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Pyruvat		sodium fluoride (NAF)	0.35 - 0.60	mg/dl	PHO

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Pyruvatkinase in erythrocyte		EDTA	2.10 - 6.90	U/g Hb	PHO
Q fever, Coxiella burneti antibody	1.0 ml	serum	Phase 1,2 < 1:16 KBR < 1:8	Titer	IFT, KBR
Quadrosialogangliosid IgG-AB (GQ1b)	1.0 (2.0) ml	serum	see report	see report	EIA
Quadrosialogangliosid IgM-AB (GQ1b)	1.0 (2.0) ml	serum	see report	see report	EIA
Quadrosialogangliosid-AB (GQ1b)	1.0 (2.0) ml	serum	< 25.0	U/ml	EIA
Quick test (prothrombin time)	3.0 ml	citrate plasma frozen	70 - 120	%	KOAG
Quick test (prothrombin time) after Marcumar	3.0 ml	citrate plasma frozen	20 - 34	%	KOAG
Quinidine	0.5 ml	serum	1.0 - 5.0	mg/l	HPLC
Rabies-AB	1.0 (2.0) ml	serum	1:<16	Titer	NT
Rabies-AB (ELISA test)	1.0 (2.0) ml	serum	< 0.5	U/ml	EIA
RAST / EAST		serum	see report	see report	
Respiratory syncytial virus antigen test		BAL	see report	see report	IFT
Respiratory syncytial virus RNA		microbiological swab in PCR - tube	see report	see report	PCR

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Respiratory syncytial virus-AB	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Reticulocyte count	5 ml	EDTA	0.5 - 2.5	%	FLOW
Retinol binding globulin (RBG)	1.0 (2.0) ml	serum	3.0 - 6.0	mg/dl	NEPH
Reverse T3 (RT3)	1.0 (2.0) ml	serum	see report	ng/dl	
Rhesus D antigen	5 ml	EDTA	see report	see report	molecular determination
Rhesus factor		whole blood	see report	see report	
Rheumatoid factor	1.0 (2.0) ml	punctate	< 30.0	U/ml	partic. Aggl.
Rheumatoid factor IgA-AB	1.0 (2.0) ml	serum	< 10.0	U/ml	EIA
Rheumatoid factor IgG-AB	1.0 (2.0) ml	serum	< 10.0	U/ml	EIA
Rheumatoid factor IgM-AB	1.0 (2.0) ml	serum	< 20.0	U/ml	EIA
Rheumatoid factor qualitative	1.0 (2.0) ml	serum	see report	U/ml	PHO
Rheumatoid factor quantitative	1.0 (2.0) ml	serum	< 20.0	U/ml	NEPH
Rickettsia conori IgG-AB	1.0 (2.0) ml	serum	1:<64	Titer	IFT
Rickettsia conori IgM-AB	1.0 (2.0) ml	serum	1:<64	Titer	IFT

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Rickettsia typhi/prowazeki IgG-ntibodies	1.0 (2.0) ml	serum	1:<64	Titer	IFT
Rickettsia typhi/prowazeki IgM-AB	1.0 (2.0) ml	serum	1:<64	Titer	IFT
Rickettsia-AB, IFT	1.0 (2.0) ml	serum	see report	Titer	IFT
Rickettsia-AB, KBR	1.0 (2.0) ml	serum	see report	Titer	KBR
RNA-Polymerase I-AB	1.0 (2.0) ml	serum	see report	see report	EIA
RNP-AB	1.0 (2.0) ml	serum	< 20	RE/ml	EIA
Ross-River virus-AB	1.0 (2.0) ml	serum	see report	Titer	IFT
Rotavirus antigen	5 g	faeces	see report	see report	EIA
Rotavirus pathogene proof in stool	1 g	stool	not detectable		EIA
Rubella AB	1.0 (2.0) ml	serum	see report	see report	HAIT
Rubella IgG-AB	1.0 (2.0) ml	serum	>50% high Avidity	%	Avidity EIA
Rubella IgM-AB	1.0 (2.0) ml	serum	< 0.80	see report	MEIA
Salivary amylase	1.0 (2.0) ml	serum	< 30.0	U/l	enzymatic
Salivary gland epithelium antibody	2.0 ml	serum	negative		
Salmonella enteritidis-AB	1.0 (2.0) ml	serum	1:<100	Titer	AGGL

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Salmonella paratyphi A-AB	1.0 (2.0) ml	serum	1:<100	Titer	NEPH
Salmonella paratyphi B,H-AB	1.0 (2.0) ml	serum	1:<100	Titer	AGGL
Salmonella paratyphi B,O-AB	1.0 (2.0) ml	serum	1:<100	Titer	AGGL
Salmonella paratyphi B-AB	1.0 (2.0) ml	serum	1:<100	Titer	AGGL
Salmonella paratyphi C, OH-AB	1.0 (2.0) ml	serum	1:<100	Titer	AGGL
Salmonella typhi-AB	1.0 (2.0) ml	serum	1:<100	Titer	AGGL
Salmonella typhimurium-AB	1.0 (2.0) ml	serum	1:<100	Titer	AGGL
Sandfly virus AB (Napoli type)	1.0 (2.0) ml	serum	1:<10	Titer	IFT
Sandfly virus AB (Toscana type)	1.0 (2.0) ml	serum	1:<10	Titer	IFT
Sandfly virus-AB (Sicilian type)	1.0 (2.0) ml	serum	1:<10	Titer	IFT
SARS corona virus RNA		swab, sputum			PCR
SCCA, SCC, Squamous cell carcinoma antigen	1.0 ml	serum	up to 2.0	µg/l	ELISA
Schistosoma haematobium-AB	1.0 (2.0) ml	serum	< 6.0	MONA	EIA
Schistosoma mansoni AB	1.0 (2.0) ml	serum	< 6.0	MONA	EIA
Schistosoma mansoni AB	1.0 (2.0) ml	serum	1:<160	Titer	HA

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Scl-70/Topoisomerase-AB	1.0 (2.0) ml	serum	< 20	RE/ml	EIA
Serine	1.0 (2.0) ml	serum	< 150	µmol/l	HPLC
Serine	10 (20) ml	spontaneous urine	see report	µmol/l	HPLC
Serotonin	1.0 (2.0) ml	EDTA	20 - 240	µg/l	HPLC
Serotonin	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Serotonin	1.0 (2.0) ml	EDTA plasma	2.1 - 3.3	µg/l	HPLC
Serotonin IgG-AB	1.0 (2.0) ml	serum	see report	see report	EIA
Serotonin IgM-AB	1.0 (2.0) ml	serum	see report	see report	EIA
Serotonin-AB	1.0 (2.0) ml	serum	see report	see report	EIA
Serum amyloid A (SAA)	1.0 (2.0) ml	serum	< 7.0	mg/l	NEPH
Sex-hormone-binding globulin (SHBG)	1.0 (2.0) ml	serum	250 - 500.0	nmol/l	FIA
Shigella dysenteriae 1-AB	1.0 (2.0) ml	serum	1:<100	Titer	AGGL
Shigella dysenteriae 2-AB	1.0 (2.0) ml	serum	1:<100	Titer	AGGL
Shigella flexneri-AB	1.0 (2.0) ml	serum	1:<100	Titer	AGGL
Shigella sonnei-AB	1.0 (2.0) ml	serum	1:<100	Titer	AGGL

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Sialic acid	1.0 (2.0) ml	serum	< 2.6	mmol/l	HPLC
Sickle cell anemia, genetic test	5.0 ml	EDTA blood	see report		Light Cycler
Single Stand DNA autoantibody	2.0 ml	serum	negative		EIA
Sirolimus	2.0 ml	EDTA blood	5 - 25	µg/l	LC MS/MS
Skeletal muscle autoantibody, SMA	2.0 ml	serum	< 1:20	Titer	IFT
SM autoantibody	2.0 ml	serum	IFT negative ELISA < 0.5	U	first ANA-screening, ELISA
Smooth musculature autoantibodies	0.1 ml	serum	< 1:20	Titer	IFT
Somatomedin C, SMC, IGF-1	0.5 ml	serum (chilled or frozen)	see report	ng/ml	RIA
Somatotropic hormone	1.0 ml	serum	see report	ng/ml	RIA
Sotalol	1.0 ml	serum	1 - 3	µg/ml	HPLC
Silicon	1.0 (2.0) ml	serum	< 230.0	µg/l	AAS
Silicon	1.0 (2.0) ml	EDTA	see report	see report	AAS
Silicon	10 (20) ml	spontaneous urine	see report	see report	AAS
Sodium	1.0 (2.0) ml	serum	125 - 130	mmol/l	ISE

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Sodium		sweat	< 40.0	mmol/l	ISE
Sodium	10 (20) ml	spontaneous urine	54.0 - 172.0	mmol/l	ISE
soluble transferrin receptor	1.0 (2.0) ml	serum	0.83 - 1.76	mg/l	HPLC
Sperm antibodies, trivalent	1.0 ml	serum	< 75	U/l	ELISA
Spottet fever, rickettsia antibody proof		serum or whole blood	< 1:64	Titer	IFT
Spottet fever, pathogene proof		blood frozen	see report		examination in the special laboratory
SS-A autoantibody (Ro)	2.0 ml	serum	< 1000		ELISA
SS-B autoantibody, La autoantibody	2.0 ml	serum	< 700	Units	ELISA
ss-DNA-AB	1.0 (2.0) ml	serum	< 20.0	RE/ml	EIA
Staphylococcus aureus, pathogen proof		smears, secretions, blood culture, urine, stool etc			cultivation
Stone analysis		Gallstone, kidneystone	see report	see report	IRMS
Strongyloides IgG-AB	1.0 (2.0) ml	serum	see report	see report	EIA
Strongyloides-AB	1.0 (2.0) ml	serum	see report	see report	Westernblot
Strychnine	1.0 (2.0) ml	serum	see report	see report	HPLC

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Styrole	1.0 (2.0) ml	EDTA	see report	see report	GCMS
Superoxide dismutase	1.0 (2.0) ml	Heparin	24.5 - 67.5	ng/ml	EIA
T3, free, free Tri-iodine-thyronine	1.0 ml	serum	2.2 - 5.5	ng/l	ELISA
T4, free, free Tetra iodine-thyroxine	1.0 ml	serum	0.6 - 1.80	ng/dl	ELISA
Tau-protein, phosphorylated	1.0 ml	CFS	see report	see report	EIA
Taurin	1.0 (2.0) ml	serum	< 100	μmol/l	HPLC
Taurin	10 (20) ml	spontaneous urine	see report	μmol/l	HPLC
TB antibodies	1.0 (2.0) ml	serum	< 125.0	U/ml	EIA
TBG, Thyroxine-binding globulin	1.0 ml	serum	9.6 - 18.5	mg/l	EIA
Tetanus antitoxin	1.0 (2.0) ml	serum	>0.5 protected	IU/ml	EIA
Tetrachloroethene	1.0 (2.0) ml	EDTA	see report	μg/l	GC
Tetrachloromethane	1.0 (2.0) ml	EDTA	see report	see report	GC
Thalassaemia					
1. α-Thalassaemia	5 - 10 ml	EDTA blood	see report		PCR
2. β-Thalassaemia	5 - 10 ml	EDTA blood	see report		RT-PCR

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Thiocyanate	1.0 (2.0) ml	serum	see report	mg/l	HPLC
Threonin	1.0 (2.0) ml	serum	< 110	µmol/l	HPLC
Threonin	10 (20) ml	spontaneous urine	see report	µmol/l	HPLC
Thrombin time (TT)	3.0 ml	citrate plasma frozen	< 21.0	sec.	KOAG
Thymidine kinase (TK)	1.0 (2.0) ml	serum	< 10.0	U/l	IRMA
Thyroglobulin	1.0 (2.0) ml	serum	10.0 - 50.0	ng/ml	ECL
Thyroxine binding capacity	1.0 (2.0) ml	serum	0.78 - 1.25	see report	
Thyroxine bindung capacity	1.0 (2.0) ml	serum	22 - 37	%	
Thyroxine-AB	1.0 (2.0) ml	serum	see report	see report	RIA
Tick-born encephalitis IgG-AB	1.0 (2.0) ml	serum	7.00 - 10.0	U/ml	ELISA
Tick-born encephalitis IgM-AB	1.0 (2.0) ml	serum	< 1.00	Index	ELISA
Tick-born encephalitis RNA	1.0 ml	CFS	see report	see report	PCR
Tick-born encephalitis-DNA		tick	see report	see report	PCR
Tissue transglutaminase antibodies	2.0 ml	serum	up to 20	U/ml	EIA
Toluol	1.0 (2.0) ml	EDTA	< 5.0	µg/l	HPLC

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Total oxidative capacity	1.0 (2.0) ml	serum	50.0 - 180.0	µmol/l	photometric
Total T3 (Triiodothyronine)	1.0 (2.0) ml	serum	16 - 76	ng/dl	LIA
Total T4 (Thyroxine)	1.0 (2.0) ml	serum	4.5 - 11.5	µg/dl	LIA
Toxocara canis-AB	1.0 (2.0) ml	serum	< 4.0	MONA	EIA
Toxoplasma gondii-DNA		EDTA frozen, amion fluid	see report	see report	PCR
Toxoplasma IgG-AB (avidity test)	1.0 (2.0) ml	serum	über 40	%	Avidity - ELISA
Toxoplasma IgM-AB	1.0 (2.0) ml	serum	< 0.5	Index	ELISA
Toxoplasma IgM-ISAGA	1.0 (2.0) ml	serum	1:<4096	Titer	ISAGA
TPA (tissue polypeptide antigen)	1.0 (2.0) ml	serum	< 75.0	U/l	LIA
Transferrin	10 (20) ml	spontaneous urine	< 0.22	mg/dl	NEPH
Transferrin	1.0 (2.0) ml	serum	200 - 360	mg/dl	NEPH
Tranylcypromin	1.0 (2.0) ml	serum	20.0 - 50.0	µg/l	HPLC
Treponema pallidum	1.0 ml	serum	see results	Titer	Westernblot

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Trichinella AB	1.0 (2.0) ml	serum	< 4.0	MONA	EIA
Trichinosis antibody	1.0 ml	serum	up to 4.0	MONA	EIA
Trichinosis IgG-AB	1.0 (2.0) ml	serum	see report	see report	Westernblot
Trichinosis IgM-AB	1.0 (2.0) ml	serum	see report	see report	Westernblot
Trichinosis-AB	1.0 (2.0) ml	serum	see report	Titer	HA
Trichinosis-AB	1.0 (2.0) ml	serum	see report	Titer	IFT
Trichloroacetic acid	10 (20) ml	spontaneous urine	see report	mg/l	GC
Trichloroethane	1.0 (2.0) ml	EDTA	see report	µg/l	GC
Trichloroethanole	10 (20) ml	spontaneous urine	see report	mg/l	GC
Trichloroethene	1.0 (2.0) ml	EDTA	see report	see report	GC
Trichlorophenole	10 (20) ml	spontaneous urine	see report	see report	GC
Triglycerides	1.0 (2.0) ml	punctate	see report	mg/dl	PHO
Triglycerides	1.0 (2.0) ml	serum	15 - 45	mg/dl	PHO
Triiodothyronine-AB	1.0 (2.0) ml	serum	see report	see report	RIA
Triple test	2.0 (3.0) ml	serum	see report	see report	

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Trisialogangliosid IgG-AB (GT1b)	1.0 (2.0) ml	serum	see report	see report	EIA
Trisialogangliosid IgM-AB (GT1b)	1.0 (2.0) ml	serum	see report	see report	EIA
Trisialogangliosid-AB (GT1b)	1.0 (2.0) ml	serum	see report	see report	EIA
Tropheryma whippelii DNA	5 ml	EDTA	see report	see report	PCR
Troponin					
1. Troponin T	2.7 ml	EDTA blood	up to 0.1	µg/l	EIA
2. Troponin I	2.7 ml	EDTA blood	< 0.16	µg/l	EIA
Trypanosoma cruzi-AB	1.0 (2.0) ml	serum	see report	Titer	IFT
Trypanosoma gambiense-AB	1.0 (2.0) ml	serum	see report	Titer	HT
Trypanosoma gambiense-AB	1.0 (2.0) ml	serum	see report	Titer	IFT
Trypsin in serum	1.0 ml	serum	10.0 - 57.0	µg/l	RIA
Tryptase	1.0 (2.0) ml	serum	< 13.5	µg/l	FIA
Tryptophan	1.0 (2.0) ml	serum	1.20 - 1.80	mg/dl	HPLC
Tryptophan	10 (20) ml	spontaneous urine	see report	µmol/l	HPLC
Trysin	1.0 (2.0) ml	serum frozen	10.0 - 57.0	µg/l	RIA

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Trysin	5 g	faeces	über 30	µg/g Stuhl	RIA
TSH basal (thyroid stimulating hormone)	1.0 (2.0) ml	serum	0.35 - 4.50	µU/ml	LIA
TSH neonatal screening		Guthrie test paper	< 20.0	mU/l	FIA
TSH receptor-AB (TRAK)	1.0 (2.0) ml	serum	< 9.0	U/l	RIA
TSH stimulated (thyroid stimulating hormone)	1.0 (2.0) ml	serum	2.40 - 34.0	µU/ml	LIA
Tubulus basal membrane antibody	1.0 ml	serum	negative		IFT
Tularemia antibody	2.0 ml	serum	positive (negative)		RIA
Tyrosin	1.0 (2.0) ml	serum	< 80	µmol/l	HPLC
Tyrosin	10 (20) ml	spontaneous urine	see report	µmol/l	HPLC
Urea	1.0 (2.0) ml	serum	10.0 - 40.0	mg/dl	PHO
Urea	1.0 (2.0) ml	punctate	see report	see report	PHO
Urea	10 (20) ml	spontaneous urine	11.0 - 19.0	g/l	PHO
Urea	1.0 (2.0) ml	dialysate	see report	mg/dl	PHO
Ureaplasma urealyticum-DNA		microbiological swab in PCR - tube	see report	see report	PCR

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Uric acid	1.0 (2.0) ml	serum	0.00 - 1.00	mg/dl	PHO
Uric acid	1.0 (2.0) ml	punctate	3.00 - 7.00	mg/dl	PHO
Uric acid	10 (20) ml	spontaneous urine	15.0 - 70.0	mg/dl	PHO
Urine deposit	10 (20) ml	spontaneous urine	see report	see report	
Urine electrophoresis	10 ml	urine	see results		
Urine status	10 (20) ml	spontaneous urine	see report	see report	
Uroporphyrins	5 g	faeces	see report	see report	HPLC
Uroporphyrins	10 (20) ml	spontaneous urine	see report	µg/l	HPLC
Valin	1.0 (2.0) ml	serum	< 200	µmol/l	HPLC
Valin	10 (20) ml	spontaneous urine	see report	µmol/l	HPLC
Valproic acid	1.0 (2.0) ml	serum	50.0 - 100.0	mg/l	GC
Vanadium	2.0 ml	serum	< 1.1	µg/l	ICP MS
Vanillylmandelic acid	10 (20) ml	spontaneous urine	see report	mg/l	HPLC
Varicella zoster IgG-avidity test	1.0 (2.0) ml	serum	see report	see report	Avidity - ELISA

parameter	minimal (optimal) Volume	Material	normal range	dimension	method
Varicella zoster IgM-AB	1.0 (2.0) ml	serum	see report	see report	EIA
Varicella zoster virus DNA		vesicle fluid, amniotic fluid, CFS	see report	see report	PCR
Varicella zoster-AB	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Verapamil	2.0 ml	serum	50 - 350	ng/ml	HPLC
Xylol	1.0 (2.0) ml	EDTA	< 3.0	µg/l	GC
Xylose	10 (20) ml	spontaneous urine	> 4.0	g/5 h Urine	PHO
Xylose	1.0 (2.0) ml	serum	> 10.0	mg/dl	
Yellow fever AB	1.0 (2.0) ml	serum	see report	Titer	Haemagglutination
Yersinia enterocolitica type 3-AB	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Yersinia enterocolitica type 9-AB	1.0 (2.0) ml	serum	1:<8	Titer	KBR
Yersinia pseudotuberculosis-AB	1.0 (2.0) ml	serum	1:<8	Titer	KBR

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