

Please explain the biological agents and/or biohazardous substances used and how they will be stored, used and disposed of. Projects without this description will not be reviewed.

Black-capped chickadees

Black-capped chickadees are observed in behavioural studies of animal memory and cognition. Chickadees are caught in the wild under Canadian Wildlife Service Permit and housed at the Advanced Facility for Avian Research (AFAR), following procedures approved by the University of Western Ontario Animal Users' Committee. Following these studies birds are either released at the site of capture or euthanized for histological examination of the brain.

Bumble bees

Bumble bees are used in behavioural studies of learning, memory and perception. Bumble bees are obtained from the commercial supplier Biobest, Leamington Ontario and housed in the Psychology Animal Research facility in Social Science Centre. Adult bees have a normal life expectancy of only several weeks. Bees surviving at the end of these studies are euthanized. Some individuals are retained for histological examination of the nervous system.

Please include a one page research summary or teaching protocol.

Black-capped chickadees

Black-capped chickadees are seasonal food storers that create large numbers of spatially dispersed food caches. These caches are recovered using hippocampus-dependent memory. Chickadees, and other food-storing birds, have a larger hippocampus than do closely-related birds that do not store food. Adult chickadees exhibit a seasonal pattern of hippocampal neuronal recruitment that is loosely synchronized with seasonal food storing activity. Although new neurons originate in the hippocampal subventricular zone at a constant rate year round, more new neurons survive and are incorporated into the hippocampus in fall and winter, when food storing is at a maximum. My previous research has shown that food chickadees recover their stored food by remembering large numbers of spatial locations for many months and that seasonal hippocampal neurogenesis does not occur in non-food-storing birds that experience seasonal changes in diet, social system, home range size and habitat similar to those experienced by chickadees. Current research examines integrated memory for the time, place and type of previous food-caching events, also known as 'what-where-when' memory. The goal of this research is to use the specialized spatial behaviour of food-storing birds to help us understand the processes of memory and cognition in animals and humans. This research is conducted at the Advanced Facility for Avian Research.

Bumble bees

A separate line of research examines interval timing - the ability to estimate the duration of time intervals - in an insect pollinator, the bumble bee *Bombus impatiens*. Although circadian and circannual rhythmicity is well-known in insects, my previous research was the first to demonstrate interval timing ability in an insect, or indeed in any invertebrate. This work showed that bumble bees' responses on fixed interval schedules exhibit many of the properties of interval timing found in vertebrates, including the ability to time multiple intervals simultaneously. There are many contexts in which insects probably use interval timing ability, including foraging, communication, and navigation. The methods we have developed to reinforce proboscis extension with nectar reward will make it possible to examine interval timing in bumble bees in greater detail. Some aspects of bumble bee timing behaviour are not easily accounted for by existing theoretical models of interval timing and proposed experiments will use the operant methods we have developed to test these models of interval timing in greater detail. Research on the natural context of interval timing will examine bumble bees' ability to time the interval between successive floral nectar rewards in foraging bouts (in the seconds to minutes range) and their ability to time much longer intervals (of several hours or more) required for replenishment of floral nectar sources. The interval timing abilities that have evolved in bumble bees to deal with the temporal demands of foraging on renewing floral nectar may provide valuable information on the cognitive mechanisms of timing ability in general. This research is conducted at the Department of Psychology Animal Research Facility, Social Science Centre.

1.0 Microorganisms

1.1 Does your work involve the use of biological agents? YES NO
 (non-pathogenic and pathogenic biological agents including but not limited to bacteria and other microorganisms, viruses, prions, parasites or pathogens of plant or animal origin)? If no, please proceed to Section 2.0

Do you use microorganisms that require a permit from the CFIA? YES NO

If YES, please give the name of the species. _____

What is the origin of the microorganism(s)? _____

Please describe the risk (if any) of escape and how this will be mitigated:

Please attach the CFIA permit.

Please describe any CFIA permit conditions:

1.2 Please complete the table below:

Name of Biological agent(s)*	Is it known to be a human pathogen? YES/NO	Is it known to be an animal pathogen? YES/NO	Is it known to be a zoonotic agent? YES/NO	Maximum quantity to be cultured at one time? (in Litres)	Source/Supplier	PHAC or CFIA Containment Level
	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No			<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 2+ <input type="radio"/> 3
	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No			<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 2+ <input type="radio"/> 3
	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No			<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 2+ <input type="radio"/> 3
	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No			<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 2+ <input type="radio"/> 3

*Please attach a Material Safety Data Sheet or equivalent from the supplier.

2.0 Cell Culture

2.1 Does your work involve the use of cell cultures? YES NO

If no, please proceed to Section 3.0

2.2 Please indicate the type of primary cells (i.e. derived from fresh tissue) that will be grown in culture:

Cell Type	Is this cell type used in your work?	Source of Primary Cell Culture Tissue	AUS Protocol Number
Human	<input type="radio"/> Yes <input type="radio"/> No		Not applicable
Rodent	<input type="radio"/> Yes <input type="radio"/> No		
Non-human primate	<input type="radio"/> Yes <input type="radio"/> No		
Other (specify)	<input type="radio"/> Yes <input type="radio"/> No		

2.3 Please indicate the type of established cells that will be grown in culture in:

Cell Type	Is this cell type used in your work?	Specific cell line(s)*	Supplier / Source
Human	<input type="radio"/> Yes <input type="radio"/> No		
Rodent	<input type="radio"/> Yes <input type="radio"/> No		
Non-human primate	<input type="radio"/> Yes <input type="radio"/> No		
Other (specify)	<input type="radio"/> Yes <input type="radio"/> No		

*Please attach a Material Safety Data Sheet or equivalent from the supplier. (For more information, see www.atcc.org)

2.4 For above named cell type(s) indicate PHAC or CFIA containment level required 1 2 2+ 3

3.0 Use of Human Source Materials

3.1 Does your work involve the use of human source materials? YES NO

If no, please proceed to Section 4.0

3.2 Indicate in the table below the Human Source Material to be used.

Human Source Material	Source/Supplier /Company Name	Is Human Source Material Infected With An Infectious Agent? YES/NO	Name of Infectious Agent (If applicable)	PHAC or CFIA Containment Level (Select one)
Human Blood (whole) or other Body Fluid		<input type="radio"/> Yes <input type="radio"/> Unknown		<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 2+ <input type="radio"/> 3
Human Blood (fraction) or other Body Fluid		<input type="radio"/> Yes <input type="radio"/> Unknown		<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 2+ <input type="radio"/> 3
Human Organs or Tissues (unpreserved)		<input type="radio"/> Yes <input type="radio"/> Unknown		<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 2+ <input type="radio"/> 3
Human Organs or Tissues (preserved)		Not Applicable		Not Applicable

4.0 Genetically Modified Organisms and Cell lines

4.1 Will genetic modifications be made to the microorganisms, biological agents, or cells described in Sections 1.0 and 2.0? YES NO If no, please proceed to Section 5.0

4.2 Will genetic modification(s) involving plasmids be done? YES, complete table below NO

Bacteria Used for Cloning *	Plasmid(s) **	Source of Plasmid	Gene Transfected	Describe the change that results from transformation or transfection

* Please attach a Material Data Sheet or equivalent if available.

** Please attach a plasmid map.

7.0 Use of Animal species with Zoonotic Hazards

7.1 Will any animals with zoonotic hazards or their organs, tissues, lavages or other body fluids including blood be used (see list below)? YES No If no, please proceed to section 8.0

7.2 Please specify the animal(s) used:

- ◆ Pound source dogs YES NO
- ◆ Pound source cats YES NO
- ◆ Cattle, sheep or goats YES, please specify species _____ NO
- ◆ Non-human primates YES, please specify species _____ NO
- ◆ Wild caught animals YES, please specify species & colony # _____ NO
- ◆ Birds YES, please specify species _____ NO
- ◆ Others (wild or domestic) YES, please specify _____ NO

8.0 Biological Toxins

8.1 Will toxins of biological origin be used? YES NO If no, please proceed to Section 9.0

8.2 If YES, please name the toxin(s) _____
Please attach information, such as a Material Safety Data Sheet, for the toxin(s) used.

8.3 What is the LD₅₀ (specify species) of the toxin _____

8.4 How much of the toxin is handled at one time*? _____

8.5 How much of the toxin is stored*? _____

8.6 Will any biological toxins be used in live animals? YES, Please provide details: _____ NO

*For information on biosecurity requirements, please see:

http://www.uwo.ca/humanresources/docandform/docs/healthandsafety/biosafety/Biosecurity_Requirements.pdf

9.0 Insects

9.1 Do you use insects? YES NO If no, please proceed to Section 10.0

9.2 If YES, please give the name of the species. Bumble bee (Bombus impatiens)

9.3 What is the origin of the insect? Commercial origin: Biobest Canada

9.4 What is the life stage of the insect? egg, larva and adult

9.5 What is your intention? Initiate and maintain colony, give location: SSC 8242, 8235
 "One-time" use, give location: _____

9.6 Please describe the risk (if any) of escape and how this will be mitigated: Bumble bees are housed in sealed colony boxes and observed either in a mesh flight cage inside a closed room or in a large flight room with ante-room access and all other doors modified to prevent escape. Air ventilation panels and lights are covered with fine mesh to prevent insect escape.

9.7 Do you use insects that require a permit from the CFIA permit? YES NO
If YES, Please attach the CFIA permit & describe any CFIA permit conditions:

4.3 Will genetic modification(s) involving viral vectors be made? YES, complete table below NO

Virus Used for Vector Construction	Vector(s) *	Source of Vector	Gene(s) Transduced	Describe the change that results from transduction

* Please attach a Material Safety Data Sheet or equivalent.

4.4 Will genetic sequences from the following be involved?

- ◆ HIV YES, please specify _____ NO
- ◆ HTLV 1 or 2 or genes from any Level 1 or Level 2 pathogens YES, specify _____ NO
- ◆ SV 40 Large T antigen YES NO
- ◆ E1A oncogene YES NO
- ◆ Known oncogenes YES, please specify _____ NO
- ◆ Other human or animal pathogen and or their toxins YES, please specify _____ NO

4.5 Will virus be replication defective? YES NO

4.6 Will virus be infectious to humans or animals? YES NO

4.7 Will this be expected to increase the containment level required? YES NO

5.0 Human Gene Therapy Trials

5.1 Will human clinical trials be conducted involving a biological agent? YES NO
(including but not limited to microorganisms, viruses, prions, parasites or pathogens of plant or animal origin)
If no, please proceed to Section 6.0

5.2 If YES, please specify which biological agent will be used: _____
Please attach a full description of the biological agent.

5.2 Will the biological agent be able to replicate in the host? YES NO

5.3 How will the biological agent be administered? _____

5.4 Please give the Health Care Facility where the clinical trial will be conducted: _____

5.5 Has human ethics approval been obtained? YES, number: _____ NO PENDING

6.0 Animal Experiments

6.1 Will live animals be used? YES NO If no, please proceed to section 7.0

6.2 Name of animal species to be used Black-capped chickadee, Bumble bee

6.3 AUS protocol # 2007-001-03

6.4 Will any of the agents listed in section 4.0 be used in live animals YES, specify: _____ NO

6.5 Will the agent(s) be shed by the animal: YES NO, please justify:

10.0 Plants

10.1 Do you use plants? YES NO If no, please proceed to Section 11.0

10.2 If YES, please give the name of the species. _____

10.3 What is the origin of the plant? _____

10.4 What is the form of the plant (seed, seedling, plant, tree...)? _____

10.5 What is your intention? Grow and maintain a crop "One-time" use

10.6 Do you do any modifications to the plant? YES NO
If yes, please describe: _____

10.7 Please describe the risk (if any) of loss of the material from the lab and how this will be mitigated:

10.8 Is the CFIA permit attached? YES NO
If YES, Please attach the CFIA permit & describe any CFIA permit conditions:

11.0 Import Requirements

11.1 Will any of the above agents be imported? YES, please give country of origin _____ NO
If no, please proceed to Section 12.0

11.2 Has an Import Permit been obtained from HC for human pathogens? YES NO

11.3 Has an import permit been obtained from CFIA for animal or plant pathogens? YES NO

11.4 Has the import permit been sent to OHS? YES, please provide permit # _____ NO

12.0 Training Requirements for Personnel Named on Form

All personnel named on the above form who will be using any of the above named agents are required to attend the following training courses given by OHS:

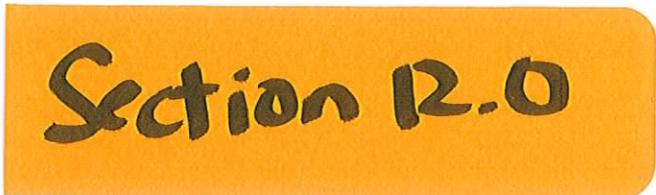
- ◆ Biosafety
- ◆ Laboratory and Environmental/Waste Management Safety
- ◆ WHMIS (Western or equivalent)
- ◆ Employee Health and Safety Orientation

As the Principal Investigator, I have ensured that all of the personnel named on the form who will be using any of the biological agents in Sections 1.0 to 9.0 have been trained.

SIGNATURE _____

See e-mail

Subject: Biological Agents Registry Form: Sherry lab
From: Jennifer Stanley <jstanle2@uwo.ca>
Date: Tue, 31 Aug 2010 11:23:30 -0400
To: David F Sherry <sherry@uwo.ca>



Hi Dr. Sherry -

Thanks for your form.

Please note that a signature is required for Section 12.0. I have sent it back to you in the campus mail. If people have not had training, they should sign up for one of the two September sessions and this can be noted on the form.

http://www.uwo.ca/humanresources/facultystaff/h_and_s/training/upcoming_sessions.htm

Thanks!

Jennifer

----- Original Message -----

Subject:Re: Fwd: Fwd: Biological Agents Registry Form: Sherry lab

Date:Tue, 31 Aug 2010 11:07:13 -0400

From:Jennifer Stanley <jstanle2@uwo.ca>

To:David Sherry <sherry@uwo.ca>

CC:Lianna McKirdy <lmckird2@uwo.ca>, Matthew Barrett <mbarre2@uwo.ca>, cdemelo5@uwo.ca, sdelane7@uwo.ca, cstrang@uwo.ca

Hi Dr. Sherry

Please pass this information onto your students, some of the e-mails listed do not work for me. To go to Biosafety, the website is:

http://www.uwo.ca/humanresources/facultystaff/h_and_s/training/training_idx.htm

Regards

Jennifer

On 8/30/2010 11:03 AM, David Sherry wrote:

> Jennifer

> Thanks for your message, I will complete and return the form.

>

> I have a number of new students starting in September this year. I
> will list their names and email addresses on the renewal. Will you
> contact them about Biosafety Training? I am not sure if any of them
> have had Biosafety Training, although some have had Animal Care training.

>

> Best wishes,

> David

>

> Jennifer Stanley wrote:

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