



SAMPLING AND DISPATCH OF SAMPLES

VIROLOGY

Please notify us of samples by telephone: 058 468 14 01 (number of reception) or 079 356 31 76 (standby number for emergency investigations in accordance with our service offer).

Samples are received on working days (emergency investigations upon telephone request).

1. Overview

The analytical service of the Virology section at the SPIEZ LABORATORY comprises human viral pathogens from the risk groups 2, 3 and 4. For each pathogen there are clear regulations pertaining to packaging and dispatch of clinical material (category A or B). Furthermore, already the suspicion of infection with certain virus types must be reported (report by physician within two hours or one day).

The following table provides an overview of these requirements; summaries (flowcharts) on how to proceed in the various cases are displayed underneath. It is annually updated based on the “*Verordnung des EDI über die meldepflichtigen Beobachtungen übertragbarer Krankheiten des Menschen*”.

| Pathogen | Genus/family | Risk group | Transport category for clinical samples | Reporting obligation (period) | Procedure according to flowchart |
|---------------------------------------|----------------------------------|----------------|---|-------------------------------|----------------------------------|
| <i>Alpha virus</i> (genus) | <i>Alpha virus, togaviridae</i> | 2/3 | B | no | 1 |
| <i>Arena virus, new world</i> (genus) | <i>Arena virus, arenaviridae</i> | 4 ¹ | A ¹ | yes (2 hours) ⁴ | 2 |
| Chikungunya virus | <i>Alpha virus, togaviridae</i> | 3 | B | yes (1 week) | 1 |
| Dengue virus | <i>Flavi virus, flaviviridae</i> | 3 | B | yes (1 day) | 1 |
| Dobrava virus | <i>Hanta virus, bunyaviridae</i> | 3 | A/B ² | yes (1 day) | 1/2 ⁵ |
| Ebola viruses | <i>Ebola virus, filoviridae</i> | 4 | A | yes (2 hours) ⁴ | 2 |
| <i>Filovirus</i> (family) | <i>Filo viridae</i> | 4 | A | yes (2 hours) ⁴ | 2 |
| <i>Flavivirus</i> (genus) | <i>Flavi virus, flaviviridae</i> | 2-4 | B | depends on species | 1 |
| Tick-borne encephalitis virus | <i>Flavi virus, flaviviridae</i> | 3 | B | yes (1 week) | 1 |
| Yellow fever virus | <i>Flavi virus, flaviviridae</i> | 3 | B | yes (1 day) | 1 |

Overview (continuation)

| Pathogen | Genus/family | Risk group | Transport category for clinical samples | Reporting obligation (period) | Procedure according to flowchart |
|------------------------------|--|----------------|---|--|----------------------------------|
| <i>Hanta virus</i> (genus) | <i>Hanta virus, bunyaviridae</i> | 3 | A/B ² | yes (1 day) | 1/2 ² |
| Hantaan virus | <i>Hanta virus, bunyaviridae</i> | 3 ¹ | A | yes (1 day) | 2 |
| Hendra virus | <i>Henipa virus, paramyxoviridae</i> | 4 | A | yes (1 day) ⁶ | 2 |
| Influenza A viruses | <i>Influenza A virus, orthomyxoviridae</i> | 2 | B | yes (1 week or 2 hours ⁴) ⁵ | 1 |
| Japanese encephalitis virus | <i>Flavi virus, flaviviridae</i> | 3 | B | yes (1 day) ⁶ | 1 |
| Krim Kongo virus | <i>Nairo virus, bunyaviridae</i> | 4 | A | yes (2 hours) ⁴ | 2 |
| Lassa virus | <i>Arena virus, arenaviridae</i> | 4 | A | yes (2 hours) ⁴ | 2 |
| Marburg virus | <i>Marburg virus, filoviridae</i> | 4 | A | yes (2 hours) ⁴ | 2 |
| MERS corona virus | <i>Betacورونا virus, coronaviridae</i> | 3 | B | yes (2 hours) ⁴ | 1 |
| Monkeypox virus | <i>Orthopox virus, poxviridae</i> | 3 | A | yes (2 hours) ⁴ | 2 |
| Nipah Viurs | <i>Henipa virus, paramyxoviridae</i> | 3 | A | yes (1 day) ⁶ | 1 |
| O'Nyong Nyong virus | <i>Alpha virus, Togaviridae</i> | 2 | B | yes (1 day) ⁶ | 1 |
| Orthopox virus (genus) | <i>Orthopox virus, poxviridae</i> | 2-4 | A/B ³ | yes (2 hours) ⁴ | 1/2 ³ |
| Puumala virus | <i>Hanta virus, bunyaviridae</i> | 3 | A/B ² | yes (1 day) | 1/2 ² |
| Rift Valley fever virus | <i>Phlebo virus, bunyaviridae</i> | 3 | B | yes (1 day) | 1 |
| Ross River virus | <i>Alpha virus, togaviridae</i> | 2 | B | no | 1 |
| Sandfly Fever virus | <i>Phlebo virus, bunyaviridae</i> | 2 | B | yes (1 day) ⁶ | 1 |
| SARS corona virus | <i>Betacورونا virus, coronaviridae</i> | 3 | B | yes (2 hours) ⁴ | 1 |
| Sindbis virus | <i>Alpha virus, togaviridae</i> | 2 | B | no | 1 |
| St. Louis encephalitis virus | <i>Flavi virus, flaviviridae</i> | 3 | B | no | 1 |
| Vaccinia virus | <i>Orthopox virus, poxviridae</i> | 2 | B | yes (2 hours) ⁴ | 1 |
| West Nile virus | <i>Flavi virus, flaviviridae</i> | 3 | B | yes (1 week) | 1 |

¹ For species within the analytical range of the Virology section of the SPIEZ LABORATORY

² For haemorrhagic fever: transport category A, procedure according to flowchart 2

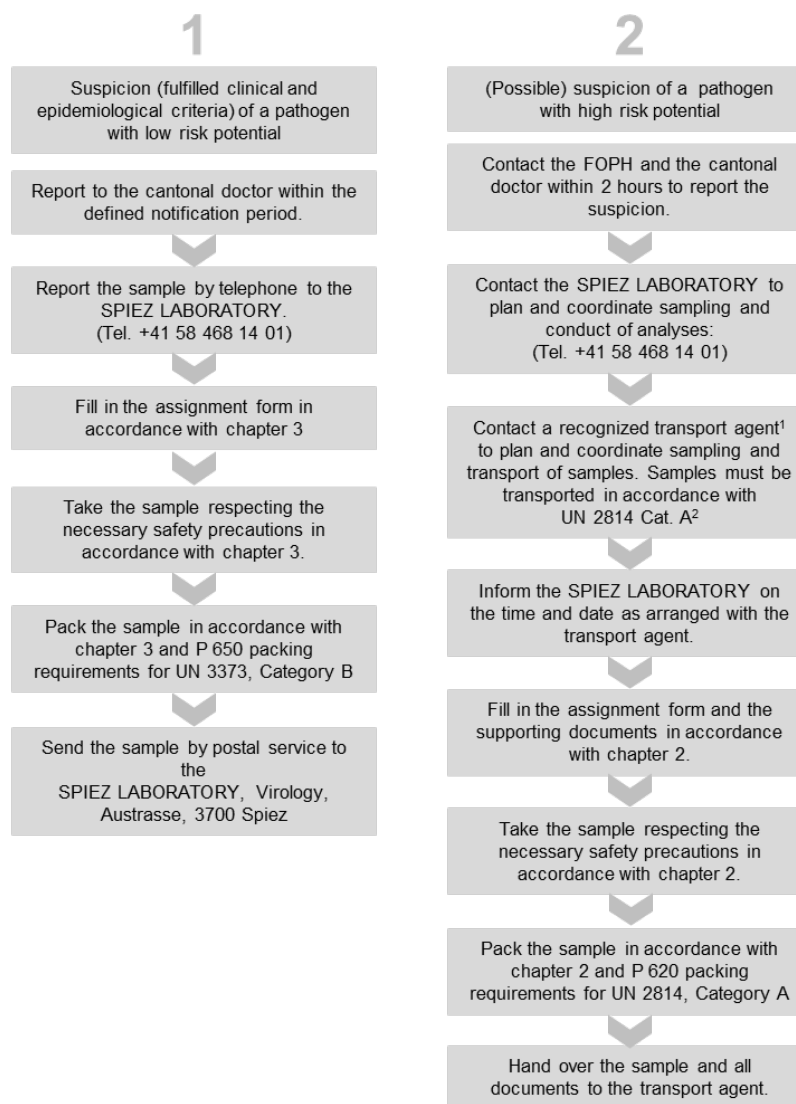
³ Smallpox und monkeypox: transport category A, procedure according to flowchart 2; camelpox, cowpox und vaccinia: transport category B, procedure according to flowchart 1

⁴ in agreement with doctor specialised in infections

⁵ In the case of a new subtype A(HxNy): first report within 2 hours; in the case of known, not pandemic subtype: reporting by laboratory only

⁶ Report to the cantonal doctor as "special event" within 1 day (the laboratory additionally reports to the FOPH)

Overview (continuation) – summary presentations on how to send samples



¹ Transport agent with ADR permit, e.g. World Courier, DHL, FedEx etc.

² Dispatch by postal service is PROHIBITED, the sender must also prove to the transport agent that he has been instructed as prescribed by ADR 1.3..

2. Sampling, packaging and dispatch of Category A, UN 2814 samples, ADR¹ packing instructions P 620 (ADR 4.1.4.1):

[¹ ADR = regulations concerning the transport of hazardous materials]

Preparation:

Procure a package prior to sampling that satisfies the requirements for P 620 parcelling for UN 2814 (source: e.g. hazardous goods shop), as well as the needed hazardous freight leaflet example 6.2 (source e.g. Swiss TS).

Fill in the order form of the SPIEZ LABORATORY. The following information is mandatory:

- Information on the assigning infection specialist: name, complete address, telephone and if applicable fax number
- Information about the patient: name, date of birth, sex and complete address
- Information about sample: date and time of sampling
- Information on the case: case history, special questions

Place all the utensils required for sampling and secondary packaging WITHIN the patient isolation area, but external packaging, filled in assignment form and dispatch document (transport papers) OUTSIDE the patient isolation area.

Mark sample tubes with surname, first names, date of birth and sex of patient.

Sampling:

- Take a blood sample under the necessary safety precautions according to the standard technique for collecting venous blood.
- Suitable receptacle for sample: Monovette® EDTA (red) or Vacutainer® EDTA (violet) (Figure: (1)).

Secondary packaging of sample WITHIN the patient isolation area:

- Disinfect surface of sample tube (=primary receptacle) with an alcoholic solution and place tube into a second tube (Figure: (2)).
- Place the (second) tube into the secondary receptacle (Figure: (4)) which is impermeable for liquids and contains sufficient absorbent material (Figure: (3) to absorb the entire amount of liquid (several primary receptacles can be put into the same secondary container, but each must be wrapped separately). Disinfect the second tube too.



- Samples that have been packed and disinfected in this way can be removed from the patient isolation area.

External packaging OUTSIDE the patient isolation area:

- Place the secondary receptacle in the UN certified external package (5) and annex the filled in assignment form (no cooling necessary, transported at environment temperature).
- Close the external package and mark it as follows: hazard sticker example 6.2 and directly adjacent text 'UN 2814'.
- Attach your address (address of sender incl. telephone number) and address of the SPIEZ LABORATORY (address of recipient incl. telephone number, see below).

Hand-over to transport agent:

- Hand over the sample packed according to UN requirements.
- Fill in the dispatch document ('transport paper') jointly with the transport agent.
- The dispatch document is subsequently attached to the outside of the external package. Make sure that the document 'Written instructions according to ADR' is also in the vehicle; It is normally provided by the transport agent.
- Ebola suspect samples are NOT allowed to be sent in the same way as normal routine samples to the normally competent laboratory! They must be transported directly from the hospital to the SPIEZ LABORATORY.

Transport of samples:

- The sample is moved by the transport agent in accordance with UN 2814, Category A.

3. Sampling, packaging and dispatch of Category B, UN 3373 samples, ADR packaging instructions P 650 (ADR 4.1.4.1):

Preparation:

- If not available at your institute procure a P 650 packaging prior to sampling that satisfies UN 3373 requirements (source: e.g. hazardous goods shop) as well as the rhomboid label UN 3373 (if not already printed on the package; source e.g. Swiss TS).
- Fill in the assignment form of the SPIEZ LABORATORY. The following information must be provided:
 - Information on client: name, complete address, telephone and fax number if applicable
 - Information on patient: name, date of birth, sex and complete address
 - Information on sample: type of sample, sampling date and time
 - Case information: case history, special questions
- Label a suitable receptacle for sample (cf. table 'Suitable examination material') with surname, first name, date of birth and sex of patient.

Sampling:

- Take a sample that is suitable for the desired verification (cf. table 'Suitable examination material') with regard to necessary safety precautions.

Sample packaging:

- Disinfect surface of sample tube (=primary receptacle) with an alcoholic solution and place tube into a second tube.
- Place the primary receptacle into the secondary receptacle and disinfect it too.
- Place the filled in examination request between the secondary package and the external package. Transport it at environment temperature (no cooling necessary).
- The external package must be designated as follows: rhombic UN 3373 label with the official designation 'Biological material, Category B' directly adjacent.

Transport of samples:

- Attach your address (sender).
- Send the package by postal service to the address below.

4. Contact information and addresses

SPIEZ LABORATORY

Virology section

Austrasse

3700 Spiez

Tel 058 468 14 01 (reception) *or*

Tel. 079 356 31 76 (standby number)

Fax 058 468 14 02

5. Annex – suitable examination material

Applies to all materials: immediate transport to lab increases the verification rate. If this is not possible the samples can be temporarily stored at 2-8°C.

Suitable examination material

| Pathogen | Examination | Suitable material for sampling | Transport medium / Transport receptacle | Sampling (with respective safety precautions!) | Amount |
|----------------------------------|-------------------|--------------------------------|---|--|----------|
| Pathogen-specific methods | | | | | |
| Chikungunya virus | molecular biology | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separation gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | | |
| | | liquor | sterile receptacle | | |
| | IgG, IgM | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green), heparin (orange) Vacutainer® EDTA (violet), citrate (blue/black), heparin (green) | | |
| | culture | upon request | -- | -- | -- |
| Dengue virus | molecular biology | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | | |
| | IgG, IgM | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green), heparin (orange) Vacutainer® EDTA (violet), citrate (blue/black), heparin (green) | | |
| | | culture | upon request | -- | -- |
| Dobrava virus | molecular biology | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | | |
| | | urine (medium issue) | sterile receptacle | clean genitals with warm water; do not use the first portion of urine; collect the second portion in a sterile urine beaker. | 5 ml |

Suitable examination material (continuation)

| Pathogen | Examination | Suitable material for sampling | Transport medium / Transport receptacle | Sampling (with respective safety precautions!) | Amount |
|-------------------------------|--------------------------------|--------------------------------|---|--|---------------------|
| | | biopsy (kidney) | sterile receptacle | surgical sampling; place small biopsies on gauze pad moistened with a little sterile salt solution to prevent the sample from drying; place large biopsies in sterile receptacle without salt solution, use NO formol! | as much as possible |
| | IgG, IgM | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green), heparin (orange) Vacutainer® EDTA (violet), citrate (blue/black), heparin (green) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | culture | upon request | -- | | |
| Ebola virus | molecular biology | whole blood | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | according to the standard technique for collecting venous blood. | 1 tube |
| | culture | upon request | -- | -- | -- |
| Tick-borne encephalitis virus | molecular biology | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | | |
| | | liquor | sterile receptacle | according to the standard technique for lumbar puncture. | ≥ 0.5 ml |
| | IgG, IgM | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green), heparin (orange) Vacutainer® EDTA (violet), citrate (blue/black), heparin (green) | | |
| | | liquor | sterile receptacle | according to the standard technique for lumbar puncture. | ≥ 0.5 ml |
| | Neutralisation test (total Ig) | upon request | -- | -- | -- |
| | culture | upon request | -- | -- | -- |
| Yellow fever virus | molecular biology | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | | |
| | | liquor | sterile receptacle | according to the standard technique for lumbar puncture. | ≥ 0.5 ml |

Suitable examination material (continuation)

| Pathogen | Examination | Suitable material for sampling | Transport medium / Transport receptacle | Sampling (with respective safety precautions!) | Amount |
|---------------|-----------------------------------|-----------------------------------|---|---|--------------------------|
| | IgG, IgM | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green), heparin (orange) Vacutainer® EDTA (violet), citrate (blue/black), heparin (green) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | neutralisation test (total Ig) | upon request | -- | -- | -- |
| | culture | upon request | -- | -- | -- |
| Hantaan virus | molecular biology | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | | |
| | | urine (medium issue) | sterile receptacle | clean genitals with warm water; do not use the first portion of urine; collect the second portion in a sterile urine beaker. | 5 ml |
| | | biopsy (kidney, liver, spleen) | sterile receptacle | surgical sampling; place small biopsies on gauze pad moistened with a little sterile salt solution to prevent the sam- ple from drying; place large biopsies in sterile receptacle without salt solution, use NO formol! | as much as possi- ble |
| | IgG, IgM | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green), heparin (orange) Vacutainer® EDTA (violet), citrate (blue/black), heparin (green) | | |
| | | culture | upon request | -- | -- |
| | | | | | |
| Hendra virus | molecular biology | swab (pharynx) | swab in virus transport medium (e.g. UTM [Copan 346C]) | Suppress tongue with spatula and wipe location to be tested with swab; then insert the swab into the transport medi- um for viruses and close well. | 1 swab |
| | | liquor | sterile receptacle | according to the standard technique for lumbar puncture | ≥ 0.5 ml |
| | | urine (medium issue) | sterile receptacle | clean genitals with warm water; do not use the first portion of urine; collect the second portion in a sterile urine beaker. | 5 ml |
| | | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | | | | |

Suitable examination material (continuation)

| Pathogen | Examination | Suitable material for sampling | Transport medium / Transport receptacle | Sampling (with respective safety precautions!) | Amount |
|-----------------------------|-------------------|--|---|--|-------------------------|
| | | plasma | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| Influenza A viruses | molecular biology | respiratory sample (bronchial fluid, bronchoalveolar lavage) | sterile receptacle | <u>bronchial rinsing fluid</u> : collect secretion by rinsing, e.g. with sterile physiological NaCl solution <u>BAL</u> : in accordance with the standard procedure of bronchoalveolar lavage | 10-20 ml, at least 2 ml |
| | | swab (Nasopharyngeal, pharynx) | swab in viral transport medium (e.g. UTM [Copan 305C or 346C]) | <u>naso-pharyngeal</u> : insert swab (out of especially flexible material) deep into the nose until the back wall of the pharynx is reached, carefully rotate back and forth and retrieve; <u>Pharynx</u> : Suppress tongue with spatula and wipe location to be tested with swab; After sampling, insert swab into the viral transport medium and close well. | 1 swab 1 swab |
| | | culture | upon request | -- | -- |
| | | | | | |
| Japanese Encephalitis virus | molecular biology | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | | |
| | | liquor | sterile receptacle | according to the standard technique for lumbar puncture. | ≥ 0.5 ml |
| | IgG, IgM | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green), heparin (orange) Vacutainer® EDTA (violet), citrate (blue/black), heparin (green) | | |
| | | culture | upon request | -- | -- |
| Krim Kongo virus | molecular biology | whole blood | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | culture | upon request | -- | -- | |
| Lassa virus | molecular biology | whole blood | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| Marburg virus | molecular biology | whole blood | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | culture | upon request | -- | -- | |

Suitable examination material (continuation)

| Pathogen | Examination | Suitable material for sampling | Transport medium / Transport receptacle | Sampling (with respective safety precautions!) | Amount |
|-------------------|-------------------|--|--|--|-------------------------|
| MERS Corona virus | molecular biology | Respiratory sample (bronchial rinsing fluid, bronchoalveolar lavage) | sterile receptacle | <u>bronchial rinsing fluid</u> : collect secretion by rinsing, e.g. with sterile physiological NaCl solution <u>BAL</u> : in accordance with the standard procedure der Bronchoalveolar Lavage | 10-20 ml, at least 2 ml |
| | | swab (nasopharyngeal, pharynx) | swab in virus transport medium (e.g. UTM [Copan 305C]) | <u>naso-pharyngeal</u> : insert swab (out of especially flexible material) deep into the nose until the back wall of the pharynx is reached, carefully rotate back and forth and retrieve; <u>Pharynx</u> : Suppress tongue with spatula and wipe location to be tested with swab; After sampling, insert swab into the viral transport medium and close well. | 1 swab |
| Monkeypox virus | molecular biology | vesicle/ papule/blister/crust material | Viral transport medium (e.g. UTM [Copan 346C]) | scrape away some vesicle/ papule/blister/scab material and collect it directly in a receptacle with transport medium | as much as possible |
| | | swab (vesicle/ papule/blister) | swab in viral transport medium (e.g. UTM [Copan 346C]) | wipe location to be tested with a swab; then insert swab into viral transport medium. | 1 swab |
| | IgG, IgM | upon request | -- | -- | -- |
| | culture | upon request | -- | -- | -- |
| Nipah virus | molecular biology | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | | |
| | | swab (pharynx) | swab in viral transport medium (e.g. UTM [Copan 346C]) | Suppress tongue with spatula and wipe location to be tested with swab; then insert the swab into the transport medium for viruses and close well. | 1 swab |
| | | liquor | sterile receptacle | according to the standard technique for lumbar puncture. | ≥ 0.5 ml |
| | | urine (medium issue) | sterile receptacle | clean genitals with warm water; do not use the first portion of urine; collect the second portion in a sterile urine beaker. | 5 ml |

Suitable examination material (continuation)

| Pathogen | Examination | Suitable material for sampling | Transport medium / Transport receptacle | Sampling (with respective safety precautions!) | Amount |
|-------------------------|-------------------|--------------------------------|---|---|--------------------------|
| O'Nyong Nyong virus | molecular biology | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | | |
| | | liquor | sterile receptacle | according to the standard technique for lumbar puncture. | ≥ 0.5 ml |
| | culture | upon request | -- | -- | -- |
| Puumala virus | molecular biology | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | urine (medium issue) | sterile receptacle | clean genitals with warm water; do not use the first portion of urine; collect the second portion in a sterile urine beaker. | 5 ml |
| | | biopsy (kidney) | sterile receptacle | surgical sampling; place small biopsies on gauze pad moistened with a little sterile salt solution to prevent the sam- ple from drying; place large biopsies in sterile receptacle without salt solution, use NO formol! | as much as possi- ble |
| | IgG, IgM | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green), heparin (orange) Vacutainer® EDTA (violet), citrate (blue/black), heparin (green) | | |
| | culture | upon request | -- | -- | -- |
| Rift Valley Fever virus | molecular biology | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | | |
| Ross River virus | molecular biology | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | | |

Suitable examination material (continuation)

| Pathogen | Examination | Suitable material for sampling | Transport medium / Transport receptacle | Sampling (with respective safety precautions!) | Amount |
|--|-------------------|--|---|--|----------------------------|
| | | puncture of the joint | sterile receptacle | sampling in accordance with the standard puncture procedure. | ≥ 0.5 ml |
| | | liquor | sterile receptacle | according to the standard technique for lumbar puncture. | ≥ 0.5 ml |
| | culture | upon request | -- | -- | -- |
| Naples, Sicilian and Toscana sandfly fever virus | molecular biology | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | | |
| | | liquor | sterile receptacle | according to the standard technique for lumbar puncture. | ≥ 0.5 ml |
| SARS Corona virus | molecular biology | Respiratory sample (bronchial rinsing fluid, bronchoalveolar lavage) | sterile receptacle | <u>bronchial rinsing fluid</u> : collect secretion by rinsing, e.g. with sterile physiological NaCl solution <u>BAL</u> : in accordance with the standard procedure der bronchoalveolar lavage | 10-20 ml, at least 2 ml |
| | | swab (nasopharyngeal, pharynx) | swab in viral transport medium (e.g. UTM [Copan 305C]) | <u>naso-pharyngeal</u> : insert swab (out of especially flexible material) deep into the nose until the back wall of the pharynx is reached, carefully rotate back and forth and retrieve; <u>Pharynx</u> : Suppress tongue with spatula and wipe location to be tested with swab; After sampling, insert swab into the viral transport medium and close well. | 1 swab |
| Sindbis virus | molecular biology | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | | |
| | | liquor | sterile receptacle | according to the standard technique for lumbar puncture. | ≥ 0.5 ml |
| St. Louis Encephalitis virus | molecular biology | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | | |

Suitable examination material (continuation)

| Pathogen | Examination | Suitable material for sampling | Transport medium / Transport receptacle | Sampling (with respective safety precautions!) | Amount |
|-----------------|-------------------|--------------------------------------|--|---|---------------------|
| Vaccinia virus | | liquor | sterile receptacle | according to the standard technique for lumbar puncture. | ≥ 0.5 ml |
| | culture | upon request | -- | -- | -- |
| | molecular biology | vesicle/papule/blister/scab material | viral transport medium (e.g. UTM [Copan 346C]) | scrape away some vesicle/ papule/blister/scab and collect it directly in receptacle with transport medium | as much as possible |
| | | swab (vesicle/papule/blister/scab) | swab in viral transport medium (e.g. UTM [Copan 346C]) | wipe location to be tested with a swab; then insert swab into viral transport medium. | 1 swab |
| | IgG, IgM | upon request | -- | -- | -- |
| West-Nile virus | culture | upon request | -- | -- | -- |
| | molecular biology | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | | |
| | | liquor | sterile receptacle | according to the standard technique for lumbar puncture. | ≥ 0.5 ml |
| | IgG, IgM | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green), heparin (orange) Vacutainer® EDTA (violet), citrate (blue/black), heparin (green) | | |
| | culture | upon request | -- | | |

Suitable examination material (continuation)

| Pathogen | Examination | Suitable material for sampling | Transport medium / Transport receptacle | Sampling (with respective safety precautions!) | Amount |
|--|-------------------|---------------------------------------|---|--|---------------------|
| Genus and family-specific methods | | | | | |
| Alpha viruses (e.g. Chikungunya, Eastern/Western/Venezuelan Equine Encephalitis, O'Nyon Nyong, Ross River, Sindbis,) | molecular biology | upon request | -- | -- | -- |
| New World arenaviruses (Guanarito, Junin, Machupo, Sabia) | molecular biology | upon request | -- | -- | -- |
| Filoviruses (Ebola, Marburg) | molecular biology | whole blood | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| Flaviviruses (e.g. Dengue, Japanese Encephalitis, FSME, Yellow fever, Japanese Encephalitis, Louping ill, Murray Valley Encephalitis, St. Louis Encephalitis, Usutu, West-Nile, Zika) | molecular biology | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | | |
| | | Liquor | sterile receptacle | according to the standard technique for lumbar puncture. | ≥ 0.5 ml |
| | IgG, IgM | -- | species-specific serologies exist for Dengue, FSME, yellow fever, Japanese encephalitis und West-Nile | -- | -- |
| | culture | upon request | -- | -- | -- |
| Hantaviruses (Andes, Dobrava, Hantaan, Puumala, Seoul, Sin Nombre) | molecular biology | upon request | -- | | |
| | IgG, IgM | serum | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma | Monovette® EDTA (red), citrate (violet/green), heparin (orange) Vacutainer® EDTA (violet), citrate (blue/black), heparin (green) | | |
| | culture | upon request | -- | -- | -- |
| Orthopoxviruses (Camelpox, Cowpox, Monkeypox, Smallpox, Vaccinia) | molecular biology | vesicle/ papule/blister/scab material | viral transport medium (e.g. UTM [Copan 346C]) | scrape away some vesicle/ papule/blister/scab material and collect it directly in receptacle with transport medium | as much as possible |

Suitable examination material (continuation)

| Pathogen | Examination | Suitable material for sampling | Transport medium / Transport receptacle | Sampling (with respective safety precautions!) | Amount |
|----------|-------------|------------------------------------|--|--|----------|
| | | swab (vesicle/papule/blister/scab) | swab in viral transport medium (e.g. UTM [Copan 346C]) | take a swab from the location to be tested with a swab; then place it into the viral transport medium. | 1 swab |
| | | serum (early phase) | Monovette® serum (white), serum gel (brown) Vacutainer® serum tube without (red), with separating gel (golden yellow) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | plasma (early phase) | Monovette® EDTA (red), citrate (violet/green) Vacutainer® EDTA (violet), citrate (blue/black) | according to the standard technique for collecting venous blood. | ≥ 1.0 ml |
| | | swab Nasopharyngeal (early phase) | swab in viral transport medium (e.g. UTM [Copan 305C]) | insert swab (out of especially flexible material) deep into the nose until the back wall of the pharynx is reached, carefully rotate back and forth and retrieve; then insert swab into the viral transport medium and close well. | |
| | IgG, IgM | upon request | -- | -- | -- |
| | culture | upon request | -- | -- | -- |

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