

Revised forms for the submission of the Confidence-Building Measures

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

Measure	Nothing to declare	Nothing new to declare	Year of last declaration if nothing new to declare
A, part 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A, part 2 (i)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A, part 2 (ii)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A, part 2 (iii)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G	<input checked="" type="checkbox"/>	<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: April 15th 2020_____

State Party to the Convention: Finland_____

Date of ratification/accession to the Convention: February 4, 1974_____

National point of contact: Antti Vaaras / MFA_____

Confidence-Building Measure "A"

Form A, part 1 (i)

No maximum containment laboratory exists in Finland.

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 agents¹ on a State Party's territory:

Biosafety level 3 ²	<input type="checkbox"/> yes / no
Biosafety level 2 ³ (if applicable)	yes / no

Any additional relevant information as appropriate:

Additional information specific to each laboratory working with biological agents at BSL2/BSL3 level follows from these organisations: Centre for Military Medicine, Finnish Institute of Health and Welfare (THL), Finnish Food Safety Authority (Ruokavirasto), Finnish Defence Research Agency (FDRA), University of Helsinki; *i*) Yersinia Research Laboratory, *ii*) Department of Virology - Viral Zoonoses Group, *iii*) *Clostridium botulinum* laboratory.

¹ Microorganisms pathogenic to humans and/or animals

² In accordance with the latest edition of the WHO Laboratory Biosafety Manual and/or the OIE Terrestrial Manual or other equivalent internationally accepted guidelines.

³ In accordance with the latest edition of the WHO Laboratory Biosafety Manual and/or the OIE Terrestrial Manual or other equivalent internationally accepted guidelines.

Exchange of Data on Research Centres and Laboratories #1

1. Name(s) of the Facility

Finnish Defence Forces, Centre for Military Medicine, Research and Development Department

2. Responsible public or private organization or company

Finnish Defence Forces under the Ministry of Defence

3. Location and postal address

Tukholmankatu 8 A, FI-00290 Helsinki and Mannerheimintie 166, FI-00300 Helsinki.

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

Finnish Defence Forces

5. Number of maximum containment units within the research centre and/or laboratory, with an indication of their respective size (m2)

There are no BSL-4 units

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

During 2019, the Research and Development Department developed rapid detection assays for selected microbial agents. The Department is part of the Centre for Biothreat Preparedness, which started its activities in 2005.

If no BSL4 facility is declared in Form A, part 1 (i), indicate the highest biosafety level implemented in facilities handling biological agents⁴ on a State Party's territory:

Biosafety level 3	yes
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¹ Microorganisms pathogenic to humans and/or animals

Exchange of Data on Research Centres and Laboratories #2

1. Name(s) of the Facility

Finnish Institute for Health and Welfare (THL), bacteriological and virological laboratories.

2. Responsible public or private organization or company

Finnish Institute for Health and Welfare (THL) under Ministry of Social Affairs and Health.

3. Location and postal address

Mannerheimintie 166, FI-00300 Helsinki

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

Funding from the Ministry of Social Affairs and Health and large variety of external research funding.

5. Number of maximum containment units within the research centre and/or laboratory, with an indication of their respective size (m²)

There are no BSL-4 laboratories or other units at this containment level.

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

Clinical and environmental microbiological research and reference laboratory facilities in Helsinki, and Kuopio. The institute is working mainly with ordinary occurring endemic and epidemic bacteria and viruses with main emphases on vaccine preventable diseases, enteric pathogens, zoonoses, *tuberculosis spp*, polioviruses, avian influenza, coronaviruses, zikavirus, HIV, hepatitis viruses and environmental fungi and bacteria causing human health problems. The Institute manages regional influenza and polio laboratory facilities. The Institute is in charge of biothreat preparedness in public health context. National focal point for IHR started June 2007.

If no BSL4 facility is declared in Form A, part 1 (i), indicate the highest biosafety level implemented in facilities handling biological agents¹ on a State Party's territory:

Biosafety level 3	yes
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Any additional relevant information as appropriate:

A BSL-3 level laboratory in Helsinki (120m²). Finnish Defence Forces is also using THL's laboratory facilities.

¹ Microorganisms pathogenic to humans and/or animals

Exchange of Data on Research Centres and Laboratories #3

1. Name(s) of the Facility

Finnish Food Safety Authority (Ruokavirasto)

2. Responsible public or private organization or company

Finnish Food Safety Authority under the Ministry of Agriculture and Forestry

3. Location and postal address

Mustialankatu 3
FI-00790 Helsinki

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

Financing from the Ministry of Agriculture and Forestry

5. Number of maximum containment units within the research centre and/or laboratory, with an indication of their respective size (m²)

None

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

7. Diagnostics, surveillance and reference laboratory activities of animal diseases, zoonotic agents and foodborne pathogens, for example rabies, avian influenza, swine influenza (including pandemic H1N1 in pigs), Newcastle disease, foot and mouth disease, classical swine fever, anthrax, tuberculosis, verotoxic *E. coli*.

If no BSL4 facility is declared in Form A, part 1 (i), indicate the highest biosafety level implemented in facilities handling biological agents¹ on a State Party's territory:

Biosafety level 3	yes
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¹ Microorganisms pathogenic to humans and/or animals

Exchange of Data on Research Centres and Laboratories #4

1. Name(s) of the Facility

Finnish Defence Research Agency (FDRA)

2. Responsible public or private organization or company

Finnish Defence Research Agency (FDRA), Finnish Defence Forces under the Ministry of Defence.

3. Location and postal address

P.O. Box 5 (Paroistentie 20)

FI-34111 Lakiala

Finland

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

Finnish Defence Forces

5. Number of maximum containment units within the research centre and/or laboratory, with an indication of their respective size (m2)

No BSL-4 laboratories.

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

The objective of the research work has been in the development of detection and identification methods for biological warfare agents; microbes and toxins. The CBRN field laboratory was operated as BSL-2 containment facility during 2019.

If no BSL4 facility is declared in Form A, part 1 (i), indicate the highest biosafety level implemented in facilities handling biological agents¹ on a State Party's territory:

Biosafety level 3	yes
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¹ Microorganisms pathogenic to humans and/or animals

Exchange of Data on Research Centres and Laboratories #5

1. Name(s) of the Facility

Yersinia Research Laboratory

2. Responsible public or private organization or company

University of Helsinki

3. Location and postal address

Department of Bacteriology and Immunology

Medicum, University of Helsinki

Haartmaninkatu 3

P.O Box 21

FI-00014 University of Helsinki

Helsinki, Finland

Yersinia-research home page: <https://www.helsinki.fi/en/researchgroups/yersinia-and-bacteriophage-research-laboratory>

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

Special state subsidy (EVO) for health science research in Finland, the Academy of Finland, Jane and Aatos Erkko Foundation.

5. Number of maximum containment units within the research centre and/or laboratory, with an indication of their respective size (m2)

No BSL-3 or 4 laboratories.

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

The research is focused on genetics and biosynthesis of lipopolysaccharide (LPS) of *Yersinia pestis*, as well as on the role of LPS in virulence. Molecular evolution studies elucidate the relationships between the species of the genus *Yersinia*. Research work is also conducted on the identification of *Y. pestis* specific bacteriophage receptors.

If no BSL4 facility is declared in Form A, part 1 (i), indicate the highest biosafety level implemented in facilities handling biological agents¹ on a State Party's territory:

Biosafety level 3	no
Biosafety level 2 (if applicable)	yes

¹ Microorganisms pathogenic to humans and/or animals

Exchange of Data on Research Centres and Laboratories #6:

- 1. Name(s) of the research centre and/or laboratory**
Department of Virology, Viral Zoonoses Group
- 2. Responsible public or private organization or company**
University of Helsinki
- 3. Location and postal address**
Dept of Virology
Medicum, P.O. Box 21
00014 University of Helsinki
- 4. Source(s) of financing of the reported activity, including indication if the activity is wholly or partly financed by the Ministry of Defence**
Major funding from Jane and Aatos Erkko Foundation, Helsinki University Hospital Funds (EVO), University of Helsinki, Academy of Finland, and Sigrid Jusélius Foundation.
- 5. Number of maximum containment units within the research centre and/or laboratory, with an indication of their respective size m2)**
There are no BSL-4 laboratories.
- 6. Scope and general description of activities, including type(s) of micro-organisms and/or toxins as appropriate**
- 7.** The Helsinki University Viral Zoonoses unit (HUVZ) conducts research on virology, cell biology, ecology and epidemiology of zoonotic viruses, especially hantaviruses and certain other rodent-borne and arboviruses occurring in Northern Europe. Typical viruses that we are growing are Puumala virus, tick-borne encephalitis virus, dengue and Zika viruses. The research group operates within the Faculty of Medicine, Department of Virology, and partially the Department of Veterinary Biosciences at the Veterinary Faculty. In a joint project with University of Nairobi, we are studying bats, rodents, arthropods and human samples from Kenya. There is a BSL-3 facility in both Viikki campus (faculty of Veterinary Medicine) and Meilahti campus (run by HUSLAB where our group rents one room). The Viral Zoonoses group is connected to the diagnostic laboratory of viral zoonoses at HUSLAB, Helsinki. The group is led by Olli Vapalahti, other principal investigators are Tarja Sironen, Jussi Hepojoki and Tomas Strandin.

If no BSL4 facility is declared in Form A, part 1 (i), indicate the highest biosafety level implemented in facilities handling biological agents¹ on a State Party's territory:

Biosafety level 3	yes
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¹ Microorganisms pathogenic to humans and/or animals

Exchange of Data on Research Centres and Laboratories #7

1. Name(s) of the Facility

Clostridium botulinum laboratory

2. Responsible public or private organization or company

Faculty of Veterinary Medicine, University of Helsinki, Finland

3. Location and postal address

Location

Agnes Sjöbergin katu 2

00790 Helsinki, Finland

Postal address

P.O. Box 66

00014 University of Helsinki, Finland

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

The laboratory is financed by the University of Helsinki. External research funding is received from various sources, including European Research Council, European Commission, Academy of Finland, Finnish Ministry of Agriculture and Forestry, Walter Ehrström Foundation, Finnish Foundation for Veterinary Research, and Finnish food industry.

5. Number of maximum containment units within the research centre and/or laboratory, with an indication of their respective size (m2)

No BSL-4 laboratories.

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

Academic scientific research on the prevalence, epidemiology, genetic heterogeneity, genetic regulatory mechanisms, and toxin pathogenesis in *Clostridium botulinum*. Diagnostic services for confirmation of suspected human botulism outbreaks and food safety testing.

If no BSL4 facility is declared in Form A, part 1 (i), indicate the highest biosafety level implemented in facilities handling biological agents¹ on a State Party's territory:

Biosafety level 3	no
Biosafety level 2 (if applicable)	yes

¹ Microorganisms pathogenic to humans and/or animals

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

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, toxicology, physical protection, decontamination and other related research.

yes / no

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

Form A, part 2 (ii, iii)

National biological defence research and development programmes

The Finnish Security Strategy for Society has defined vital functions of Finnish society and established targets and development policies that guide each administrative branch of the government in dealing with its strategic tasks since 2003. These strategies (2010, 2017) called for co-operation between each government sector in combating against new threats towards society and outline the general principles for preparedness in Finland. According to the Government Reports on Finnish Foreign and Security Policy 2016, Finland promotes the prevention of proliferation of weapons of mass destruction as well as associated hazardous materials and know-how. Terrorism, epidemics and pandemics are also considered as security threats. The Government's Defence Report 2017 also recognizes CBRN threats. In addition, CBRN protection including biotechnology and engineering have been listed critical for the national defence in Securing the Finnish Defence Technological and Industrial Base –resolution (2016).

The Centre for Biothreat Preparedness started operations in Helsinki in 2005. The Centre combines Finnish scientific and laboratory knowhow on biological defence, as well as on biothreat assessment and preparedness. The Centre has actively sought domestic and international collaboration, especially in the field of rapid detection and identification methodologies of selected biological agents. The Centre is composed of three units: the Biological Defence Sector of the Finnish Defence Forces, the Department of Health Security at the National Institute for Health and Welfare (THL) and Finnish Food Safety Authority (join the Centre in 2019). Scientific work is carried out at a biological safety level 3 laboratories at the THL and Finnish Food Safety Authority facilities. In addition, the Centre functions within the Biomedicum Helsinki Institute, where work is carried out in close contact with the Research and Development Department of the Centre for Military Medicine.

Confidence-Building Measure "B"

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

Form B

Information on outbreaks of infectious diseases and similar occurrences, that seem to deviate from the normal pattern⁵

No unusual human or animal disease outbreaks were detected in 2019.

⁵ See paragraph 2 of the chapeau to Confidence-Building Measure B.

Confidence-Building Measure "C"

Encouragement of publication of results and promotion of use of knowledge

Selected publications and references in 2019

- Cheng-lin Ye, Qiao Li, Xinyi Li, Chae Gyu Park, Ying-xia He, Yingmiao Zhang, Bi-cong Wu, Ying Xue, Kun Yang, Yin Lv, Xiao-ling Ying, Honghui Ding, Huahua Cai, Ayman Alkraiem, Olivia Njiri, John Tembo, Hong-ping Huang, An-yi Li, Jianping Gong, Jichao Qin, Bing Cheng, Xiang Wei, Ziyong Sun, Shu-sheng Zhang, Pei Zhang, Guoxing Zheng, Wei Li, Biao Kan, Meiyang Yan, Xiamu xiding, Xixiang Huo, Yingchun Zeng, Hua Peng, Yang-Xin Fu, John Klena, Mikael Skurnik, Ling-yu Jiang, and Tie Chen. 2019. *Salmonella typhimurium* Interacts CD209 Receptors to Promote Host Dissemination and Infection. *Infect Immun*. 2019 Jul 23;87(8). pii: e00100-19. doi: 10.1128/IAI.00100-19.
- Forbes KM, Webala PW, Jääskeläinen AJ, Abdurahman S, Ogola J, Masika MM, Kivistö I, Alburkat H, Plyusnin I, Levanov L, Korhonen EM, Huhtamo E, Mwaengo D, Smura T, Mirazimi A, Anzala O, Vapalahti O, Sironen T. Bombali Virus in Mops condylurus Bat, Kenya. *Emerg Infect Dis*. 2019 May;25(5). doi:10.3201/eid2505.181666.
- Hepojoki S, Kareinen L, Strandin T, Vaheri A, Holthöfer H, Mustonen J, Mäkelä S, Hedman K, Vapalahti O, Hepojoki J. Urine and Free Immunoglobulin Light Chains as Analytes for Serodiagnosis of Hantavirus Infection. *Viruses*. 2019 Sep 1;11(9).pii: E809. doi: 10.3390/v11090809.
- Hietala, V, Horsma-Heikkinen, J, Carron, A, Skurnik, M and Kiljunen, SJ. 2019. The removal of endo- and enterotoxins from bacteriophage preparations. *Front Microbiol*. 2019 Jul 23;10:1674. doi: 10.3389/fmicb.2019.01674. eCollection 2019.
- Jiang M, Österlund P, Westenius V, Guo D, Poranen M, Bamford DH, Julkunen I. Efficient inhibition of avian and seasonal influenza A viruses by a virus-specific Dicer-substrate siRNA swarm in human monocyte-derived macrophages and dendritic cells. *J Virol*. 2019 Feb 5;93(4). pii: e01916-18. doi: 10.1128/JVI.01916-18
- Jiang, X., Keto-Timonen, R., Skurnik, M., Korkeala, H. 2019. Role of DEAD-box RNA helicase genes in growth of *Yersinia pseudotuberculosis* IP32953 under cold, pH, osmotic, ethanol, and oxidative stresses. *PlosOne* 9;14(7): e0219422. doi: 10.1371/journal.pone.0219422.
- Jääskeläinen AJ, Korhonen EM, Huhtamo E, Lappalainen M, Vapalahti O, Kallio-Kokko H. Validation of serological and molecular methods for diagnosis of zika virus infections. *J Virol Methods*. 2019 Jan;263:68-74. doi:10.1016/j.jviromet.2018.10.011.
- Jääskeläinen AJ, Sironen T, Diagne CT, Diagne MM, Faye M, Faye O, Faye O, Hewson R, Mölsä M, Weidmann MW, Watson R, Sall AA, Vapalahti O. Development, validation and clinical evaluation of a broad-range pan-filovirus RT-qPCR. *J Clin Virol*. 2019 May;114:26-31. doi: 10.1016/j.jcv.2019.03.010. Epub 2019 Mar 19. PubMed PMID: 30904708.
- Kareinen L, Hepojoki S, Huhtamo E, Korhonen EM, Schmidt-Chanasit J, Hedman K, Hepojoki J, Vapalahti O. Immunoassay for serodiagnosis of Zika virus infection based on time-resolved Förster resonance

energy transfer. PLoS One. 2019 Jul 23;14(7):e0219474. doi: 10.1371/journal.pone.0219474. eCollection 2019.

- Kivistö I, Tidenberg EM, Lilley T, Suominen K, Forbes KM, Vapalahti O, Huovilainen A, Sironen T. First Report of Coronaviruses in Northern European Bats. *Vector Borne Zoonotic Dis.* 2020 Feb;20(2):155-158. doi:10.1089/vbz.2018.2367.
- Kuivanen S, Levanov L, Kareinen L, Sironen T, Jääskeläinen AJ, Plyusnin I, Zakhm F, Emmerich P, Schmidt-Chanasit J, Hepojoki J, Smura T, Vapalahti O. Detection of novel tick-borne pathogen, Alongshan virus, in *Ixodes ricinus* ticks, south-eastern Finland, 2019. *Euro Surveill.* 2019 Jul;24(27). doi:10.2807/1560-7917.ES.2019.24.27.1900394.
- Leon-Velarde, C.G., Jun, J.W. and Skurnik, M. 2019. Yersinia phages and food safety. *Viruses.* 2019 Nov 28;11(12). pii: E1105. doi: 10.3390/v11121105. Review.
- Levanov L, Iheozor-Ejiofor RP, Lundkvist Å, Vapalahti O, Plyusnin A. Defining of MAbs-neutralizing sites on the surface glycoproteins Gn and Gc of a hantavirus using vesicular stomatitis virus pseudotypes and site-directed mutagenesis. *J Gen Virol.* 2019 Feb;100(2):145-155. doi: 10.1099/jgv.0.001202.
- Ling J, Smura T, Lundström JO, Pettersson JH, Sironen T, Vapalahti O, Lundkvist Å, Hesson JC. Introduction and Dispersal of Sindbis Virus from Central Africa to Europe. *J Virol.* 2019 Jul 30;93(16). pii: e00620-19. doi:10.1128/JVI.00620-19.
- Lundberg R, Melén K, Westenius V, Jiang M, Österlund P, Khan H, Vapalahti O, Julkunen I, Kakkola L. Zika Virus Non-Structural Protein NS5 Inhibits the RIG-I Pathway and Interferon Lambda 1 Promoter Activation by Targeting IKK Epsilon. *Viruses.* 2019 Nov 4;11(11). pii: E1024. doi: 10.3390/v11111024.
- Mohanraj, U., Wan, X., Spruit, C.M., Skurnik, M., and Pajunen, M.I. 2019. A toxicity screening approach to identify bacteriophage-encoded anti-microbial proteins. *Viruses.* 2019 Nov 14;11(11). pii: E1057. doi: 10.3390/v11111057.
- Nguyen TTK, Ngo TT, Tran PM, Pham TTT, Vu HTT, Nguyen NTH, Thwaites G, Virtala AK, Vapalahti O, Baker S, Le Van T. Respiratory viruses in individuals with a high frequency of animal exposure in southern and highland Vietnam. *J Med Virol.* 2019 Nov 26. doi: 10.1002/jmv.25640
- Niskanen S, Jääskeläinen A, Vapalahti O, Sironen T. Evaluation of Real-Time RT-PCR for Diagnostic Use in Detection of Puumala Virus. *Viruses.* 2019 Jul 19;11(7). pii: E661. doi: 10.3390/v11070661.
- Oduor, JMO, Kiljunen, S, Kadija, E, Mureithi, MW, Nyachio, A, Skurnik, M. 2019. Genomic characterization of four novel *Staphylococcus* myoviruses. *Arch Virol.* 2019 Aug;164(8):2171-2173. doi: 10.1007/s00705-019-04267-0. Epub 2019 May 15.
- Pulkkinen, E, Wicklund, A, Oduor, JMO, Skurnik, M, and Kiljunen, S. 2019. Characterization of fHyAci03, a novel lytic bacteriophage that infects clinical *Acinetobacter* strains. *Arch Virol.* 2019 Aug;164(8):2197-2199. doi: 10.1007/s00705-019-04284-z. Epub 2019 May 23.
- Reusken C, Boonstra M, Rugebregt S, Scherbeijn S, Chandler F, Avšič-Županc T, Vapalahti O, Koopmans M, GeurtsvanKessel CH. An evaluation of serological methods to diagnose tick-borne encephalitis from serum and cerebrospinal fluid. *J Clin Virol.* 2019 Nov;120:78-83. doi: 10.1016/j.jcv.2019.09.009.

- Sivaranjani M, Leskinen K, Aravindraja C, Pandian SK, Skurnik S, Ravi AV. 2019. Deciphering the antibacterial mode of action of alpha-mangostin on *Staphylococcus epidermidis* through Transcriptomic and Proteomic approaches. *Front Microbiol.* 2019 Feb 6;10:150. doi: 10.3389/fmicb.2019.00150.
- Smura T, Tonteri E, Jääskeläinen A, von Troil G, Kuivanen S, Huitu O, Kareinen L, Uusitalo J, Uusitalo R, Hannila-Handelberg T, Voutilainen L, Nikkari S, Sironen T, Sane J, Castrén J, Vapalahti O. Recent establishment of tick-borne encephalitis foci with distinct viral lineages in the Helsinki area, Finland. *Emerg Microbes Infect.* 2019;8(1):675-683. doi: 10.1080/22221751.2019.1612279.
- Tu NTK, Tue NT, Vapalahti O, Virtala AK, Van Tan L, Rabaa MA, Carrique-Mas J, Thwaites GE, Baker S; VIZIONS consortium. Occupational Animal Contact in Southern and Central Vietnam. *Ecohealth.* 2019 Dec;16(4):759-771. doi:10.1007/s10393-019-01444-0.
- Yang K, He Y, Park CG, Zhang P, Han Y, Cui Y, Bulgheresi S, Anisimov AP, Dentovskaya SV, Ying X, Jiang L, Ding H, Njiri OA, Zhang S, Zheng G, Xia L, Kan B, Wang X, Jing H, Yan M, Li W, Wang Y, Xiamu X, Chen G, Ma D, Bartra SS, Plano GV, Klena JD, Yang R, Skurnik M and Chen T. 2019. Evolutionary loss of O-antigen by *Yersinia pestis* promotes its binding to murine SIGN-R1 (CD209), host dissemination and infection. *Frontiers in Immunology.* doi.org/10.3389/fimmu.2019.00096.
- Yerushalmy, O, Copenhagen-Glazer, S, Nir-Paz, R, Tuomala, H, Skurnik, M, Kiljunen, S and Hazan, R. 2019. Complete Genome Sequence of two *Klebsiella pneumoniae* phages isolated as part of an international effort. *Microbiol Resour Announc.* 2019 Sep 19;8(38). pii: e00843-19. doi: 10.1128/MRA.00843-19.
- Zakham F, Alaloui A, Levanov L, Vapalahti O. Viral haemorrhagic fevers in the Middle East. *Rev Sci Tech.* 2019 May;38(1):185-198. doi: 10.20506/rst.38.1.2952.Review.
- Österlund P, Jiang M, Westenius V, Kuivanen S, Järvi R, Kakkola L, Lundberg R, Melén K, Korva M, Avšič-Županc T, Vapalahti O, Julkunen I. Asian and African lineage Zika viruses show differential replication and innate immune responses in human dendritic cells and macrophages. *Sci Rep.* 2019 Oct 31;9(1):15710.

Confidence-Building Measure "E"

Form E

Declaration of legislation, regulations and other measures

Relating to	Legislation	Regulations	Other measures ⁶	Amended since last year
(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	<input type="checkbox"/> Yes/ <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes/ <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes/ <input checked="" type="checkbox"/> No	Yes/ <input checked="" type="checkbox"/> No
(b) Exports of micro-organisms ⁷ and toxins	<input type="checkbox"/> Yes/ <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes/ <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes/ <input checked="" type="checkbox"/> No	Yes/ <input checked="" type="checkbox"/> No
(c) Imports of micro-organisms ¹¹ and toxins	<input type="checkbox"/> Yes/ <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes/ <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes/ <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes/ <input checked="" type="checkbox"/> No
(d) Biosafety ⁸ and biosecurity ⁹	<input type="checkbox"/> Yes/ <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes/ <input checked="" type="checkbox"/> No	Yes/ <input checked="" type="checkbox"/> No	Yes/ <input checked="" type="checkbox"/> No

Additional information to form E

Finland's legislation on biological weapons is based on the Biological Weapons Act 257/1975 and Decree 258/1975. Corresponding penal provisions were included in the Penal Code, chapter 11, section 7 b (Breach of the prohibition of biological weapons), with amendment 17/2003. Penal Code (39/1889) chapter 11, section 1 (War Crime), chapter 5, section 3 (Complicity in an offence) and section 6 (Abetting), chapter 34, sections 4 (Health endangerment) and 5 (Aggravated health endangerment), and chapter 34 a (Terrorist offences) are also applicable.

⁶ Including guidelines.

⁷ Micro-organisms pathogenic to man, animals and plants in accordance with the Convention.

⁸ In accordance with the latest version of the WHO Laboratory Biosafety Manual or equivalent national or international guidance.

⁹ In accordance with the latest version of the WHO Laboratory Biosecurity Guidance or equivalent national or international guidance.

Exports of micro-organisms and toxins are regulated by the Act on the Control of Export of Dual-Use Goods (562/1996, as amended by Acts 891/2000, 884/2001 and 581/2003), Government Decree on the Control of Export of Dual-Use Goods (924/2000 as amended by Decree 924/2000) and EC Council Regulation 1334/2000. Corresponding penal provisions were incorporated in the Penal Code (39/1889), chapter 46, sections 1-3 by Acts 769/1990, 1522/1994 and 706/1997. Since 2003, the authority responsible for export controls of micro-organisms and toxins is the Ministry for Foreign Affairs (Export Control Unit).

Exports of biological toxic agents "adapted for use in war" and related equipment, components and materials as listed in the EU Common Military List are regulated by the Act on the Export of Defence Materiel (282/2012). The authority responsible for export controls of the above mentioned biological toxic agents and related equipment, component and materials is the Ministry of Defence.

Imports of micro-organisms and toxins are regulated by the Biological Weapons Act 257/1975 and Decree 258/1975. Transports of micro-organisms and toxins are also regulated by the EC Council Directives 94/55/EEC and 96/49/EEC, the Infectious Diseases Act 1227/2016, section 87; Act on the Transport of Dangerous Goods (719/1994 as amended) and related decrees, Act on Protecting Plant Health (702/2003), section 7, and related decrees, Act on Animal Diseases (441/2013), section 63 and related decrees, Act on Veterinary Border Control (1192/1996 as amended) and related decrees. The corresponding penal provisions are included in the Penal Code (39/1889 as amended), chapter 44, section 2 (Health protection violation), chapter 44, section 13 (Transport of dangerous substances offence) and chapter 46, section 4 (Smuggling).

Biosafety is regulated by the Occupational Safety and Health Act (738/2002), as amended by the Government Decree for Protecting Employees from Work-related Threat Caused by Biological Agents (1155/1993), Decision of the Ministry of Social Affairs and Health on the Classification of Biological Agents (921/2010) and Waste Act (646/2011). Furthermore, regulations concerning biosafety are included in the Communicable Diseases Act (1227/2016) and Decree (146/2017), as well as Gene Technology Act (377/1995) and Government Decree on Gene Technology (928/2004). These biosafety regulations partly overlap with biosecurity; no specific biosecurity legislation exists.

Confidence-Building Measure "F"

Form F

Declaration of past activities in offensive and/or defensive biological research and development programmes

Nothing to declare.

Confidence-Building Measure "G"

Form G

Declaration of vaccine production facilities

There are no vaccine production facilities in Finland.