

Revised forms for the submission of the Confidence-Building Measures

At the Third Review Conference it was agreed that all States Parties present the following declaration, later amended by the Seventh Review Conference:

Declaration form on Nothing to Declare or Nothing New to Declare for use in the information exchange

<i>Measure</i>	<i>Nothing to declare</i>	<i>Nothing new to declare</i>	<i>Year of last declaration if nothing new to declare</i>
A, part 1	<input type="checkbox"/>	<input type="checkbox"/>	
A, part 2 (i)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2009
A, part 2 (ii)	<input type="checkbox"/>	<input type="checkbox"/>	
A, part 2 (iii)	<input type="checkbox"/>	<input type="checkbox"/>	
B	<input type="checkbox"/>	<input type="checkbox"/>	
C	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2018
E	<input type="checkbox"/>	<input type="checkbox"/>	
F	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2001
G	<input type="checkbox"/>	<input type="checkbox"/>	

(Please mark the appropriate box(es) for each measure with a tick, and fill in the year of last declaration in the last column where applicable.)

Date: Thursday, April 15, 2021

State Party to the Convention: Switzerland

Date of ratification/accession to the Convention: Tuesday, May 4, 1976

National point of contact:

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Active promotion of contacts

The Third Review Conference agreed that States parties continue to implement the following:

"Active promotion of contacts between scientists, other experts and facilities engaged in biological research directly related to the Convention, including exchanges and visits for joint research on a mutually agreed basis."

In order to actively promote professional contacts between scientists, joint research projects and other activities aimed at preventing or reducing the occurrence of ambiguities, doubts and suspicions and at improving international cooperation in the field of peaceful bacteriological (biological) activities, the Seventh Review Conference encouraged States parties to share forward looking information, to the extent possible,

- on planned international conferences, seminars, symposia and similar events dealing with biological research directly related to the Convention, and

- on other opportunities for exchange of scientists, joint research or other measures to promote contacts between scientists engaged in biological research directly related to the Convention,

including through the Implementation Support Unit (ISU) within the United Nations Office for Disarmament Affairs.

Confidence-Building Measure "A"

Part 1 Exchange of data on research centres and laboratories

At the Third Review Conference it was agreed that States Parties continue to implement the following:

"Exchange of data, including name, location, scope and general description of activities, on research centres and laboratories that meet very high national or international safety standards established for handling, for permitted purposes, biological materials that pose a high individual and community risk or specialize in permitted biological activities directly related to the Convention."

Modalities

The Third Review Conference agreed on the following, later amended by the Seventh Review Conference:

Data should be provided by States Parties on each facility, within their territory or under their jurisdiction or control anywhere, which has any maximum containment laboratories meeting those criteria for such maximum containment laboratories as specified in the latest edition of the WHO¹ Laboratory Biosafety Manual and/or OIE² Terrestrial Manual or other equivalent guidelines adopted by relevant international organisations, such as those designated as biosafety level 4 (BL4, BSL4 or P4) or equivalent standards.

States Parties that do not possess a facility meeting criteria for such maximum containment should continue to Form A, part 1 (ii).

Form A, part 1 (i)

*Exchange of data on research centres and laboratories*³

1. Name(s) of facility⁴:

Labor Spiez (Spiez Laboratory)

[Declared in accordance with Form A Part 2(iii)]

2. Responsible public or private organization or company:

Federal Office for Civil Protection, Federal Department of Defence, Civil Protection and Sports

3. Location and postal address:

Labor Spiez, Bundesamt für Bevölkerungsschutz, Eidgenössisches Departement für Verteidigung, Bevölkerungsschutz und Sport, Austrasse, CH-3700 Spiez, Switzerland

4. Source(s) of financing of the reported activity, including indication if the activity is wholly or partly financed by the Ministry of Defence:

Swiss Confederation (Federal Department of Defence, Civil Protection and Sports)

5. Number of maximum containment units⁵ within the research centre and/or laboratory, with an indication of their respective size (SqM):

BL 2: 483 SqM

BL 3: 126 SqM

BL 4: 118 SqM

Of note, the BSL4 unit is operational and holds a license as follows: "Development of methods to detect and analyze viral pathogens of risk group 4 (clinical samples, environmental samples, including samples suspect of bioterrorism origin) as well as evaluation of antiviral substances, neutralizing antibodies and decontamination solutions".

6. Scope and general description of activities, including type(s) of micro-organisms and/or toxins as appropriate:

Spiez Laboratory, which is part of the Federal Office for Civil Protection, is the Swiss Center of Expertise in NBC Protection. Its Biology Division has a range of activities including research, development, test & evaluation, training, as well as diagnosis in the fields of virology, bacteriology, toxinology and biosafety. The tasks include analysis of unknown samples, diagnostics and identification of potential biological warfare and bioterror agents, food and water analysis for the Swiss Armed Forces, and research & development in coordination with contractors. Spiez Laboratory deals with many different biological agents and toxins known to be pathogenic for humans.

Spiez Laboratory is also a National Reference Center mandated by the Swiss Federal Office of Public Health and a National Reference Laboratory mandated by the Swiss Federal Food Safety and Veterinary Office as follows:

- National Reference Center for Anthrax
 - *Bacillus anthracis* (anthrax)
 - *Francisella tularensis* (tularemia)
 - *Yersinia pestis* (plague)
 - *Brucella spp.* (brucellosis)
 - *Burkholderia pseudomallei* (melioidosis)
 - other bacterial pathogens according to requirements of the national coordination committee of the Regional Laboratory Network
- National Reference Center for Tick-Transmitted Diseases
 - Tick-borne encephalitis virus (TBE)
 - *Coxiella burnetii* (Q fever)
 - *Borrelia burgdorferi* s.l. (Lyme disease)
 - Other rare / emerging tick-transmitted pathogens
- National Reference Laboratory for Staphylococcus enterotoxins
 - Staphylococcus enterotoxin B
 - other Staphylococcus enterotoxins

In addition, Spiez Laboratory supports the National Reference Center for Emerging Viral Infections responsible for the detection of emerging and reemerging viruses of all biosafety levels, especially hemorrhagic fever viruses and variola virus.

Spiez Laboratory's Biology Division holds an accreditation by the Swiss Accreditation Service as "Testing laboratory for the detection of biological agents" (STS 0054) according to the international standard ISO/IEC 17025:2017.

For additional information please visit: <https://www.labor-spiez.ch/en/index.htm>

1. Name(s) of facility⁴:

Centre National de Référence pour les Infections Virales Emergentes (National Reference Center for Emerging Viral Infections)

[Declared in accordance with Form A Part 2(iii)]

2. Responsible public or private organization or company:

Virology Laboratory, University Hospitals of Geneva

3. Location and postal address:

Centre National de Référence pour les Infections Virales Emergentes, Laboratoire de Virologie, Hôpitaux Universitaires de Genève, Rue Gabrielle Perret-Gentil 4, CH-1205 Genève, Switzerland

4. Source(s) of financing of the reported activity, including indication if the activity is wholly or partly financed by the Ministry of Defence:

Swiss Confederation (Federal Department of Home Affairs)

5. Number of maximum containment units ⁵ within the research centre and/or laboratory, with an indication of their respective size (SqM):

BL 2: 29 SqM

BL 3: 39 SqM

BL 4: 36 SqM

*Of note, the BSL4 unit is operational and holds a license for diagnostic purposes only, as follows:
“Detection of viruses in clinical samples by molecular and/or serological methods”.*

6. Scope and general description of activities, including type(s) of micro-organisms and/or toxins as appropriate:

The National Reference Center for Emerging Viral Diseases (CRIVE/NAVI) is a national reference laboratory by order of the Federal Office of Public Health. Its task is the detection of emerging and re-emerging viruses of all biosafety levels, especially hemorrhagic fever viruses and smallpox virus. The BSL4 unit is approved for diagnostic purposes only, which does not allow any culturing or enrichment of such viruses. The National Reference Center for Emerging Viral Diseases is part of the Laboratory of Virology (LV) at the University Hospitals of Geneva. Since January 1st, 2018, the CRIVE acts also as WHO National Center for Measles and Rubella.

Since the beginning of 2020, the CRIVE has been performing about 200'000 SARS-CoV-2 screening PCR and many thousands serologies. Currently, the CRIVE also performs Sanger and NGS sequencing on SARS-CoV-2 genomes for identification of “UK and South Africa” mutants.

The LV performs the analysis of many viruses impacting the human health as done in most of the hospitals (HIV, Hepatitis, CMV, EBV, respiratory and enteric viruses, etc.). LV does most of the viral analysis needed by an university hospital.

LV also hosts the Swiss National Center for Influenza.

For further information please visit (website in French):

<https://www.hug-ge.ch/laboratoire-virologie>

1. Name(s) of facility ⁴:

Institut für Medizinische Virologie (Institute of Medical Virology)

[Declared in accordance with Form A Part 2(iii)]

2. Responsible public or private organization or company:

Faculty of Medicine, University of Zurich

3. Location and postal address:

Institut für Medizinische Virologie, Medizinische Fakultät, Universität Zürich, Winterthurerstrasse 190, CH-8057 Zürich, Switzerland

4. Source(s) of financing of the reported activity, including indication if the activity is wholly or partly financed by the Ministry of Defence:

Cantons of Appenzell Ausserrhoden, Appenzell Innerrhoden, Glarus, Graubünden, Sankt Gallen, Schaffhausen, Thurgau, Zug, Zürich, and the Principality of Liechtenstein

5. Number of maximum containment units ⁵ within the research centre and/or laboratory, with an indication of their respective size (SqM):

BL 3: 25 SqM

*Of note, the Institute of Medical Virology holds a BSL4 license for diagnostic purposes only, as follows:
“Inactivation or extraction of environmental samples or samples with potentially highly pathogenic viruses for diagnostic purposes”.*

6. Scope and general description of activities, including type(s) of micro-organisms and/or toxins as appropriate:

The Institute of Medical Virology at the University of Zurich is the Regional Competence Center for the primary analysis of viral samples suspicious of a bioterror-related background. This represents an additional and not a continuous task of the viral diagnostics laboratory.

For further information please visit:

https://www.virology.uzh.ch/index_en.html

1. Name(s) of facility⁴:

Institut für Virologie und Immunologie (Institute of Virology and Immunology)

[Declared in accordance with Form A Part 2(iii)]

2. Responsible public or private organization or company:

Federal Food Safety and Veterinary Office, Federal Department of Home Affairs

3. Location and postal address:

Institut für Virologie und Immunologie, Bundesamt für Lebensmittelsicherheit und Veterinärwesen, Eidgenössisches Departement des Innern, Sensemattstrasse 293, CH-3147 Mittelhäusern, Switzerland

4. Source(s) of financing of the reported activity, including indication if the activity is wholly or partly financed by the Ministry of Defence:

Swiss Confederation (Federal Department of Home Affairs)

5. Number of maximum containment units⁵ within the research centre and/or laboratory, with an indication of their respective size (SqM):

BL 2: 210 SqM

BL 3: 44 SqM

ABL 3 Ag: 10446 SqM

Of note, BSL3Ag facilities have special features not comparable to standard BSL3 or BSL4 facilities. The shell is considered BSL4, whereas inside the containment area BSL1, BSL2 and BSL3 space is common standard. Personnel enters through a shower barrier and is provided with suitable laboratory clothing for BSL1, 2 and 3 inside the containment area. Personnel has to shower out when leaving the containment area and has to keep a 72h quarantine (no contact to cloven hoofed animals). The IVI fulfills the requirements of the EU Minimum Biorisk Management Standards for Laboratories Working with Foot-And-Mouth Disease Virus. Due to these special features of BSL3Ag facilities, the BSL3Ag area is not limited to laboratory units only, but also includes engineering floors such as effluent treatment plant or ventilation units and animal units, which are all located within the containment area. Therefore, all maintenance work has to be done during operation – the facility has never been shut down so far. This also means that a direct comparison with BSL4 facilities is not practicable. Licenses are as follows: “Quality controls of immuno-biological products for use in applications of veterinary medicine”; “Establishment of a cell-based rapid test to determine protection provided by vaccination against foot-and-mouth disease virus”; “Validation of decontamination by H2O2”; “Diagnostics of viral pathogens causing highly contagious animal diseases”; “Peste des petits ruminants virulence”.

6. Scope and general description of activities, including type(s) of micro-organisms and/or toxins as appropriate:

The Institute of Virology and Immunology (IVI), which is part of the Swiss Federal Food Safety and Veterinary Office, is the ISO 17025 accredited institute for the diagnosis, surveillance and control of highly contagious epizootics. In addition, the IVI pursues research both on these viruses and emerging viral diseases, as well as their potential transmission to man. The IVI is also the competent authority issuing the licenses required for the sale of veterinary immunobiological products. Basic research is carried out in the fields of immunology and virology, and involves influenza virus, foot-and-mouth disease virus, classical swine fever virus and porcine circovirus type 2, as well as coronaviruses. The development and diagnostics branches focus on assays and tests for classical and african swine fever, foot-and-mouth disease, avian influenza, bluetongue, and other highly contagious infectious diseases. In this domain, the IVI occupies a leading position internationally.

For further information please visit:

<https://www.ivl.admin.ch/ivi/en/home.html>

Form A, part 1 (ii)

If no BSL4 facility is declared in Form A, part 1 (i), indicate the highest biosafety level implemented in facilities handling biological agents⁶ on a State Party's territory:

Biosafety level 3 ⁷	N/A
Biosafety level 2 ⁸ (if applicable)	N/A

Any additional relevant information as appropriate:

N/A

Part 2 Exchange of information on national biological defence research and development programmes

At the Third Review Conference it was agreed that States Parties are to implement the following:

In the interest of increasing the transparency of national research and development programmes on biological defence, the States Parties will declare whether or not they conduct such programmes. States Parties agreed to provide, annually, detailed information on their biological defence research and development programmes including summaries of the objectives and costs of effort performed by contractors and in other facilities. If no biological defence research and development programme is being conducted, a null report will be provided.

States Parties will make declarations in accordance with the attached forms, which require the following information:

- (1) The objective and summary of the research and development activities under way indicating whether work is conducted in the following areas: prophylaxis, studies on pathogenicity and virulence, diagnostic techniques, aerobiology, detection, treatment, toxinology, physical protection, decontamination and other related research;
- (2) Whether contractor or other non-defence facilities are utilized and the total funding provided to that portion of the programme;
- (3) The organizational structure of the programme and its reporting relationships; and
- (4) The following information concerning the defence and other governmental facilities in which the biological defence research and development programme is concentrated:
 - (a) location;
 - (b) the floor areas (sqM) of the facilities including that dedicated to each of BL2, BL3 and BL4 level laboratories;
 - (c) the total number of staff employed, including those contracted full time for more than six months;
 - (d) numbers of staff reported in (c) by the following categories: civilian, military, scientists, technicians, engineers, support and administrative staff;
 - (e) a list of the scientific disciplines of the scientific/engineering staff;
 - (f) the source and funding levels in the following three areas: research, development, and test and evaluation; and
 - (g) the policy regarding publication and a list of publicly-available papers and reports.

Form A, part 2 (i)

National biological defence research and development programmes Declaration

Are there any national programmes to conduct biological defence research and development within the territory of the State Party, under its jurisdiction or control anywhere? Activities of such programmes would include prophylaxis, studies on pathogenicity and virulence, diagnostic techniques, aerobiology, detection, treatment, toxinology, physical protection, decontamination and other related research.

yes

If the answer is Yes, complete Form A, part 2 (ii) which will provide a description of each programme.

Form A, part 2 (ii)

National biological defence research and development programmes

Description

National Biological Defense Program

1. State the objectives and funding of each programme and summarize the principal research and development activities conducted in the programme. Areas to be addressed shall include: prophylaxis, studies on pathogenicity and virulence, diagnostic techniques, aerobiology, detection, treatment, toxinology, physical protection, decontamination and other related research.

The objective is to establish national biological defense proficiency by developing and improving precise and accurate tests for the rapid diagnosis as well as for identification and characterization, of different biological agents and toxins using various methods. Spiez Laboratory is assigned to fulfill this task and to close any gaps to reach national biological defense excellence. To improve the national biological defense capabilities of Switzerland, Spiez Laboratory has funds available to run a dedicated program with the goal of added research and development mainly benefitting detection, diagnostic and identification techniques. Part of the program is conducted under contract with national and international industries, academic institutions as well as domestic and foreign governmental agencies, as detailed in paragraph 5.

Spiez Laboratory is part of the Federal Office for Civil Protection FOCP within the Federal Department of Defence, Civil Protection and Sports DDPS of the Swiss Confederation. Spiez Laboratory is the Swiss center of expertise in protection against nuclear, biological and chemical (NBC) threats and hazards. Besides delivering its expertise to relevant stakeholders, the Biology Division of Spiez Laboratory is concerned with the identification of biological agents and toxins, as well as supports military biological protection units. The Biology Division has expertise in the fields of virology, bacteriology and toxinology, as well as biosafety and biosecurity.

Spiez Laboratory possesses a high containment facility that allows for the safe handling of biological agents of all risk groups. It is the only BSL4 high containment facility in Switzerland holding a license which is not limited to diagnostic purposes. It serves towards the comprehensive detection and identification of human pathogens. This enables Spiez Laboratory to act in the Regional Laboratory Network as both a Regional Competence Center and as a National Reference Center / National Reference Laboratory having all necessary capabilities and capacities at hand.

For additional information and more on the vision of a world without weapons of mass destruction please visit: <https://www.labor-spiez.ch/en/index.htm>

2. State the total funding for each programme and its source.

Swiss Confederation, Federal Department of Defence, Civil Protection and Sports DDPS, Federal Office for Civil Protection FOCP.

Total Funding: 5'000'000 p.a.

Funding Currency: CHF

3. Are aspects of these programmes conducted under contract with industry, academic institutions, or in other non-defence facilities?

yes

4. If yes, what proportion of the total funds for each programme is expended in these contracted or other facilities?

10 %

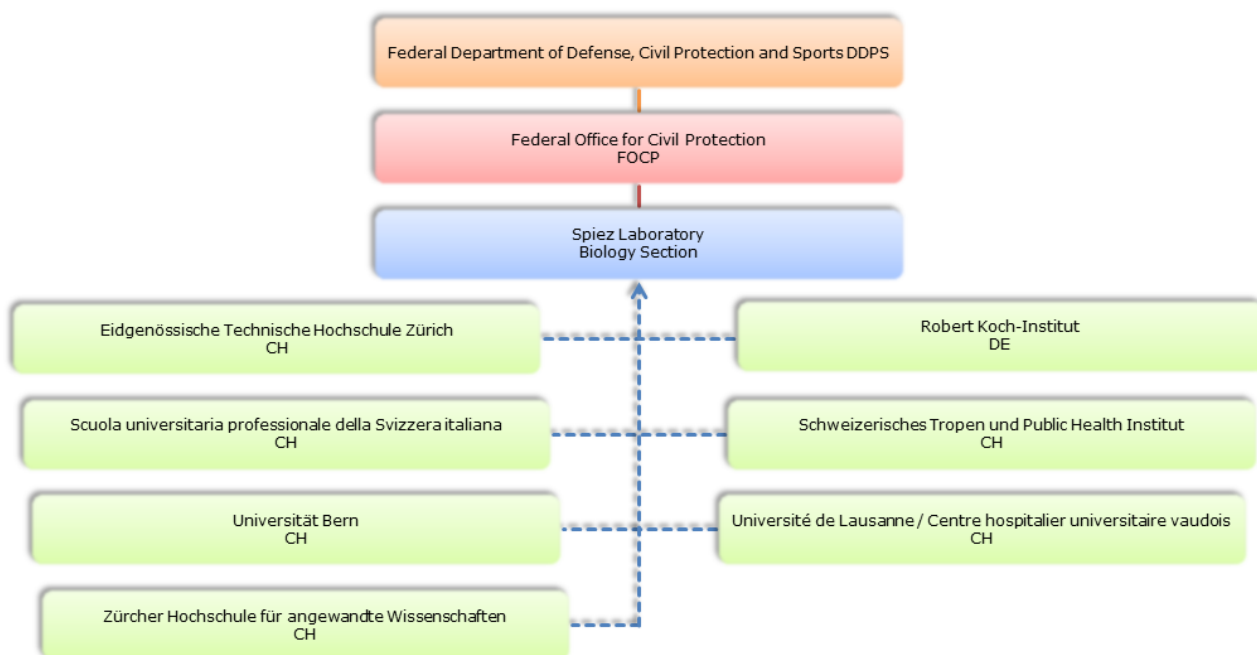
5. Summarize the objectives and research areas of each programme performed by contractors and in other facilities with the funds identified under paragraph 4.

All contracted research and development of the program is supervised by Spiez Laboratory. Please also refer to paragraph 1 above for additional details. The contractors part of the program in 2020 were as follows:

- Eidgenössische Technische Hochschule Zürich – ETHZ
Functional Genomics Center Zurich – FGCZ
Winterthurerstrasse 190
CH-8057 Zürich
Switzerland
Project title: „Next Generation Sequencing“
- Eidgenössische Technische Hochschule Zürich – ETHZ
Center for Security Studies – CSS
Haldeneggsteig 4, IFW
CH-8092 Zürich
Switzerland
Project title: „Analysis of trends in science and policy“
- Robert Koch-Institut – RKI
Zentrum für Biologische Toxine – ZBS3
Nordufer 20
DE-13353 Berlin
Germany
Project title: „Staphylococcus enterotoxins analysis in food“
- Scuola Universitaria Professionale della Svizzera Italiana – SUPSI
Laboratorio Microbiologia applicata
Via Mirasole 22a
CH-6500 Bellinzona
Switzerland
Project title: “Vector Surveillance”
Project title: „Development of mass spectrometric sequencing procedures to identify biomarkers“
- Swiss Tropical and Public Health Institute – SwissTPH
Socinstrasse 57
CH-4051 Basel
Switzerland
Project title: „Next Generation Sequencing”
- Universität Bern – UniBE
Department for BioMedical Research – DBMR
Sahli-Haus 2
CH-3010 Bern
Switzerland
Project title: „Assessment of tenacity of highly pathogenic viruses, antivirals and inactivation strategies as well as evaluation of clinical samples”

- Universität Bern – UniBE
Interfaculty Bioinformatics Unit – IBU
Baltzerstrasse 6
CH-3012 Bern
Switzerland
Project title: „Functional characterization of *Francisella tularensis holarctica* genotypes by means of proteomics“
Project title: „Implementation of proteogenomic procedures to identify and characterize risk group 3 bacteria“
- Université de Lausanne / Centre Hospitalier Universitaire Vaudois – Unil / CHUV
Institut de microbiologie – IMUL
Rue du Bugnon 48
CH-1011 Lausanne
Switzerland
Project title: „Novel therapeutic strategies against highly pathogenic viruses“
Project title: „Identification and evaluation of antiviral substances against Hantavirus infections“
- Zürcher Hochschule für Angewandte Wissenschaften – ZHAW
Institut für Chemie und Biologische Chemie – ICBC
Einsiedlerstrasse 31
CH-8820 Wädenswil
Switzerland
Project title: „Detection of proteinaceous toxins“

6. Provide a diagram of the organizational structure of each programme and the reporting relationships (include individual facilities participating in the programme).



7. Provide a declaration in accordance with Form A, part 2 (iii) for each facility, both governmental and non-governmental, which has a substantial proportion of its resources devoted to each national biological defence research and development programme, within the territory of the reporting State, or under its jurisdiction or control anywhere.

Please refer to Form A, part 2 (iii).

Attachments:

N/A

Regional Laboratory Network

1. State the objectives and funding of each programme and summarize the principal research and development activities conducted in the programme. Areas to be addressed shall include: prophylaxis, studies on pathogenicity and virulence, diagnostic techniques, aerobiology, detection, treatment, toxinology, physical protection, decontamination and other related research.

The objective is the establishment and maintenance of capability and capacity for the rapid laboratory-based identification of pathogens in case of a biological emergency, whether it be of natural or accidental origin or due to deliberate release. This forms the basis for any adequate countermeasures that need to be planned and implemented to ensure the protection of the population. The consequent integration of state of the art detection and diagnostic techniques as well as their constant refinement and improvement is therefore indispensable for a holistic biological emergency concept.

The implemented structure is a decentralized network of Regional Competence Centers and National Reference Centers, all of which have been mandated by the Federal Office of Public Health. This network benefits from already existing infrastructure. The network is embedded in the Swiss CBRN concept and is coordinated by the Regional Laboratory Coordination Committee that consists of federal, cantonal and scientific experts. There is a total of three National Reference Centers and six Regional Competence Centers called Regional Laboratories. The task for Regional Laboratories is the rapid identification of pathogens, whereas National Reference Centers are qualified for confirmatory analysis. All facilities pursue civil duties and are put on assignments of the Regional Laboratory Network in the event of biological emergencies only. All cantons are part of the network either as a host canton of a Regional Laboratory (bold) or as an affiliated canton:

Regional Laboratory West: FR, **GE**, NE, **VD**, VS
 Regional Laboratory West Central: **BE**, JU
 Regional Laboratory East Central: **LU**, NW, OW, SZ, UR
 Regional Laboratory East: AI, AR, GL, GR, SG, SH, TG, ZG, **ZH** (+ FL)
 Regional Laboratory North: AG, BL, **BS**, SO
 Regional Laboratory South: **TI**

Of note, the two cantons of Genève (GE) and Vaud (VD) share the authority over the Regional Laboratory West. The Principality of Liechtenstein (FL) participates in the Regional Laboratory East. For an explanation of abbreviations, please refer to the comprehensive map presented in paragraph 6.

The network consists of the following facilities that are described in Form A, part 2 (iii) in more detail:

Function	Authority	Facility
NRC	GDK	Labor Spiez Centre National de Référence pour les Infections Virales Emergentes Institut für Virologie und Immunologie
RL West	Canton of Genève	Laboratoire de Bactériologie Centre National de Référence pour les Infections Virales Emergentes
	Canton of Vaud	Laboratoires de Diagnostic de l'Institut de Microbiologie
RL West Central	Canton of Bern	Labor Spiez
RL East Central	Canton of Luzern	Institut für Medizinische Mikrobiologie
RL East	Canton of Zürich	Institut für Medizinische Mikrobiologie Institut für Medizinische Virologie
RL North	Canton of Basel-Stadt	Kantonales Laboratorium Basel-Stadt
RL South	Canton of Ticino	Laboratorio Microbiologia Applicata

Abbreviations:

NRC: National Reference Center

RL: Regional Laboratory

GDK: Swiss Conference of Cantonal Ministers of Public Health

Information on the Regional Laboratory Network can also be found online (website in French):

<https://www.bag.admin.ch/bag/fr/home/krankheiten/infektionskrankheiten-bekaempfen/labordiagnostik-infektionskrankheiten/regionallabornetzwerk.html>

2. State the total funding for each programme and its source.

All personnel involved in activities in relation to the Regional Laboratory Network is tasked with other civil duties. Many of these other activities, such as development of related methods, sample preparation and processing, training, etc., although at least indirectly of benefit to the activities in relation to the Regional Laboratory Network, remain unaccounted for and are not singled out as being of such nature. Furthermore, the whole network relies on existing infrastructures in use for other civil purposes. Due to these facts it is not possible to sort out personnel costs, cost of materials and consumables, as well as dedicated infrastructure costs for the program, however, it is possible to name the funding sources as follows:

- Swiss Confederation, Federal Department of Home Affairs FDHA
- All twenty-six cantons of Switzerland
- Principality of Liechtenstein

Total Funding: N/A

Funding Currency: N/A

3. Are aspects of these programmes conducted under contract with industry, academic institutions, or in other non-defence facilities?

no

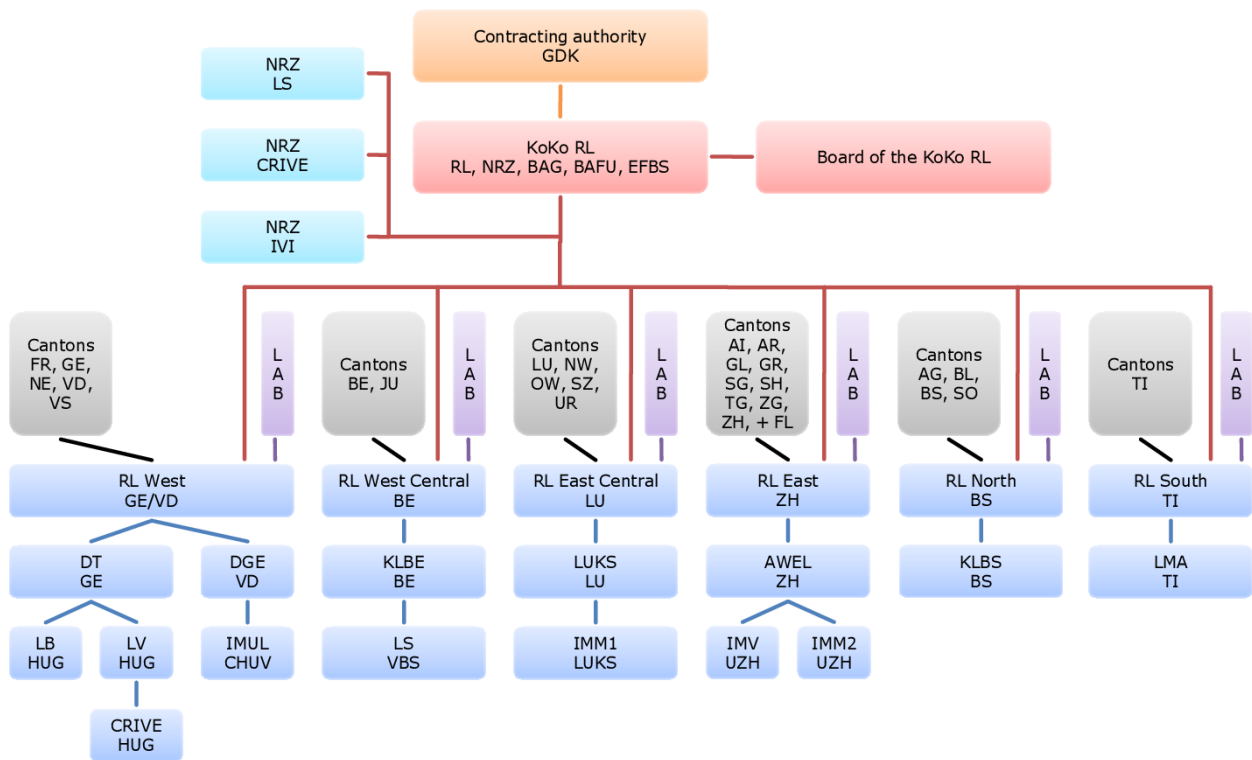
4. If yes, what proportion of the total funds for each programme is expended in these contracted or other facilities?

N/A

5. Summarize the objectives and research areas of each programme performed by contractors and in other facilities with the funds identified under paragraph 4.

N/A

6. Provide a diagram of the organizational structure of each programme and the reporting relationships (include individual facilities participating in the programme).



AWEL: Office for Waste, Water, Energy and Air
 BAFU: Federal Office for the Environment
 BAG: Federal Office of Public Health
 Cantons: Please refer to the map in paragraph 1 above
 CHUV: University Hospital Center of Vaud
 CRIVE: National Reference Center for Emerging Viral Infections
 DT: Department for the Territory
 DGE: Directorate-General for Environment
 EFBS: Swiss Expert Committee for Biosafety
 GDK: Swiss Conference of Cantonal Ministers of Public Health
 HUG: University Hospitals of Geneva
 IMM1: Department of Medical Microbiology
 IMM2: Institute of Medical Microbiology
 IMUL: Diagnostic Laboratories of the Institute of Microbiology
 IMV: Institute of Medical Virology

IVI: Institute of Virology and Immunology
 KLBE: Cantonal Laboratory of Berne
 KLBS: Cantonal Laboratory of Basel-Stadt
 KoKo: Coordination Committee
 LAB: Laboratory Advisory Board
 LB: Bacteriological Laboratory
 LMA: Laboratory of Applied Microbiology
 LS: Spiez Laboratory
 LUKS: Cantonal Hospital of Luzern
 LV: Virological Laboratory
 NRZ: National Reference Center
 RL: Regional Laboratory
 UZH: University of Zurich
 VBS: Federal Department of Defense, Civil Protection and Sports

SWITZERLAND

- AG Aargau
- AI Appenzell Innerrhoden
- AR Appenzell Ausserrhoden
- BE Bern / Berne
- BL Basel Landschaft
- BS Basel Stadt
- FR Fribourg / Freiburg
- GE Genève
- GL Glarus
- GR Graubünden / Grischun / Grigioni
- JU Jura
- LU Luzern
- NE Neuchâtel
- NW Nidwalden
- OW Obwalden
- SG Sankt Gallen
- SH Schaffhausen
- SO Solothurn
- SZ Schwyz
- TG Thurgau
- TI Ticino
- UR Uri
- VD Vaud
- VS Valais / Wallis
- ZG Zug
- ZH Zürich



7. Provide a declaration in accordance with Form A, part 2 (iii) for each facility, both governmental and non-governmental, which has a substantial proportion of its resources devoted to each national biological defence research and development programme, within the territory of the reporting State, or under its jurisdiction or control anywhere.

Please refer to Form A, part 2 (iii).

Attachments:

N/A

Form A, part 2 (iii)

National biological defence research and development programmes

Facilities

Complete a form for each facility declared in accordance with paragraph 7 in Form A, part 2 (ii).

In shared facilities, provide the following information for the biological defence research and development portion only.

1. What is the name of the facility?

Labor Spiez (Spiez Laboratory)

2. Where is it located (include both address and geographical location)?

Labor Spiez, Bundesamt für Bevölkerungsschutz, Eidgenössisches Departement für Verteidigung, Bevölkerungsschutz und Sport, Austrasse, CH-3700 Spiez, Switzerland

N 46° 41' 26.32", E 7° 38' 39.41"

3. Floor area of laboratory areas by containment level:

BL 2: 483 SqM

BL 3: 126 SqM

BL 4: 118 SqM

Of note, the BSL4 unit is operational and holds a license as follows: "Development of methods to detect and analyze viral pathogens of risk group 4 (clinical samples, environmental samples, including samples suspect of bioterrorism origin) as well as evaluation of antiviral substances, neutralizing antibodies and decontamination solutions".

Total laboratory floor area (SqM):

727

4. The organizational structure of each facility.

(i) Total number of personnel: 20

(ii) Division of personnel:

Military: 0

Civilian: 20

(iii) Division of personnel by category:

Scientists: 12

Engineers: 0

Technicians: 8

Administrative and support staff: see below (iv)

(iv) List the scientific disciplines represented in the scientific/engineering staff.

Virology, bacteriology, toxinology, biosafety and biosecurity.

Of note, as of 1 January 2021 the total number of personnel at Spiez Laboratory amounts to 96, of which 18 in the Biology Division and 2 in the NBC Arms Control Staff Unit dealing with biological matters. Spiez Laboratory also employs a number of administrative and support personnel that cannot be attributed to a single division.

(v) Are contractor staff working in the facility? If so, provide an approximate number.

7

(vi) What is (are) the source(s) of funding for the work conducted in the facility, including indication if activity is wholly or partly financed by the Ministry of Defence?

Swiss Confederation (Federal Department of Defence, Civil Protection and Sports):

CHF 5'000'000.-

Research	15 %
Development	10 %
Test & Evaluation	5 %
Analysis / Diagnosis	15 %
Education & Training	5 %
Other activities	50 % (costs for operation, maintenance and amortization)

(vii) What are the funding levels for the following programme areas:

Research: 15 %

Development: 10 %

Test and evaluation: 5 %

(viii) Briefly describe the publication policy of the facility:

Publication in open literature.

(ix) Provide a list of publicly-available papers and reports resulting from the work published during the previous 12 months. (To include authors, titles and full references)

Tularemia in Children and Adolescents.

Imbimbo C, Karrer U, Wittwer M, Buettcher M.

Pediatr Infect Dis J. 2020 Dec;39(12):e435-e438. doi: 10.1097/INF.0000000000002932.

PMID: 33003104 No abstract available.

Author Correction: In vitro virucidal activity of Echinaforce®, an Echinacea purpurea preparation, against coronaviruses, including common cold coronavirus 229E and SARS-CoV-2.

Signer J, Jonsdottir HR, Albrich WC, Strasser M, Züst R, Ryter S, Ackermann-Gäumann R, Lenz N, Siegrist D, Suter A, Schoop R, Engler OB.

Virol J. 2020 Nov 9;17(1):172. doi: 10.1186/s12985-020-01439-2.

PMID: 33168000 Free PMC article.

Accuracy of serological testing for SARS-CoV-2 antibodies: First results of a large mixed-method evaluation study.

Brigger D, Horn MP, Pennington LF, Powell AE, Siegrist D, Weber B, Engler O, Piezzi V, Damonti L, Iseli P, Hauser C, Froehlich TK, Villiger PM, Bachmann MF, Leib SL, Bittel P, Fiedler M, Largiadèr CR, Marschall J, Stalder H, Kim PS, Jardetzky TS, Eggel A, Nagler M.

Allergy. 2020 Sep 30;10.1111/all.14608. doi: 10.1111/all.14608. Online ahead of print.

PMID: 32997812 Free PMC article.

In vitro virucidal activity of Echinaforce®, an Echinacea purpurea preparation, against coronaviruses, including common cold coronavirus 229E and SARS-CoV-2.

Signer J, Jonsdottir HR, Albrich WC, Strasser M, Züst R, Ryter S, Ackermann-Gäumann R, Lenz N, Siegrist D, Suter A, Schoop R, Engler OB.

Virol J. 2020 Sep 9;17(1):136. doi: 10.1186/s12985-020-01401-2.

PMID: 32907596 Free PMC article.

Associations of the intestinal microbiome with the complement system in neovascular age-related macular degeneration.

Zysset-Burri DC, Keller I, Berger LE, Largiadèr CR, Wittwer M, Wolf S, Zinkernagel MS.

NPJ Genom Med. 2020 Sep 1;5:34. doi: 10.1038/s41525-020-00141-0. eCollection 2020.

PMID: 32922859 Free PMC article.

Reduced maximal aerobic capacity after COVID-19 in young adult recruits, Switzerland, May 2020.

Cramer GAG, Bielecki M, Züst R, Buehrer TW, Stanga Z, Deuel JW.

Euro Surveill. 2020 Sep;25(36):2001542. doi: 10.2807/1560-7917.ES.2020.25.36.2001542.

PMID: 32914744 Free PMC article.

Social distancing alters the clinical course of COVID-19 in young adults: A comparative cohort study.

Bielecki M, Züst R, Siegrist D, Meyerhofer D, Cramer GAG, Stanga ZG, Stettbacher A, Buehrer TW, Deuel JW.

Clin Infect Dis. 2020 Jun 29;ciaa889. doi: 10.1093/cid/ciaa889. Online ahead of print.

PMID: 32594121 Free PMC article.

Evaluation of Viral RNA Recovery Methods in Vectors by Metagenomic Sequencing.

Akello JO, Leib SL, Engler O, Beuret C.

Viruses. 2020 May 19;12(5):562. doi: 10.3390/v12050562.

PMID: 32438629 Free PMC article.

T-cell immunoglobulin and mucin (TIM) contributes to the infection of human airway epithelial cells by pseudotype viruses containing Hantaan virus glycoproteins.

Mayor J, Torriani G, Rothenberger S, Engler O.

Virology. 2020 Apr;543:54-62. doi: 10.1016/j.virol.2020.02.002. Epub 2020 Feb 9.

PMID: 32056847

Antimicrobial resistance classification using MALDI-TOF-MS is not that easy: lessons from vancomycin-resistant *Enterococcus faecium*.

Brackmann M, Leib SL, Tonolla M, Schürch N, Wittwer M.

Clin Microbiol Infect. 2020 Mar;26(3):391-393. doi: 10.1016/j.cmi.2019.10.027. Epub 2019 Nov 1.

PMID: 31682986 No abstract available.

Notes:

N/A

Attachments:

N/A

5. Briefly describe the biological defence work carried out at the facility, including type(s) of micro-organisms [9](#) and/or toxins studied, as well as outdoor studies of biological aerosols.

Spiez Laboratory, which is part of the Federal Office for Civil Protection, is the Swiss Center of Expertise in NBC Protection. Its Biology Division has a range of activities including research, development, test & evaluation, training, as well as diagnosis in the fields of virology, bacteriology, toxinology and biosafety. The tasks include analysis of unknown samples, diagnostics and identification of potential biological warfare and bioterror agents, food and water analysis for the Swiss Armed Forces, and research & development in coordination with contractors. Spiez Laboratory deals with many different biological agents and toxins known to be pathogenic for humans.

Spiez Laboratory is also a National Reference Center mandated by the Swiss Federal Office of Public Health and a National Reference Laboratory mandated by the Swiss Federal Food Safety and Veterinary Office as follows:

- National Reference Center for Anthrax
 - *Bacillus anthracis* (anthrax)
 - *Francisella tularensis* (tularemia)
 - *Yersinia pestis* (plague)
 - *Brucella spp.* (brucellosis)
 - *Burkholderia pseudomallei* (melioidosis)
 - other bacterial pathogens according to requirements of the national coordination committee of the Regional Laboratory Network
- National Reference Center for Tick-Transmitted Diseases
 - Tick-borne encephalitis virus (TBE)
 - *Coxiella burnetii* (Q fever)
 - *Borrelia burgdorferi* s.l. (Lyme disease)
 - Other rare / emerging tick-transmitted pathogens
- National Reference Laboratory for Staphylococcus enterotoxins
 - Staphylococcus enterotoxin B
 - other Staphylococcus enterotoxins

In addition, Spiez Laboratory supports the National Reference Center for Emerging Viral Infections responsible for the detection of emerging and reemerging viruses of all biosafety levels, especially hemorrhagic fever viruses and variola virus.

Spiez Laboratory's Biology Division holds an accreditation by the Swiss Accreditation Service as "Testing laboratory for the detection of biological agents" (STS 0054) according to the international standard ISO/IEC 17025:2017.

For additional information please visit:

<https://www.labor-spiez.ch/en/index.htm>

1. What is the name of the facility?

Centre National de Référence pour les Infections Virales Emergentes (National Reference Center for Emerging Viral Infections)

2. Where is it located (include both address and geographical location)?

Centre National de Référence pour les Infections Virales Emergentes, Laboratoire de Virologie, Hôpitaux Universitaires de Genève, Rue Gabrielle Perret-Gentil 4, CH-1205 Genève, Switzerland

N 46° 11' 37.20", E 6° 8' 59.92"

3. Floor area of laboratory areas by containment level:

BL 2: 29 SqM

BL 3: 39 SqM

BL 4: 36 SqM

*Of note, the BSL4 unit is operational and holds a license for diagnostic purposes only, as follows:
"Detection of viruses in clinical samples by molecular and/or serological methods".*

Total laboratory floor area (SqM):

104

4. The organizational structure of each facility.

(i) Total number of personnel: 5

(ii) Division of personnel:

Military: 0

Civilian: 5

(iii) Division of personnel by category:

Scientists: 3

Engineers: 0

Technicians: 2

Administrative and support staff: 0

(iv) List the scientific disciplines represented in the scientific/engineering staff.

Medicine, biology, microbiology, molecular biology, viral genetics, infectious diseases.

(v) Are contractor staff working in the facility? If so, provide an approximate number.

0

(vi) What is (are) the source(s) of funding for the work conducted in the facility, including indication if activity is wholly or partly financed by the Ministry of Defence?

Swiss Confederation (Federal Department of Home Affairs).

Research	2 %
Development	55 %
Test & Evaluation	15 %
Analysis / Diagnosis	20 %
Education & Training	1 %
Other activities	7 % (costs for maintenance and administration)

(vii) What are the funding levels for the following programme areas:

Research: 2 %
 Development: 55 %
 Test and evaluation: 15 %

(viii) Briefly describe the publication policy of the facility:

Publication in open literature.

(ix) Provide a list of publicly-available papers and reports resulting from the work published during the previous 12 months. (To include authors, titles and full references)

Impact of flavivirus vaccine-induced immunity on primary Zika virus antibody response in humans.
 Malafa S, Medits I, Aberle JH, Aberle SW, Haslwanter D, Tsouchnikas G, Wölfel S, Huber KL, Percivalle E, Cherpillod P, Thaler M, Roßbacher L, Kundi M, Heinz FX, Stiasny K.
 PLoS Negl Trop Dis. 2020 Feb 4;14(2)

Cerebrospinal fluid features in SARS-CoV-2 RT-PCR positive patients.
 Bellon M, Schweblin C, Lambeng N, Cherpillod P, Vazquez J, Lalive PH, Schibler M, Deffert
 C.Clin Infect Dis. 2020 Aug 8

COVID-19 epidemic in Switzerland: on the importance of testing, contact tracing and isolation.
 Salathé M, Althaus CL, Neher R, Stringhini S, Hodcroft E, Fellay J, Zwahlen M, Senti G, Battgay M, Wilder-Smith A, Eckerle I, Egger M, Low N.
 Swiss Med Wkly. 2020 Mar 19

Covid-19: a puzzle with many missing pieces.
 Vetter P, Eckerle I, Kaiser L.
 BMJ. 2020 Feb 19

SARS-CoV-2 seroprevalence in COVID-19 hotspots.
 Eckerle I, Meyer B.
 Lancet. 2020 Aug 22;396(10250):514-515

Seroprevalence of anti-SARS-CoV-2 IgG antibodies in Geneva, Switzerland (SEROCoV-POP): a population-based study.
 Stringhini S, Wisniak A, Piumatti G, Azman AS, Lauer SA, Baysson H, De Ridder D, Petrovic D, Schrempft S, Marcus K, Yerly S, Arm Vernez I, Keiser O, Hurst S, Posfay-Barbe KM, Trono D, Pittet D, Gétaz L, Chappuis F, Eckerle I, Vuilleumier N, Meyer B, Flahault A, Kaiser L, Guessous I.
 Lancet. 2020 Aug 1;396(10247):313-319

Culture-Competent SARS-CoV-2 in Nasopharynx of Symptomatic Neonates, Children, and Adolescents.
 L'Huillier AG, Torriani G, Pigny F, Kaiser L, Eckerle I.
 Emerg Infect Dis. 2020 Oct;26(10)

Scientific consensus on the COVID-19 pandemic: we need to act now.

Alwan NA, Burgess RA, Ashworth S, Beale R, Bhadelia N, Bogaert D, Dowd J, Eckerle I, Goldman LR, Greenhalgh T, Gurdasani D, Hamdy A, Hanage WP, Hodcroft EB, Hyde Z, Kellam P, Kelly-Irving M, Krammer F, Lipsitch M, McNally A, McKee M, Nouri A, Pimenta D, Priesemann V, Rutter H, Silver J, Sridhar D, Swanton C, Walensky RP, Yamey G, Ziauddeen H.

Lancet. 2020 Oct 31;396(10260)

Validation of a commercially available SARS-CoV-2 serological immunoassay.

Meyer B, Torriani G, Yerly S, Mazza L, Calame A, Arm-Vernez I, Zimmer G, Agoritsas T, Stirnemann J, Spechbach H, Guessous I, Stringhini S, Pugin J, Roux-Lombard P, Fontao L, Siegrist CA, Eckerle I, Vuilleumier N, Kaiser L; Geneva Center for Emerging Viral Diseases.

Clin Microbiol Infect. 2020 Oct;26(10):1386-1394

Diagnostic accuracy of Augurix COVID-19 IgG serology rapid test.

Andrey DO, Cohen P, Meyer B, Torriani G, Yerly S, Mazza L, Calame A, Arm-Vernez I, Guessous I, Stringhini S, Roux-Lombard P, Fontao L, Agoritsas T, Stirnemann J, Reny JL, Siegrist CA, Eckerle I, Kaiser L, Vuilleumier N; Geneva Centre for Emerging Viral Diseases.

Eur J Clin Invest. 2020 Oct;50(10)

Immunological assessment of pediatric multisystem inflammatory syndrome related to COVID-19.

Grazioli S, Tavaglione F, Torriani G, Wagner N, Rohr M, L'Huillier AG, Leclercq C, Perrin A, Bordessoule A, Beghetti M, Pachlopnik J, Vavassori S, Perreau M, Eberhardt C, Didierlaurent A, Kaiser L, Eckerle I, Roux-Lombard P, Blanchard-Rohner G.

J Pediatric Infect Dis Soc. 2020 Nov 12

Definitions for coronavirus disease 2019 reinfection, relapse and PCR re-positivity.

Yahav D, Yelin D, Eckerle I, Eberhardt CS, Wang J, Cao B, Kaiser L.

Clin Microbiol Infect. 2020 Dec 5

SARS-CoV-2 viral load in the upper respiratory tract of children and adults with early acute COVID-19.

Baggio S, L'Huillier AG, Yerly S, Bellon M, Wagner N, Rohr M, Huttner A, Blanchard-Rohner G, Loevy N, Kaiser L, Jacqueroz F, Eckerle I.

Clin Infect Dis. 2020 Aug 6

Serology-informed estimates of SARS-CoV-2 infection fatality risk in Geneva, Switzerland.

Perez-Saez J, Lauer SA, Kaiser L, Regard S, Delaporte E, Guessous I, Stringhini S, Azman AS; Serocov-POP Study Group.

Lancet Infect Dis. 2020 Jul 14:S1473-3099(20)30584-3

Delayed Laboratory Response to COVID-19 Caused by Molecular Diagnostic Contamination.

Mögling R, Meijer A, Berginc N, Bruisten S, Charrel R, Coutard B, Eckerle I, Enouf V, Hungnes O, Korukluoglu G, Kossyvakis T, Mentis A, Molenkamp R, Muradrasoli S, Papa A, Pigny F, Thirion L, van der Werf S, Reusken C.

Emerg Infect Dis. 2020 Aug;26(8):1944-1946

Unbiased metagenomic next-generation sequencing of blood from hospitalized febrile children in Gabon.

Fernandes JF, Laubscher F, Held J, Eckerle I, Docquier M, Grobusch MP, Mordmüller B, Kaiser L, Cordey S.

Emerg Microbes Infect. 2020 Dec;9(1)

Validation and clinical evaluation of a SARS-CoV-2 surrogate virus neutralisation test (sVNT).

Meyer B, Reimerink J, Torriani G, Brouwer F, Godeke GJ, Yerly S, Hoogerwerf M, Vuilleumier N, Kaiser L, Eckerle I, Reusken C.

Emerg Microbes Infect. 2020 Dec;9(1)

Head-to-Head Accuracy Comparison of Three Commercial COVID-19 IgM/IgG Serology Rapid Tests.

Andrey DO, Cohen P, Meyer B, Torriani G, Yerly S, Mazza L, Calame A, Arm-Vernez I, Guessous I, Stringhini S, Roux-Lombard P, Fontao L, Agoritsas T, Stirnemann J, Reny JL, Siegrist CA, Eckerle I, Kaiser L, Vuilleumier N.

J Clin Med. 2020 Jul 24;9(8)

Daily Viral Kinetics and Innate and Adaptive Immune Response Assessment in COVID-19: a Case Series.

Vetter P, Eberhardt CS, Meyer B, Martinez Murillo PA, Torriani G, Pigny F, Lemeille S, Cordey S, Laubscher F, Vu DL, Calame A, Schibler M, Jacqueroz F, Blanchard-Rohner G, Siegrist CA, Kaiser L, Didierlaurent AM, Eckerle I.

mSphere. 2020 Nov 11;5(6)

Development and Validation of the Elecsys Anti-SARS-CoV-2 Immunoassay as a Highly Specific Tool for Determining Past Exposure to SARS-CoV-2.

Muench P, Jochum S, Wenderoth V, Ofenloch-Haehnle B, Hombach M, Strobl M, Sadlowski H, Sachse C, Torriani G, Eckerle I, Riedel A.

J Clin Microbiol. 2020 Sep 22;58(10)

Notes:

N/A

Attachments:

N/A

5. Briefly describe the biological defence work carried out at the facility, including type(s) of micro-organisms ⁹ and/or toxins studied, as well as outdoor studies of biological aerosols.

The National Reference Center for Emerging Viral Diseases (CRIVE/NAVI) is a national reference laboratory by order of the Federal Office of Public Health. Its task is the detection of emerging and re-emerging viruses of all biosafety levels, especially hemorrhagic fever viruses and smallpox virus. The BSL4 unit is approved for diagnostic purposes only, which does not allow any culturing or enrichment of such viruses. The National Reference Center for Emerging Viral Diseases is part of the Laboratory of Virology (LV) at the University Hospitals of Geneva. Since January 1st, 2018, the CRIVE acts also as WHO National Center for Measles and Rubella.

Since the beginning of 2020, the CRIVE has been performing about 200'000 SARS-CoV-2 screening PCR and many thousands serologies. Currently, the CRIVE also performs Sanger and NGS sequencing on SARS-CoV-2 genomes for identification of "UK and South Africa" mutants.

The LV performs the analysis of many viruses impacting the human health as done in most of the hospitals (HIV, Hepatitis, CMV, EBV, respiratory and enteric viruses, etc.). LV does most of the viral analysis needed by an university hospital.

LV also hosts the Swiss National Center for Influenza.

For further information please visit (website in French):

<https://www.hug-ge.ch/laboratoire-virologie>

1. What is the name of the facility?

Institut für Virologie und Immunologie (Institute of Virology and Immunology)

2. Where is it located (include both address and geographical location)?

Institut für Virologie und Immunologie, Bundesamt für Lebensmittelsicherheit und Veterinärwesen,

Eidgenössisches Departement des Innern, Sensemattstrasse 293, CH-3147 Mittelhäusern, Switzerland

N 46° 52' 50.20", E 7° 21' 46.81"

3. Floor area of laboratory areas by containment level:

BL 2: 210 SqM

BL 3: 44 SqM

ABL 3 Ag: 10446 SqM

Of note, BSL3Ag facilities have special features not comparable to standard BSL3 or BSL4 facilities. The shell is considered BSL4, whereas inside the containment area BSL1, BSL2 and BSL3 space is common standard. Personnel enters through a shower barrier and is provided with suitable laboratory clothing for BSL1, 2 and 3 inside the containment area. Personnel has to shower out when leaving the containment area and has to keep a 72h quarantine (no contact to cloven hoofed animals). The IVI fulfills the requirements of the EU Minimum Biorisk Management Standards for Laboratories Working with Foot-And-Mouth Disease Virus. Due to these special features of BSL3Ag facilities, the BSL3Ag area is not limited to laboratory units only, but also includes engineering floors such as effluent treatment plant or ventilation units and animal units, which are all located within the containment area. Therefore, all maintenance work has to be done during operation – the facility has never been shut down so far. This also means that a direct comparison with BSL4 facilities is not practicable. Licenses are as follows: “Quality controls of immuno-biological products for use in applications of veterinary medicine”; “Establishment of a cell-based rapid test to determine protection provided by vaccination against foot-and-mouth disease virus”; “Validation of decontamination by H2O2”; “Diagnostics of viral pathogens causing highly contagious animal diseases”; “Peste des petits ruminants virulence”.

Total laboratory floor area (SqM):

10700

4. The organizational structure of each facility.

(i) Total number of personnel: 64

(ii) Division of personnel:

Military: 0

Civilian: 64

(iii) Division of personnel by category:

Scientists: 31

Engineers: 8

Technicians: 20

Administrative and support staff: 5

(iv) List the scientific disciplines represented in the scientific/engineering staff.

Virology, immunology, vaccine control, diagnostics, development and validation of methods, biosafety, engineering, animal breeding.

(v) Are contractor staff working in the facility? If so, provide an approximate number.

0

(vi) What is (are) the source(s) of funding for the work conducted in the facility, including indication if activity is wholly or partly financed by the Ministry of Defence?

Swiss Confederation (Federal Department of Home Affairs).

Research	15 %
Development	10 %
Test & Evaluation	10 %
Analysis / Diagnosis	25 %
Education & Training	10 %
Other activities	30 % (costs for safety, infrastructure and administration)

(vii) What are the funding levels for the following programme areas:

Research: 15 %

Development: 10 %

Test and evaluation: 10 %

(viii) Briefly describe the publication policy of the facility:

Publication in open literature.

(ix) Provide a list of publicly-available papers and reports resulting from the work published during the previous 12 months. (To include authors, titles and full references)

Ancar, R., Li, Y., Kindler, E., Cooper, D.A., Ransom, M., Thiel, V., Weiss, S.R., Hesselberth, J.R., and Barton, D.J. (2020) Physiologic RNA targets and refined sequence specificity of coronavirus EndoU. *RNA* 26:12, 1976-1999. (PubMed) (Artikel)

Auray, G., Talker, S.C., Keller, I., Python, S., Gerber, M., Liniger, M., Ganges, L., Bruggmann, R., Ruggli, N., and Summerfield, A. (2020) High-resolution profiling of innate immune responses by porcine dendritic cell subsets in vitro and in vivo. *Frontiers in Immunology* 11, 1429. (PubMed) (Artikel)

Barut, G.T.#, Lischer, H.E.L., Bruggmann, R., Summerfield, A., and Talker, S.C. (2020) Transcriptomic profiling of bovine blood dendritic cells and monocytes following toll-like receptor stimulation. *European Journal of Immunology* 50:11, 1691-1711. (PubMed) (Artikel)

Beyeler, S.#, Steiner, S., Wotzkow, C., Tschanz, S.A., Adhanom Sengal, A., Wick, P., Haenni, B., Alves, M.P., von Garnier, C., and Blank, F. (2020) Multi-walled carbon nanotubes activate and shift polarization of pulmonary macrophages and dendritic cells in an in vivo model of chronic obstructive lung disease. *Nanotoxicology* 14:1, 77-96. (PubMed) (Artikel)

Blockus, S., Sake, S.M., Wetzke, M., Grethe, C., Graalman, T., Pils, M., Le Goffic, R., Galloux, M., Prochnow, H., Rox, K., Hüttel, S., Rucic, Z., Wiegmann, B., Dijkman, R., Rameix-Welti, M.A., Eléouët, J.F., Duprex, W.P., Thiel, V., Hansen, G., Brönstrup, M., Haid, S., and Pietschmann, T. (2020) Labyrinthopeptins as virolytic inhibitors of respiratory syncytial virus cell entry. *Antiviral Research* 177, 104774. (PubMed) (Artikel)

Cabanelas, E., Panadero, R., Baumman, A., Alves, M.P., Summerfield, A., García-Dios, D., Díaz, P., Remesar, S., Fernández, G., Morrondo, M.P., Díez-Baños, P., and López, C.M. (2020) Cytokine expression in bovine PBMC cultures stimulated with *Hypoderma lineatum* antigens. *Veterinary Parasitology* 283, 109165. (PubMed) (Artikel)

Cong, Y., Ulasli, M., Schepers, H., Mauthe, M., V'kovski, P., Kriegenburg, F., Thiel, V., de Haan, C.A.M., and Reggiori, F. (2020) Nucleocapsid protein recruitment to replication-transcription complexes plays a crucial role in coronaviral life cycle. *Journal of Virology* 94:4, e01925-19. (PubMed) (Artikel)

Eiden, S., Dijkman, R., Zell, R., Fuchs, J., and Kochs, G. (2020) Using a mouse-adapted A/HK/01/68 influenza virus to analyse the impact of NS1 evolution in codons 196 and 231 on viral replication and virulence. *Journal of General Virology* 101:6, 587-598. (PubMed) (Artikel)

- Eschbaumer, M., Vöggtlin, A., Paton, D.J., Barnabei, J.L., Sanchez-Vazquez, M.J., Pituco, E.M., Rivera, A.M., O'Brien, D., Nfon, C., Brocchi, E., Bakkali Kassimi, L., Lefebvre, D.J., Navarro López, R., Maradei, E., Duffy, S.J., Loitsch, A., De Clercq, K., King, D.P., Zientara, S., Griot, C., and Beer, M. (2020) Non-discriminatory exclusion testing as a tool for the early detection of foot-and-mouth disease incursions. *Frontiers in Veterinary Science* 7, 552670. (PubMed) (Artikel)
- Ganges, L., Crooke, H.R., Bohórquez, J.A., Postel, A., Sakoda, Y., Becher, P., and Ruggli, N. (2020) Classical swine fever virus: the past, present and future. *Virus Research* 289, 198151. (PubMed) (Artikel)
- Gasbarri, M., V'kovski, P., Torriani, G., Thiel, V., Stellacci, F., Tapparel, C., and Cagno, V. (2020) SARS-CoV-2 inhibition by sulfonated compounds. *Microorganisms* 8:12, 1894. (PubMed) (Artikel)
- Gultom, M.#, Laloli, L.#, and Dijkman, R. (2020) Well-differentiated primary mammalian airway epithelial cell cultures. *Methods in Molecular Biology* 2203, 119-134. (PubMed) (Artikel)
- Hidber, T., Pauli, U., Steiner, A., and Kuhnert, P. (2020) In vitro and ex vivo testing of alternative disinfectants to currently used more harmful substances in footbaths against *Dichelobacter nodosus*. *PLoS ONE* 15:2, e0229066. (PubMed) (Artikel)
- Hilty, M., Wüthrich, T.M.#, Godel, A., Adelfio, R., Aebi, S., Burgener, S.S., Illgen-Wilcke, B., and Benarafa, C. (2020) Chronic cigarette smoke exposure and pneumococcal infection induce oropharyngeal microbiota dysbiosis and contribute to long-lasting lung damage in mice. *Microbial Genomics* 6:12, e000485. (PubMed) (Artikel)
- Holwerda, M.#, V'Kovski, P., Wider, M., Thiel, V., and Dijkman, R. (2020) Identification of an antiviral compound from the pandemic response box that efficiently inhibits SARS-CoV-2 infection in vitro. *Microorganisms* 8:12, 1872. (PubMed) (Artikel)
- Hufsky, F., Beerenwinkel, N., Meyer, I.M., Roux, S., Cook, G.M., Kinsella, C.M., Lamkiewicz, K., Marquet, M., Nieuwenhuijse, D.F., Olendraite, I., Paraskevopoulou, S., Young, F., Dijkman, R., Ibrahim, B., Kelly, J., Le Mercier, P., Marz, M., Ramette, A., and Thiel, V. (2020) The International Virus Bioinformatics Meeting 2020. *Viruses-Basel* 12:12, 1398. (PubMed) (Artikel)
- Hüppi, L., Ruggli, N., Python, S., Hoop, R., Albin, S., Grund, C., and Vöggtlin, A. (2020) Experimental pigeon paramyxovirus-1 infection in chicken: evaluation of infectivity, clinical and pathological manifestations and diagnostic methods. *Journal of General Virology* 101:2, 156-167. (PubMed) (Artikel)
- Itakura, Y., Matsuno, K., Ito, A., Gerber, M., Liniger, M., Fujimoto, Y., Tamura, T., Kameyama, K.I., Okamoto, M., Ruggli, N., Kida, H., and Sakoda, Y. (2020) A cloned classical swine fever virus derived from the vaccine strain GPE- causes cytopathic effect in CPK-NS cells via type-I interferon-dependent necroptosis. *Virus Research* 276, 197809. (PubMed) (Artikel)
- Jores, J., Baldwin, C., Blanchard, A., Browning, G.F., Colston, A., Gerds, V., Goovaerts, D., Heller, M., Juleff, N., Labroussaa, F., Liljander, A., Muuka, G., Nene, V., Nir-Paz, R., Sacchini, F., Summerfield, A., Thiaucourt, F., Unger, H., Vashee, S., Wang, X., and Salt, J. (2020) Contagious bovine and caprine pleuropneumonia: a research community's recommendations for the development of better vaccines. *npj Vaccines* 5, 66. (PubMed) (Artikel)
- Kauer, R.V., Koch, M.C., Schönecker, L., Becker, J., Holwerda, M.#, Glaus, A.N., Hierweger, M.M., Werder, S., Dijkman, R., Meylan, M., and Seuberlich, T. (2020) Fecal shedding of bovine astrovirus CH13/NeuroS1 in veal calves. *Journal of Clinical Microbiology* 58:5, e01964-19. (PubMed) (Artikel)
- Kratzel, A.#, Steiner, S.#, Todt, D., V'kovski, P., Brueggemann, Y., Steinmann, J., Steinmann, E., Thiel, V., and Pfaender, S. (2020) Temperature-dependent surface stability of SARS-CoV-2. *Journal of Infection* 81:3, 474-476. (PubMed) (Artikel)

- Kratzel, A.#, Todt, D., V'kovski, P., Steiner, S.#, Gultom, M.#, Thao, T.T.N.#, Ebert, N., Holwerda, M.#, Steinmann, J., Niemeyer, D., Dijkman, R., Kampf, G., Drosten, C., Steinmann, E., Thiel, V., and Pfaender, S. (2020) Inactivation of severe acute respiratory syndrome coronavirus 2 by WHO-recommended hand rub formulations and alcohols. *Emerging Infectious Diseases* 26:7, 1592-1595. (PubMed) (Artikel)
- Leborgne, N.G.F.#, Taddeo, A., Freigang, S., and Benarafa, C. (2020) Serpinb1a is dispensable for the development and cytokine response of invariant natural killer T cell subsets. *Frontiers in Immunology* 11, 562587. (PubMed) (Artikel)
- Meng, X.J., and Thiel, V. (2020) Emerging and re-emerging porcine viruses [Editorial]. *Virus Research* 290, 198198. (PubMed) (Artikel)
- Meyer, B., Torriani, G., Yerly, S., Mazza, L., Calame, A., Arm-Vernez, I., Zimmer, G., Agoritsas, T., Stirnemann, J., Spechbach, H., Guessous, I., Stringhini, S., Pugin, J., Roux-Lombard, P., Fontao, L., Siegrist, C.A., Eckerle, I., Vuilleumier, N., Kaiser, L., for the Geneva Center for Emerging Viral Diseases (2020) Validation of a commercially available SARS-CoV-2 serological immunoassay. *Clinical Microbiology and Infection* 26:10, 1386-1394. (PubMed) (Artikel)
- Moreno, H., Rastrojo, A., Pryce, R., Fedeli, C., Zimmer, G., Bowden, T.A., Gerold, G., and Kunz, S. (2020) A novel circulating tamiami mammarenavirus shows potential for zoonotic spillover. *PLoS Neglected Tropical Diseases* 14:12, e0009004. (PubMed) (Artikel)
- Nardelli, S., Bettini, A., Capello, K., Bertoni, G., and Tavella, A. (2020) Eradication of caprine arthritis encephalitis virus in the goat population of South Tyrol, Italy: analysis of the tailing phenomenon during the 2016-2017 campaign. *Journal of Veterinary Diagnostic Investigation* 32:4, 589-593. (PubMed) (Artikel)
- Pfaender, S., Mar, K.B., Michailidis, E., Kratzel, A., Boys, I.N., V'kovski, P., Fan, W., Kelly, J.N., Hirt, D., Ebert, N., Stalder, H., Kleine-Weber, H., Hoffmann, M., Heinrich Hoffmann, H., Saeed, M., Dijkman, R., Steinmann, E., Wight-Carter, M., McDougal, M.B., Hanners, N.W., Pöhlmann, S., Gallagher, T., Todt, D., Zimmer, G., Rice, C.M., Schoggins, J.W., and Thiel, V. (2020) LY6E impairs coronavirus fusion and confers immune control of viral disease. *Nature Microbiology* 5:11, 1330-1339. (PubMed) (Artikel)
- Saade, G., Deblanc, C., Bougon, J., Marois-Créhan, C., Fablet, C., Auray, G., Belloc, C., Leblanc-Maridor, M., Gagnon, C.A., Zhu, J., Gottschalk, M., Summerfield, A., Simon, G., Bertho, N., and Meurens, F. (2020) Coinfections and their molecular consequences in the porcine respiratory tract. *Veterinary Research* 51:1, 80. (PubMed) (Artikel)
- Schubert, K., Karousis, E.D., Jomaa, A., Scaiola, A., Echeverria, B., Gurzeler, L.A., Leibundgut, M., Thiel, V., Mühlemann, O., and Ban, N. (2020) SARS-CoV-2 Nsp1 binds the ribosomal mRNA channel to inhibit translation. *Nature Structural & Molecular Biology* 27, 959-966. (PubMed) (Artikel)
- Thao, T.T.N.#, Labroussaa, F., Ebert, N., Jores, J., and Thiel, V. (2020) In-yeast assembly of coronavirus infectious cDNA clones using a synthetic genomics pipeline. *Methods in Molecular Biology* 2203, 167-184. (PubMed) (Artikel)
- Thao, T.T.N.#, Labroussaa, F., Ebert, N., V'kovski, P., Stalder, H.P., Portmann, J., Kelly, J., Steiner, S.#, Holwerda, M.#, Kratzel, A.#, Gultom, M.#, Schmied, K., Laloli, L.#, Hüsser, L., Wider, M., Pfaender, S., Hirt, D., Cippà, V., Crespo-Pomar, S., Schröder, S., Muth, D., Niemeyer, D., Corman, V., Müller, M.A., Drosten, C., Dijkman, R., Jores, J., and Thiel, V. (2020) Rapid reconstruction of SARS-CoV-2 using a synthetic genomics platform. *Nature* 582:7813, 561-565. (PubMed) (Artikel) (Medienmitteilung)
- Thiel, V. (2020) Viral RNA in an m6A disguise. *Nature Microbiology* 5:4, 531-532. (PubMed) (Artikel)
- Thiel, V., and Jores, J. (2020) Ein Klon geht um die Welt. *Pipette* 2, 16-17. (Artikel)

Trueeb, B.S., Braun, R.O.#, Auray, G., Kuhnert, P., and Summerfield, A. (2020) Differential innate immune responses induced by *Mycoplasma hyopneumoniae* and *Mycoplasma hyorhinis* in various types of antigen presenting cells. *Veterinary Microbiology* 240, 108541. (PubMed) (Artikel)

Usemann, J., Alves, M.P., Ritz, N., Latzin, P., and Müller, L. (2020) Age-dependent response of the human nasal epithelium to rhinovirus infection. *European Respiratory Journal* 56:5, 2000877. (PubMed) (Artikel)

Vizcaíno Revés, N., Mogel, H.M., Stoffel, M., Summerfield, A., and Forterre, F. (2020) Polarization of macrophages in epidural inflammation induced by canine intervertebral disc herniation. *Frontiers in Veterinary Science* 7, 32. (PubMed) (Artikel)

V'kovski, P., Steiner, S.#, and Thiel, V. (2020) Proximity labeling for the identification of coronavirus-host protein interactions. *Methods in Molecular Biology* 2203, 187-204. (PubMed) (Artikel)

Wang, L., Dorn, P., Zeinali, S., Froment, L., Berezowska, S., Kocher, G.J., Alves, M.P., Brügger, M.#, Esteves, B.I.O., Blank, F., Wotzkow, C., Steiner, S., Amacker, M., Peng, R.W., Marti, T.M., Guenat, O.T., Bode, P.K., Moehrlen, U., Schmid, R.A., and Hall, S.R.R. (2020) CD90+CD146+ identifies a pulmonary mesenchymal cell subtype with both immune modulatory and perivascular-like function in postnatal human lung. *American Journal of Physiology - Lung Cellular and Molecular Physiology* 318:4, L813-L830. (PubMed) (Artikel)

Wang, M., Liniger, M., Muñoz-González, S., Bohórquez, J.A., Hinojosa, Y.#, Gerber, M., López-Soria, S., Rosell, R., Ruggli, N., and Ganges, L. (2020) A poly-uridine insertion in the 3'-untranslated region of classical swine fever virus activates immunity and reduces viral virulence in piglets. *Journal of Virology* 94:2, e01214-19. (PubMed) (Artikel)

Warryn, L., Dangy, J.P., Gersbach, P., Gehringer, M., Schäfer, A., Ruf, M.T., Ruggli, N., Altmann, K.H., and Pluschke, G. (2020) Development of an ELISA for the quantification of mycolactone, the cytotoxic macrolide toxin of *Mycobacterium ulcerans*. *PLoS Neglected Tropical Diseases* 14:6, e0008357. (PubMed) (Artikel)

Zaugg, I., Herrmann, N., and Ottiger, H. (2020) Vaccinovigilance: Gemeldete unerwünschte Wirkungen immunologischer Tierarzneimittel im Jahr 2019. *Schweizer Archiv für Tierheilkunde* 162:10, 617-624. (PubMed) (Artikel)

Zettl, F., Meister, T.L., Vollmer, T., Fischer, B., Steinmann, J., Krawczyk, A., V'kovski, P., Todt, D., Steinmann, E., Pfaender, S., and Zimmer, G. (2020) Rapid quantification of SARS-CoV-2-neutralizing antibodies using propagation-defective vesicular stomatitis virus pseudotypes. *Vaccines (Basel)* 8:3, 386. (PubMed) (Artikel)

Zhou, H., Møhlenberg, M., Terczyńska-Dyla, E., Winther, K.G., Hansen, N.H., Vad-Nielsen, J., Laloli, L.#, Dijkman, R., Nielsen, A.L., Gad, H.H., and Hartmann, R. (2020) The IFNL4 gene is a non-canonical interferon gene with a unique but evolutionarily conserved regulation. *Journal of Virology* 94:5, e01535-19. (PubMed) (Artikel)

Notes:

N/A

Attachments:

N/A

5. Briefly describe the biological defence work carried out at the facility, including type(s) of micro-organisms [9](#) and/or toxins studied, as well as outdoor studies of biological aerosols.

The Institute of Virology and Immunology (IVI), which is part of the Swiss Federal Food Safety and Veterinary Office, is the ISO 17025 accredited institute for the diagnosis, surveillance and control of highly contagious epizootics. In addition, the IVI pursues research both on these viruses and emerging viral diseases, as well as their potential transmission to man. The IVI is also the competent authority issuing the licenses required for the sale of veterinary immunobiological products. Basic research is carried out in the fields of immunology and virology, and involves influenza virus, foot-and-mouth disease virus, classical swine fever virus and porcine circovirus type 2 as well as coronaviruses. The development and diagnostics branches focus on assays and tests for classical and african swine fever, foot-and-mouth disease, avian influenza, bluetongue, and other highly contagious infectious diseases. In this domain, the IVI occupies a leading position internationally.

For further information please visit:

<https://www.ivi.admin.ch/ivi/en/home.html>

1. What is the name of the facility?

Laboratoire de Bactériologie (Bacteriological Laboratory)

2. Where is it located (include both address and geographical location)?

Laboratoire de Bactériologie, Hôpitaux Universitaires de Genève, Rue Gabrielle Perret-Gentil 4, CH-1211 Genève 14, Switzerland

N 46° 11' 37.20", E 6° 8' 59.92"

3. Floor area of laboratory areas by containment level:

BL 2: 394 SqM

BL 3: 74 SqM

Total laboratory floor area (SqM):

468

4. The organizational structure of each facility.

(i) Total number of personnel: 6

(ii) Division of personnel:

Military: 0

Civilian: 6

(iii) Division of personnel by category:

Scientists: 3

Engineers: 0

Technicians: 3

Administrative and support staff: 0

(iv) List the scientific disciplines represented in the scientific/engineering staff.

Medicine, biology, microbiology, molecular biology, bacterial genetics, infectious diseases.

(v) Are contractor staff working in the facility? If so, provide an approximate number.

0

(vi) What is (are) the source(s) of funding for the work conducted in the facility, including indication if activity is wholly or partly financed by the Ministry of Defence?

Cantons of Fribourg, Genève, Neuchâtel, Valais, Vaud.

Research	0 %
Development	5 %
Test & Evaluation	40 %
Analysis / Diagnosis	40 %
Education & Training	13 %
Other activities	2 % (costs for maintenance and administration)

(vii) What are the funding levels for the following programme areas:

Research: 0 %
 Development: 5 %
 Test and evaluation: 40 %

(viii) Briefly describe the publication policy of the facility:

Publication in open literature.

(ix) Provide a list of publicly-available papers and reports resulting from the work published during the previous 12 months. (To include authors, titles and full references)

Population structure, genetic diversity and pathotypes of *Streptococcus suis* isolated during the last 13 years from diseased pigs in Switzerland.

Scherrer S, Rosato G, Spoerry Serrano N, Stevens MJA, Rademacher F, Schrenzel J, Gottschalk M, Stephan R, Peterhans S

Vet Res. 2020 Jul 8;51(1):85. doi: 10.1186/s13567-020-00813-w.

[Abstract] [PubMed]

Cutaneous ulcers revealing diphtheria: A re-emerging disease imported from Indian Ocean countries?

Alberto C, Osdoit S, Villani AP, Bellec L, Belmonte O, Schrenzel J, Bagny K

Ann Dermatol Venereol. 2020 Jul 3:S0151-9638(20)30251-9. doi: 10.1016/j.annder.2020.04.024.

[Abstract] [PubMed]

Impact of the Novel Prophage ϕ SA169 on Persistent Methicillin-Resistant *Staphylococcus aureus* Endovascular Infection.

Li L, Wang G, Li Y, Francois P, Bayer AS, Chen L, Seidl K, Cheung A, Xiong YQ

mSystems. 2020 Jun 30;5(3):e00178-20. doi: 10.1128/mSystems.00178-20.

[Abstract] [PubMed]

Digital microbiology.

Egli A, Schrenzel J, Greub G

Clin Microbiol Infect. 2020 Jun 27:S1198-743X(20)30367-0. doi: 10.1016/j.cmi.2020.06.023.

[Abstract] [PubMed]

Metagenomic Characterization of Gut Microbiota of Carriers of Extended-Spectrum Beta-Lactamase or Carbapenemase-Producing Enterobacteriaceae Following Treatment with Oral Antibiotics and Fecal Microbiota Transplantation: Results from a Multicenter Randomized Trial.

Leo S, Lazarevic V, Girard M, Gaïa N, Schrenzel J, de Lastours V, Fantin B, Bonten M, Carmeli Y, Rondinaud E, Harbarth S, Huttner BD

Microorganisms. 2020 Jun 23;8(6):E941. doi: 10.3390/microorganisms8060941.

[Abstract] [PubMed]

[Microbiota specificities among the elderly Summary of the 5th symposium « Feeding the Microbiota »].

Zanella MC, Genton L, Schrenzel J

Rev Med Suisse. 2020 Jun 17;16(698):1266-1269.

[Abstract] [PubMed]

SPHN/PHRT: Forming a Swiss-Wide Infrastructure for Data-Driven Sepsis Research.

Egli A, Battagay M, Büchler AC, Bühlmann P, Calandra T, Eckert P, Furrer H, Greub G, Jakob SM, Kaiser L, Leib SL, Marsch S, Meinshausen N, Pagani JL, Pugin J, Räscht G, Schrenzel J, Schüpbach R, Siegemund M, Zamboni N, Zbinden R, Zinkernagel A, Borgwardt K

Stud Health Technol Inform. 2020 Jun 16;270:1163-1167. doi: 10.3233/SHTI200346.

[Abstract] [PubMed]

Strain coverage of Bexsero vaccine assessed by whole-genome sequencing over a cohort of invasive meningococci of serogroups B and W isolated in Switzerland.

Leo S, Lazarevic V, Girard M, Getaz-Jimenez Velasco GC, Gaia N, Renzi G, Cherkaoui A, Hong E, Taha MK, Schrenzel J

Vaccine. 2020 Jul 14;38(33):5324-5331. doi: 10.1016/j.vaccine.2020.05.071. Epub 2020 Jun 16.

[Abstract] [PubMed]

Influenza-associated aspergillosis in critically-ill patients-a retrospective bicentric cohort study.

Waldeck F, Boroli F, Suh N, Wendel Garcia PD, Flury D, Notter J, Iten A, Kaiser L, Schrenzel J, Boggian K, Maggiorini M, Pugin J, Kleger GR, Albrich WC

Eur J Clin Microbiol Infect Dis. 2020 Jun 3:1-9. doi: 10.1007/s10096-020-03923-7.

[Abstract] [PubMed]

Septic shock caused by *Capnocytophaga canis* after a cat scratch.

Donner V, Buzzi M, Lazarevic V, Gaia N, Girard M, Renzi F, Renzi G, Cherkaoui A, Schrenzel J

Eur J Clin Microbiol Infect Dis. 2020 May 24. doi: 10.1007/s10096-020-03922-8.

[Abstract] [PubMed]

Niche specialization and spread of *Staphylococcus capitis* involved in neonatal sepsis.

Wirth T, Bergot M, Rasigade JP, Pichon B, Barbier M, Martins-Simoes P, Jacob L, Pike R, Tissieres P, Picaud JC, Kearns A, Supply P, Butin M, Laurent F

Nat Microbiol. 2020 May;5(5):735-745. doi: 10.1038/s41564-020-0676-2. Epub 2020 Apr 27.

[Abstract] [PubMed]

Performances and usefulness of Xpert MTB/RIF assay in low-incidence settings: not that bad?

Pham TT, Schrenzel J, Janssens JP, Emonet S

Eur J Clin Microbiol Infect Dis. 2020 Apr 18. doi: 10.1007/s10096-020-03887-8.

[Abstract] [PubMed]

"French Phage Network" Annual Conference-Fifth Meeting Report.

Laumay F, Chaib A, Linares R, Breyton C

Viruses. 2020 Apr 14;12(4):446. doi: 10.3390/v12040446.

[Abstract] [PubMed]

Implementation of the WASPLab™ and first year achievements within a university hospital.

Cherkaoui A, Renzi G, Viollet A, Fleischmann M, Metral-Boffod L, Dominguez-Amado D, Vuilleumier N, Schrenzel J

Eur J Clin Microbiol Infect Dis. 2020 Aug;39(8):1527-1534. doi: 10.1007/s10096-020-03872-1. Epub 2020 Apr 5.

[Abstract] [PubMed]

First case of *Streptococcus suis* infection in Switzerland: An emerging public health problem?

Olearo F, Marinosci A, Stephan R, Cherkaoui A, Renzi G, Gaia N, Leo S, Lazarevic V, Schrenzel J

Travel Med Infect Dis. 2020 Mar 5:101590. doi: 10.1016/j.tmaid.2020.101590.

[Abstract] [PubMed]

Rapid diagnostic tests for infectious diseases in the emergency department.

Bouzid D, Zanella MC, Kerneis S, Visseaux B, May L, Schrenzel J, Cattoir V

Clin Microbiol Infect. 2020 Feb 29:S1198-743X(20)30107-5. doi: 10.1016/j.cmi.2020.02.024.

[Abstract] [PubMed]

Changes in Microbiota Profiles After Prolonged Frozen Storage of Stool Suspensions.

Dorsaz S, Charretier Y, Girard M, Gaïa N, Leo S, Schrenzel J, Harbarth S, Huttner B, Lazarevic V

Front Cell Infect Microbiol. 2020 Feb 28;10:77. doi: 10.3389/fcimb.2020.00077. eCollection 2020.

[Abstract] [PubMed]

Second Periprosthetic Joint Infection Caused by Streptococcus dysgalactiae: How Genomic Sequencing Can Help Defining the Best Therapeutic Strategy.

Pham TT, Lazarevic V, Gaïa N, Girard M, Cherkaoui A, Suva D, Schrenzel J

Front Med (Lausanne). 2020 Feb 21;7:53. doi: 10.3389/fmed.2020.00053. eCollection 2020.

[Abstract] [PubMed]

Rapid high resolution melting assay to differentiate Streptococcus suis serotypes 2, 1/2, 1, and 14.

Scherrer S, Rademacher F, Spoerry Serrano N, Schrenzel J, Gottschalk M, Stephan R, Landolt P

Microbiologyopen. 2020 Apr;9(4):e995. doi: 10.1002/mbo3.995. Epub 2020 Jan 22.

[Abstract] [PubMed]

Rapid identification by MALDI-TOF/MS and antimicrobial disk diffusion susceptibility testing for positive blood cultures after a short incubation on the WASPLab.

Cherkaoui A, Renzi G, Azam N, Schorderet D, Vuilleumier N, Schrenzel J

Eur J Clin Microbiol Infect Dis. 2020 Jun;39(6):1063-1070. doi: 10.1007/s10096-020-03817-8. Epub 2020 Jan 21.

[Abstract] [PubMed]

Comparative Transcriptomic and Functional Assessments of Linezolid-Responsive Small RNA Genes in Staphylococcus aureus.

Gao W, Guérillot R, Lin YH, Tree J, Beaume M, François P, Monk IR, Seemann T, Schrenzel J, Howden BP, Stinear TP

mSystems. 2020 Jan 7;5(1):e00665-19. doi: 10.1128/mSystems.00665-19.

[Abstract] [PubMed]

Comparison of the Copan WASPLab incorporating the BioRad expert system against the SIRscan 2000 automatic for routine antimicrobial disc diffusion susceptibility testing.

Cherkaoui A, Renzi G, Fischer A, Azam N, Schorderet D, Vuilleumier N, Schrenzel J

Clin Microbiol Infect. 2020 May;26(5):619-625. doi: 10.1016/j.cmi.2019.11.008. Epub 2019 Nov 13.

[Abstract] [PubMed]

Notes:

N/A

Attachments:

N/A

5. Briefly describe the biological defence work carried out at the facility, including type(s) of micro-organisms [9](#) and/or toxins studied, as well as outdoor studies of biological aerosols.

The Bacteriological Laboratory, which is part of the University Hospitals of Geneva, is the Regional Competence Center for the primary analysis of bacteriological samples suspicious of a bioterror-related background. Protocols for the detection of bacteria causing anthrax, plague, tularemia and brucellosis have been established in close collaboration with the National Reference Center for Anthrax. Furthermore, there is a strong link between the Bacteriological Laboratory and the Genomic Research Laboratory that is executing basic and applied research projects under joint leadership. Translational research is actively promoted through this channel of cooperation.

For further information please visit (website in French):

<https://www.hug-ge.ch/laboratoire-bacteriologie>

1. What is the name of the facility?

Laboratoires de Diagnostic de l'Institut de Microbiologie (Diagnostic Laboratories of the Institute of Microbiology)

2. Where is it located (include both address and geographical location)?

Laboratoires de Diagnostic de l'Institut de Microbiologie, Département de Pathologie et Médecine de Laboratoire, Centre Hospitalier Universitaire Vaudois, Rue du Bugnon 48, CH-1011 Lausanne, Switzerland

N 46° 31' 30.57", E 6° 38' 29.15"

3. Floor area of laboratory areas by containment level:

BL 3: 77 SqM

Total laboratory floor area (SqM):

77

4. The organizational structure of each facility.

(i) Total number of personnel: 20

(ii) Division of personnel:

Military: 0

Civilian: 20

(iii) Division of personnel by category:

Scientists: 6

Engineers: 0

Technicians: 14

Administrative and support staff: 0

(iv) List the scientific disciplines represented in the scientific/engineering staff.

Bacteriology, mycology, parasitology, virology.

(v) Are contractor staff working in the facility? If so, provide an approximate number.

0

(vi) What is (are) the source(s) of funding for the work conducted in the facility, including indication if activity is wholly or partly financed by the Ministry of Defence?

Cantons of Fribourg, Genève, Neuchâtel, Valais, Vaud.

Research	0 %
Development	5 %
Test & Evaluation	10 %
Analysis / Diagnosis	50 %
Education & Training	15 %
Other activities	20 %

(vii) What are the funding levels for the following programme areas:

Research: 0 %
Development: 5 %
Test and evaluation: 10 %

(viii) Briefly describe the publication policy of the facility:

Publication in peer-reviewed open literature.

(ix) Provide a list of publicly-available papers and reports resulting from the work published during the previous 12 months. (To include authors, titles and full references)

Diagnostic strategies for SARS-CoV-2 infection and interpretation of microbiological results.

Caruana G, Croxatto A, Coste AT, Opota O, Lamoth F, Jaton K, Greub G.

Clin Microbiol Infect. 2020 Sep;26(9):1178-1182. doi: 10.1016/j.cmi.2020.06.019. Epub 2020 Jun 25.

PMID: 32593741 Free PMC article. Review.

Revision and Update of the Consensus Definitions of Invasive Fungal Disease From the European Organization for Research and Treatment of Cancer and the Mycoses Study Group Education and Research Consortium.

Donnelly JP, Chen SC, Kauffman CA, Steinbach WJ, Baddley JW, Verweij PE, Clancy CJ, Wingard JR, Lockhart SR, Groll AH, Sorrell TC, Bassetti M, Akan H, Alexander BD, Andes D, Azoulay E, Bialek R, Bradsher RW, Bretagne S, Calandra T, Caliendo AM, Castagnola E, Cruciani M, Cuenca-Estrella M, Decker CF, Desai SR, Fisher B, Harrison T, Heussel CP, Jensen HE, Kibbler CC, Kontoyiannis DP, Kullberg BJ, Lagrou K, Lamoth F, Lehrnbecher T, Loeffler J, Lortholary O, Maertens J, Marchetti O, Marr KA, Masur H, Meis JF, Morrissey CO, Nucci M, Ostrosky-Zeichner L, Pagano L, Patterson TF, Perfect JR, Racil Z, Roilides E, Ruhnke M, Prokop CS, Shoham S, Slavin MA, Stevens DA, Thompson GR, Vazquez JA, Viscoli C, Walsh TJ, Warris A, Wheat LJ, White PL, Zaoutis TE, Pappas PG.

Clin Infect Dis. 2020 Sep 12;71(6):1367-1376. doi: 10.1093/cid/ciz1008.

PMID: 31802125 Free PMC article.

Second-Trimester Miscarriage in a Pregnant Woman With SARS-CoV-2 Infection.

Baud D, Greub G, Favre G, Gengler C, Jaton K, Dubruc E, Pomar L.

JAMA. 2020 Jun 2;323(21):2198-2200. doi: 10.1001/jama.2020.7233.

PMID: 32352491 Free PMC article.

[Novelties in HIV prevention and treatment in 2019].

Kampouri E, Papadimitriou-Olivgeris M, Calmy A, Ciuffi A, Cavassini M.

Rev Med Suisse. 2020 Jan 15;16(676-7):92-98.

PMID: 31961093 French.

Letter to the editor: SARS-CoV-2 detection by real-time RT-PCR.

Pillonel T, Scherz V, Jaton K, Greub G, Bertelli C.

Euro Surveill. 2020 May;25(21):2000880. doi: 10.2807/1560-7917.ES.2020.25.21.2000880.

PMID: 32489175 Free PMC article. No abstract available.

Collapsing glomerulopathy in a COVID-19 patient.

Kissling S, Rotman S, Gerber C, Halfon M, Lamoth F, Comte D, Lhopitallier L, Sadallah S, Fakhouri F.

Kidney Int. 2020 Jul;98(1):228-231. doi: 10.1016/j.kint.2020.04.006. Epub 2020 Apr 15.

PMID: 32471639 Free PMC article. No abstract available.

Risk factors for candidemia: a prospective matched case-control study.

Poissy J, Damonti L, Bignon A, Khanna N, Von Kietzell M, Boggian K, Neofytos D, Vuotto F, Coiteux V, Artru F, Zimmerli S, Pagani JL, Calandra T, Sendid B, Poulain D, van Delden C, Lamoth F, Marchetti O, Bochud PY; FUNGINOS; Allfun French Study Groups.

Crit Care. 2020 Mar 18;24(1):109. doi: 10.1186/s13054-020-2766-1.

PMID: 32188500 Free PMC article.

Digital microbiology.

Egli A, Schrenzel J, Greub G.

Clin Microbiol Infect. 2020 Oct;26(10):1324-1331. doi: 10.1016/j.cmi.2020.06.023. Epub 2020 Jun 27.

PMID: 32603804 Free PMC article. Review.

Invasive aspergillosis due to *Aspergillus* section *Usti*: a multicenter retrospective study.

Glampedakis E, Cassaing S, Fekkar A, Dannaoui E, Bougnoux ME, Bretagne S, Neofytos D, Schreiber PW, Hennequin C, Morio F, Shadrivova O, Bongomin F, Fernández-Ruiz M, Bellanger AP, Arikan-Akdagli S, Erard V, Aigner M, Paolucci M, Khanna N, Charpentier E, Bonnal C, Brun S, Gabriel F, Riat A, Zbinden R, Le Pape P, Klimko N, Lewis RE, Richardson M, İnkaya AC, Coste AT, Bochud PY, Lamoth F.

Clin Infect Dis. 2020 Mar 10:ciaa230. doi: 10.1093/cid/ciaa230. Online ahead of print.

PMID: 32155262

COVID-19 et médecine ambulatoire - Migrations forcées : enjeux d'équité en santé.

Morisod K, Bodenmann P.

Rev Med Suisse. 2020 Aug 5;16(701):1446-1447.

PMID: 32833365 French. No abstract available.

Incidence of invasive pulmonary aspergillosis among critically ill COVID-19 patients.

Lamoth F, Glampedakis E, Boillat-Blanco N, Oddo M, Pagani JL.

Clin Microbiol Infect. 2020 Dec;26(12):1706-1708. doi: 10.1016/j.cmi.2020.07.010. Epub 2020 Jul 10.

PMID: 32659385 Free PMC article. No abstract available.

Pneumocystis jirovecii.

Nevez G, Hauser PM, Le Gal S.

Trends Microbiol. 2020 Dec;28(12):1034-1035. doi: 10.1016/j.tim.2020.03.006. Epub 2020 Apr 21.

PMID: 33171104 No abstract available.

Signaling Pathways Governing the Caspofungin Paradoxical Effect in *Aspergillus fumigatus*.

Papon N, Morio F, Sanglard D.

mBio. 2020 Aug 18;11(4):e01816-20. doi: 10.1128/mBio.01816-20.

PMID: 32817108 Free PMC article.

Ability of quantitative PCR to discriminate *Pneumocystis jirovecii* pneumonia from colonization.

Perret T, Kritikos A, Hauser PM, Guiver M, Coste AT, Jatton K, Lamoth F.

J Med Microbiol. 2020 May;69(5):705-711. doi: 10.1099/jmm.0.001190. Epub 2020 Apr 28.

PMID: 32369002 Free PMC article.

Emerging echinocandin-resistant *Candida albicans* and *glabrata* in Switzerland.

Coste AT, Kritikos A, Li J, Khanna N, Goldenberger D, Garzoni C, Zehnder C, Boggian K, Neofytos D, Riat A, Bachmann D, Sanglard D, Lamoth F; Fungal Infection Network of Switzerland (FUNGINOS).

Infection. 2020 Oct;48(5):761-766. doi: 10.1007/s15010-020-01475-8. Epub 2020 Jul 13.

PMID: 32661647 Free PMC article.

A novel circulating tamiami mammarenavirus shows potential for zoonotic spillover.

Moreno H, Rastrojo A, Pryce R, Fedeli C, Zimmer G, Bowden TA, Gerold G, Kunz S.

PLoS Negl Trop Dis. 2020 Dec 28;14(12):e0009004. doi: 10.1371/journal.pntd.0009004. eCollection 2020 Dec.

PMID: 33370288 Free PMC article.

Waddlia chondrophila and Male Infertility.

Baud D, Vuillimoz N, Zapata MVM, Greub G, Vouga M, Stojanov M.

Microorganisms. 2020 Jan 17;8(1):136. doi: 10.3390/microorganisms8010136.

PMID: 31963568 Free PMC article.

[SARS-CoV-2, a point in the storm].

Tadini E, Papamidimitriou-Olivgeris M, Opota O, Moulin E, Lamoth F, Manuel O, Lhopitallier L, Jatton K, Croxatto A, Grandbastien B, Senn L, Guery B.
Rev Med Suisse. 2020 May 6;16(692):917-923.
PMID: 32374537 French.

Comparison of SARS-CoV-2 serological tests with different antigen targets.

Coste AT, Jatton K, Papadimitriou-Olivgeris M, Greub G, Croxatto A.
J Clin Virol. 2021 Jan;134:104690. doi: 10.1016/j.jcv.2020.104690. Epub 2020 Nov 17.
PMID: 33253926 Free PMC article.

Letter to the Editor. The COVID-19 pandemic in Singapore.

Schiariti M, Restelli F, Broggi M, Acerbi F, Vetrano IG, Ciuffi A, Raccuia G, Ferroli P.
J Neurosurg. 2020 Jul 24;1-2. doi: 10.3171/2020.4.JNS201436. Online ahead of print.
PMID: 32707546 No abstract available.

Les étudiant·e·s en médecine mènent une recherche dans la communauté.

Daepfen JB, Gaume J, Bodenmann P, Buclin T, Fauvel A, Paroz S, Widmer D, Baumann M.
Rev Med Suisse. 2020 Oct 21;16(711):2007.
PMID: 33085258 French. No abstract available.

Venous thromboembolism in critically ill patients with COVID-19: Results of a screening study for deep vein thrombosis.

Longchamp A, Longchamp J, Manzocchi-Besson S, Whiting L, Haller C, Jeanneret S, Godio M, Garcia Martinez JJ, Bonjour T, Caillat M, Maitre G, Thaler JM, Pantet R, Donner V, Dumoulin A, Emonet S, Greub G, Friolet R, Robert-Ebadi H, Righini M, Sanchez B, Delaloye J.
Res Pract Thromb Haemost. 2020 Jun 30;4(5):842-847. doi: 10.1002/rth2.12376. eCollection 2020 Jul.
PMID: 32685893 Free PMC article.

[Left behind populations, COVID-19 and risks of health inequities : a guide of the local social-health network (Vaud, Switzerland)].

Bodenmann P, Pahud-Vermeulen B, Bouche L, Sanchis Zozaya J, Bauermeister M, Berzig A.
Rev Med Suisse. 2020 Apr 29;16(N° 691-2):859-862.
PMID: 32348054 French.

Clinical Relevance and Characteristics of *Aspergillus calidoustus* and Other *Aspergillus* Species of Section *Usti*.

Glampedakis E, Erard V, Lamoth F.
J Fungi (Basel). 2020 Jun 12;6(2):84. doi: 10.3390/jof6020084.
PMID: 32545485 Free PMC article. Review.

Incidentally discovered COVID-19 pneumonia: the role of diagnostic imaging.

Pozzessere C, Rotzinger DC, Ghaye B, Lamoth F, Beigelman-Aubry C.
Eur Radiol. 2020 Sep;30(9):5211-5213. doi: 10.1007/s00330-020-06914-6. Epub 2020 May 4.
PMID: 32367421 Free PMC article. No abstract available.

[Risk communication in healthcare: literature review and recommendations for clinical practice].

Durand MA, Selby K, Bodenmann P, Zaman K, Ducros C, Cornuz J.
Rev Med Suisse. 2020 Nov 4;16(713):2092-2098.
PMID: 33146957 Review. French.

Invasive Pulmonary Aspergillosis Goes Viral Again?

Wauters J, Lamoth F, Rijnders BJ, Calandra T.
Am J Respir Crit Care Med. 2020 Dec 22. doi: 10.1164/rccm.202012-4413ED. Online ahead of print.

PMID: 33352060 No abstract available.

Identification and Characterization of Mediators of Fluconazole Tolerance in *Candida albicans*.

Delarze E, Brandt L, Trachsel E, Patxot M, Pralong C, Maranzano F, Chauvel M, Legrand M, Znaidi S, Bounoux ME, d'Enfert C, Sanglard D.

Front Microbiol. 2020 Nov 11;11:591140. doi: 10.3389/fmicb.2020.591140. eCollection 2020.

PMID: 33262748 Free PMC article.

Evaluation of the BD Phoenix™ CPO Detect Test for the detection of carbapenemase producers.

Croxatto A, Coste AT, Pillonel T, Bertelli C, Greub G, Prod'homme G.

Clin Microbiol Infect. 2020 May;26(5):644.e9-644.e15. doi: 10.1016/j.cmi.2019.10.002. Epub 2019 Oct 18.

PMID: 31634549

Performance of the T2Candida Panel for the Diagnosis of Intra-abdominal Candidiasis.

Lamoth F, Clancy CJ, Tissot F, Squires K, Eggimann P, Flückiger U, Siegemund M, Orasch C, Zimmerli S, Calandra T, Marchetti O, Nguyen MH, Bochud PY.

Open Forum Infect Dis. 2020 Feb 27;7(3):ofaa075. doi: 10.1093/ofid/ofaa075. eCollection 2020 Mar.

PMID: 32195291 Free PMC article.

Impact of the Beta-Glucan Test on Management of Intensive Care Unit Patients at Risk for Invasive Candidiasis.

Kritikos A, Poissy J, Croxatto A, Bochud PY, Pagani JL, Lamoth F.

J Clin Microbiol. 2020 May 26;58(6):e01996-19. doi: 10.1128/JCM.01996-19. Print 2020 May 26.

PMID: 32238435 Free PMC article.

Role and Interpretation of Antifungal Susceptibility Testing for the Management of Invasive Fungal Infections.

Lamoth F, Lewis RE, Kontoyiannis DP.

J Fungi (Basel). 2020 Dec 30;7(1):17. doi: 10.3390/jof7010017.

PMID: 33396870 Free PMC article. Review.

Long lasting hypercoagulability after subclinical COVID-19.

Feroli P, Villa C, Ciuffi A, Gubertini G, Broggi M.

J Thromb Thrombolysis. 2020 Nov;50(4):822-824. doi: 10.1007/s11239-020-02215-3.

PMID: 32757154 Free PMC article. No abstract available.

Whipple disease: a 15-year retrospective study on 36 patients with positive polymerase chain reaction for *Tropheryma whipplei*.

Duss FR, Jaton K, Vollenweider P, Troillet N, Greub G.

Clin Microbiol Infect. 2020 Sep 4:S1198-743X(20)30519-X. doi: 10.1016/j.cmi.2020.08.036. Online ahead of print.

PMID: 32896657

Universal admission screening strategy for COVID-19 highlighted the clinical importance of reporting SARS-CoV-2 viral loads.

Moraz M, Jacot D, Papadimitriou-Olivgeris M, Senn L, Greub G, Jaton K, Opota O.

New Microbes New Infect. 2020 Nov;38:100820. doi: 10.1016/j.nmni.2020.100820. Epub 2020 Nov 19.

PMID: 33235799 Free PMC article.

Heritability of the HIV-1 reservoir size and decay under long-term suppressive ART.

Wan C, Bachmann N, Mitov V, Blanquart F, Céspedes SP, Turk T, Neumann K, Beerenwinkel N, Bogojeska J, Fellay J, Roth V, Böni J, Perreau M, Klimkait T, Yerly S, Battegay M, Walti L, Calmy A, Vernazza P, Bernasconi E, Cavassini M, Metzner KJ, Günthard HF, Kouyos RD; Swiss HIV Cohort Study.

Nat Commun. 2020 Nov 2;11(1):5542. doi: 10.1038/s41467-020-19198-7.

PMID: 33139735 Free PMC article.

Serum antibody response in critically ill patients with COVID-19.

Longchamp A, Longchamp J, Croxatto A, Greub G, Sanchez B, Delaloye J; Study Group.
Intensive Care Med. 2020 Oct;46(10):1921-1923. doi: 10.1007/s00134-020-06171-7. Epub 2020 Jul 8.
PMID: 32642784 Free PMC article. No abstract available.

Nested Species Distribution Models of Chlamydiales in Ixodes ricinus (Tick) Hosts in Switzerland.

Rochat E, Vuilleumier S, Aeby S, Greub G, Joost S.
Appl Environ Microbiol. 2020 Dec 17;87(1):e01237-20. doi: 10.1128/AEM.01237-20. Print 2020 Dec 17.
PMID: 33067199 Free PMC article.

SPHN/PHRT: Forming a Swiss-Wide Infrastructure for Data-Driven Sepsis Research.

Egli A, Battagay M, Büchler AC, Bühlmann P, Calandra T, Eckert P, Furrer H, Greub G, Jakob SM, Kaiser L, Leib SL, Marsch S, Meinshausen N, Pagani JL, Pugin J, Rättsch G, Schrenzel J, Schüpbach R, Siegemund M, Zamboni N, Zbinden R, Zinkernagel A, Borgwardt K.
Stud Health Technol Inform. 2020 Jun 16;270:1163-1167. doi: 10.3233/SHTI200346.
PMID: 32570564

Single yeast cell nanomotions correlate with cellular activity.

Willaert RG, Vanden Boer P, Malovichko A, Alioscha-Perez M, Radotić K, Bartolić D, Kalauzi A, Villalba MI, Sanglard D, Dietler G, Sahli H, Kasas S.
Sci Adv. 2020 Jun 24;6(26):eaba3139. doi: 10.1126/sciadv.aba3139. eCollection 2020 Jun.
PMID: 32637604 Free PMC article.

SARS-CoV-2 ACE-receptor detection in the placenta throughout pregnancy.

Gengler C, Dubruc E, Favre G, Greub G, de Leval L, Baud D.
Clin Microbiol Infect. 2020 Oct 3:S1198-743X(20)30603-0. doi: 10.1016/j.cmi.2020.09.049. Online ahead of print.
PMID: 33022363 Free PMC article. No abstract available.

[Racism and the practice of medicine : elements for a required learning].

Bodenmann P, Hrasnica F, Prod'hom D, Perrin ÈM, Ishii A, Porret R, Fricker C, Morisod K, Sanchis Zozaya J, Malebranche ME, Green A, Bart PA.
Rev Med Suisse. 2020 Jul 15;16(700):1373-1379.
PMID: 32672017 French.

Machine Learning Approach for Candida albicans Fluconazole Resistance Detection Using Matrix-Assisted Laser Desorption/Ionization Time-of-Flight Mass Spectrometry.

Delavy M, Cerutti L, Croxatto A, Prod'hom G, Sanglard D, Greub G, Coste AT.
Front Microbiol. 2020 Jan 14;10:3000. doi: 10.3389/fmicb.2019.03000. eCollection 2019.
PMID: 32010083 Free PMC article.

New Data on the In Vitro Activity of Fenticonazole against Fluconazole-Resistant Candida Species.

Cacaci M, Menchinelli G, Torelli R, Sanglard D, Sanguinetti M, Posteraro B.
Antimicrob Agents Chemother. 2020 Nov 17;64(12):e01459-20. doi: 10.1128/AAC.01459-20. Print 2020 Nov 17.
PMID: 32988826 Free PMC article. No abstract available.

Genome sequencing of Mycobacterium tuberculosis clinical isolates revealed isoniazid resistance mechanisms undetected by conventional molecular methods.

Laurent S, Zakham F, Bertelli C, Merz L, Nicod L, Mazza-Stalder J, Greub G, Jatton K, Opota O.
Int J Antimicrob Agents. 2020 Aug;56(2):106068. doi: 10.1016/j.ijantimicag.2020.106068. Epub 2020 Jun 27.
PMID: 32603684

Determination of carbapenem antibiotics using a purpose-made capillary electrophoresis instrument with

contactless conductivity detection.

Pham TNM, Le TB, Le DD, Ha TH, Nguyen NS, Pham TD, Hauser PC, Nguyen TAH, Mai TD.
J Pharm Biomed Anal. 2020 Jan 30;178:112906. doi: 10.1016/j.jpba.2019.112906. Epub 2019 Oct 3.
PMID: 31634756

Epidemiology of sexually transmitted infections among female sex workers in Switzerland: a local, exploratory, cross-sectional study.

Vu F, Cavassini M, D'Acremont V, Greub G, Jatton K, Masserey E, Pongelli S, Bouche L, Ngarambe C, Bize R, Bodenmann P.
Swiss Med Wkly. 2020 Dec 30;150:w20357. doi: 10.4414/smw.2020.20357. eCollection 2020 Dec 14.
PMID: 33378545

Symposium report: One Health meets sequencing.

Egli A, Koch D, Danuser J, Hendriksen RS, Driesen S, Schmid DC, Neher R, Mäusezahl M, Seth-Smith HMB, Bloemberg G, Tschudin-Sutter S, Endimiani A, Perreten V, Greub G, Schrenzel J, Stephan R.
Microbes Infect. 2020 Jan-Feb;22(1):1-7. doi: 10.1016/j.micinf.2019.07.004. Epub 2019 Aug 8.
PMID: 31401354 No abstract available.

Performance evaluation of the Becton Dickinson Kiestra™ IdentifA/SusceptA.

Jacot D, Sarton-Lohéac G, Coste AT, Bertelli C, Greub G, Prod'hom G, Croxatto A.
Clin Microbiol Infect. 2020 Oct 5:S1198-743X(20)30604-2. doi: 10.1016/j.cmi.2020.09.050. Online ahead of print.
PMID: 33031951

Screening of Chlamydia trachomatis and Waddlia chondrophila Antibodies in Women with Tubal Factor Infertility.

van Dooremalen WTM, Verweij SP, den Hartog JE, Kebbi-Beghdadi C, Ouburg S, Greub G, Morré SA, Ammerdorffer A.
Microorganisms. 2020 Jun 17;8(6):918. doi: 10.3390/microorganisms8060918.
PMID: 32560559 Free PMC article.

The Role of Receptor Tyrosine Kinases in Lassa Virus Cell Entry.

Fedeli C, Moreno H, Kunz S.
Viruses. 2020 Aug 6;12(8):857. doi: 10.3390/v12080857.
PMID: 32781509 Free PMC article.

Validation and clinical application of a multiplex high performance liquid chromatography - tandem mass spectrometry assay for the monitoring of plasma concentrations of 12 antibiotics in patients with severe bacterial infections.

Decosterd LA, Mercier T, Ternon B, Cruchon S, Guignard N, Lahrichi S, Pesse B, Rochat B, Burger R, Lamoth F, Pagani JL, Eggimann P, Csajka C, Choong E, Buclin T, Widmer N, André P, Marchetti O.
J Chromatogr B Analyt Technol Biomed Life Sci. 2020 Nov 10;1157:122160. doi: 10.1016/j.jchromb.2020.122160. Epub 2020 May 17.
PMID: 32891946

Longitudinal panel data study of self-rated health among migrants in French-speaking Switzerland, 2003-2017.

Mota P, Saez M, Selby K, Bodenmann P.
BMJ Open. 2020 Aug 13;10(8):e035812. doi: 10.1136/bmjopen-2019-035812.
PMID: 32792430 Free PMC article.

Single-Cell Analysis Reveals Heterogeneity of Virus Infection, Pathogenicity, and Host Responses: HIV as a Pioneering Example.

Brandt L, Cristinelli S, Ciuffi A.
Annu Rev Virol. 2020 Sep 29;7(1):333-350. doi: 10.1146/annurev-virology-021820-102458.

PMID: 32991268

Glucuronoxylomannan in the *Cryptococcus* species capsule as a target for Chimeric Antigen Receptor T-cell therapy.

da Silva TA, Hauser PJ, Bandey I, Laskowski T, Wang Q, Najjar AM, Kumaresan PR.

Cytotherapy. 2020 Dec 7:S1465-3249(20)30933-6. doi: 10.1016/j.jcyt.2020.11.002. Online ahead of print.

PMID: 33303326

Viral load of SARS-CoV-2 across patients and compared to other respiratory viruses.

Jacot D, Greub G, Jatou K, Opota O.

Microbes Infect. 2020 Nov-Dec;22(10):617-621. doi: 10.1016/j.micinf.2020.08.004. Epub 2020 Sep 7.

PMID: 32911086 Free PMC article.

Clinical bioinformatics for microbial genomics and metagenomics: an ESCMID Postgraduate Technical Workshop.

Greub G, Palagi PM, Dylus D, Egli A, Pillonel T, Rossen JWA, Seth-Smith HMB, Lebrand A; ESGMD Study Group.

Microbes Infect. 2020 Nov-Dec;22(10):626-634. doi: 10.1016/j.micinf.2020.07.008. Epub 2020 Aug 22.

PMID: 32841729 No abstract available.

Presence and diversity of Chlamydiae bacteria in *Spinturnix myoti*, an ectoparasite of bats.

Thiévent K, Szentiványi T, Aeby S, Glaizot O, Christe P, Greub G.

Parasite. 2020;27:54. doi: 10.1051/parasite/2020052. Epub 2020 Nov 2.

PMID: 33135998 Free PMC article.

Impact of Genetic and Nongenetic Factors on Body Mass Index and Waist-Hip Ratio Change in HIV-Infected Individuals Initiating Antiretroviral Therapy.

Barceló C, Guidi M, Thorball CW, Hammer C, Chaouch A, Scherrer AU, Hasse B, Cavassini M, Furrer H, Calmy A, Haubitz S, Bernasconi E, Buclin T, Fellay J, Tarr PE, Csajka C; Swiss HIV Cohort Study.

Open Forum Infect Dis. 2020 Jan 22;7(1):ofz464. doi: 10.1093/ofid/ofz464. eCollection 2020 Jan.

PMID: 31988971 Free PMC article.

Emergence of Drug Resistance in the Swiss HIV Cohort Study Under Potent Antiretroviral Therapy Is Observed in Socially Disadvantaged Patients.

Abela IA, Scherrer AU, Böni J, Yerly S, Klimkait T, Perreau M, Hirsch HH, Furrer H, Calmy A, Schmid P, Cavassini M, Bernasconi E, Günthard HF; Swiss HIV Cohort Study.

Clin Infect Dis. 2020 Jan 2;70(2):297-303. doi: 10.1093/cid/ciz178.

PMID: 30843028

ChlamDB: a comparative genomics database of the phylum Chlamydiae and other members of the Planctomycetes-Verrucomicrobiae-Chlamydiae superphylum.

Pillonel T, Tagini F, Bertelli C, Greub G.

Nucleic Acids Res. 2020 Jan 8;48(D1):D526-D534. doi: 10.1093/nar/gkz924.

PMID: 31665454 Free PMC article.

Large-scale genome mining allows identification of neutral polymorphisms and novel resistance mutations in genes involved in *Candida albicans* resistance to azoles and echinocandins.

Sitterlé E, Coste AT, Obadia T, Maufrais C, Chauvel M, Sertour N, Sanglard D, Puel A, D'Enfert C, Bougnoux ME.

J Antimicrob Chemother. 2020 Apr 1;75(4):835-848. doi: 10.1093/jac/dkz537.

PMID: 31923309

Expression pattern of the *Pneumocystis jirovecii* major surface glycoprotein superfamily in patients with pneumonia.

Schmid-Siebert E, Richard S, Luraschi A, Mühlethaler K, Pagni M, Hauser PM.
J Infect Dis. 2020 Jun 19;jiaa342. doi: 10.1093/infdis/jiaa342. Online ahead of print.
PMID: 32561915

Vertical transmission and materno-fetal outcomes in 13 patients with coronavirus disease 2019.
Masmajan S, Pomar L, Favre G, Panchaud A, Giannoni E, Greub G, Baud D.
Clin Microbiol Infect. 2020 Nov;26(11):1585-1587. doi: 10.1016/j.cmi.2020.06.035. Epub 2020 Jul 8.
PMID: 32652239 Free PMC article. No abstract available.

Eukaryotic Cell Permeabilisation to Identify New Putative Chlamydial Type III Secretion System Effectors Secreted within Host Cell Cytoplasm.
Kebbi-Beghdadi C, Pilloux L, Martin V, Greub G.
Microorganisms. 2020 Mar 3;8(3):361. doi: 10.3390/microorganisms8030361.
PMID: 32138376 Free PMC article.

COVID-19 Pandemics: A Surprising Link to Bread Flour With Collateral Damage to a Prosthetic Heart Valve.
Tozzi P, Kampouri EE, Tzimas G, Prior JO, Monney P, Kamani C, Lamoth F.
Circ Cardiovasc Imaging. 2020 Oct;13(10):e011395. doi: 10.1161/CIRCIMAGING.120.011395. Epub 2020 Oct 2.
PMID: 33003958 No abstract available.

Transcriptional Landscape of Waddlia chondrophila Aberrant Bodies Induced by Iron Starvation.
Ardissone S, Scherler A, Pillonel T, Martin V, Kebbi-Beghdadi C, Greub G.
Microorganisms. 2020 Nov 24;8(12):1848. doi: 10.3390/microorganisms8121848.
PMID: 33255276 Free PMC article.

Piperacillin/tazobactam selects an ampC derepressed E. cloacae complex mutant in a diabetic osteoarticular infection.
Moraz M, Bertelli C, Prod'hom G, Croxatto A, Greub G, Abou-Khalil S, Borens O, Meylan S.
Clin Microbiol Infect. 2020 Sep 4:S1198-743X(20)30518-8. doi: 10.1016/j.cmi.2020.08.035. Online ahead of print.
PMID: 32891764 No abstract available.

Flavones, Flavonols, and Glycosylated Derivatives-Impact on Candida albicans Growth and Virulence, Expression of CDR1 and ERG11, Cytotoxicity.
Ivanov M, Kannan A, Stojković DS, Glamočlija J, Calhelha RC, Ferreira ICFR, Sanglard D, Soković M.
Pharmaceuticals (Basel). 2020 Dec 30;14(1):27. doi: 10.3390/ph14010027.
PMID: 33396973 Free PMC article.

Prevalence and Clinical Outcomes of Poor Immune Response Despite Virologically Suppressive Antiretroviral Therapy Among Children and Adolescents With Human Immunodeficiency Virus in Europe and Thailand: Cohort Study.
European Pregnancy and Paediatric HIV Cohort Collaboration (EPPICC) Study Group in EuroCoord.
Clin Infect Dis. 2020 Jan 16;70(3):404-415. doi: 10.1093/cid/ciz253.
PMID: 30919882

Diverse Stress-Inducing Treatments cause Distinct Aberrant Body Morphologies in the Chlamydia-Related Bacterium, Waddlia chondrophila.
Scherler A, Jacquier N, Kebbi-Beghdadi C, Greub G.
Microorganisms. 2020 Jan 9;8(1):89. doi: 10.3390/microorganisms8010089.
PMID: 31936490 Free PMC article.

Combining Standard Molecular Typing and Whole Genome Sequencing to Investigate Pseudomonas aeruginosa Epidemiology in Intensive Care Units.

Magalhães B, Valot B, Abdelbary MMH, Prod'hom G, Greub G, Senn L, Blanc DS.
Front Public Health. 2020 Jan 28;8:3. doi: 10.3389/fpubh.2020.00003. eCollection 2020.
PMID: 32047733 Free PMC article.

Multisystem inflammatory syndrome with refractory cardiogenic shock due to acute myocarditis and mononeuritis multiplex after SARS-CoV-2 infection in an adult.
Othenin-Girard A, Regamey J, Lamoth F, Horisberger A, Glampedakis E, Epiney JB, Kuntzer T, de Leval L, Carballares M, Hurni CA, Rusca M, Pantet O, Di Bernardo S, Oddo M, Comte D, Piquilloud L.
Swiss Med Wkly. 2020 Nov 11;150:w20387. doi: 10.4414/smww.2020.20387. eCollection 2020 Nov 2.
PMID: 33181855

NGS-Based *S. aureus* Typing and Outbreak Analysis in Clinical Microbiology Laboratories: Lessons Learned From a Swiss-Wide Proficiency Test.
Dylus D, Pillonel T, Opota O, Wüthrich D, Seth-Smith HMB, Egli A, Leo S, Lazarevic V, Schrenzel J, Laurent S, Bertelli C, Blanc DS, Neuenschwander S, Ramette A, Falquet L, Imkamp F, Keller PM, Kahles A, Oberhaensli S, Barbié V, Dessimoz C, Greub G, Lebrand A.
Front Microbiol. 2020 Nov 24;11:591093. doi: 10.3389/fmicb.2020.591093. eCollection 2020.
PMID: 33424794 Free PMC article.

Comparison of SARS-CoV-2 RT-PCR on a high-throughput molecular diagnostic platform and the cobas SARS-CoV-2 test for the diagnostic of COVID-19 on various clinical samples.
Opota O, Brouillet R, Greub G, Jaton K.
Pathog Dis. 2020 Nov 11;78(8):ftaa061. doi: 10.1093/femspd/ftaa061.
PMID: 33030200 Free PMC article.

Prevalence and phylogeny of Chlamydiae and hemotropic mycoplasma species in captive and free-living bats.
Fritschi J, Marti H, Seth-Smith HMB, Aeby S, Greub G, Meli ML, Hofmann-Lehmann R, Mühlendorfer K, Stokar-Regenscheit N, Wiederkehr D, Pilo P, Van Den Broek PR, Borel N.
BMC Microbiol. 2020 Jun 26;20(1):182. doi: 10.1186/s12866-020-01872-x.
PMID: 32590949 Free PMC article.

International Committee on Systematics of Prokaryotes (ICSP) Subcommittee on the taxonomy of Chlamydiae, minutes of the closed meeting, 10 September 2020, via Zoom.
Borel N, Greub G.
Int J Syst Evol Microbiol. 2020 Dec 17. doi: 10.1099/ijsem.0.004620. Online ahead of print.
PMID: 33332256 No abstract available.

Exonuclease resistant 18S and 25S ribosomal RNA components in yeast are possibly newly transcribed by RNA polymerase II.
Fleischmann J, Rocha MA, Hauser PV, Gowda BS, Pilapil MGD.
BMC Mol Cell Biol. 2020 Aug 1;21(1):59. doi: 10.1186/s12860-020-00303-z.
PMID: 32738873 Free PMC article.

Evaluation of the performance of rapid tests for screening carriers of acquired ESBL producers and their impact on the turnaround time.
Blanc DS, Poncet F, Grandbastien B, Greub G, Senn L, Nordmann P.
J Hosp Infect. 2020 Oct 24;S0195-6701(20)30494-1. doi: 10.1016/j.jhin.2020.10.013. Online ahead of print.
PMID: 33122041

[Myases from here and elsewhere : pseudo-furunculosis and Ignatzschineria larvae bacteremia].
Berthod D, Duss FR, Palazzuolo M, Eyer M, Onya O, Aellen S, Bettschart V, Schmid T, Greub G, Troillet N.
Rev Med Suisse. 2020 Oct 14;16(710):1932-1936.
PMID: 33058580 French.

Comparison of Bioinformatics Pipelines and Operating Systems for the Analyses of 16S rRNA Gene Amplicon Sequences in Human Fecal Samples.

Marizzoni M, Gurry T, Provasi S, Greub G, Lopizzo N, Ribaldi F, Festari C, Mazzelli M, Mombelli E, Salvatore M, Mirabelli P, Franzese M, Soricelli A, Frisoni GB, Cattaneo A.

Front Microbiol. 2020 Jun 17;11:1262. doi: 10.3389/fmicb.2020.01262. eCollection 2020.

PMID: 32636817 Free PMC article.

Changes in SARS-CoV-2 Spike versus Nucleoprotein Antibody Responses Impact the Estimates of Infections in Population-Based Seroprevalence Studies.

Fenwick C, Croxatto A, Coste AT, Pojer F, André C, Pellaton C, Farina A, Campos J, Hacker D, Lau K, Bosch BJ, Gonseth Nussle S, Bochud M, D'Acremont V, Trono D, Greub G, Pantaleo G.

J Virol. 2021 Jan 13;95(3):e01828-20. doi: 10.1128/JVI.01828-20. Print 2021 Jan 13.

PMID: 33144321

Future challenges and chances in the diagnosis and management of invasive mould infections in cancer patients.

Vehreschild JJ, Koehler P, Lamoth F, Prattes J, Rieger C, Rijnders BJA, Teschner D.

Med Mycol. 2021 Jan 4;59(1):93-101. doi: 10.1093/mmy/myaa079.

PMID: 32898264 Free PMC article.

Camphor and Eucalyptol-Anticandidal Spectrum, Antivirulence Effect, Efflux Pumps Interference and Cytotoxicity.

Ivanov M, Kannan A, Stojković DS, Glamočlija J, Calhelha RC, Ferreira ICFR, Sanglard D, Soković M.

Int J Mol Sci. 2021 Jan 6;22(2):483. doi: 10.3390/ijms22020483.

PMID: 33418931 Free PMC article.

The Effect of Nutritional Support on the Disease Progression and Survival in Pediatric Patients with Solid Tumors.

Gallo N, Czuppon K, Tomsits E, Garami M, Hauser P, Jakab Z, Nagy K, Kovacs GT.

Nutr Cancer. 2021 Jan 12:1-9. doi: 10.1080/01635581.2020.1869275. Online ahead of print.

PMID: 33432830

Notes:

N/A

Attachments:

N/A

5. Briefly describe the biological defence work carried out at the facility, including type(s) of micro-organisms [9](#) and/or toxins studied, as well as outdoor studies of biological aerosols.

The Diagnostic Laboratories of the Institute of Microbiology, which are part of the University Hospital of Lausanne, are the Regional Competence Center for the primary analysis of samples suspicious of a bioterror-related background. Due to its other diagnostic activities, it is able to cover the whole spectrum of microbiology.

Moreover, in 2017, the laboratory obtained the necessary funds for the up-grade and the expansion of its BSL3 level laboratory in the Institute of Microbiology. The construction started in September 2018 and finished in March 2020. During this period all these activities were carried out in the research BSL3 laboratory of the Institute according to the good laboratories practices recommended.

The new BSL3 laboratory stand as the reference BSL3 laboratory of the hospital (CHUV) for the diagnosis and manipulation of BSL3 samples, strains, microorganisms that may be encountered in daily work as well as the samples of the environment for the RLN group.

For further information please visit:

<https://www.chuv.ch/en/microbiologie/imu-home/diagnostics/>

1. What is the name of the facility?

Institut für Medizinische Mikrobiologie (Department of Medical Microbiology)

2. Where is it located (include both address and geographical location)?

Institut für Medizinische Mikrobiologie, Zentrum für LaborMedizin, Luzerner Kantonsspital, Luzerner Kantonsspital Haus 47, Spitalstrasse, CH-6000 Luzern 16, Switzerland

N 47° 3' 32.45", E 8° 18' 1.17"

3. Floor area of laboratory areas by containment level:

BL 2: 716 SqM

BL 3: 62 SqM

Total laboratory floor area (SqM):

778

4. The organizational structure of each facility.

(i) Total number of personnel: 8

(ii) Division of personnel:

Military: 0

Civilian: 8

(iii) Division of personnel by category:

Scientists: 3

Engineers: 0

Technicians: 4

Administrative and support staff: 1

(iv) List the scientific disciplines represented in the scientific/engineering staff.

Clinical microbiology (all disciplines; diagnostics and applied research).

(v) Are contractor staff working in the facility? If so, provide an approximate number.

0

(vi) What is (are) the source(s) of funding for the work conducted in the facility, including indication if activity is wholly or partly financed by the Ministry of Defence?

Cantons of Luzern, Nidwalden, Obwalden, Schwyz, Uri.

Research	0 %
Development	0 %
Test & Evaluation	15 %
Analysis / Diagnosis	75 %
Education & Training	10 %
Other activities	0 %

(vii) What are the funding levels for the following programme areas:

Research: 0 %

Development: 0 %

Test and evaluation: 15 %

(viii) Briefly describe the publication policy of the facility:

Publication in open literature.

(ix) Provide a list of publicly-available papers and reports resulting from the work published during the previous 12 months. (To include authors, titles and full references)

No publicly available papers or reports published in 2020.

Notes:

N/A

Attachments:

N/A

5. Briefly describe the biological defence work carried out at the facility, including type(s) of micro-organisms ⁹ and/or toxins studied, as well as outdoor studies of biological aerosols.

The Department of Medical Microbiology, as part of the Zentrum für LaborMedizin, Luzerner Kantonsspital, is accredited (ISO / EN 17025) for clinical bacteriology, mycology, mycobacteriology, parasitology, molecular diagnostics, serology. The current focus of applied research activities is on specific bacteriological / molecular testing topics. In addition, it is the Regional Competence Center for primary analyses of samples suspicious of a bioterror-related background.

For further information please visit (website in German):

<https://www.luks.ch/standorte/luzern/kliniken/zentrum-fuer-labormedizin/institut-fuer-medizinische-mikrobiologie.html>

1. What is the name of the facility?

Institut für Medizinische Mikrobiologie (Institute of Medical Microbiology)

2. Where is it located (include both address and geographical location)?

Institut für Medizinische Mikrobiologie, Medizinische Fakultät, Universität Zürich, Gloriastrasse 30/32, CH-8006 Zürich, Switzerland

N 47° 22' 36.20", E 8° 33' 11.18"

3. Floor area of laboratory areas by containment level:

BL 3: 20 SqM

Total laboratory floor area (SqM):

20

4. The organizational structure of each facility.

(i) Total number of personnel: 3

(ii) Division of personnel:

Military: 0

Civilian: 3

(iii) Division of personnel by category:

Scientists: 2

Engineers: 0

Technicians: 1

Administrative and support staff: 0

(iv) List the scientific disciplines represented in the scientific/engineering staff.

Microbiology (bacteriology / mycology).

(v) Are contractor staff working in the facility? If so, provide an approximate number.

0

(vi) What is (are) the source(s) of funding for the work conducted in the facility, including indication if activity is wholly or partly financed by the Ministry of Defence?

Cantons of Appenzell Ausserrhoden, Appenzell Innerrhoden, Glarus, Graubünden, Sankt Gallen, Schaffhausen, Thurgau, Zug, Zürich, and the Principality of Liechtenstein.

Research	15 %
Development	15 %
Test & Evaluation	5 %
Analysis / Diagnosis	60 %
Education & Training	5 %
Other activities	0 %

(vii) What are the funding levels for the following programme areas:

Research: 15 %

Development: 15 %

Test and evaluation: 5 %

(viii) Briefly describe the publication policy of the facility:

Publication in peer-reviewed open access literature.

(ix) Provide a list of publicly-available papers and reports resulting from the work published during the previous 12 months. (To include authors, titles and full references)

The ABC exporter IrtAB imports and reduces mycobacterial siderophores.

Arnold FM, Weber MS, Gonda I, Gallenito MJ, Adenau S, Egloff P, Zimmermann I, Hutter CAJ, Hürlimann LM, Peters EE, Piel J, Meloni G, Medalia O, Seeger MA (2020)
Nature 580: 413-417

Stereocontrolled synthesis of (-)-bactobolin A.

Vojackova P, Michalska L, Necas M, Shcherbakov D, Böttger EC, Sponer J, Sponer J, Svenda J (2020)
J Am Chem Soc 142: 7306-7311

Apralogs: apramycin 5-O-glycosides and ethers with improved antibacterial activity and ribosomal selectivity and reduced susceptibility to the aminoacyltransferase (3)-IV resistance determinant.

Quirke JCK, Rajasekaran P, Sarpe VA, Sonousi A, Osinnii I, Gysin M, Haldimann K, Fang QJ, Shcherbakov D, Hobbie SN, Sha SH, Schacht J, Vasella A, Böttger EC, Crich D (2020)
J Am Chem Soc 142: 530-544

Treatment of nontuberculous mycobacterial pulmonary disease: an official ATS/ERS/ESCMID/IDSA Clinical Practice Guideline.

Daley CL, Iccarino JM, Lange C, Cambau E, Wallace Jr. RJ, Andrejak C, Böttger EC, Brozek J, Griffith DE, Guglielmetti L, Huitt GA, Knight SL, Leitman P, Marras TK, Oliver KN, Santin M, Stout JE, Tortoli E, van Ingen J, Wagner D, Winthrop KL (2020)
Eur Respir J 56: 2000535

Selection, biophysical and structural analysis of synthetic nanobodies that effectively neutralize SARS-CoV-2.
Custódio TF, Das H, Sheward DJ, Hanke L, Pazicky S, Pieprzyk J, Sorgenfrei M, Schroer MA, Gruzinov AY, Jeffries CM, Graewert MA, Svergun DI, Dobrev N, Remans K, Seeger MA, McInerney GM, Murrell B, Hällberg BM, Löw C (2020)
Nat Commun 11: 5588

The ribotoxin α -sarcin can cleave the sarcin/ricin loop on late 60S pre-ribosomes.
Olombrada M, Peña C, Rodríguez-Galán O, Klingauf-Nerurkar P, Portugal-Calisto D, Oborská-Oplová M, Altvater M, Gavilanes JG, Martínez-Del-Pozo Á, de la Cruz J, García-Ortega L, Panse VG (2020)
Nucleic Acids Res 48: 6210-6222

Biotinylation of membrane proteins for binder selections.
Kuhn BT, Zimmermann I, Hürlimann LM, Hutter CAJ, Miscenic C, Dawson RJP, Seeger MA, Geertsma ER (2020)
Methods Mol Biol 2127: 151-165

Generation of synthetic nanobodies against delicate proteins.
Zimmermann I, Egloff P, Hutter CAJ, Kuhn BT, Bräuer P, Newstead S, Dawson RJP, Geertsma ER, Seeger MA (2020)
Nat Protoc 15: 1707-1741

Spin-labeled nanobodies as protein conformational reporters for electron paramagnetic resonance in cellular membranes.
Galazzo L, Meier G, Timachi MH, Hutter CAJ, Seeger MA, Bordignon E (2020)
Proc Natl Acad Sci USA 117: 2441-2448

Quorum sensing controls persistence, resuscitation, and virulence of *Legionella* subpopulations in biofilms.
Personnic N, Striednig B, Hilbi H (2020)
ISME J 15: 196-210

Invasive aspergillosis due to *Aspergillus* section *Usti*: a multicenter retrospective study.
Glampedakis E, Cassaing S, Fekkar A, Dannaoui E, Bougnoux ME, Bretagne S, Neofytos D, Schreiber PW, Hennequin C, Morio F, Shadrivova O, Bongomin F, Fernández-Ruiz M, Bellanger AP, Arikian-Akdagli S, Erard V, Aigner M, Paolucci M, Khanna N, Charpentier E, Bonnal C, Brun S, Gabriel F, Riat A, Zbinden R, Le Pape P, Klimko N, Lewis RE, Richardson M, Īnkaya AC, Coste AT, Bochud PY, Lamothe F. (2020)
Clin Infect Dis: Online ahead of print

Legionella quorum sensing meets cyclic-di-GMP signaling
Hochstrasser R, Hilbi H (2020)
Curr Opin Microbiol 55: 9-16

Efficacy of EBL-1003 (apramycin) against *Acinetobacter baumannii* lung infections in mice.
Becker K, Aranzana-Climent V, Cao S, Nilsson A, Shariatgorji R, Haldemann K, Platzack B, Hughes D, Andrén P, Böttger EC, Friberg L, Hobbie S (2020)
Clin Microbiol Infect: online ahead of print

The GTPase Nog1 co-ordinates assembly, maturation and quality control of distant ribosomal functional centers.
Klingauf-Nerurkar P, Gillet LC, Portugal-Calisto D, Oplova M, Jäger M, Schubert OT, Pisano A, Peña C, Rao S, Altvater M, Chang Y, Aebersold R, Panse VG (2020)
Elife 9: e52474

Divergent evolution of *Legionella* RCC1 repeat effectors defines the range of ran GTPase cycle targets.
Swart AL, Steiner B, Gomez-Valero L, Schütz S, Hannemann M, Janning P, Irminger M, Rothmeier E, Buchrieser C, Itzen A, Panse VG, Hilbi H (2020)
mBio 11: e00405-20

- Phylogenomics of *Mycobacterium africanum* reveals a new lineage and a complex evolutionary history.
Coscolla M, Brites D, Menardo F, Loiseau C, Borrell S, Otchere ID, Asante-Poku A, Asare P, Sanchez-Buso L, Gehre F, N'Dira Sanoussi C, Antonio M, Dissou A, Ruiz-Rodriguez P, Fyfe J, Becket P, Niemann S, Alabi AS, Grobusch MP, Kobbe R, Parkhill J, Beisel C, Fenner L, Böttger EC, Meehan CJ, Harris SR, De Jong BC, Yeboah-Manu D, Gagneux S (2020)
Microb Genom: in press
- Tentative breakpoints and areas of technical uncertainty for early reading automated disc diffusion for Enterobacterales.
Mancini S, Röthlin K, Bodendörfer E, Herren S, Kolesnik-Goldmann N, Courvalin P, Zbinden R, Böttger EC (2020)
J Antimicrob Chemother 75: 1495-1505
- Evaluation of standardized automated rapid antimicrobial susceptibility testing (saRAST) of Enterobacterales-containing blood cultures: a proof-of-principle study.
Mancini S, Bodendörfer E, Kolesnik-Goldmann N, Herren S, Röthlin K, Couvalin P, Böttger EC (2020)
J Antimicrob Chemother 75: 3218-3229
- Phosphoinositides and the fate of *Legionella* in phagocytes
Swart AL, Hilbi H (2020)
Front Immunol 11: 25
- Rifabutin is inactivated by *Mycobacterium abscessus* Arr.
Schäfle D, Selchow P, Borer B, Meuli M, Rominski A, Schulthess B, Sander P (2020)
Antimicrob Agents Chemother: Online ahead of print
- KatG as counterselection marker for nontuberculous mycobacteria.
Gagliardi A, Selchow P, Luthra S, Schäfle D, Schulthess B, Sander P (2020)
Antimicrob Agents Chemother 64: e02508-19
- Natural polymorphisms in conferring resistance to delamanid in drug-naïve patients.
Reichmuth ML, Hömke R, Zürcher K, Sander P, Avihingsanon A, Collantes J, Loiseau C, Borrell S, Reinhard M, Wilkinson RJ, Yotebieng M, Fenner L, Böttger EC, Gagneux S, Egger M, Keller PM (2020)
Antimicrob Agents Chemother 64: e00513-20
- HIV coinfection is associated with low fitness *rpoB* variants in rifampicin-resistant *Mycobacterium tuberculosis*.
Loiseau C, Brites D, Reinhard M, Zürcher K, Borrell S, Ballif M, Fenner L, Cox H, Rutaihua LK, Wilkinson RJ, Yotebieng M, Carter EJ, Abimiku A, Marcy, Gotuzzo OE, Avihingsanon A, Zetola N, Doulla B, Böttger EC, Egger M, Gagneux S (2020)
Antimicrob Agents Chemother 64: e00782-20
- Co-occurrence of aminoglycoside and β -lactam resistance mechanisms in aminoglycoside- non-susceptible *Escherichia coli* isolated in the Zurich area, Switzerland. /> Bodendörfer E, Marchesi M, Imkamp F, Courvalin P, Böttger EC, Mancini S (2020)
Int J Antimicrob Agents 56: 106019
- Evolution and function of bacterial RCC1 repeat effectors
Swart AL, Gomez-Valero L, Buchrieser C, Hilbi H (2020)
Cell Microbiol 22: e13246
- Mycobacterium marinum* produces distinct mycobactin and carboxymycobactin siderophores to promote growth in broth and phagocytes.
Knobloch P, Koliwer-Brandl H, Arnold FM, Hanna N, Gonda I, Adenau S, Personnic N, Barisch C, Seeger MA, Soldati T, Hilbi H (2020)
Cell Microbiol: 22: e13163

Transcriptional responses of dictyostelium discoideum exposed to different classes of bacteria.
Lamrabet O, Melotti A, Burdet F, Hanna N, Perrin J, Nitschke J, Pagni M, Hilbi H, Soldati T, Cosson P (2020)
Front Microbiol 11: 410

Identification of Anti- Mycobacterium and Anti- Legionella Compounds with potential distinctive structural scaffolds from an HD-PBL using phenotypic screens in amoebae host models.
Hanna N, Kicka S, Chiriano G, Harrison C, Ouertatani Sakouhi H, Trofimov V, Kranjc A, Nitschke J, Pagni M, Cosson P, Hilbi H, Leonardo Scapozza L, Soldati T (2020)
Front Microbiol 11: 266

CRHP Finder, a webtool for the detection of clarithromycin resistance in Helicobacter pylori from whole-genome sequencing data.
Yusibova M, Hasman H, Conradsen Clausen PTL., Imkamp F, Wagner K, Andersen, L.P. (2020)
Helicobacter 25: e12752

Semisynthetic analogs of the antibiotic fidaxomicin-design, synthesis, and biological evaluation.
Dorst A, Berg R, Gertzen CGW, Schäfle D, Zerbe K, Gwerder M, Schnell SD, Sander P, Gohlke H, Gademann K., Dorst A, et al. Among authors: sander p (2020)
ACS Med Chem Let 11: 2414-2420

The structure of the Legionella response regulator LqsR reveals amino acids critical for phosphorylation and dimerization.
Hochstrasser R, Hutter CAJ, Arnold FM, Bärlocher K, Seeger MA, Hilbi H (2020)
Mol Microbiol 113: 1070-1084

Diversity of nontuberculous mycobacteria in Heater-Cooler Devices - results from prospective surveillance.
Kaelin MB, Kuster SP, Hasse B, Schulthess B, Imkamp F, Halbe M, Sander P, Sax H, Schreiber PW (2020)
J Hosp Infect 105: 480-485

International Society of Cardiovascular Infectious Diseases Guidelines for the Diagnosis, Treatment and Prevention of Disseminated Mycobacterium chimaera Infection Following Cardiac Surgery with Cardiopulmonary Bypass.
Hasse B, Hannan M, Keller PM, Maurer FP, Sommerstein R, Mertz D, Wagner D, Fernández-Hidalgo N, Nomura J, Manfrin V, Bettex D, Conte AH, Durante-Mangoni E, Hing-Cheung Tang T, Stuart RL, Lundgren J, Gordon S, Jarashow MC, Schreiber PW, Niemann S, Kohl TA, Daley C, Stewardson AJ, Whitener CJ, Perkins K, Plachouras D, Lamagni T, Chand M, Freiburger T, Zweifel S, Sander P, Schulthess B, Scriven J, Sax H, van Ingen J, Mestres CA, Diekema D, Brown-Elliott BA, Wallace RJ Jr, Baddour LM, Miro JM, Hoen B; M. chimaera ISCVI investigators; Infectious Diseases specialists; Hospital epidemiologists; Microbiologists and molecular typing specialists; Cardiac surgeons/ perfusionists/ cardiologists; Ophthalmology; Anaesthesiologists; Public Health (2020)
J Hosp Infect 104: 214-235

An advanced apralog with increased in-vitro and in-vivo activity toward Gram-negative pathogens and reduced ex-vivo cochleotoxicity
Sonousi A, Quirke J, Waduge P, Janusic T, Gysin M, Haldimann K, Hobbie SN, Sha S, Schacht J, Chow Ch, Vasella A, Böttger EC, Xu S, Crich D (2020)
(highlighted as "VIP Very Important Paper" by the editor)
ChemMedChem: Online ahead of print

Structures of ABC transporters: handle with care
Lewinson O, Orelle C, Seeger MA (2020)
FEBS Lett 594: 3799-3814

From in vitro towards in situ: structure-based investigation of ABC exporters by electron paramagnetic resonance spectroscopy

Bordignon E, Seeger MA, Galazzo L, Meier G (2020)

FEBS Lett: Online ahead of print

Photodynamic therapy improves skin antiseptics as a prevention strategy in arthroplasty procedures: A pilot study

Waldmann I, Schmid T, Prinz J, Mühleisen B, Zbinden R, Imhof L, Achermann Y (2020)

Photodiagnosis Photodyn Ther 31: 101941

Alpha-defensin lateral flow test does not appear to be useful in predicting shoulder periprosthetic joint infections

Weigelt L, Plate A, Stadler L, Sutter R, Frustaci D, Zbinden R, Zingg PO, Gerber C, Achermann Y (2020)

Int Orthop 44: 1023-1029

Synthesis, antibacterial action and ribosome inhibition of deoxyspectinomycins

Dharuman S, Wilt LA, Liu J, Reeve SM, Thompson CW, Elmore JM, Dimitri Shcherbakov, Lee RB, Böttger EC, Lee RE (2020)

J Antibiot: in press

Mycobacterium helveticum sp. nov., a novel slowly growing mycobacterial species associated with granulomatous lesions in adult swine.

Ghielmetti G, Rosato G, Trovato A, Friedel U, Kirchgaessner C, Perroulaz C, Pendl W, Figi R, Schulthess B, Bloemberg GV, Keller PM, Stephan R, Tortoli E (2020)

Int J Syst Evol Microbiol: Online ahead of print

Synthesis and Biological Evaluation of Iodinated Fidaxomicin Antibiotics

Dorst A, Shchelik IS, Schäfle D, Sander P, Gademann K (2020)

Helv Chim Acta 103: e2000130

High fluence increases the antibacterial efficacy of PACK Cross-Linking

Kling S., Hufschmid FS, Torres-Netto EA., Randleman JB., Mark Willcox M., Zbinden R, Hafezi F (2020)

Cornea 39: 1020-1026

SPHN/PHRT: Forming a swiss-wide infrastructure for data-driven sepsis research

Egli A, Battegay M, Büchler AC, Bühlmann P, Calandra T, Eckert P, Furrer H, Greub G, Jakob SM, Kaiser L, Leib SL, Marsch S, Meinshausen N, Pagani JL, Pugin J, Rättsch G, Schrenzel J, Schüpbach R, Siegemund M, Zamboni N, Zbinden R, Zinkernagel A, Borgwardt K (2020)

Stud Health Technol Inform 270: 1163-1167

Notes:

N/A

Attachments:

N/A

5. Briefly describe the biological defence work carried out at the facility, including type(s) of micro-organisms ⁹ and/or toxins studied, as well as outdoor studies of biological aerosols.

The Institute of Medical Microbiology at the University of Zurich is the Regional Competence Center for the primary analysis of bacteriological samples suspicious of a bioterror-related background. This represents an additional and not a continuous task of the diagnostics laboratory proficient in bacteriology, mycology and serology. Research focusses on vaccine and antibiotic development, protein structure analysis, host-pathogen interaction (*Legionella*, *Mycobacteria*), antibiotic resistance mechanisms and general aspects of translation.

For further information please visit (website in french):

<https://www.imm.uzh.ch/de/francais.html>

1. What is the name of the facility?

Institut für Medizinische Virologie (Institute of Medical Virology)

2. Where is it located (include both address and geographical location)?

Institut für Medizinische Virologie, Medizinische Fakultät, Universität Zürich, Winterthurerstrasse 190, CH-8057 Zürich, Switzerland

N 47° 23' 52.08", E 8° 33' 01.92"

3. Floor area of laboratory areas by containment level:

BL 3: 25 SqM

Of note, the Institute of Medical Virology holds a BSL4 license for diagnostic purposes only, as follows:

“Inactivation or extraction of environmental samples or samples with potentially highly pathogenic viruses for diagnostic purposes”.

Total laboratory floor area (SqM):

25

4. The organizational structure of each facility.

(i) Total number of personnel: 3

(ii) Division of personnel:

Military: 0

Civilian: 3

(iii) Division of personnel by category:

Scientists: 2

Engineers: 0

Technicians: 1

Administrative and support staff: 0

(iv) List the scientific disciplines represented in the scientific/engineering staff.

Microbiology (virology).

(v) Are contractor staff working in the facility? If so, provide an approximate number.

0

(vi) What is (are) the source(s) of funding for the work conducted in the facility, including indication if activity is wholly or partly financed by the Ministry of Defence?

Cantons of Appenzell Ausserrhoden, Appenzell Innerrhoden, Glarus, Graubünden, Sankt Gallen, Schaffhausen, Thurgau, Zug, Zürich, and the Principality of Liechtenstein.

Research	0 %
Development	0 %
Test & Evaluation	10 %
Analysis / Diagnosis	50 %
Education & Training	10 %
Other activities	30 % (costs for maintenance and amortization)

(vii) What are the funding levels for the following programme areas:

Research: 0 %
Development: 0 %
Test and evaluation: 10 %

(viii) Briefly describe the publication policy of the facility:

Publication in open literature.

(ix) Provide a list of publicly-available papers and reports resulting from the work published during the previous 12 months. (To include authors, titles and full references)

Improved Diagnostics Help to Identify Clinical Features and Biomarkers That Predict *Mycoplasma pneumoniae* Community-acquired Pneumonia in Children.

Meyer Sauter PM, Krautter S, Ambroggio L, Seiler M, Paioni P, Rely C, Capaul R, Kellenberger C, Haas T, Gysin C, Bachmann LM, van Rossum AMC, Berger C.

Clin Infect Dis. 2020 Oct 23;71(7):1645-1654. doi: 10.1093/cid/ciz1059.

PMID: 31665253 Free PMC article.

Symposium report: One Health meets sequencing.

Egli A, Koch D, Danuser J, Hendriksen RS, Driesen S, Schmid DC, Neher R, Mäusezahl M, Seth-Smith HMB, Bloemberg G, Tschudin-Sutter S, Endimiani A, Perreten V, Greub G, Schrenzel J, Stephan R.

Microbes Infect. 2020 Jan-Feb;22(1):1-7. doi: 10.1016/j.micinf.2019.07.004. Epub 2019 Aug 8.

PMID: 31401354 No abstract available.

EBV renders B cells susceptible to HIV-1 in humanized mice.

McHugh D, Myburgh R, Caduff N, Spohn M, Kok YL, Keller CW, Murer A, Chatterjee B, Rühl J, Engelmann C, Chijioke O, Quast I, Shilaih M, Strouvelle VP, Neumann K, Menter T, Dirnhofer S, Lam JK, Hui KF, Bredl S, Schlaepfer E, Sorce S, Zbinden A, Capaul R, Lünemann JD, Aguzzi A, Chiang AK, Kempf W, Trkola A, Metzner KJ, Manz MG, Grundhoff A, Speck RF, Münz C.

Life Sci Alliance. 2020 Jun 23;3(8):e202000640. doi: 10.26508/lsa.202000640. Print 2020 Aug.

PMID: 32576602 Free PMC article.

Absenteeism and presenteeism in healthcare workers due to respiratory illness.

Kuster SP, Böni J, Kouyos RD, Huber M, Schmutz S, Shah C, Bischoff-Ferrari HA, Distler O, Battegay E, Giovanoli P, Guckenberger M, Kohler M, Müller R, Petry H, Ruschitzka F, McGeer A, Coleman BL, Sax H, Weber R, Trkola A.

Infect Control Hosp Epidemiol. 2020 Nov 26;1-6. doi: 10.1017/ice.2020.444. Online ahead of print.

PMID: 33239124

Heritability of the HIV-1 reservoir size and decay under long-term suppressive ART.

Wan C, Bachmann N, Mitov V, Blanquart F, Céspedes SP, Turk T, Neumann K, Beerenwinkel N, Bogojeska J, Fellay J, Roth V, Böni J, Perreau M, Klimkait T, Yerly S, Battegay M, Walti L, Calmy A, Vernazza P, Bernasconi E, Cavassini M, Metzner KJ, Günthard HF, Kouyos RD; Swiss HIV Cohort Study.

Nat Commun. 2020 Nov 2;11(1):5542. doi: 10.1038/s41467-020-19198-7.

PMID: 33139735 Free PMC article.

Evaluation of the RIDA®GENE RT-PCR assays for detection of sapovirus, astrovirus, adenovirus, and rotavirus in stool samples of adults in Switzerland.

Redli PM, Wanzenried A, Huder JB, Berger C, Berlinger L, Capaul R, Böni J, Zbinden A.

Diagn Microbiol Infect Dis. 2020 Feb;96(2):114924. doi: 10.1016/j.diagmicrobio.2019.114924. Epub 2019 Nov 7.

PMID: 31757559

Siblings with typhoid fever: An investigation of intrafamilial transmission, clonality, and antibiotic susceptibility. Meyer Sauter PM, Stevens MJA, Paioni P, Wüthrich D, Egli A, Stephan R, Berger C, Bloemberg GV. *Travel Med Infect Dis.* 2020 Mar-Apr;34:101498. doi: 10.1016/j.tmaid.2019.101498. Epub 2019 Sep 30. PMID: 31580900

Phylogenetic Cluster Analysis Identifies Virological and Behavioral Drivers of HIV Transmission in MSM. Bachmann N, Kusejko K, Nguyen H, Chaudron SE, Kadelka C, Turk T, Böni J, Perreau M, Klimkait T, Yerly S, Battegay M, Rauch A, Ramette A, Vernazza P, Bernasconi E, Cavassini M, Günthard HF, Kouyos RD; Swiss HIV Cohort Study. *Clin Infect Dis.* 2020 Apr 17:ciaa411. doi: 10.1093/cid/ciaa411. Online ahead of print. PMID: 32300807

HCV Genetic Diversity Can Be Used to Infer Infection Recency and Time since Infection. Carlisle LA, Turk T, Metzner KJ, Mbunkah HA, Shah C, Böni J, Huber M, Braun DL, Fehr J, Salazar-Vizcaya L, Rauch A, Yerly S, Nguyen A, Cavassini M, Stoeckle M, Vernazza P, Bernasconi E, Günthard HF, Kouyos RD. *Viruses.* 2020 Oct 31;12(11):1241. doi: 10.3390/v12111241. PMID: 33142675 Free PMC article.

Mycobacterium helveticum sp. nov., a novel slowly growing mycobacterial species associated with granulomatous lesions in adult swine. Ghielmetti G, Rosato G, Trovato A, Friedel U, Kirchgassner C, Perroulaz C, Pendl W, Schulthess B, Bloemberg GV, Keller PM, Stephan R, Tortoli E. *Int J Syst Evol Microbiol.* 2020 Dec 23. doi: 10.1099/ijsem.0.004615. Online ahead of print. PMID: 33355527

Does respiratory co-infection facilitate dispersal of SARS-CoV-2? investigation of a super-spreading event in an open-space office. Weissberg D, Böni J, Rampini SK, Kufner V, Zaheri M, Schreiber PW, Abela IA, Huber M, Sax H, Wolfensberger A. *Antimicrob Resist Infect Control.* 2020 Dec 2;9(1):191. doi: 10.1186/s13756-020-00861-z. PMID: 33267855 Free PMC article.

Attenuated immune control of Epstein-Barr virus in humanized mice is associated with the multiple sclerosis risk factor HLA-DR15. Zdimerova H, Murer A, Engelmann C, Raykova A, Deng Y, Gujer C, Rühl J, McHugh D, Caduff N, Naghavian R, Pezzino G, Capaul R, Zbinden A, Ferlazzo G, Lünemann JD, Martin R, Chatterjee B, Münz C. *Eur J Immunol.* 2020 Sep 19. doi: 10.1002/eji.202048655. Online ahead of print. PMID: 32949466

Mycobacterial infections in wild boars (*Sus scrofa*) from Southern Switzerland: Diagnostic improvements, epidemiological situation and zoonotic potential. Ghielmetti G, Hilbe M, Friedel U, Menegatti C, Bacciarini L, Stephan R, Bloemberg G. *Transbound Emerg Dis.* 2020 Jul 8. doi: 10.1111/tbed.13717. Online ahead of print. PMID: 32640107

A Novel Lineage of Ceftriaxone-resistant *Salmonella* Typhi From India That Is Closely Related to XDR *S.* Typhi Found in Pakistan. Sah R, Donovan S, Seth-Smith HMB, Bloemberg G, Wüthrich D, Stephan R, Kataria S, Kumar M, Singla S, Deswal V, Kaur A, Neumayr A, Hinic V, Egli A, Kuenzli E. *Clin Infect Dis.* 2020 Aug 22;71(5):1327-1330. doi: 10.1093/cid/ciz1204. PMID: 31872221

Emergence of Resistance to Integrase Strand Transfer Inhibitors during Dolutegravir Containing Triple-Therapy in a Treatment-Experienced Patient with Pre-Existing M184V/I Mutation.

Braun DL, Scheier T, Ledermann U, Flepp M, Metzner KJ, Böni J, Günthard HF.

Viruses. 2020 Nov 19;12(11):1330. doi: 10.3390/v12111330.

PMID: 33228206 Free PMC article.

Host Genomics of the HIV-1 Reservoir Size and Its Decay Rate During Suppressive Antiretroviral Treatment.

Thorball CW, Borghesi A, Bachmann N, Von Siebenthal C, Vongrad V, Turk T, Neumann K, Beerenwinkel N, Bogojeska J, Roth V, Kok YL, Parbhoo S, Wieser M, Böni J, Perreau M, Klimkait T, Yerly S, Battegay M, Rauch A, Schmid P, Bernasconi E, Cavassini M, Kouyos RD, Günthard HF, Metzner KJ, Fellay J; Swiss HIV Cohort Study.

J Acquir Immune Defic Syndr. 2020 Dec 1;85(4):517-524. doi: 10.1097/QAI.0000000000002473.

PMID: 33136754

A treatment as prevention trial to eliminate hepatitis C among men who have sex with men living with HIV in the Swiss HIV Cohort Study.

Braun DL, Hampel B, Ledergerber B, Grube C, Nguyen H, Künzler-Heule P, Shah C, Salazar-Vizcaya L, Conen A, Flepp M, Stöckle M, Béguelin C, Schmid P, Rougemont M, Delaloye J, Bernasconi E, Nicca D, Böni J, Rauch A, Kouyos RD, Günthard HF, Fehr JS.

Clin Infect Dis. 2020 Aug 6;ciaa1124. doi: 10.1093/cid/ciaa1124. Online ahead of print.

PMID: 32761122

Differences in social and mental well-being of long-term survivors among people who inject drugs and other participants in the Swiss HIV Cohort Study: 1980-2018.

Kusejko K, Marzel A, Nguyen H, Chaudron SE, Bachmann N, Weber R, Bruggmann P, Roth JA, Bernasconi E, Calmy A, Cavassini M, Bregenzer A, Böni J, Yerly S, Klimkait T, Perreau M, Walti LN, Günthard HF, Kouyos RD; Swiss HIV Cohort Study.

Antivir Ther. 2020;25(1):43-54. doi: 10.3851/IMP3347.

PMID: 32235037

Emergence of Drug Resistance in the Swiss HIV Cohort Study Under Potent Antiretroviral Therapy Is Observed in Socially Disadvantaged Patients.

Abela IA, Scherrer AU, Böni J, Yerly S, Klimkait T, Perreau M, Hirsch HH, Furrer H, Calmy A, Schmid P, Cavassini M, Bernasconi E, Günthard HF; Swiss HIV Cohort Study.

Clin Infect Dis. 2020 Jan 2;70(2):297-303. doi: 10.1093/cid/ciz178.

PMID: 30843028

The role of HIV asymptomatic status when starting ART on adherence and treatment outcomes and implications for test and treat: the Swiss HIV Cohort Study.

Glass TR, Günthard H, Calmy A, Bernasconi E, Scherrer AU, Battegay M, Steffen A, Böni J, Yerly S, Klimkait T, Cavassini M, Furrer H; Swiss HIV Cohort Study.

Clin Infect Dis. 2020 Mar 11;ciaa239. doi: 10.1093/cid/ciaa239. Online ahead of print.

PMID: 32157270

Listeriosis Caused by Persistence of *Listeria monocytogenes* Serotype 4b Sequence Type 6 in Cheese Production Environment.

Nüesch-Inderbinen M, Bloemberg GV, Müller A, Stevens MJA, Cernela N, Kollöffel B, Stephan R.

Emerg Infect Dis. 2021 Jan;27(1):284-288. doi: 10.3201/eid2701.203266.

PMID: 33350924 Free PMC article.

Notes:

N/A

Attachments:

N/A

5. Briefly describe the biological defence work carried out at the facility, including type(s) of micro-organisms ⁹ and/or toxins studied, as well as outdoor studies of biological aerosols.

The Institute of Medical Virology at the University of Zurich is the Regional Competence Center for the primary analysis of viral samples suspicious of a bioterror-related background. This represents an additional and not a continuous task of the viral diagnostics laboratory.

For further information please visit:

https://www.virology.uzh.ch/index_en.html

1. What is the name of the facility?

Kantonales Laboratorium Basel-Stadt (Cantonal Laboratory of Basel-Stadt)

2. Where is it located (include both address and geographical location)?

Kantonales Laboratorium Basel-Stadt, Bereich Gesundheitsschutz, Gesundheitsdepartement des Kantons Basel-Stadt, Kannenfeldstrasse 2, CH-4056 Basel, Switzerland

N 47° 33' 43.48", E 7° 34' 26.85"

3. Floor area of laboratory areas by containment level:

BL 2: 14 SqM

BL 3: 36 SqM

Total laboratory floor area (SqM):

50

4. The organizational structure of each facility.

(i) Total number of personnel: 4

(ii) Division of personnel:

Military: 0

Civilian: 4

(iii) Division of personnel by category:

Scientists: 2

Engineers: 0

Technicians: 2

Administrative and support staff: 0

(iv) List the scientific disciplines represented in the scientific/engineering staff.

Microbiology, molecular biology, chemistry, inspection.

(v) Are contractor staff working in the facility? If so, provide an approximate number.

0

(vi) What is (are) the source(s) of funding for the work conducted in the facility, including indication if activity is wholly or partly financed by the Ministry of Defence?

Cantons of Aargau, Basel-Landschaft, Basel-Stadt, Solothurn.

Research	0 %
Development	15 %
Test & Evaluation	40 %
Analysis / Diagnosis	40 %
Education & Training	5 %
Other activities	0 %

(vii) What are the funding levels for the following programme areas:

Research: 0 %
 Development: 15 %
 Test and evaluation: 40 %

(viii) Briefly describe the publication policy of the facility:

Publication in open literature.

(ix) Provide a list of publicly-available papers and reports resulting from the work published during the previous 12 months. (To include authors, titles and full references)

No publicly available papers or reports published in 2020.

Notes:

N/A

Attachments:

N/A

5. Briefly describe the biological defence work carried out at the facility, including type(s) of micro-organisms ⁹ and/or toxins studied, as well as outdoor studies of biological aerosols.

The Cantonal Laboratory of Basel-Stadt is the Regional Competence Center for the primary analysis of samples suspicious of a bioterror-related background. The Regional Laboratory North is also appointed reference laboratory by the Federal Office of Environment for the two following fields of activities: Analysis of samples taken in and around laboratories subjected to the Containment Ordinance, and analysis of samples taken in the environment for the surveillance of the Release Ordinance.

The Cantonal Laboratory of Basel-Stadt has been co-author for the "Chemical Inactivation of Organisms in Liquids - Guidelines for the chemical inactivation of organisms in liquid cultures or supernatants with proof of efficacy and safe disposal" and is working out specific SOP for chemical inactivation of microorganisms atn. Federal Office of Public Health FOPH.

Microbiological and molecular biological methods have been established for the identification of a wide range of microorganisms in environmental samples, including relevant pathogens such as *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Bacillus anthracis*, as well as adenoviruses and lentiviruses. Further methods for the detection of bioterror agents have been implemented according to the Regional Laboratory Network.

For further information please visit (website in German):

<https://www.kantonslabor.bs.ch/>

1. What is the name of the facility?

Laboratorio Microbiologia Applicata (Laboratory of Applied Microbiology)

2. Where is it located (include both address and geographical location)?

Laboratorio Microbiologia Applicata, (Edificio dell'Istituto Cantonale di Microbiologia), Dipartimento Ambiente Costruzioni e Design, Scuola Universitaria Professionale della Svizzera Italiana, Via Mirasole 22A, CH-6500 Bellinzona, Switzerland

N46° 11' 53.50", E9° 1' 10.25"

3. Floor area of laboratory areas by containment level:

BL 2: 185 SqM

BL 3: 38 SqM

Total laboratory floor area (SqM):

223

4. The organizational structure of each facility.

(i) Total number of personnel: 6

(ii) Division of personnel:

Military: 0

Civilian: 6

(iii) Division of personnel by category:

Scientists: 5

Engineers: 0

Technicians: 1

Administrative and support staff: 0

(iv) List the scientific disciplines represented in the scientific/engineering staff.

Bacteriology, mycology, molecular microbiology, microbial ecology, entomology, vector biology.

(v) Are contractor staff working in the facility? If so, provide an approximate number.

0

(vi) What is (are) the source(s) of funding for the work conducted in the facility, including indication if activity is wholly or partly financed by the Ministry of Defence?

Canton of Ticino.

Research	10 %
Development	10 %
Test & Evaluation	30 %
Analysis / Diagnosis	30 %
Education & Training	5 %
Other activities	15 % (administrative and maintenance costs)

(vii) What are the funding levels for the following programme areas:

Research: 10 %

Development: 10 %

Test and evaluation: 30 %

(viii) Briefly describe the publication policy of the facility:

Publication in open literature.

(ix) Provide a list of publicly-available papers and reports resulting from the work published during the previous 12 months. (To include authors, titles and full references)

Di Nezio F., Beney C., Roman S., Danza F., Buetti-Dinh A., Tonolla M., Storelli N. (2021) Anoxygenic photo- and chemosynthesis of phototrophic sulfur bacteria from an alpine meromictic lake, FEMS Microbiology Ecology. fiab010, <https://doi.org/10.1093/femsec/fiab010>.

Ripellino P, Pianezzi E, Martinetti G, Zehnder C, Mathis B, Giannini P, Forrer N, Merlani G, Dalton HR, Petrini O, Bihl F, Fontana S, Gobbi C. (2021) Control of raw pork liver sausage production can reduce the prevalence of HEV infection. Pathogens. 10:107. <https://doi.org/10.3390/pathogens10020107>.

Kubacki J., Hardmeier I., Qi W., Flacio E., Tonolla M., Fraefel C. (2021) Complete Genome Sequence of a Rhabdovirus Strain from Culex Mosquitos Collected in Southern Switzerland. Microbiology Resource Announcements 10 (1)_e01234-20. <https://mra.asm.org/content/ga/10/1/e01234-20.full.pdf>.

Zare-Shahraki, M.; Keivany, Y.; Ebrahimi, E.; Bruder, A.; Flotemersch, J. & Blocksom, K.A. 2020. Length-weight relationships of seven fish species from the Karun River system, southwestern Iran. Iranian Journal of Ichthyology 7(4): 352-355.

Brackmann M., Leib S., Tonolla M., Schürch N. and Wittwer M. (2020) Antimicrobial resistance classification using MALDI-TOF-MS is not that easy: lessons from vancomycin-resistant Enterococcus faecium. Clinical Microbiology and Infection 26(3):391-393. doi: 10.1016/j.cmi.2019.10.027.

Müller P, Engeler L, Vavassori L, Suter T, Guidi V, Gschwind M, Tonolla M. and Flacio E. (2020) Surveillance of invasive Aedes mosquitoes along Swiss traffic axes reveals different dispersal modes for Aedes albopictus and Ae. japonicus. PLoS Negl Trop Dis 14(9): e0008705. <https://doi.org/10.1371/journal.pntd.0008705>

Tenti, P., Samuele, R.& Storelli, N. (2020) Molybdate to Prevent the Formation of Sulfide during the Process of Biogas Production. Journal of Applied Microbiological Research, vol. 3 (2) pp.21-29.

Kubacki, J., Flacio, E., Qi, W., Guidi, V., Tonolla, M.& Fraefel, C. (2020) Viral Metagenomic Analysis of Aedes albopictus Mosquitos from Southern Switzerland. Viruses, vol. 12 (9).

Fouque, F., Guidi, V., Lazzaro, M., Ravasi, D., Martinetti-Lucchini, G., Merlani, G., Tonolla, M.& Flacio, E. (2020) Emerging Aedes-borne infections in southern Switzerland: Preparedness planning for surveillance and intervention. Travel Medicine and Infectious Disease, vol. 37 pp.101748-101748

Bizio E, Cocchi L, Petrini O, Vescovi L. (2020) Elementi chimici nel genere Inocybe: un aiuto alla tassonomia? Quaderni Natura e Biodiversità 15, Vol. 2. ISPRA, Roma. ISBN: 978-88-448-1025-2

Martignier A., De Respinis S., Filella M, Segovia-Campos I., Marin B., Günther G. Barja F., Tonolla M., Jaquet J-M., Melkonian M., Ariztegui D. (2020) Biomineralization capacities of Chlorodendrophyceae: correlation between chloroplast morphology and the distribution of micropearls in the cell. Protist 171_125760. <https://doi.org/10.1016/j.protis.2020.125760.pdf>

Notes:

N/A

Attachments:

N/A

5. Briefly describe the biological defence work carried out at the facility, including type(s) of micro-organisms ⁹ and/or toxins studied, as well as outdoor studies of biological aerosols.

The Laboratory of Applied Microbiology is the Regional Competence Center South of the Alps responsible for the primary analysis of samples suspicious of a bioterror-related background.

For further information please visit (website in Italian):
<http://www.supsi.ch/lma>

Confidence-Building Measure "B"

Exchange of information on outbreaks of infectious diseases and similar occurrences caused by toxins

At the Third Review Conference it was agreed that States Parties continue to implement the following:

Exchange of information on outbreaks of infectious diseases and similar occurrences caused by toxins, and on all such events that seem to deviate from the normal pattern as regards type, development, place, or time of occurrence. The information provided on events that deviate from the norm will include, as soon as it is available, data on the type of disease, approximate area affected, and number of cases.

The Seventh Review Conference agreed the following:

No universal standards exist for what might constitute a deviation from the normal pattern.

Modalities

The Third Review Conference agreed on the following, later amended by the Seventh Review Conference:

1. Exchange of data on outbreaks that seem to deviate from the normal pattern is considered particularly important in the following cases:

- When the cause of the outbreak cannot be readily determined or the causative agent [10](#) is difficult to diagnose,
- When the disease may be caused by organisms which meet the criteria for risk groups III or IV, according to the classification in the latest edition of the WHO Laboratory Biosafety Manual,
- When the causative agent is exotic to a given geographical region,
- When the disease follows an unusual pattern of development,
- When the disease occurs in the vicinity of research centres and laboratories subject to exchange of data under item A,
- When suspicions arise of the possible occurrence of a new disease.

2. In order to enhance confidence, an initial report of an outbreak of an infectious disease or a similar occurrence that seems to deviate from the normal pattern should be given promptly after cognizance of the outbreak and should be followed up by annual reports. To enable States Parties to follow a standardized procedure, the Conference has agreed that Form B should be used, to the extent information is known and/or applicable, for the exchange of annual information.

3. The declaration of electronic links to national websites or to websites of international, regional or other organizations which provide information on disease outbreaks (notably outbreaks of infectious diseases and similar occurrences caused by toxins that seem to deviate from the normal pattern) may also satisfy the declaration requirement under Form B.

4. In order to improve international cooperation in the field of peaceful bacteriological (biological) activities and in order to prevent or reduce the occurrence of ambiguities, doubts and suspicions, States Parties are encouraged to invite experts from other States Parties to assist in the handling of an outbreak, and to respond favourably to such invitations, respecting applicable national legislation and relevant international instruments.

Form B

Information on outbreaks of infectious diseases and similar occurrences, that seem to deviate from the normal pattern¹¹

Human Diseases

1. Time of cognizance of the outbreak:

N/A

2. Location and approximate area affected:

N/A

N/A

3. Type of disease/intoxication:

N/A

4. Suspected source of disease/intoxication:

N/A

5. Possible causative agent(s):

N/A

6. Main characteristics of systems:

N/A

7. Detailed symptoms, when applicable

N/A

- Respiratory:

N/A

- Circulatory:

N/A

- Neurological/behavioural:

N/A

- Intestinal:

N/A

- Dermatological:

N/A

- Nephrological:

N/A

- Other:

N/A

8. Deviation(s) from the normal pattern as regards

- Type:

N/A

- Development:

N/A

- Place of occurrence:

N/A

- Time of occurrence:

- Symptoms:

N/A

- Virulence pattern:

N/A

- Drug resistance pattern:

N/A

- Agent(s) difficult to diagnose:

N/A

- Presence of unusual vectors:

N/A

- Other:

N/A

9. Approximate number of primary cases:

N/A

10. Approximate number of total cases:

N/A

11. Number of deaths:

12. Development of the outbreak:

13. Measures taken:

N/A

Notes:

The Swiss Federal Office of Public Health (FOPH) is responsible for the surveillance and reporting of human diseases. A nationwide notification system is regulated by the Ordinance on the Declaration of Observations of Communicable Human Diseases (*RS 818.101.126 Ordonnance du DFI du 1 décembre 2015 sur la déclaration d'observations en rapport avec les maladies transmissibles de l'homme*), which is based on the Federal Act on the Control of Communicable Human Diseases (*RS 818.101 Loi fédérale du 28 septembre 2012 sur la lutte contre les maladies transmissibles de l'homme*). Every medical practitioner and laboratory is obliged to report the occurrence or identification of certain notifiable diseases. The current situation is accessible online and data is transmitted to the World Health Organization (WHO):

<https://www.bag.admin.ch/bag/fr/home/zahlen-und-statistiken/zahlen-zu-infektionskrankheiten/meldepflichtige-infektionskrankheiten---woechentliche-fallzahlen.html>

Updated data on the situation concerning the SARS-CoV-2/COVID-19 pandemic in Switzerland can be found here:

<https://www.covid19.admin.ch/en/overview>

Attachments:

N/A

Animal diseases

1. Time of cognizance of the outbreak:

N/A

2. Location and approximate area affected:

N/A

N/A

3. Type of disease/intoxication:

N/A

4. Suspected source of disease/intoxication:

N/A

5. Possible causative agent(s):

N/A

6. Main characteristics of systems:

N/A

7. Detailed symptoms, when applicable

N/A

- Respiratory:

N/A

- Circulatory:

N/A

- Neurological/behavioural:

N/A

- Intestinal:

N/A

- Dermatological:

N/A

- Nephrological:

N/A

- Other:

N/A

8. Deviation(s) from the normal pattern as regards

- Type:

N/A

- Development:

N/A

- Place of occurrence:

N/A

- Time of occurrence:

- Symptoms:

N/A

- Virulence pattern:

N/A

- Drug resistance pattern:

N/A

- Agent(s) difficult to diagnose:

N/A

- Presence of unusual vectors:

N/A

- Other:

N/A

9. Approximate number of primary cases:

N/A

10. Approximate number of total cases:

N/A

11. Number of deaths:

12. Development of the outbreak:

13. Measures taken:

N/A

Notes:

The Swiss Federal Food Safety and Veterinary Office (FSVO) is responsible for the surveillance and reporting of animal diseases. According to the Federal Law on Animal Epidemics (*RS 916.40 Loi du 1er juillet 1966 sur les épizooties*) and the corresponding ordinance (*RS 916.401 Ordonnance du 27 juin 1995 sur les épizooties*), notifiable animal diseases have to be reported to the FSVO which in turn is responsible for the reporting to the World Organization for Animal Health (OIE). The current situation is accessible online:

<https://www.infosm.blv.admin.ch/bulletin>

No outbreaks of infectious diseases or similar occurrences that seemed to deviate from the normal pattern in terms of animal diseases were observed during the reporting period.

Attachments:

N/A

Plant diseases and pests

1. Time of cognizance of the outbreak:

N/A

2. Location and approximate area affected:

N/A

N/A

3. Type of disease/intoxication:

N/A

4. Suspected source of disease/intoxication:

N/A

5. Possible causative agent(s):

N/A

6. Main characteristics of systems:

N/A

7. Detailed symptoms, when applicable

N/A

- Respiratory:

N/A

- Circulatory:

N/A

- Neurological/behavioural:

N/A

- Intestinal:

N/A

- Dermatological:

N/A

- Nephrological:

N/A

- Other:

N/A

8. Deviation(s) from the normal pattern as regards

- Type:

N/A

- Development:

N/A

- Place of occurrence:

N/A

- Time of occurrence:

- Symptoms:

N/A

- Virulence pattern:

N/A

- Drug resistance pattern:

N/A

- Agent(s) difficult to diagnose:

N/A

- Presence of unusual vectors:

N/A

- Other:

N/A

9. Approximate number of primary cases:

N/A

10. Approximate number of total cases:

N/A

11. Number of deaths:

12. Development of the outbreak:

13. Measures taken:

N/A

Notes:

The Swiss Federal Plant Protection Service (FPPS) is responsible for any kind of phytosanitary measures in order to prevent the introduction and spread of particularly harmful pests and diseases that affect plants and plant products. The FPPS is run jointly by the Swiss Federal Office for Agriculture (FOAG) and the Swiss Federal Office for the Environment (FOEN). The FOAG is responsible for the sector of agricultural and horticultural crops, whereas the FOEN is responsible for forest plants, wood and wood products, including invasive plants. According to the Federal Law on Agriculture (*RS 910.1 Loi fédérale du 29 avril 1998 sur l'agriculture*) and the corresponding ordinance (*RS 916.20 Ordonnance du 31 octobre 2018 sur la protection des végétaux*), notifiable plant diseases and pests are reported to either the FOAG or the FOEN that transmit reports to the European and Mediterranean Plant Protection Organization (EPPO). Reporting of invasive plants to the FOEN, which then communicates with the EPPO, is primarily regulated in the Ordinance on the Release of Organisms into the Environment (*RS 814.911 Ordonnance du 10 septembre 2008 sur l'utilisation d'organismes dans l'environnement*).

Information on outbreaks of infectious diseases and similar occurrences that seem to deviate from the normal pattern in terms of plant diseases and pests that occurred during the reporting period is provided in the form of short descriptions of notifications made by the National Plant Protection Organisation of Switzerland to the EU Commission by means of the EUROPHYT-Outbreak system as follows:

01 - Date of approval: 25.03.2020 - Title: First Presence (confirmed) of Erysiphe corylacearum in Switzerland (Lugano) - Short description: First detection of the non-regulated pest Erysiphe corylacearum in Switzerland (Lugano). - Pest: Erysiphe corylacearum - Infested Plant / Material: Corylus avellana - EPPO Reporting: <https://gd.eppo.int/taxon/ERYSCY/distribution/CH>

02 - Date of approval: 18.05.2020 - Title: Presence (confirmed) of Globodera pallida in Switzerland (Vaud) - Short description: Outbreak of the potato cyst nematode, Globodera pallida in canton of Vaud. - Pest: Globodera pallida - Infested Plant / Material: Solanum tuberosum

03 - Date of approval: 25.06.2020 - Title: Update on the status of *Ceratocystis platani* in Switzerland - Short description: Update on the situation with *Ceratocystis platani* in Switzerland. There are several outbreaks of this pest in canton of Ticino (under official eradication). Not detected for at least 10 years in cantons of Geneva and Vaud. - Pest: *Ceratocystis platani* - Infested Plant / Material: *Platanus* - EPPPO Reporting: <https://gd.eppo.int/reporting/article-6855>

04 - Date of approval: 27.07.2020 - Title: Update no 3. First Presence (confirmed) of *Popillia japonica* in Switzerland (Canton of Ticino) - Short description: Update on the situation with *Popillia japonica* in canton of Ticino. In July 2020, for the first time, adults of *P. japonica* have been found in high numbers in two different vineyards directly on plants (*Vitis vinifera*), in the canton of Ticino. - Pest: *Popillia japonica* - Infested Plant / Material: *Vitis vinifera*, *Salix*, *Rubus*, *Parthenocissus quinquefolia* - EPPPO Reporting: <https://gd.eppo.int/reporting/article-6845>

05 - Date of approval: 29.07.2020 - Title: Presence (confirmed) of Grapevine flavescence dorée phytoplasma in Switzerland (Vaud) - Short description: Grapevine flavescence dorée phytoplasma was found during an official survey in a vineyard in canton of Vaud (Roche). - Pest: Grapevine flavescence dorée phytoplasma - Infested Plant / Material: *Vitis vinifera*

06 - Date of approval: 16.10.2020 - Title: Presence (confirmed) of Grapevine flavescence dorée phytoplasma in Switzerland (Valais) - Short description: Grapevine flavescence dorée phytoplasma was found during an official survey in a vineyard in canton of Valais (Port-Valais). - Pest: Grapevine flavescence dorée phytoplasma - Infested Plant / Material: *Vitis vinifera*

07 - Date of approval: 27.10.2020 - Title: Presence (confirmed) of Grapevine flavescence dorée phytoplasma in Switzerland (Valais) - Short description: Grapevine flavescence dorée phytoplasma was found during an official survey in a vineyard in canton of Valais (Ardon). - Pest: Grapevine flavescence dorée phytoplasma - Infested Plant / Material: *Vitis vinifera*

08 - Date of approval: 17.12.2020 - Title: Update no 1. Presence (confirmed) of Grapevine flavescence dorée phytoplasma in Switzerland (Vaud) - Short description: Grapevine flavescence dorée phytoplasma was found during an official survey in a vineyard in canton of Vaud (Yvorne). - Pest: Grapevine flavescence dorée phytoplasma - Infested Plant / Material: *Vitis vinifera*

09 - Date of approval: 20.12.2020 - Title: Presence (confirmed) of Grapevine flavescence dorée phytoplasma in Switzerland (Vaud) - Short description: Grapevine flavescence dorée phytoplasma was found during an official survey in a vineyard in canton of Vaud (Bourg-en-Lavaux). - Pest: Grapevine flavescence dorée phytoplasma - Infested Plant / Material: *Vitis vinifera*

10 - Date of approval: 20.12.2020 - Title: Presence (confirmed) of Grapevine flavescence dorée phytoplasma in Switzerland (Vaud) - Short description: Grapevine flavescence dorée phytoplasma was found during an official survey in a vineyard in canton of Vaud (Bourg-en-Lavaux). - Pest: Grapevine flavescence dorée phytoplasma - Infested Plant / Material: *Vitis vinifera*

Attachments:

N/A

Confidence-Building Measure "C"

Encouragement of publication of results and promotion of use of knowledge

At the Third Review Conference it was agreed that States parties continue to implement the following:

Encouragement of publication of results of biological research directly related to the Convention, in scientific journals generally available to States parties, as well as promotion of use for permitted purposes of knowledge gained in this research.

Modalities

The Third Review Conference agreed on the following:

1. It is recommended that basic research in biosciences, and particularly that directly related to the Convention should generally be unclassified and that applied research to the extent possible, without infringing on national and commercial interests, should also be unclassified.
2. States parties are encouraged to provide information on their policy as regards publication of results of biological research, indicating, inter alia, their policies as regards publication of results of research carried out in research centres and laboratories subject to exchange of information under item A and publication of research on outbreaks of diseases covered by item B, and to provide information on relevant scientific journals and other relevant scientific publications generally available to States parties.
3. The Third Review Conference discussed the question of cooperation and assistance as regards the safe handling of biological material covered by the Convention. It concluded that other international forums were engaged in this field and expressed its support for efforts aimed at enhancing such cooperation.

Comments:

Switzerland does not impose any restrictions on the publication of basic and applied research in biosciences related to the Convention:

- CBM "A":
No restrictions implemented on the publication of research carried out within the frameworks of the National Biological Defense Program and the Regional Laboratory Network as well as their contractors.
- CBM "B":
No restrictions implemented on the publication of research. Full cooperation with international organizations (WHO, OIE, EPPO) in their respective frameworks.
- CBM "G":
Public institutions (universities, institutes, hospitals, state-run facilities): No restrictions implemented on the publication of research.
Private companies: Publication of research is encouraged, however, companies are responsible for their own publication policy that are in line with the protection of any commercial interests.

Publishers of scientific and medical journals and other publications based in Switzerland:

Birkhäuser Verlag AG, Basel: <https://www.springer.com/birkhauser>

EMH Schweizerischer Ärzteverlag AG, MuttENZ: <https://www.emh.ch/en/read>

Frontiers Media SA, Lausanne: <https://www.frontiersin.org/>

Inderscience Publishers, Genève: <https://www.inderscience.com/>

MDPI AG, Basel: <https://www.mdpi.com/>

S. Karger AG, Basel: <https://www.karger.com/>

SciPress Ltd., Bäch: <https://www.scipress.com/>

WHO Press, Genève: <https://apps.who.int/bookorders>

Confidence-Building Measure "D"

(Deleted)

Confidence-Building Measure "E"

Declaration of legislation, regulations and other measures

At the Third Review Conference the States parties agreed to implement the following, later amended by the Seventh Review Conference:

As an indication of the measures which they have taken to implement the Convention, States parties shall declare whether they have legislation, regulations or other measures:

- (a) To prohibit and prevent the development, production, stockpiling, acquisition or retention of the agents, toxins, weapons, equipment and means of delivery specified in Article I of the Convention, within their territory or anywhere under their jurisdiction or under their control anywhere;
- (b) In relation to the export or import of micro-organisms pathogenic to man, animals and plants or of toxins in accordance with the Convention;
- (c) In relation to biosafety and biosecurity.

States parties shall complete the attached form (Form E) and shall be prepared to submit copies of the legislation or regulations, or written details of other measures on request to the Implementation Support Unit (ISU) within the United Nations Office for Disarmament Affairs or to an individual State party. On an annual basis States parties shall indicate, also on the attached form, whether or not there has been any amendment to their legislation, regulations or other measures.

Form E

Declaration of legislation, regulations and other measures

<i>Relating to</i>	<i>Legislation</i>	<i>Regulations</i>	<i>Other measures¹²</i>	<i>Amended since last year</i>
(a) Development, production stockpiling, acquisition or retention of microbial or other biological agents, or toxins, weapons, equipment and means of delivery specified in Article I	yes	yes	yes	yes
(b) Exports of micro-organisms ¹³ and toxins	yes	yes	yes	yes
(c) Imports of micro-organisms ¹³ and toxins	yes	yes	yes	yes
(d) Biosafety ¹⁴ and biosecurity ¹⁵	yes	yes	yes	yes

Additional information to Form E:

Switzerland adheres to a monistic system, i.e. treaties of international law become effective upon ratification and are part of the Swiss Federal Legislation. This fact is reflected as follows:

Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction (*RS 0.515.07 Convention du 10 avril 1972 sur l'interdiction de la mise au point, de la fabrication et du stockage des armes bactériologiques (biologiques) ou à toxines et sur leur destruction*)

https://www.fedlex.admin.ch/eli/cc/1976/1438_1439_1439/fr

Protocol for the Prohibition of the Use of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare (*RS 0.515.105 Protocole du 17 juin 1925 concernant la prohibition d'emploi à la guerre de gaz asphyxiants, toxiques ou similaires et de moyens bactériologiques*)

https://www.fedlex.admin.ch/eli/cc/48/375_387_405/fr

Legislation and regulations concerned with the implementation of the Convention in Switzerland is detailed as follows:

Federal Constitution of the Swiss Confederation (*RS 101 Constitution fédérale de la Confédération suisse du 18 avril 1999*)

<https://www.fedlex.admin.ch/eli/cc/1999/404/fr>

Federal Act on Measures Ensuring Homeland Security (*RS 120 Loi fédérale du 21 mars 1997 instituant des mesures visant au maintien de la sûreté intérieure*)

https://www.fedlex.admin.ch/eli/cc/1998/1546_1546_1546/fr

Ordinance on the Intelligence Service (*RS 121.1 Ordonnance du 16 août 2017 sur le Service de renseignement*)

<https://www.fedlex.admin.ch/eli/cc/2017/495/fr>

Ordinance on Information and Storage Systems of the Intelligence Service of the Confederation (*RS 121.2 Ordonnance du 16 août 2017 sur les systèmes d'information et les systèmes de stockage de données du Service de renseignement de la Confédération*)

<https://www.fedlex.admin.ch/eli/cc/2017/496/fr>

Federal Act on the Prohibition of « al-Qaeda » and « Islamic State » Groups and related Organizations (*RS 122 Loi fédérale du 12 décembre 2014 interdisant les groupes « Al-Qaïda » et « État islamique » et les organisations apparentées*)

<https://www.fedlex.admin.ch/eli/cc/2014/764/fr>

Ordinance on the Federal Expert Commission for Biosafety (*RS 172.327.8 Ordonnance du 20 novembre 1996 sur la Commission fédérale d'experts pour la sécurité biologique*)

https://www.fedlex.admin.ch/eli/cc/1997/6_6_6/fr

Establishes the roles of the Federal Commission of Experts for Biological Security to ensure the protection of the Swiss population against transmissible diseases, the health of workers, and the protection of animals and plants and their environments.

Swiss Criminal Code (*RS 311.0 Code pénal suisse du 21 décembre 1937*)

https://www.fedlex.admin.ch/eli/cc/54/757_781_799/fr

Swiss Code of Criminal Procedure (*RS 312.0 Code de procédure pénale suisse du 5 octobre 2007*)

<https://www.fedlex.admin.ch/eli/cc/2010/267/fr>

Ordinance on the Communication of Penal Decisions Taken by Cantonal Authorities (*RS 312.3 Ordonnance du 10 novembre 2004 réglant la communication des décisions pénales prises par les autorités cantonales*)

<https://www.fedlex.admin.ch/eli/cc/2004/729/fr>

Military Criminal Code (*RS 321.0 Code pénal militaire du 13 juin 1927*)

https://www.fedlex.admin.ch/eli/cc/43/359_375_369/fr

Federal Act on International Legal Aid in Criminal Cases (*RS 351.1 Loi fédérale du 20 mars 1981 sur l'entraide internationale en matière pénale*)

https://www.fedlex.admin.ch/eli/cc/1982/846_846_846/fr

Federal Act on Main Offices of Criminal Investigation Departments of the Confederation (*RS 360 Loi fédérale du 7 octobre 1994 sur les Offices centraux de police criminelle de la Confédération*)

https://www.fedlex.admin.ch/eli/cc/1995/875_875_875/fr

Ordinance on the Information System of the Federal Criminal Police (*RS 360.2 Ordonnance du 15 octobre 2008 sur le système informatisé de la Police judiciaire fédérale*)

<https://www.fedlex.admin.ch/eli/cc/2008/697/fr>

Ordinance on the National Central Bureau Interpol Bern (*RS 366.1 Ordonnance du 21 juin 2013 concernant le Bureau central national Interpol Bern*)

<https://www.fedlex.admin.ch/eli/cc/2013/466/fr>

Ordinance on the Coordinated Medical Service (*RS 501.31 Ordonnance du 27 avril 2005 sur le Service sanitaire coordonné*)

<https://www.fedlex.admin.ch/eli/cc/2005/345/fr>

Federal Act on the Army and the Military Administration (*RS 510.10 Loi fédérale du 3 février 1995 sur l'armée et l'administration militaire*)

https://www.fedlex.admin.ch/eli/cc/1995/4093_4093_4093/fr

Ordinance on Measures Taken by the Army against Human and Animal Epidemics (*RS 510.35 Ordonnance du 2. octobre 1955 concernant les mesures à prendre par l'armée contre les épidémies et épizooties*)

https://www.fedlex.admin.ch/eli/cc/1955/863_885_893/fr

Ordinance on Domestic Disaster Management by the Army (*RS 513.75 Ordonnance du 21 novembre 2018 sur l'aide militaire en cas de catastrophe dans le pays*)

<https://www.fedlex.admin.ch/eli/cc/2018/731/fr>

Federal Act on War Material (*RS 514.51 Loi fédérale du 13 décembre 1996 sur le matériel de guerre*)

https://www.fedlex.admin.ch/eli/cc/1998/794_794_794/fr

Prohibits the development, production, indirect transfer, acquisition, import, export, transit and stockpiling of nuclear, biological or chemical weapons under Article 7. It prohibits any action committed by any person who has any connection to the acquisition of WMD. This article also applies to offences committed abroad if they are in violation of international law, which is binding in Switzerland.

Ordinance on War Material (*RS 514.511 Ordonnance du 25 février 1998 sur le matériel de guerre*)

https://www.fedlex.admin.ch/eli/cc/1998/808_808_808/fr

Regulates the initial authorisation and the specific authorisations that are required for the manufacture, the brokerage, the import, the export and the transit of war materials, as well as the conclusion of contracts to transfer incorporeal property, including know-how and the concession of related rights. Applies in Switzerland customs area, to Swiss customs warehouses and Swiss customs enclaves.

Federal Act on the Protection of the Population and Civil Protection (*RS 520.1 Loi fédérale du 20 décembre 2019 sur la protection de la population et sur la protection civile*)

<https://www.fedlex.admin.ch/eli/cc/2020/887/fr>

Ordinance on the Civil Protection (*RS 520.12 Ordonnance du 11 novembre 2020 sur la protection de la population*)

<https://www.fedlex.admin.ch/eli/cc/2020/889/fr>

Ordinance on the Federal Staff Civil Protection (*RS 520.17 Ordonnance du 2 mars 2018 sur l'État-major fédéral Protection de la population*)

<https://www.fedlex.admin.ch/eli/cc/2018/162/fr>

Federal Act on Customs (*RS 631.0 Loi du 18 mars 2005 sur les douanes*)

<https://www.fedlex.admin.ch/eli/cc/2007/249/fr>

Ordinance on Customs (*RS 631.01 Ordonnance du 1er novembre 2006 sur les douanes*)

<https://www.fedlex.admin.ch/eli/cc/2007/250/fr>

Ordinance on the Transportation of Hazardous Goods on the Road (*RS 741.621 Ordonnance du 29 novembre 2002 relative au transport des marchandises dangereuses par route*)

<https://www.fedlex.admin.ch/eli/cc/2002/685/fr>

Regulates the transport of dangerous materials by automobiles or other mediums of transport on roads open to those same vehicles.

Ordinance on Hazardous Goods Representatives for the Transportation of Hazardous Goods on the Road, by Air or by Sea (*RS 741.622 Ordonnance du 15 juin 2001 sur les conseillers à la sécurité pour le transport de marchandises dangereuses par route, par rail ou par voie navigable*)

<https://www.fedlex.admin.ch/eli/cc/2001/268/fr>

Determines the appointment, tasks, training and examination of persons charged with reducing risks to people, property and the environment during transportation of hazardous goods or packaging operations, shipment or loading and unloading associated with this transport.

Ordinance on the Transportation of Hazardous Goods by Railway and Aerial Railway (*RS 742.412 Ordonnance du 31 octobre 2012 sur le transport de marchandises dangereuses par chemin de fer et par installation à câbles*)

<https://www.fedlex.admin.ch/eli/cc/2012/785/fr>

Federal Act on Surveillance of Postal Mail and Telecommunications (*RS 780.1 Loi fédérale du 18 mars 2016 sur la surveillance de la correspondance par poste et télécommunication*)

<https://www.fedlex.admin.ch/eli/cc/2018/31/fr>

Ordinance on Surveillance of Postal Mail and Telecommunications (*RS 780.11 Ordonnance du 15 novembre 2017 sur la surveillance de la correspondance par poste et télécommunication*)

<https://www.fedlex.admin.ch/eli/cc/2018/32/fr>

Ordinance on the Transplantation of Organs, Tissues and Cells of Animal Origin (*RS 810.213 Ordonnance du 16 mars 2007 sur la transplantation d'organes, de tissus et de cellules d'origine animale*)

<https://www.fedlex.admin.ch/eli/cc/2007/283/fr>

Ordinance on Clinical Trials with Therapeutic Products (*RS 810.305 Ordonnance du 20 septembre 2013 sur les essais cliniques dans le cadre de la recherche sur l'être humain*)

<https://www.fedlex.admin.ch/eli/cc/2013/643/fr>

Ordinance on Pharmaceuticals (*RS 812.212.21 Ordonnance du 21 septembre 2018 sur les médicaments*)

<https://www.fedlex.admin.ch/eli/cc/2018/588/fr>

Regulates: a. authorization of medicines on the market ready for use, b. authorization processes of surface treatment of labile blood products, c. classification criteria for categories of delivery, d. distribution restrictions, e. authorization of mail order drugs, f. market surveillance and vigilance.

Federal Act on the Protection against Dangerous Substances and Preparations (*RS 813.1 Loi fédérale du 15 décembre 2000 sur la protection contre les substances et les préparations dangereuses*)

<https://www.fedlex.admin.ch/eli/cc/2004/724/fr>

Protects the lives and health of human beings from the harmful effects of substances or preparations.

Ordinance on Good Laboratory Practice (*RS 813.112.1 Ordonnance du 18 mai 2005 sur les bonnes pratiques de laboratoire*)

<https://www.fedlex.admin.ch/eli/cc/2005/467/fr>

Fixes the principles of good laboratory practices, guarantees the quality of studies and regulates the verification of these requirements.

Ordinance on Marketing and Handling Biocidal Products (*RS 813.12 Ordonnance du 18 mai 2005 concernant la mise sur le marché et l'utilisation des produits biocides*)

<https://www.fedlex.admin.ch/eli/cc/2005/468/fr>

Regulates marketing of biocidal products and their active substances, particularly the various types and licensing procedures, the use of data from previous requests for the benefit of new applicants, and the classification of packaging, labelling and safety data sheets.

Federal Act on the Protection of the Environment (*RS 814.01 Loi fédérale du 7 octobre 1983 sur la protection de l'environnement*)

https://www.fedlex.admin.ch/eli/cc/1984/1122_1122_1122/fr

Ordinance on the Protection against Major Accidents (*RS 814.012 Ordonnance du 27 février 1991 sur la protection contre les accidents majeurs*)

https://www.fedlex.admin.ch/eli/cc/1991/748_748_748/fr

Covers activities involving the contained use of genetically modified organisms and pathogenic organisms in laboratories, production facilities, greenhouses and premises housing animals.

Ordinance on Waste Management (*RS 814.600 Ordonnance du 4 décembre 2015 sur la limitation et l'élimination des déchets*)

<https://www.fedlex.admin.ch/eli/cc/2015/891/fr>

Federal Act on non-Human Genetic Engineering (*RS 814.91 Loi fédérale du 21 mars 2003 sur l'application du génie génétique au domaine non humain*)

<https://www.fedlex.admin.ch/eli/cc/2003/705/fr>

Protects humans, animals and the environment against the abuse of genetic engineering, and ensures that applications of genetic engineering serve humans, animals and the environment.

Ordinance on the Release of Organisms into the Environment (*RS 814.911 Ordonnance du 10 septembre 2008 sur l'utilisation d'organismes dans l'environnement*)

<https://www.fedlex.admin.ch/eli/cc/2008/614/fr>

Protects humans, animals and the environment, as well as biodiversity and sustainable use of its components against the dangers and outrages associated with the use of organisms, their metabolites and their waste.

Ordinance on the Contained Use of Organisms (*RS 814.912 Ordonnance du 9 mai 2012 sur l'utilisation des organismes en milieu confiné*)

<https://www.fedlex.admin.ch/eli/cc/2012/329/fr>

Protects people and the environment and in particular communities of animals and plants and their habitats, against harmful effects or nuisances of the contained use of organisms. Contributes to the maintenance of biodiversity and soil fertility. Regulates the contained use of organisms, in particular genetically modified or pathogenic organisms. The revision of the ordinance that entered into force on 1 January 2020 introduces a definition of misuse and explicitly addresses biosecurity.

Ordinance on Transborder Traffic of Genetically Modified Organisms (*RS 814.912.21 Ordonnance du 3 novembre 2004 sur les mouvements transfrontières des organismes génétiquement modifiés*)

<https://www.fedlex.admin.ch/eli/cc/2004/726/fr>

Regulates the transborder transport of GMOs. Does not apply to medicines for human use, which contain GMOs.

Federal Act on Foods and Commodities (*RS 817.0 Loi fédérale du 20 juin 2014 sur les denrées alimentaires et les objets usuels*)

<https://www.fedlex.admin.ch/eli/cc/2017/62/fr>

Ordinance on Foods and Commodities (*RS 817.02 Ordonnance du 16 décembre 2016 sur les denrées alimentaires et les objets usuels*)

<https://www.fedlex.admin.ch/eli/cc/2017/63/fr>

Ordinance on Maximum Levels of Pesticide Residues Present in or on Products of Vegetable or Animal Origin (*RS 817.021.23 Ordonnance du DFI du 16 décembre 2016 sur les limites maximales applicables aux résidus de pesticides présents dans ou sur les produits d'origine végétale ou animale*)

<https://www.fedlex.admin.ch/eli/cc/2017/151/fr>

Ordinance on Genetically Modified Foods (*RS 817.022.51 Ordonnance du DFI du 27 mai 2020 sur les denrées alimentaires génétiquement modifiées*)

<https://www.fedlex.admin.ch/eli/cc/2020/456/fr>

Ordinance on Hygiene when Handling Food (*RS 817.024.1 Ordonnance du DFI du 16 décembre 2016 sur l'hygiène dans les activités liées aux denrées alimentaires*)

<https://www.fedlex.admin.ch/eli/cc/2017/183/fr>

Ordinance on the Enforcement of the Legislation on Foods (*RS 817.042 Ordonnance du DFI du 27 mai 2020 sur l'exécution de la législation sur les denrées alimentaires*)

<https://www.fedlex.admin.ch/eli/cc/2020/460/fr>

Ordinance on Animal Slaughter and Meat Control (*RS 817.190 Ordonnance du 16 décembre 2016 concernant l'abattage d'animaux et le contrôle des viandes*)

<https://www.fedlex.admin.ch/eli/cc/2017/66/fr>

Ordinance on Animal Slaughter Hygiene (*RS 817.190.1 Ordonnance du DFI du 23 novembre 2005 concernant l'hygiène lors de l'abattage d'animaux*)

<https://www.fedlex.admin.ch/eli/cc/2005/816/fr>

Federal Act on the Control of Communicable Human Diseases (*RS 818.101 Loi fédérale du 28 septembre 2012 sur la lutte contre les maladies transmissibles de l'homme*)

<https://www.fedlex.admin.ch/eli/cc/2015/297/fr>

Regulates fight against diseases transmissible to man by stating that the Confederation and the cantons take the necessary measures, including biosafety precautions, to protect human beings against pathogens including those genetically modified. Regulates identification of laboratories through permits delivered by the Swiss Institute of Therapeutic Products. Regulates the trade in pathogenic agents and requires an authorisation from every person disseminating pathogens for research or commerce. Entitles the Federal Council to regulate the transport, importation, exportation and the transit of pathogens, to limit or to ban the use of certain pathogens, to fix the conditions for persons using pathogens. Outlines the provisions for quarantine, vaccination, and disease surveillance and reporting requirements. Provides for imprisonment or fines anyone who intentionally or by negligence does not respect the prescriptions of the Federal Act.

Ordinance on the Control of Communicable Human Diseases (*RS 818.101.1 Ordonnance du 29 avril 2015 sur la lutte contre les maladies transmissibles de l'homme*)

<https://www.fedlex.admin.ch/eli/cc/2015/298/fr>

Ordinance on the Declaration of Observations of Communicable Human Diseases (*RS 818.101.126 Ordonnance du DFI du 1 décembre 2015 sur la déclaration d'observations en rapport avec les maladies transmissibles de l'homme*)

<https://www.fedlex.admin.ch/eli/cc/2015/892/fr>

Ordinance on Microbiological Laboratories (*RS 818.101.32 Ordonnance du 29 avril 2015 sur les laboratoires de microbiologie*)

<https://www.fedlex.admin.ch/eli/cc/2015/299/fr>

Ordinance Relating to the Act of Labour (*RS 822.114 Ordonnance 4 du 18 août 1993 relative à la loi sur le travail*)

https://www.fedlex.admin.ch/eli/cc/1993/2564_2564_2564/fr

Ordinance on the Protection of Workforce against Microbiological Risks (RS 832.321 Ordonnance du 25 août 1999 sur la protection des travailleurs contre les risques liés aux micro-organismes)

<https://www.fedlex.admin.ch/eli/cc/1999/445/fr>

Defines micro-organisms and genetically modified micro-organisms and techniques for genetic modification. Requires the regular identification and evaluation of the risks to which workers are exposed and the notification of the “Bureau de Biotechnologie de la Confédération” by employers. Defines general security measures for the protection of the workers by employers. Covers activities involving the contained use of genetically modified organisms and pathogenic organisms in laboratories, production facilities, greenhouses and premises housing animals.

Federal Act on Agriculture (RS 910.1 Loi fédérale du 29 avril 1998 sur l’agriculture)

https://www.fedlex.admin.ch/eli/cc/1998/3033_3033_3033/fr

Ordinance on the Coordination of Controls on Agricultural Farms (RS 910.15 Ordonnance du 31 octobre 2018 sur la coordination des contrôles dans les exploitations agricoles)

<https://www.fedlex.admin.ch/eli/cc/2018/673/fr>

Ordinance on Primary Production (RS 916.020 Ordonnance du 23 novembre 2005 sur la production primaire)

<https://www.fedlex.admin.ch/eli/cc/2005/752/fr>

Ordinance on the Release of Phytopharmaceutical Products (RS 916.161 Ordonnance du 12 mai 2010 sur la mise en circulation des produits phytosanitaires)

<https://www.fedlex.admin.ch/eli/cc/2010/340/fr>

Ensures that plant protection products lend themselves well in their intended use and as those are used in accordance with the requirements preventing unacceptable side effects on the health of humans, animals and the environment.

Ordinance on Plant Protection (RS 916.20 Ordonnance du 31 octobre 2018 sur la protection des végétaux contre les organismes nuisibles particulièrement dangereux)

<https://www.fedlex.admin.ch/eli/cc/2018/682/fr>

Protects plants of all sorts against the nuisances of dangerous organisms, and protects agriculture and horticulture fields from the same organisms.

Ordinance on the Control of Milk (RS 916.351.0 Ordonnance du 20 octobre 2010 sur le contrôle du lait)

<https://www.fedlex.admin.ch/eli/cc/2010/713/fr>

Ordinance on the Milk Production Hygiene (RS 916.351.021.1 Ordonnance du DFI du 23 novembre 2005 réglant l’hygiène dans la production laitière)

<https://www.fedlex.admin.ch/eli/cc/2005/824/fr>

Federal Act on Animal Diseases (RS 916.40 Loi du 1er juillet 1966 sur les épizooties)

https://www.fedlex.admin.ch/eli/cc/1966/1565_1621_1604/fr

Ordinance on the Control of Animal Diseases (RS 916.401 Ordonnance du 27 juin 1995 sur les épizooties)

https://www.fedlex.admin.ch/eli/cc/1995/3716_3716_3716/fr

Designates new contagious animal diseases and defines the measures of control of and the organization of the fight against animal diseases, as well as the compensation of animal keepers.

Ordinance on the Disposal of Animal Side Products (RS 916.441.22 Ordonnance du 25 mai 2011 concernant l’élimination des sous-produits animaux)

<https://www.fedlex.admin.ch/eli/cc/2011/372/fr>

Ensures that animal by-products do not endanger human and animal health and do not harm the environment. Allows as much as possible the recovery of animal by-products. Ensures that the infrastructure for the disposal of animal by-products is available.

Ordinance on Import, Transit and Export of Animals and Animal Products Exchanged with Third Countries (RS 916.443.10 Ordonnance du 18 novembre 2015 réglant les échanges d'importation, de transit et d'exportation d'animaux et de produits animaux avec les pays tiers)

<https://www.fedlex.admin.ch/eli/cc/2015/843/fr>

Regulates the import, transit and export of animals, animal by-products and animal products.

Ordinance on Import, Transit and Export of Animals and Animal Products Exchanged with EU Member States, Iceland and Norway (RS 916.443.11 Ordonnance du 18 novembre 2015 réglant les échanges d'importation, de transit et d'exportation d'animaux et de produits animaux avec les Etats membres de l'UE, l'Islande et la Norvège)

<https://www.fedlex.admin.ch/eli/cc/2015/846/fr>

Regulates the import, transit and export of animals, animal by-products and animal products.

Federal Act on the Control of Goods Suitable for Civilian and Military Purposes and Specific Military Goods (R. 946.202 Loi fédérale du 13 décembre 1996 sur le contrôle des biens utilisables à des fins civiles et militaires et des biens militaires spécifiques)

https://www.fedlex.admin.ch/eli/cc/1997/1697_1697_1697/fr

Regulates, inter alia, the import, export and transit of microorganisms and toxins. Applies to dual-use goods and specific military goods, which are the subject of international agreements. Also outlines the responsibilities of the Federal Council in this regard including licensing and reporting requirements and surveillance measures for import, export, transit, production, storage, transfer and use of goods.

Ordinance on the Control of Goods Suitable for Civilian and Military Purposes, Specific Military Goods and Strategic Goods (RS 946.202.1 Ordonnance du 3 juin 2016 sur le contrôle des biens utilisables à des fins civiles et militaires, des biens militaires spécifiques et des biens stratégiques)

<https://www.fedlex.admin.ch/eli/cc/2016/352/fr>

Regulates the export, import and transit of goods usable for civilian and military purposes, specific military goods and strategic goods which are the subject of international control measures not binding pursuant to international law. Applies in Swiss customs area to Swiss customs warehouses and Swiss customs enclaves.

Ordinance on the Control of Chemicals Suitable for Civilian and Military Purposes (RS 946.202.21 Ordonnance du 21 août 2013 sur le contrôle des produits chimiques utilisables à des fins civiles et militaires)

<https://www.fedlex.admin.ch/eli/cc/2013/580/fr>

Ordinance Establishing Measures against Persons and Entities Linked to Osama bin Laden, the al-Qaeda Group or the Taliban (RS 946.203 Ordonnance du 2 octobre 2000 instituant des mesures à l'encontre de personnes et entités liées à Oussama ben Laden, au groupe «Al-Qaïda» ou aux Taliban)

<https://www.fedlex.admin.ch/eli/cc/2000/429/fr>

Federal Act on Sanctions on Trade with Foreign Countries (RS 946.231 Loi fédérale du 22 mars 2002 sur l'application de sanctions internationales)

<https://www.fedlex.admin.ch/eli/cc/2002/564/fr>

Ordinance of the Swiss Financial Market Supervisory Authority on Combatting Money Laundering and Financing of Terrorism in the Financial Sector (RS 955.033.0 Ordonnance de l'Autorité fédérale de surveillance des marchés financiers du 3 juin 2015 sur la lutte contre le blanchiment d'argent et le financement du terrorisme dans le secteur financier)

<https://www.fedlex.admin.ch/eli/cc/2015/390/fr>

Ordinance on the Reporting Bureau in Matters of Money Laundering (RS 955.23 Ordonnance du 25 août 2004 sur le Bureau de communication en matière de blanchiment d'argent)

<https://www.fedlex.admin.ch/eli/cc/2004/626/fr>

Titles in English are unofficial translations that are provided for information purposes only and have no legal force. To access legal documents please consult the Swiss Federal Legislation in either French (links above), German or Italian. Some additional information may also be obtained in the framework of UNSCR 1540 at: <https://www.un.org/en/sc/1540/national-implementation/national-reports.shtml>

Confidence-Building Measure "F"

Declaration of past activities in offensive and/or defensive biological research and development programmes

In the interest of increasing transparency and openness, States parties shall declare whether or not they conducted any offensive and/or defensive biological research and development programmes since 1 January 1946.

If so, States parties shall provide information on such programmes, in accordance with Form F.

Form F

Declaration of past activities in offensive and/or defensive biological research and development programmes

1. Date of entry into force of the Convention for the State Party.

Tuesday, May 4, 1976

2. Past offensive biological research and development programmes:

- no

- Period(s) of activities

N/A

- Summary of the research and development activities indicating whether work was performed concerning production, test and evaluation, weaponization, stockpiling of biological agents, the destruction programme of such agents and weapons, and other related research.

N/A

3. Past defensive biological research and development programmes:

- yes

- Period(s) of activities

1997 to present.

- Summary of the research and development activities indicating whether or not work was conducted in the following areas: prophylaxis, studies on pathogenicity and virulence, diagnostic techniques, aerobiology, detection, treatment, toxinology, physical protection, decontamination, and other related research, with location if possible.

Please refer to Form A, part 2 (ii) as well as past CBM declarations.

Confidence-Building Measure "G"

Declaration of vaccine production facilities

To further increase the transparency of biological research and development related to the Convention and to broaden scientific and technical knowledge as agreed in Article X, each State party will declare all facilities, both governmental and non-governmental, within its territory or under its jurisdiction or control anywhere, producing vaccines licensed by the State party for the protection of humans. Information shall be provided on Form G attached.

Form G

Declaration of vaccine production facilities

1. Name of facility:

Janssen Vaccines, Branch of Cilag International GmbH

2. Location (mailing address):

Rehhagstrasse 79, CH-3018 Bern, Switzerland

3. General description of the types of diseases covered:

01 - Disease targeted: COVID-19 - Name of vaccine: Ad26.COVS.S - License: Emergency use US, BH

02 - Disease targeted: Ebola virus disease - Name of vaccine: Ad26.ZEBOV - License: EU

03 - Disease targeted: Bacteremia; Urinary Tract Infections (extraenous pathogenic E.coli) - Name of vaccine: ExPEC Multivalent - License: Phase 1/2a US, other countries

1. Name of facility:

EmergentBiosolutions Berna GmbH

2. Location (mailing address):

Oberriedstrasse 68, CH-3174 Thörishaus, Switzerland

3. General description of the types of diseases covered:

01 - Disease targeted: Typhoid fever - Name of vaccine: Vivotif, Typhoral L - License: US, EU, CH, NO, UK, CA, AU, NZ, SG, MY, KR

02 - Disease targeted: Cholera - Name of vaccine: Vaxchora - License: US, EU

02 - Disease targeted: Chikungunya fever - Name of vaccine: no trade name yet - License: Phase 2 and 3 (US)

1. Name of facility:

Lonza AG

2. Location (mailing address):

Lonzastrasse, CH-3930 Visp, Switzerland

3. General description of the types of diseases covered:

01 - Disease targeted: COVID-19 - Name of vaccine: mRNA-1273 (Moderna) - License: US, EU, CH, other countries

Notes

1. World Health Organization
2. World Organization for Animal Health.
3. The containment units which are fixed patient treatment modules, integrated with laboratories, should be identified separately.
4. For facilities with maximum containment units participating in the national biological defence research and development programme, please fill in name of facility and mark "Declared in accordance with Form A, part 2 (iii)".
5. In accordance with the latest edition of the WHO Laboratory Biosafety Manual, or equivalent.
6. Microorganisms pathogenic to humans and/or animals
7. In accordance with the latest edition of the WHO Laboratory Biosafety Manual and/or the OIE Terrestrial Manual or other equivalent internationally accepted guidelines.
8. In accordance with the latest edition of the WHO Laboratory Biosafety Manual and/or the OIE Terrestrial Manual or other equivalent internationally accepted guidelines.
9. Including viruses and prions.
10. It is understood that this may include organisms made pathogenic by molecular biology techniques, such as genetic engineering.
11. See paragraph 2 of the chapeau to Confidence-Building Measure B.
12. Including guidelines.
13. Micro-organisms pathogenic to man, animals and plants in accordance with the Convention.
14. In accordance with the latest version of the WHO Laboratory Biosafety Manual or equivalent national or international guidance.
15. In accordance with the latest version of the WHO Laboratory Biosecurity Guidance or equivalent national or international guidance.