
Institutional Biological Safety Committee

Select Agent Program

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1. Overview

The Department of Health and Human Services (DHHS), Centers for Disease Control and Prevention (CDC) and the United States Department of Agriculture (USDA) have regulations for the possession, use, storage, and transfer of biological agents and toxins that could pose a threat to human, animal, and plant health and safety. This procedure is intended for use by all Carnegie Mellon University principal investigators who need to procure, possess, use, store and transfer biological agents and/or toxins as defined by the United States Code of Federal Regulations (CFR), Title 9 and 42. It explains the requirements imposed on you if you wish to procure, use, store, and/or transfer select biological agents and/or toxins.

Carnegie Mellon University's Institutional Biological Safety Committee (IBC) has developed this program to conform to the regulatory conditions implemented by the Public Health Security and Bioterrorism Preparedness Response Act of 2002, which became effective February 7, 2003 with full compliance due before November 12, 2003. The law's purpose is to improve the ability of the United States to prevent, prepare for, and respond to bioterrorism and other public health emergencies. The law requires that all persons possessing select biological agents or toxins deemed a threat to public health, animal or plant health, or animal or plant products register with the appropriate federal agency. In addition, the law establishes safety and physical security compliance requirements, exemption criteria, and restrictions upon persons eligible to be granted access to a select agent or toxin in accordance with the United States Patriot Act. More information about the Select Agent Program may be found at <http://www.cdc.gov/od/sap/>.

2.0 Scope

The purpose of this program is to ensure that all federally regulated select agents at Carnegie Mellon University facilities are handled safely, secured properly, and registered with the CDC and/or USDA, Animal Plant Health Inspection Service (APHIS). The program describes requirements for the receipt, possession, use, or transfer of select agents. These requirements are designed to protect against misuse of Select Agents. Receipt, possession, use, transfer or disposal of these agents may not occur without approval of the Responsible Official of the university. This program applies to university faculty, staff, students, and visitors who receive, possess, use, transfer, destroy or dispose select agent(s) while participating in any university-sponsored activity on university property.

3.0 Definitions

- (1) Access: means the freedom or ability to obtain or make use of select agents. Only authorized persons are permitted access to select agents. Access to a select agent can be limited by either security containers or by escorts. For non-laboratory functions including routine cleaning, maintenance and repairs, non-approved individuals shall be escorted and monitored by an authorized person while accessing areas where select agents are accessible.
- (2) Authorized person: is an individual who has been approved for access to select agents through the successful completion of a Federal Bureau of Investigation (FBI) security risk assessment.
- (3) Biological agent: means any microorganism (including, but not limited to, bacteria, viruses, fungi, rickettsiae, or protozoa), or infectious substance, or any naturally occurring, bioengineered, or synthesized component of any such microorganism or infectious substance, capable of causing death, disease, or other biological malfunction in a human, an animal, a plant, or another living organism; deterioration of food, water, equipment, supplies, or material of any kind; or deleterious alteration of the environment
- (4) Entity: means any government agency (Federal, State or Local), academic institution, corporation, company, partnership, society, association, firm, sole proprietorship, or other legal entity. For purposes of this policy, the entity is Carnegie Mellon University.
- (5) Extramural transfer: means to transfer a select agent from a registrant of Carnegie Mellon University to a registrant of another institution. Note: This includes transfers for registrants that are one in the same person and having different institutional privileges.
- (6) Intramural transfers: means to transfer a select agent from a registrant of Carnegie Mellon University to another registrant of Carnegie Mellon University.
- (7) Overlap select agent: means a biological agent included in the Code of Federal Regulations Title 9 Part 121.3 and Title 42 Part 73.5
- (8) Overlap select toxin: means a toxin included in the Code of Federal Regulations Title 9 Part 121.3 and Title 42 Part 73.5

- (9) Principal Investigator (PI): is the individual who is designated by the university to direct a project or program and who is responsible to the university for the scientific and technical direction of that project or program
- (10) Responsible official (RO): is the individual designated by the university to act on its behalf and who has the authority and control to ensure compliance with the regulations applicable to select agents and toxins. For the purposes of this program, the RO is the university's Biosafety Officer.
- (11) Restricted person: as defined by the USA Patriot Act of 2001 means any individual who:
- is under indictment for a crime punishable by imprisonment for a term exceeding 1 year;
 - has been convicted in any court of a crime punishable by imprisonment for a term exceeding 1 year;
 - is a fugitive from justice;
 - is an unlawful user of any controlled substance (as defined in section 102 of the Controlled Substances Act (21 U.S.C. 802));
 - is an alien illegally or unlawfully in the United States;
 - has been adjudicated as a mental defective or has been committed to any mental institution;
 - is an alien (other than an alien unlawfully admitted for permanent residence) who is a national of Cuba, Iran, Iraq, Libya, North Korea, Sudan or Syria, or any other country to which the Secretary of State, pursuant to applicable law, has made a determination (that remains in effect) that such country has repeatedly provided support for acts of international terrorism;
 - has been discharged from the Armed Services of the United States under dishonorable conditions.

Restricted persons are prohibited from having access to select agents

- (12) Select agent: means a biological agent or toxin deemed a threat to the public, animal, or plant health, or to animal or plant products and included in the Code of Federal Regulations Title 9 Part 121.3 and Title 42 Part 73.4
- (13) Select toxin: means a toxin included in the Code of Federal Regulations Title 9 Part 121.3 and Title 42 Part 73.4
- (14) Toxin: means the toxic material or product of plants, animals, microorganisms (including, but not limited to bacteria, viruses, fungi, rickettsiae or protozoa) or infectious substances, or recombinant or synthesized molecule, whatever their origin and method of production, and includes any poisonous substance or biological product that may be engineered as a result of biotechnology, produced by a living organism; or any poisonous isomer or biological product, homolog, or derivative of such a substance.

4.0 Roles and Responsibilities

4.1 Responsible Official

The Director of EH&S is the Responsible Official (RO) for Carnegie Mellon University. All activities involving the registration with federal agencies, intramural or extramural transfers, disposal, and exclusion or exemption from federal regulation must be coordinated through the university's Department of Environmental Health and Safety (EH&S) and reviewed and approved by the RO. The RO submits all applications to the CDC and/or USDA.

4.2 Principal Investigator

The Principal Investigator (PI) is responsible to direct a project or program involving select agents in compliance with all regulatory requirements set forth. The PI is responsible to the university for the scientific and technical direction of the project or program.

4.3 Authorized persons

Authorized persons with access to select agents are required to attend special training from the RO prior to handling select agents and follow prescribed work practices. Authorized persons must handle Select Agents safely, secure them properly when they are not in use, update inventories regularly and dispose of materials appropriately when work is completed.

4.4 Restricted persons

Restricted persons are prohibited from having access to select agents.

5.0 Procedures

5.1 Determination

Select agents are those infectious agents, biologically-derived toxins, and those genetic elements from any select agent containing nucleic acid sequence(s) which, if inserted into an appropriate host system are reasonably believed capable of producing disease or toxicosis.

- (1) All materials that are known to or reasonably suspected of containing one of the select agents, including tissue samples, unless exempted as a human or veterinary clinical specimen, are subject to this regulation
- (2) This procedure covers all research involving the possession, use, *ex vivo* and *in vivo*, transfer, destruction, and disposal of select agents at Carnegie Mellon University.
- (3) All users of select agents at the university must comply with the defined procedures for use of select agents. Failure to comply will result in prohibition of further use and confiscation of said substances. Additionally, any violations of procedures for use of select agents may result in disciplinary action up to and including termination.

A list of Select Agents as of October 2003 is found in **Table 1: *Select Agent List*** and the reader should consult CDC and USDA websites for current listings.

Note: Federal law provides that in the case of violations of the law, individuals are subject to federal criminal penalties, to include prison and fines.

5.2 Select Agent Registration

All requests to receive, possess, use, or transfer a select agent at the university must be for valid research purposes and shall be submitted to the university's RO and Vice Provost for Research for review and his/her approval. The university's RO shall determine all applicable regulatory requirements.

5.2.1 Select Agent Registration with the University

PI's considering working with any select agent material must review section 5.7 *Procurement* and complete **BS2.2 form 1, *Select Biological Agent and/or Toxin Registration Application*** and submit it to the RO. ***This applies to exempt select agents as well as those that require federal registration.***

5.2.2 Select Agent Registration with the CDC/APHIS

PI's who fall under federal regulation, must register their intent to use select agent material with the CDC and/or APHIS **prior** to bringing select agent materials to the university. PI's, in collaboration with the RO, must complete the application packet. The RO will then submit the application to the CDC and/or APHIS.

5.3 Exemption/Exclusion

PIs shall defer the determination of an exemption and the appropriateness of an exclusion request to the university's RO.

5.3.1 Regulatory Exemption

Certain select agent materials that meet regulatory criteria are exempt from registration with the CDC and/or APHIS. A list of exemptions can be found in **Table 2: *Select Agent Exemptions***. In addition to registering with EH&S, investigators possessing toxins, in quantities below the applicable limits, listed in Table 2 must sign and date **BS2.2 form 2, *Select Agent Exemption Declaration***.

To ensure regulatory compliance, EH&S requires PIs to maintain an inventory logbook to document quantities, use, and destruction of exempt select agent toxins. Select agent toxins may not be destroyed until all applicable forms of **BS2.3 Destruction of Select Agents** documenting the method of destruction, have been submitted by the PI to the RO for his/her approval.

5.3.2 Specific Exclusion Request

PI's in collaboration with the RO, may request specific exclusion of materials they do not consider to fall under federal regulation. A current list of attenuated strains of select biological agents and toxins that are excluded from the Act can be found at the CDC and APHIS websites: <http://www.cdc.gov/od/sap/sap/exclusion.htm> and http://www.aphis.usda.gov/programs/ag_selectagent/notification_of_exclusion.pdf, respectively. PIs must submit the exclusion request to the RO who will review the request and submit it to the CDC and/or APHIS if deemed appropriate. Exclusion requests to CDC or APHIS must be processed and signed by the RO. Exclusion requests are evaluated by CDC or APHIS on an individual basis. The request may be granted if the agency determines the material does not pose a significant public health or safety threat.

5.4 Personnel Security Risk Assessment

Prior to working with or having access to select agents requiring registration with the CDC and/or APHIS, all individuals must undergo a security risk assessment by the FBI.

5.5 Training

Select Agent training is required for authorized persons from the RO.

5.6 Security

Stored select agents must be secured in a locked container. The containers must be kept locked at all times. If lock boxes are used, they must be affixed to the refrigerator/freezer/cabinet. Select agents not in storage must be controlled and maintained under constant surveillance.

5.7 Procurement

Select agent procurement requires a PI to have an approved **BS2.2 form 1, Select Biological Agent and/or Toxin Registration Application** and a **BS2.2 form 3, Procurement Request to Purchase a Select Biological Agent and/or Toxin**. *This applies to exempt select agents as well as those that require federal registration.*

5.8 Documentation

The RO shall:

- (1) maintain and implement a comprehensive program that ensures compliance with federal regulation applicable to select agents.
- (2) keep an up-to-date accurate list of all individuals approved for select agent access.
- (3) maintain records pertaining to inspections, training, transfers of select agents, destruction and/or disposal of select agents, and incidents associated with select agents
- (4) develop and implement safety, security, and emergency response plan
- (5) coordinate the removal of all remaining select agent or toxin and/or its waste upon the request of an authorized person. When the agent or toxin's use is complete, the inventory balance for an individual shipment is verified by the RO or his/her designate and the **BS2.2 form 4, Procurement Inventory for Select Biological Agent and/or Toxin** is collected. Any remaining material is collected from the laboratory and secured until an appropriate destruction mechanism may be employed by the RO or his/her designate.

PIs shall:

- (1) maintain current and accurate Select Agent inventory as described in the relevant regulation. **This applies to exempt select agents as well as those that require federal registrations.** PIs shall utilize **BS2.2 form 4, Procurement Inventory for Select Biological Agent and/or Toxin**. The inventory is a continual record that is maintained from receipt to disposal or destruction and includes the following:
 - type of select agent and/or toxin
 - manufacturer of select agent and/or toxin,
 - lot number
 - quantity at receipt
 - date received

- dates of withdrawal and respective quantities withdrawn
- description of use for each withdrawal
- final disposition of select agent and/or toxin (e.g. transfection, radiolabeled, waste, etc.) and respective quantities.

(2) maintain log(s) as described in the relevant regulation to track all persons who enter the area where federally registered select agents are used or stored. The log(s) must record the time of entry and exit for all authorized persons, and other individuals, along with the name of the authorized person who escorted the unapproved individual.

All records, inventories, and logs must be kept for a minimum of 3 years.

5.9 Transfers

All transfers of select agents require prior authorization of the transferor's and recipient's RO.

- (1) Intramural transfer of select agents must be approved by the university's RO before the transfer occurs.
- (2) Extramural transfers of select agents require the prior authorization of the university's RO and the RO at the facility of the recipient.

5.10 Destruction and Disposal

Destruction and disposal of select agents must be done in accordance with federal procedures. Select agents may not be destroyed until all applicable forms of **BS2.3 Destruction of Select Agents** documenting the method of destruction, have been submitted by the PI to the RO for his/her approval.

For all federally regulated select agents, the RO shall notify the appropriate federal agency five (5) working days in advance of destruction of any select agent.

6.0 References

- (1) Agricultural Bioterrorism Protection Act of 2002
- (2) APHIS Select Agent Program
- (3) Public Health Security and Bioterrorism Preparedness and Response Act of 2002
- (4) CDC Select Agent Program
- (5) USA Patriot Act of 2001
- (6) 9 CFR Part 121
- (7) 42 CFR Part 73, Possession, Use, and Transfer of Select Agents and Toxins, Interim Final Rule

7.0 Appendices

- (A) BS2.2 table 1: *Select Agent List*
- (B) BS2.2 form 1, *Select Biological Agent and/or Toxin Registration Application*
- (C) BS2.2 table 2: *Select Agent Exemptions*
- (D) BS2.2 form 2, *Select Agent Exemption Declaration*
- (E) BS2.3 Destruction of Select Agents
- (F) BS2.2 form 3, *Procurement Request to Purchase a Select Biological Agent and/or Toxin*
- (G) BS2.2 form 4, *Procurement Inventory for Select Biological Agent and/or Toxin*

Table 1: APHIS PLANT PATHOGEN, HHS SELECT INFECTIOUS AGENTS, and USDA HIGH CONSEQUENCE PATHOGENS OR TOXINS

HHS and USDA Select Agents and Toxins
7CFR Part 331, 9 CFR Part 121, and 42 CFR Part 73

HHS SELECT AGENTS AND TOXINS

Abrin
Bacillus cereus Biovar *anthracis**
Botulinum neurotoxins*
Botulinum neurotoxin producing species of *Clostridium**
Conotoxins (Short, paralytic alpha conotoxins containing the following amino acid sequence X₁CCX₂PACGX₃X₄X₅X₆CX₇)¹
Coxiella burnetii
Crimean-Congo haemorrhagic fever virus
Diacetoxyscirpenol
Eastern Equine Encephalitis virus³
Ebola virus*
*Francisella tularensis**
Lassa fever virus
Lujo virus
Marburg virus*
Monkeypox virus³
Reconstructed replication competent forms of the 1918 pandemic influenza virus containing any portion of the coding regions of all eight gene segments (Reconstructed 1918 Influenza virus)
Ricin
Rickettsia prowazekii
SARS-associated coronavirus (SARS-CoV)
Saxitoxin
South American Haemorrhagic Fever viruses:
Chapare
Guanarito
Junin
Machupo
Sabia
Staphylococcal enterotoxins A,B,C,D,E subtypes
T-2 toxin
Tetrodotoxin
Tick-borne encephalitis complex (flavi) viruses:
Far Eastern subtype
Siberian subtype
Kyasanur Forest disease virus
Omsk hemorrhagic fever virus
Variola major virus (Smallpox virus)*
Variola minor virus (Alastrim)*
*Yersinia pestis**

OVERLAP SELECT AGENTS AND TOXINS

*Bacillus anthracis**
Bacillus anthracis Pasteur strain
Brucella abortus
Brucella melitensis
Brucella suis
*Burkholderia mallei**
*Burkholderia pseudomallei**
Hendra virus
Nipah virus
Rift Valley fever virus
Venezuelan equine encephalitis virus³

USDA SELECT AGENTS AND TOXINS

African horse sickness virus
African swine fever virus
Avian influenza virus³
Classical swine fever virus
Foot-and-mouth disease virus*
Goat pox virus
Lumpy skin disease virus
*Mycoplasma capricolum*³
*Mycoplasma mycoides*³
Newcastle disease virus^{2,3}
Peste des petits ruminants virus
Rinderpest virus*
Sheep pox virus
Swine vesicular disease virus

USDA PLANT PROTECTION AND QUARANTINE (PPQ)

SELECT AGENTS AND TOXINS

Peronosclerospora philippinensis
(*Peronosclerospora sacchari*)
Phoma glycinicola (formerly *Pyrenochaeta glycines*)
Ralstonia solanacearum
Rathayibacter toxicus
Sclerophthora rayssiae
Synchytrium endobioticum
Xanth

Select Biological Agent and/or Toxin Registration Application

Carnegie Mellon University requires all principal investigators in possession of biological agents and/or toxins specified in **Table 1: Select Agent List of BS2.2 Select Agent Program** to complete this form. Complete and return the form to the Biosafety Office, 311 Mellon Institute.

Principal Investigator: _____ Department: _____

I am using a Select Agent(s) as part of a proposed research project at the university as indicated by an "X" in the box adjacent to the respective agent(s) listed below.

Viruses	Toxins
<input type="checkbox"/> African horse sickness virus	<input type="checkbox"/> Abrin
<input type="checkbox"/> African swine fever virus	<input type="checkbox"/> Botulinum neurotoxins
<input type="checkbox"/> Akabane virus	<input type="checkbox"/> <i>Clostridium perfringens</i> epsilon toxin
<input type="checkbox"/> Avian influenza virus (highly pathogenic)	<input type="checkbox"/> Conotoxins
<input type="checkbox"/> Blue tongue virus (exotic)	<input type="checkbox"/> Diacetoxyscirpenol
<input type="checkbox"/> Camel pox virus	<input type="checkbox"/> Ricin
<input type="checkbox"/> Cercopithecine herpes virus (Herpes B virus)	<input type="checkbox"/> Saxitoxin
<input type="checkbox"/> Classical swine fever virus	<input type="checkbox"/> Shigatoxin and Shiga-like ribosome inactivating
<input type="checkbox"/> Crimean-Congo haemorrhagic fever virus	<input type="checkbox"/> Staphylococcal enterotoxins
<input type="checkbox"/> Eastern equine encephalitis virus	<input type="checkbox"/> Tetrodotoxin
<input type="checkbox"/> Ebola viruses	<input type="checkbox"/> T-2 toxin
<input type="checkbox"/> Foot and mouth disease virus	Bacteria
<input type="checkbox"/> Goat pox virus	<input type="checkbox"/> <i>Bacillus anthracis</i>
<input type="checkbox"/> Japanese encephalitis virus	<input type="checkbox"/> Botulinum neurotoxin producing strains of
<input type="checkbox"/> Lassa fever virus	<input type="checkbox"/> <i>Brucella abortus</i>
<input type="checkbox"/> Lumpy skin disease virus	<input type="checkbox"/> <i>Brucella melitensis</i>
<input type="checkbox"/> Malignant catarrhal fever	<input type="checkbox"/> <i>Brucella suis</i>
<input type="checkbox"/> Marburg virus	<input type="checkbox"/> <i>Burkholderia mallei</i>
<input type="checkbox"/> Menangle virus	<input type="checkbox"/> <i>Burkholderia pseudomallei</i>
<input type="checkbox"/> Monkeypox virus	<input type="checkbox"/> <i>Cowdria ruminantium</i> (Heartwater)
<input type="checkbox"/> Newcastle disease virus (exotic)	<input type="checkbox"/> <i>Francisella tularensis</i>
<input type="checkbox"/> Nipah and Hendra complex viruses	<input type="checkbox"/> <i>Liberobacter africanus</i>
<input type="checkbox"/> Peste des petits ruminants	<input type="checkbox"/> <i>Liberobacter asiaticus</i>
<input type="checkbox"/> Plum pox potyvirus	<input type="checkbox"/> <i>Mycoplasma capricolum</i> / M. F38/ <i>M. mycoides</i>
<input type="checkbox"/> Rift Valley fever virus	<input type="checkbox"/> <i>Mycoplasma mycoides mycoides</i> (contagious
<input type="checkbox"/> Rinderpest virus	<input type="checkbox"/> <i>Ralstonia solanacearum</i> Race 3
<input type="checkbox"/> Sheep pox	<input type="checkbox"/> <i>Xanthomonas oryzae</i> pv. <i>oryzicola</i>
<input type="checkbox"/> South American haemorrhagic fever viruses:	<input type="checkbox"/> <i>Xylella fastidiosa</i> (citrus variegated chlorosis)
<input type="checkbox"/> Junin	<input type="checkbox"/> <i>Yersinia pestis</i>
<input type="checkbox"/> Machupo	Rickettsiae
<input type="checkbox"/> Sabia	<input type="checkbox"/> <i>Coxiella burnetii</i>
<input type="checkbox"/> Flexal	<input type="checkbox"/> <i>Rickettsia prowazekii</i>
<input type="checkbox"/> Guanarito	<input type="checkbox"/> <i>Rickettsia rickettsii</i>
<input type="checkbox"/> Swine vesicular disease virus	Fungi
<input type="checkbox"/> Tick-borne encephalitis complex (flavi) viruses:	<input type="checkbox"/> <i>Coccidioides immitis</i>
<input type="checkbox"/> Central European Tick-borne encephalitis	<input type="checkbox"/> <i>Coccidioides posadasii</i>
<input type="checkbox"/> Far Eastern Tick-borne encephalitis	<input type="checkbox"/> <i>Peronosclerospora philippinensis</i>
<input type="checkbox"/> (Russian Spring and Summer encephalitis)	<input type="checkbox"/> <i>Phakopsora pachyrhizi</i>
<input type="checkbox"/> Kyasanur Forest disease	<input type="checkbox"/> <i>Sclerophthora rayssiae</i> var <i>zeae</i>
<input type="checkbox"/> Omsk Hemorrhagic Fever	<input type="checkbox"/> <i>Synchytrium endobioticum</i>
<input type="checkbox"/> Variola major virus (Smallpox virus)	Prions
<input type="checkbox"/> Variola minor (Alastrim)	<input type="checkbox"/> Bovine spongiform encephalopathy
<input type="checkbox"/> Venezuelan equine encephalitis virus	
<input type="checkbox"/> Vesicular stomatitis virus (exotic)	

Genetic Elements, Recombinant Nucleic Acids, and Recombinant Organisms Considered as Select Agents

- Genetically modified microorganisms or genetic elements from organisms listed above, which are shown to produce or encode for a factor associated with a disease.
- Nucleic acids (synthetic or naturally derived) that encode for the functional form(s) of any of the listed toxins if the nucleic acids: a) are in a vector or host chromosome; b) can be expressed *in vivo* or *in vitro*; or c) are in a vector or host chromosome and can be expressed *in vivo* or *in vitro*.
- Listed viruses, bacteria, fungi, and toxins that have been genetically modified.
- Experiments utilizing recombinant DNA that involve the deliberate transfer of a drug resistance trait to the listed agents that are not known to acquire the trait naturally, if such acquisition could compromise the use of the drug to control disease agents in humans, veterinary medicine, or agriculture.
- Experiments involving the deliberate formation of recombinant DNA containing genes for the biosynthesis of listed toxins lethal for vertebrates at an LD₅₀ < 100 ng/Kg body weight.

Biological Safety Office

Select Agent Authorization Number (SA): _____

- Exempt from the requirements of the federal regulation. The principal investigator shall not, at any time, have any more than the aggregate amounts listed in the federal regulation for each agent under his/her control.
- Subject to the requirements of the federal regulation. The principal investigator shall have control of aggregate amounts of listed Select Agents that are above the exempted quantities. CDC Registration Number: _____

Biosafety Officer Signature

Date

Table 2: SELECT AGENT EXEMPTIONS

<p>Viruses</p> <p>The following vaccine strains of viral agents are exempt:</p> <ul style="list-style-type: none"> • Junin Virus strain candid #1 • Rift Valley fever virus strain MP-12 • Venezuelan Equine encephalitis virus strain TC-83 • Yellow fever virus strain 17-D 	<p>Toxins</p> <p>Under federal regulations, certain listed toxins are exempt from the federal regulations provided that the principal investigator does not at any time possess more than a specified aggregate amount of any toxin in the purified form or in combinations of pure and impure forms. The specified aggregate amount is designated in parenthesis adjacent to the respective toxin.</p> <ol style="list-style-type: none"> 1. Abrin (100 mg) 2. Botulinum neurotoxins (0.5 mg) 3. Diacetoxyscirpenol (1,000 mg) 4. Ricin (100 mg) 5. Saxitoxin (100 mg) 6. Short, paralytic alpha conotoxin containing the following amino acid sequence X1CCX2PACGX3X4X5X6CX7 (100 mg) 7. Staphylococcal enterotoxins (5 mg) 8. Tetrodotoxin (100 mg) 9. T- 2 toxin (100 mg) <p>Bacteria</p> <p>Vaccine strains as described in Title 9 CFR, Part 78.1 are exempt.</p>
<p>Additional Exclusions:</p> <ol style="list-style-type: none"> (1) Any agent or toxin that is in its naturally occurring environment provided it has not been intentionally introduced, cultivated, collected, or otherwise extracted from its natural source. (2) Non-viable select agent organisms or nonfunctional toxins. (3) Fixed tissues that bear or contain select agents or toxins. (4) Genetic elements or sub-units of agents or toxins, if the genetic elements or sub-units are not capable of causing disease. 	

Select Agent Exemption Declaration

Carnegie Mellon University requires all principal investigators in possession of biological agents and/or toxins specified in **Table 1: Select Agent List of BS2.2 Select Agent Program** to complete this form. Complete and return the form to the Biosafety Office, 311 Mellon Institute.

By placing an "X" in the box adjacent to each statement, printing your name and signing below you are indicating the following is true and accurate.

- I am possession of a select agent listed in **Table 1: Select Agent List of BS2.2 Select Agent Program**.
- I have registered the select agent in my possession with Carnegie Mellon University via the completion and submission of **BS2.2 form 1, *Select Biological Agent and/or Toxin Registration Application***.
- I understand the quantity exemption limit for the toxin(s) in my possession and I agree to never exceed the applicable possession limit without prior approval from the university's Environmental Health and Safety Department and the federal government.
- I understand that failure to comply with theses quantity limits for specified toxins will result in a federal violation of the Select Agent regulations, which may have serious consequences including termination and/or criminal penalties.
- I agree to abide by the university's BS2.2 Select Agent Program and all accompanying Appendices.

Print Name

Signature

Date

Biological Safety Office:

Select Agent Authorization (SA) Number: _____

- Exempt from the requirements of the regulation. The principal investigator does not, at any time, have any more that the aggregate amounts listed in 42 CFR 73.4 and 42 CFR 73.5 for each agent under the control of a single principal investigator
- Subject to the requirements of the regulation. The principal investigator has control of aggregate amounts of listed agents that are above the exempted quantities. CDC Registration Number: _____

Biosafety Officer Signature

Date

Institutional Biosafety Committee

Destruction of Select Agents

Biosafety Procedure 2.3

Rev. 1

Sep 2016

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Effective:

_____ Date

Reviewer's Signature:

_____ Date

BSO's Signature:

_____ Date

IBC Chairperson's Signature:

_____ Date

1. Scope

This Standard Operating Procedure (SOP) provides a summary of requirements for destruction of Select Agents that are regulated pursuant to 9 CFR 121, and 42 CFR 73. **Federal law requires that the university's Responsible Official (RO) notify the Center for Disease Control (CDC) and/or Animal Plant Health Inspection Service (APHIS) in advance of the destruction of registered Select Agent organisms or toxins. This notification shall be coordinated through the Department of Environmental Protection (EH&S).**

Requirements for destruction are dependent on the type of work conducted and/or the purpose of the destruction, and are described below. As an alternative to destruction, Select Agents may be transferred to a registered facility. All transfers must be conducted in consultation with EH&S. Refer to **BS 2.2 Select Agent Program**.

8.0 Notification of the Proposed Destruction of Select Agents

Complete the BS 2.3 Form 1, *Notification of Proposed Destruction of Select Agents* when proposing to destroy Select Agent organisms and/or toxins. Submit the completed form to the Biosafety Office, MI 313, at least ten (10) working days in advance of the proposed destruction date. The Biosafety Officer (BSO) will notify the CDC or APHIS of the proposed destruction. Once the proposed destruction is approved by the respective agency, the BSO will notify the PI. Call the Biosafety Office if you have any questions.

9.0 Bacteria and Viruses

3.1 Working Cultures

When destroying working cultures of Select Agent organisms, it is not necessary to notify EH&S, CDC or APHIS. However, working cultures must be destroyed immediately after use. Accumulation of Select Agent organisms in infectious waste bags or sharps containers is prohibited.

3.2 Stock Cultures

When a laboratory intends to destroy all of its stock of a Select Agent organism, CDC or APHIS must approve the destruction prior to its occurrence. Follow the steps below to destroy Select Agent organism stock cultures.

- (1) Complete and submit the BS2.3 Form 1, *Notification of Proposed Destruction of Select Agents* to EH&S.
- (2) BSO will notify the PI when destruction is approved and arrange a time to serve as witness to the destruction.
- (3) Use steam sterilization (autoclave) for destruction of bacteria and viruses. Autoclave organisms for a minimum of 1 hour at 121°C.
- (4) Document the destruction of Select Agent organisms in the laboratory's Select Agent Inventory logbook.
- (5) Dispose of all autoclaved Select Agent organisms as infectious waste.

10.0 Toxins

Toxins may be destroyed by several methods as shown in Table 1. Some toxins are inactivated by autoclaving for one hour at 121°C. Others are inactivated by exposure to sodium hypochlorite and/or sodium hydroxide.

4.1 Chemical destruction of toxins

When using sodium hypochlorite and/or sodium hydroxide to destroy toxin, the procedure(s) must be performed in a laboratory chemical fume hood or a biological safety cabinet. At a minimum, personal protective equipment for all procedures should include long sleeved protective clothing, gloves, and eye protection.

- (1) Complete and submit the BS2.3 Form 1, *Notification of Proposed Destruction of Select Agents* to EH&S.
- (2) BSO will notify the PI when destruction is approved and arrange a time to serve as witness to the destruction.
- (3) Work in a chemical fume hood or biosafety cabinet with sash at height for safe and effective work.
- (4) Place plastic backed absorbent paper on the work surface of the fume hood or biosafety cabinet.
- (5) Put the select agent into solution in a primary container. Do not use glass for a primary container.
- (6) Place the primary container in a secondary container (e.g. beaker or rack).
- (7) Slowly dispense an equal volume of the concentrations of sodium hypochlorite and/or sodium hydroxide designated in Table 1 into the primary container of toxin solution to be destroyed.
- (8) Do not replace the cap on primary container.
- (9) Place a "WARNING/DO NOT USE" sign on the hood/cabinet.
- (10) Allow a minimum of 30 minutes exposure time. (See Table 1 for additional exposure time recommendations)
- (11) Document the destruction of Select Agent toxin in the laboratory Select Agent inventory logbook.
- (12) Secure the cap on the primary container. DOUBLE BAG the material in zip-lock plastic bags and label it "Inactivated/denatured (TOXIN NAME)"
- (13) Submit a request to dispose as hazardous waste.

5.11 Steam sterilization (Autoclaving) of Toxins

If acceptable as a method in Table 1, destroy toxins by autoclaving them using the procedure outlined below.

- (1) Complete and submit the **BS2.3 Form 1, *Notification of Proposed Destruction of Select Agents*** to EH&S.
- (2) BSO will notify the PI when destruction is approved and arrange a time to serve as witness to the destruction.
- (3) In a chemical fume hood or biological safety cabinet, loosen the cap of the primary toxin container to allow steam penetration
- (4) Place the primary container into a secondary biohazard sharps container.
- (5) Place the sharps container in a autoclave pan.
- (6) Autoclave at 121°C for 1 hour on liquid cycle (slow exhaust).
- (7) Document the destruction of Select Agent toxin in the laboratory Select Agent inventory log book.
- (8) After autoclaving, allow time for materials to cool before handling.
- (9) Discard the sharps container and its contents as infectious waste.

Note: Do not use steam sterilization for the destruction of any low molecular weight toxins (e.g. mycotoxins, marine and reptile venoms).

All wastes from toxins that is not disposed as infectious waste must be collected for disposal as hazardous waste.

5.12 Table 1: Inactivation Procedures for Select Agent Toxins

Allow at least 30-minute chemical contact time for complete inactivation of toxin. Any procedure labeled "Y" is an approved procedure for inactivation of the toxin specified. Any procedure labeled "N" is not an approved procedure for inactivation of the toxin specified.

Select Agent Toxin	Steam Sterilization	Chemical Destruction			
		1 hour@ 121°C, liquid exhaust	2.5% NaOCL + 0.25 N NaOH	NaOCl	
			0.1%	1.0%	2.5%
Abrin ^{1, 8}	Y	N	N	N	N
Botulinum Neurotoxin ^{1, 7}	Y	Y	Y	Y	Y
Clostridium perfringens epsilon toxin ²	Y	N	N	N	N
Conotoxin ³	Contact BSO for details				
Diacetoxyscirpenol ⁴	N	Y	N	N	+ (3-

					5%)
Ricin ^{1, 7}	Y	Y	Y	Y	Y
Saxitoxin ^{1, 7}		Y	Y	Y	Y
Shigatoxin & Shiga-like ribosome inactivating proteins ⁵	Y	Y	Y	Y	Y
Staphylococcal Enterotoxins ^{1, 7}	Y	Y	Y	Y	Y
Tetrodotoxin ^{1, 7}	N	Y	N	Y	Y
T-2 Toxin ^{1, 6}	N	Y	N	N	N

¹Wannemacher R.W. 1989. Procedures for Inactivation and Safety Containment of Toxins. Proc. Symposium on Agents of Biological Origin, U.S. Army Research, Development and Engineering Center, Aberdeen proving Ground, MD. pp. 115-122.

²Factsheets on Chemical and Biological Warfare, <http://cbwinfo.com/Biological/Toxins/Cper.html>

³Factsheets on Chemical and Biological Warfare, <http://cbwinfo.com/Biological/Toxins/Conotox.html>

⁴Factsheets on Chemical and Biological Warfare, <http://cbwinfo.com/Biological/Toxins/Verotox.html>

⁵Dr. Jack Dwayne Thrasher, An Introduction to Trichothecens, <http://www.drthrasher.org/Introcutio%20%to%20trichothecenes.html>

⁶For complete inactivation of T-2 mycotoxin extend exposure time for all liquid samples, accidental spills, and non-burnable waste in 2.5% sodium hypochlorite and 0.25 N sodium hydroxide for 4 hours. Expose cages and bedding from animals exposed to T-2 mycotoxin to 0.25% sodium hypochlorite an 0.025 N sodium hydroxide for 4 hours.

⁷For inactivation of saxitoxin, tetrodotoxin, ricin, botulinum toxin, or staphylococcal enterotoxins, expose work surfaces, working solutions, equipment, animal cages and spills to 1.0% sodium hypochlorite for 30 minutes.

⁸Fact Sheet from IPCS INCHEM

11.0 Forms

(8) BS 2.3 Form 1, *Notification of Proposed Destruction of Select Agents*

12.0 References

- (1) Morin, R.S., and Kozlovac, J.P. 2000. Biological Select Agents, p. 261-272. In D.O. Fleming, and D.L. Hunt (ed.), Biological Safety, Principle and Practices. ASM Press, Washington, D.C.
- (2) Slein, M.W., and Sansone, E.B. 1980. Degradation of Chemical Carcinogens, An Annotated Bibliography. Van Nostrand Reinhold Company, New York, N.Y.
- (3) Block, S., 2001. Disinfection, Sterilization, and Preservation, 5th ed. Lippincott Williams & Wilkins, Philadelphia, PA.
- (4) Biosafety in Microbiological and Biomedical Laboratories (CDC-NIH) 4th ed.
- (5) The Merck Index: an encyclopedia of chemicals, drugs, and biologicals, 10th ed. Rahway, New Jersey, Merck and Co. Inc.
- (6) Select Agent Program: Destruction of Select Agents; As provided on University of Pennsylvania's website (October 2003).

Notification of the Proposed Destruction of Select Agents Form

Carnegie Mellon University requires all principal investigators who wish to destroy biological agents and/or toxins specified in **Table 1: Select Agent List of BS2.2 Select Agent Program** to complete this form. Complete this form seven days in advance of destroying select agents and/or toxins and return the form to the Biosafety Office, 311 Mellon Institute.

Principal Investigator:		
Email:	Phone:	Fax:
Lab Manager:		
Email:	Phone:	Fax:
Department:	Laboratory location (building, room):	
Select Agent Name:		
For Toxin give Quantity and Concentration:		
Use: <input type="checkbox"/> Research <input type="checkbox"/> Diagnostics <input type="checkbox"/> Production <input type="checkbox"/> Other, describe:	Exemption Status: <input type="checkbox"/> 42 CFR 73 Exempt <input type="checkbox"/> 42 CFR 73 Non-exempt Registration: <input type="checkbox"/> 42 CFR 73 Registered <input type="checkbox"/> Not registered	
Proposed Destruction Procedure (see Biosafety Procedure 2.3 Destruction of Select Agents):		
Planned Date of Destruction (must be \geq 7 working days after submission date):	Today's Date	
Responsible Official Signature:	Biological Safety Office Approval Date:	

Procurement Request to Purchase a Select Biological Agent and/or Toxin

All requests for the receipt of biological agents and/or toxins as specified in **Table 1: Select Agent List of BS2.2 Select Agent Program** must be processed with this form. Complete and return the form to the Biosafety Office, 313 Mellon Institute.

Request Date: _____

Delivery Date: _____

Requestor Information

Vendor Information

Principal Investigator: _____

Vendor: _____

Laboratory Location: _____

Address: _____

Laboratory Phone Number: _____

Office Phone Number: _____

Quantity	Catalog Number	Descriptive Name	Unit Quantity (mg)	Unit Price (\$)	Total Price (\$)

Payment Information:

Method of Payment:

Purchase Order:

Credit Card:

PO Number: _____

Credit Card Number: _____

Please Attach PO

Credit Card Expiration Date: _____

Name as it appears on the credit card: _____

Principal Investigator Signature

Date

Biological Safety Office:

Select Agent Authorization (SA) Number: _____

- Exempt from the requirements of the regulation. The principal investigator does not, at any time, have any more than the aggregate amounts listed in 42 CFR 73.4 and 42 CFR 73.5 for each agent under the control of a single principal investigator
- Subject to the requirements of the regulation. The principal investigator has control of aggregate amounts of listed agents that are above the exempted quantities. CDC Registration Number: _____

Biosafety Officer Signature

Date

Procurement Inventory for Select Biological Agent and/or Toxin

All PIs must maintain an inventory as specified in **BS2.2 Select Agent Program**. In each laboratory the Procurement Inventory shall be maintained for all biologicals and/or toxins listed in **Table 1: Select Agent List**. The inventory shall contain the type of agent and/or toxin, noting the manufacturer, lot number, quantity at receipt, date received, dates of withdrawal and respective quantities withdrawn, description of use for each withdrawal, and final disposition of agent and/or toxin (e.g. transfection, radiolabeled, waste, etc.) and respective quantities. In short, a continual record must be maintained from receipt to disposal or destruction.

The Biosafety Office removes all remaining agent or toxin and/or its waste upon the request of the authorized person. When the agent or toxin's use is complete, the inventory balance for an individual shipment is verified by the biosafety office and the inventory form is collected. Any remaining material is collected from the laboratory and secured until an appropriate destruction mechanism may be employed by the biosafety office.

Agent or Toxin: _____

Manufacturer: _____

Lot Number: _____

Quantity Received (mg): _____

Receipt Date: _____

Withdrawal Date	Quantity (mg)	Description of Use	Final Disposition (mg)			
			Constructive research <i>(e.g. transfection, radiolabeled, etc.)</i>	Waste		
				Liquid	Solid	Other <i>(specify)</i>

Transfer Documentation:

Transfer Date	Quantity Transferred (mg)		Waste		
	Original agent and/or toxin	Modified agent and/or toxin	Liquid	Solid	Other <i>(specify)</i>

 Principal Investigator Signature Date

 Biosafety Officer Signature Date