PI :	Luke, Patrick W
Protocol #	2018-178
Status :	Pending
Approved :	03/01/2019
Expires :	03/01/2023
Title :	Preservation and protection of donor kidneys from ischemia reperfusion injury by repositioning anti-inflammatory drugs for transplantation

Table of Contents

Protocol Introduction

The questions on this page activate specific sections within the AUP form.

Note that species selection is part of this introductory page

Does this AUP involve teaching?

Yes ○ No ◉

Is the animal work on this project shared by another Animal Care Committee?

Yes ○ No ◉

Will you be using hazards?

Yes ◉ No ○

Will live animals be moved outside of their housing facility?

Yes ◉ No ○

Will field studies be conducted?

Yes ○ No ◉

Add/Update/Remove Species Used on this Protocol

Species	Agents	Drugs	Restraint	Breeding
Mouse	Yes	Yes	Yes	No
Pig	Yes	Yes	No	No

Animal Use Protocol Overview

Animal Use Protocol Title

Preservation and protection of donor kidneys from ischemia reperfusion injury by repositioning anti-inflammatory drugs for transplantation

Application Type. If this is a post-pilot project, please attach the Pilot Report to this section, below.

Full Renewal

Provide Associated Previous Protocol Number

2010-283

Please provide a report detailing the previous AUP's use of Animals

For the previous AUP 2010-283, we have used 24 pigs and 66 mice, which are less than proposed in the protocol. We achieved this by carefully designing and conducting the experiments.

Pig Experiments:
Control: 6 pigs (cold storage for different period of time).
CORM: 9 pigs (different perfusion hours).
iCORM: 9 pigs (different perfusion hours).

Mouse Experiments
Control: 6 mice (untreated), 6 mice (sham)
CORM: 30 mice (different concentrations)
iCORM: 30 mice (different concentrations)

We concluded CORM reduces ischemia reperfusion injury (IRI) in both murine and porcine models and have published the paper in Transplantation 2018, 102(7)1066-74. We are going to take similar approaches to reposition candidate anti-

inflammatory drugs to the preservation and protection of donor kidneys.

We didn't encounter any major complications during the experiments. Some minor complications such as kidney double veins have been addressed by our experienced surgeons and technicians.

Using non-scientific language, please describe the project's purpose, expected benefit, and a brief summary of your work with the animal model(s).
Please be aware that in the event of communications with Western Media Relations and the PI is not available, this summary will be sent to Western Media Relations.

Kidney failure among Canadians has tripled over the past 20 years. Transplantation improves the quality of life and survival of patients at a much lower cost than dialysis. However, only 40% of patients receive functional kidneys due to a lack of living organ donors. To increase the number of kidneys available for transplantation, surgeons are accepting organs from deceased donors. These kidneys are commonly stored at 4°C without oxygen. While this method can increase storage times, it does not properly preserve kidneys as the organs can suffer injuries from a lack of oxygen as well as cold temperature. Moreover, these conditions are not conducive to apply any drugs to prevent damage even when they are available. Therefore, we need to develop a new method to preserve donated kidneys that address these issues.

In the mouse model, we will test proposed drugs in a injured kidney model first, then move to a kidney transplant model, check kidney function throughout. We will then duplicate with some changes for animal use reduction in a pig model.

GLOSSARY OF TERMS - Identify each individual scientific term and abbreviation using *CAPITAL LETTERS*, and then briefly define each term to be referenced in any section of this protocol.
e.g. ALLELE - The genetic variant of a gene responsible for the different traits of certain characteristics and genetic diseases.

Allogenic: Being genetically different although belonging to or obtained from the same species.

Allograft: a tissue or organ obtained from one member of a species and grafted to a genetically dissimilar member of the same species.

Autotransplant: a tissue or organ that is grafted into a new position or re-grafted on the body of the individual from which it was removed.

Chronic allograft nephropathy: common cause of renal transplant failure; it is characterized by a slow but variable loss of function, often in combination with proteinuria and hypertension.

Donation after cardiac death (DCD): refers to organ donation taking place once circulatory arrest has occurred following treatment withdrawal.

ELISA:a sensitive immunoassay that uses an enzyme linked to an antibody or antigen as a marker for the detection of a specific protein, especially an antigen or antibody.

Graft survival:The survival of a graft in a host, the factors responsible for the survival and the changes occurring within the graft during growth in the host.

IFTA: interstitial fibrosis and tubular atrophy; essentially chronic allograft deterioration often leading to kidney transplant loss

Immunosuppressive: capable of inhibiting the normal immune response

Ischemia reperfusion injury (IRI): damage to tissue caused when blood returns to the tissue after a deficiency in blood supply. The absence of oxygen and nutrients from blood creates a condition in which the restoration of circulation results in inflammation and oxidative damage through the induction of oxidative stress rather than restoration of normal function.

Mitogen-activated protein kinase (MAPK): any of a group of protein-serine/threonine kinases that when activated enter the cell nucleus and catalyze the phosphorylation of serine and threonine residues in transcription factors that regulate gene expression; it is the final member of a signal transduction cascade of three protein kinases that is initiated by stimulation of a wide variety of membrane receptors and is important in the regulation of cell growth and differentiation.

Murine: belonging or pertaining to the family of rodents that includes the mice and rats

OS: oxidative stress often leading to damage

Perfuse: to pass (fluid) through blood vessels or the lymphatic system.

Polymorphonuclear leukocyte (PMN): Small, actively motile white blood cells containing many lysosomes and specializing in phagocytosis.

Porcine: of, connected with, or characteristic of pigs.

Revascularization: reestablishment of blood supply to a part or organ.

ROS: reactive oxygen species created by stress

TGF-ß1: cytokine related with fibrosis and inflammation; transforming growth factor Beta1

TNF a: a cytokine involved in systemic inflammation and is a member of a group of cytokines that stimulate the acute phase reaction.Its primary role is in the regulation of immune cells.

Tubular epithelial cells (TEC): cells that form the tubules of kidneys.

Here is the link to CCAC's Policy on Scientific Merit and Ethical Review of Animal-based Research:

http://www.ccac.ca/Documents/Standards/Policies/Scientific_merit_and_ethical_review_of_animal-based_research.pdf (http://www.ccac.ca/Documents/Standards/Policies/Scientific_merit_and_ethical_review_of_animal-based_research.pdf)

Has the work outlined in this AUP received favourable scientific peer review?

Yes ◉ No ○

Do you wish to provide a funding peer review assessment, which may be considered in lieu of internal scientific peer review? If 'YES', please attach the funding assessment.

Yes ○ No ◉

If this is a RESEARCH AUP, please provide a list of one to three publications relevant to the work outlined in this AUP.

If this is a resarch AUP, attach an OUTLINE for scientific merit reviewers that provides sufficient information that another scientist working in the same field of study could effectively review this AUP's scientific merit, below. PIs may utilize whichever format best describes its scientific merit, e.g. background, rationale, hypothesis, objectives, experimental procedures

Using only key words, specify the animal models and procedures described within this AUP.

Mouse, kidney procurement, anesthesia, analgesia, anti-inflammatory agents, blood sampling, gavaging, intraperitoneal injection, transplantation.

Pig, anesthesia, analgesia, anti-inflammatory agents, blood sampling, auto-transplant, kidney procurement.

Funding Source List

Fund Source	Grant Title	Funded?	Grant Number	Start Date	Grant Holder
Canadian Institutes of Health Research	Therapeutic potential of bloodless oxygenated perfusion of donor kidneys for prolonged storage and protection for transplantation	Yes	We have a confirmation but now # yet	04/01/2019	
Canadian Institutes Of Health Research	CNTRP Project 1: Ex vivo organ transplant protection and	Yes	R3298A06	06/20/2014	
Canadian Liver Foundation	CNTRP Project 1: additional support	Yes	R3298A09	01/21/2016	

Funding Source Name

Canadian Institutes of Health Research

Proposal Title

Therapeutic potential of bloodless oxygenated perfusion of donor kidneys for prolonged storage and protection for transplantation

Is this award currently funded?

☑

Please provide the associated GRANT #

We have a confirmation but now # yet

Funding START date *mm/dd/yy*

04/01/2019

PI on Grant (if different than PI on Protocol)

Funding Source Name

Canadian Institutes Of Health Research

Proposal Title

CNTRP Project 1: Ex vivo organ transplant protection and

Is this award currently funded?

☑

Please provide the associated GRANT #

R3298A06

Funding START date *mm/dd/yy*

06/20/2014

PI on Grant (if different than PI on Protocol)

Funding Source Name

Canadian Liver Foundation

Proposal Title

CNTRP Project 1: additional support

Is this award currently funded?

☑

Please provide the associated GRANT #

R3298A09

Funding START date *mm/dd/yy*

01/21/2016

PI on Grant (if different than PI on Protocol)

Purpose of Animal Use

Identify PRIMARY purpose of animal use

2-Medical or Veterinary Research

Hazardous Materials

Microorganism, Biological Agent or Hazardous Species Used?

Yes ○ No ◉

Institute Biosafety Committee #

Recombinant DNA or Viral Vector Directly into Animals Used?

Yes ○ No ◉

Experimental Agents or Veterinary Drug Used?

Yes ◉ No ○

Nuclear Substance, Radiation, or Imaging Device Used?

Yes ○ No ◉

Radiation Permit #

Animal Movement Between Sites

Will live animals leave the housing facility?

Yes ◉ No ○

Will live animals move to or from citywide or external sites?

Yes ○ No ◉

State the specific purpose for moving animals from animal facility or between citywide sites.

Mice will be moved to Matthew Mailing Center (MMC) to do the experiments. We have a fully equipped microsurgery facility and qualified surgeons and technicians at MMC to perform the surgery on the animals.

Pigs will be moved to C-STAR to perform the surgery.

Will either SOP 432, or SOP 443 *See below* be followed?

Yes ◉ No ○

Outline the method(s) used to transport animals between sites: Detail in chronological order the transfer route, including all Citywide 'Source' and 'Destination' sites, transport duration and frequency, and animal containment used.

Animal Groups and Experimental Timelines Overview

'C', 'D' and 'E'-level AUPs

Using simple diagrams the following must be attached:

- Animal Groups - names the animal groups (with unique identifiers) as well as the number of animals requested

and

- Experimental Timelines - names, in chronological order, ALL procedures that animals undergo (note that the description of each of these procedures is detailed in the *Procedure Narrative* section of the AUP

'B'-level AUPs

- Attach Animals Groups and Experimental Timeline diagrmas as described above

or

- Attach a document that describes the same information in paragraph format.

In the textbox below, please list file names of the most recent attachments

2017-178_1_001_Luke PP_mouse number and timeline-20190212.pptx

2017-178_1_001_Luke PP_pig number and timeline-20190212.pptx

Please attach your Groups and Timelines documents above.

Mouse

Tissue Collection

Will live animals be used in this study?

Yes

Will this species be used exclusively for tissue collection?

Yes ○ No ◉

Justification for Choice of Species

Justify the choice of species by stating why
a) this is the most appropriate species, and
b) a species lower on the phylogenic scale is not appropriate.

To gain the knowledge how anti-inflammatory drugs could be used toward human DCD kidney preservation before transplantation, we need to use mammalian species which is close to human in terms of anatomy and physiology, and is easy to maintain.

the 3Rs: Replace, Reduce, Refine

The Three Rs concept originated from the scientific community and is a widely accepted cornerstone of policies on animal-based science around the world.

Ethical animal use requires consideration of animal welfare needs http://3rs.ccac.ca (http://3rs.ccac.ca)

Prior to any animal-based science, the 3 Rs should be considered.

Replacement refers to methods which avoid or replace the use of animals in an area where animals would otherwise have been used

Please show how you've considered the tenet of Replacement in your AUP.

For more information, please see Western's Alternative Use Guide (https://guides.lib.uwo.ca/animalalternatives).

Replacement Consideration

At this stage of this kind of research, it is unfortunate that there will be no alternative of animal use. However, we are committed to use smaller group size to minimize the number of animals to be investigated.

Reduction refers to any strategy that will result in fewer animals being used.

Please show how you've considered the tenet of Reduction in your AUP.

For more information, please see Western's Alternative Use Guide (https://guides.lib.uwo.ca/animalalternatives).

Reduction Consideration

For auto-transplant of treated kidney (1 kidney) , we will use the same donor in case we do that within 24 hours. This is how we can reduce total number of animals.

Refinement refers to the modification of husbandry or experimental procedures to minimize pain and distress in your animals.

Please show how you've considered the tenet of Refinement in your AUP.

For more information, please see Western's Alternative Use Guide (https://guides.lib.uwo.ca/animalalternatives).

Refinement Consideration

Current protocol will investigate the optimization of organ preservation. Blood withdrawal as well as kidney procurement will be done in clinically anesthetic animals. we have a group of surgeons and technicians who are highly specialized in the field of transplantation surgery.In this model of animal IR injury, the procedure we have established, animals will be completely free of pain and sufferings.

Species Strains

Species Strain	Age/Weight	Vendor Stock#
C57BL/6	20-28	Charles River Canada, 027

Strain Name

C57BL/6

Is this strain acquired commercially?

Yes (●) No ( )

Are the animals coming from a non-commercial source or another AUP?

Provide 'supplier name' and stock #, if available

Charles River Canada, 027

Age or weight at procurement

20-28

Provide phenotype detail for non-genetically altered strains

Is this strain genetically altered?

Yes ( ) No (●)

If Genetically Altered Animals are COMMERCIALLY AVAILABLE, insert VENDOR STRAIN INFO URL - This page is now complete.

If Genetically Altered Animals are from a NON-COMMERCIAL SOURCE, PROVIDE the Original Source of Animal(s)

Describe the NATURE of the genetic modification in heterozygous and homozygous animals. Identify the SYSTEMS AFFECTED and SPECIAL CARE required.

Animal Transfers

Will animals originate from a DIFFERENT CITYWIDE PROTOCOL NUMBER?

Yes ○ No ◉

Are any animals being transferred from another AUP that have previous use?

Yes ○ No ◉

List AUP number and PI name from which animals will be transferred

Describe the previous use of animals sourced from different citywide AUPs.

Environmental Enrichment

Will all animals be group housed?

Yes ◉ No ○

Justify why group housing is not planned and specify which experimental animals will be singely housed

May Animal Care staff provide ENVIRONMENTAL ENRICHMENT to all animals of this species, as per its facility-specific Environmental Enrichment SOPs?

Yes ◉ No ○

May FOOD TREATS be given to all animals of this species by animal care staff as per its facility-specific Environmental Enrichment SOPs?

Yes ◉ No ○

Explain why additional enrichment and/or food treats may not be provided by Animal Care staff

Will any animals of this species undergo fasting at any point in the project?

Yes ○ No ◉

Provide justification and duration of fasting.

If this species has other specialized caging, dietary or environmental requirements that you wish the animal facility manager(s) to be aware of, please identify them here.

Animal Holding/Housing and Use Location Information

Location/Building	Room	Type
*Matthew Mailing Centre - Microsurgery ICU	B4-215	USE

Location/Building	Room	Type
*Health Sciences Animal Care Facility	*Housing Room	HOUSING
*Matthew Mailing Centre - Microsurgery ICU	B4-201	USE
*Matthew Mailing Centre - Microsurgery ICU	B4-200	USE
*Matthew Mailing Centre - Microsurgery ICU	B4-204	USE

ANIMAL LOCATION

*Matthew Mailing Centre - Microsurgery ICU B4-215

Location Type

USE

Identify the Procedure Location PURPOSE

Blood Collection;Euthanasia;Gavage;Injections

ANIMAL LOCATION

*Health Sciences Animal Care Facility *Housing Room

Location Type

HOUSING

Identify the Procedure Location PURPOSE

ANIMAL LOCATION

*Matthew Mailing Centre - Microsurgery ICU B4-201

Location Type

USE

Identify the Procedure Location PURPOSE

Recovery Surgery

ANIMAL LOCATION

*Matthew Mailing Centre - Microsurgery ICU B4-200

Location Type

USE

Identify the Procedure Location PURPOSE

Anesthesia

ANIMAL LOCATION

*Matthew Mailing Centre - Microsurgery ICU B4-204

Location Type

USE

Identify the Procedure Location PURPOSE

Holding Beyond 12 Hours

Holding beyond 12 hours

Will animals be held outside an arms-length-managed animal holding facility beyond 12 hours?

Yes ○ No ◉

Explain and justify why animals must be held outside of an arms-length-managed facility for more than 12 hours.

Housed in the Matthew Mailing Centre ICU post-surgery to be monitored until they are stable enough to return to animal facility.

Identify the frequency and duration of animal 'holding' or 'use' (live animal work) outside an arms-length-managed facility beyond 12 hours.

Depends on surgery and experimental aim, mouse will be kept at MMC between 2- 10 days.

Acclimatization Period & Quarantine

Will this species be held for the species-appropriate holding period prior to any form of USE, as per SOP 310?

Yes ◉ No ○

Provide Justification for this exemption

Will this species require quarantine?

Yes ○ No ◉

If quarantine requirements differ from the animal holding/housing facility's standard practice, please outline the requested QUARANTINE DETAIL.

Physical Restraint Devices List

Add all restraint devices that are used in this AUP

Restraint Type	Duration	Rationale
Tail Restraint (mouse)	30 seconds	Tail restraint of mouse is necessary for IP injection and oral gavage. Mouse will be taken out from the cage by gently grabbing the base of the tail then placing on cage wire. Use another hand to grab the scruff of the neck and restrain the tail. Finish injection or gavage as fast as possible to minimize stress.

Identify the type of physical restraint

Tail Restraint (mouse)

What is the the duration of physical restraint?

30 seconds

Detail the steps taken to condition the animals to the physical restraining device.

Gentle handling of the mouse will be used throughout the procedure.

Justify the use of this physical restraint, and detail steps taken to minimize stress and discomfort associated with physical restraint use during the experimental procedures.

Tail restraint of mouse is necessary for IP injection and oral gavage. Mouse will be taken out from the cage by gently grabbing the base of the tail then placing on cage wire. Use another hand to grab the scruff of the neck and restrain the tail. Finish injection or gavage as fast as possible to minimize stress.

Veterinary Drugs

Add all veterinary drugs to be used for therapeutic purposes in this AUP - planned veterinary treatments, e.g. anaesthesia, analgesia, post-op care, and euthanasia.

Note: Agents, materials, drugs and devices that are included in the experimental design of this AUP for this species should be added to the next **Experimental Agents** web page.

Drug	Dosage	Route of Administration	Frequency	Justification of Divergence	Pharma Grade
Atropine Sulphate	0.04-0.4 mg/kg	IM;IV;SC	n/a		Yes
Bupivacaine	<8 mg/kg	Intradermal;SC			
Buprenorphine	0.05-2.5 mg/kg	IP;SC	q6-12h		
Heparin					
Ketamine-xylazine	K: 50-120 mg/kg + X: 5-15 mg/kg	IP	n/a		Yes
Lidocaine	<7 mg/kg	SC	n/a		
Glycopyrrolate					
Isoflurane	5% induction 2% maintenance	Inhalation	once per session		Yes
Buprenorphine Sr	0.5-1.0 mg/kg	SC	q72 h		

Drug Generic Name

Atropine Sulphate

Drug Type

Anticholinergic

Drug Dosage

0.04-0.4 mg/kg

Frequency of Administration

n/a

Route of Administration

IM;IV;SC

Please justify any divergence from the standard dosage

Is this a Pharmaceutical Grade Drug?

Yes ◉ No ○

Please justify the use of this drug and indicate how it is sterilized or determined to be pathogen-free.

Drug Generic Name

Bupivacaine

Drug Type

Anesthetic, Sedative

Drug Dosage

<8 mg/kg

Frequency of Administration

Route of Administration

Intradermal;SC

Please justify any divergence from the standard dosage

Is this a Pharmaceutical Grade Drug?

Yes ○ No ○

Please justify the use of this drug and indicate how it is sterilized or determined to be pathogen-free.

Drug Generic Name

Buprenorphine

Drug Type

Analgesic, AntiInflammator

Drug Dosage

0.05-2.5 mg/kg

Frequency of Administration

q6-12h

Route of Administration

IP;SC

Please justify any divergence from the standard dosage

Is this a Pharmaceutical Grade Drug?

Yes ○ No ○

Please justify the use of this drug and indicate how it is sterilized or determined to be pathogen-free.

Drug Generic Name

Heparin

Drug Type

Cardiovascular

Drug Dosage

Frequency of Administration

Route of Administration

Please justify any divergence from the standard dosage

Is this a Pharmaceutical Grade Drug?

Yes ○ No ○

Please justify the use of this drug and indicate how it is sterilized or determined to be pathogen-free.

Drug Generic Name

Ketamine-xylazine

Drug Type

Anesthetic, Sedative

Drug Dosage

K: 50-120 mg/kg + X: 5-15 mg/kg

Frequency of Administration

n/a

Route of Administration

IP

Please justify any divergence from the standard dosage

Is this a Pharmaceutical Grade Drug?

Yes ◉ No ○

Please justify the use of this drug and indicate how it is sterilized or determined to be pathogen-free.

Drug Generic Name

Lidocaine

Drug Type

Anesthetic, Sedative

Drug Dosage

<7 mg/kg

Frequency of Administration

n/a

Route of Administration

SC

Please justify any divergence from the standard dosage

Is this a Pharmaceutical Grade Drug?

Yes ○ No ○

Please justify the use of this drug and indicate how it is sterilized or determined to be pathogen-free.

Drug Generic Name

Glycopyrrolate

Drug Type

Fluid Therapy

Drug Dosage

Frequency of Administration

Route of Administration

Please justify any divergence from the standard dosage

Is this a Pharmaceutical Grade Drug?

Yes ○ No ○

Please justify the use of this drug and indicate how it is sterilized or determined to be pathogen-free.

Drug Generic Name

Isoflurane

Drug Type

Anesthetic, Sedative

Drug Dosage

5% induction 2% maintenance

Frequency of Administration

once per session

Route of Administration

Inhalation

Please justify any divergence from the standard dosage

Is this a Pharmaceutical Grade Drug?

Yes ◉ No ○

Please justify the use of this drug and indicate how it is sterilized or determined to be pathogen-free.

Drug Generic Name

Buprenorphine Sr

Drug Type

Analgesic, AntiInflammator

Drug Dosage

0.5-1.0 mg/kg

Frequency of Administration

q72 h

Route of Administration

SC

Please justify any divergence from the standard dosage

Is this a Pharmaceutical Grade Drug?

Yes No

Please justify the use of this drug and indicate how it is sterilized or determined to be pathogen-free.

Experimental Agents Information

Select all agents, materials, drugs and devices that are included in the experimental design of this AUP for this species.

Note: Veterinary drugs to be used for planned veterinary treatments, e.g. anaesthesia, analgesia, post-op care, and euthanasia, are to be included on the previous **Veterinary Drugs** web page.

Agent Name	Common /trade name	Class	Category	Pharma Grade
Heparin		Exempt From Safety Review	Pharmaceutical	Yes
Taurine		Exempt From Safety Review	Agent	No
Metformin		Exempt From Safety Review	Pharmaceutical	Yes
Alpha 1 Anti-trypsin		Exempt From Safety Review	Agent	No
Colchicine		Health Hazard (ghs) - Complete Safety Form	Chemical	Yes
Glyburide		Exempt From Safety Review	Agent	Yes
Chloroquine		Health Hazard (ghs) - Complete Safety Form	Chemical	Yes
Erythromycin		Exempt From Safety Review	Agent	Yes
Roflumilast	Daliresp	Exempt From Safety Review	Agent	Yes

Agent

Heparin

Category

Pharmaceutical

Common /trade name

Concentration of agent

Dose administered

200U

Volume administered

Route of Administration

IV

Other Route of Administration

Frequency of administration

once

Will this agent be modified?

Yes ○ No ○

Please list all modifications to the agent

Is this a Pharmaceutical Grade Agent?

Yes ◉ No ○

Please justify the use of this agent and indicate how it is sterilized or determined to be pathogen-free.

Agent

Taurine

Category

Agent

Common /trade name

Concentration of agent

20mg/ml

Dose administered

100mg/kg body weight

Volume administered

150ul

Route of Administration

Gavage;IP

Other Route of Administration

Frequency of administration

18hr and 1hr before clamping

Will this agent be modified?

Yes ○ No ◉

Please list all modifications to the agent

Is this a Pharmaceutical Grade Agent?

Yes ○ No ◉

Please justify the use of this agent and indicate how it is sterilized or determined to be pathogen-free.

it is filtered through 0.2um syringe filter.

Agent

Metformin

Category

Pharmaceutical

Common /trade name

Concentration of agent

50mg/ml

Dose administered

200mg/kg body weight

Volume administered

150ul

Route of Administration

Gavage;IP

Other Route of Administration

Frequency of administration

18hr and 1hr before clamping

Will this agent be modified?

Yes ○ No ◉

Please list all modifications to the agent

Is this a Pharmaceutical Grade Agent?

Yes ◉ No ○

Please justify the use of this agent and indicate how it is sterilized or determined to be pathogen-free.

Agent

Alpha 1 Anti-trypsin

Category

Agent

Common /trade name

Concentration of agent

1 mg/ml

Dose administered

5mg/kg body weight

Volume administered

150ul

Route of Administration

IP

Other Route of Administration

Frequency of administration

18hr and 1hr before clamping

Will this agent be modified?

Yes ○ No ◉

Please list all modifications to the agent

Is this a Pharmaceutical Grade Agent?

Yes ○ No ◉

Please justify the use of this agent and indicate how it is sterilized or determined to be pathogen-free.

It will be filtered through 0.2um syringe filter.

Agent

Colchicine

Category

Chemical

Common /trade name

Concentration of agent

0.5mg/ml

Dose administered

2mg/kg body weight

Volume administered

150ul

Route of Administration

Gavage;IP

Other Route of Administration

Frequency of administration

18 hr and 1 hr prior to clamping

Will this agent be modified?

Yes ○ No ◉

Please list all modifications to the agent

Is this a Pharmaceutical Grade Agent?

Yes ◉ No ○

Please justify the use of this agent and indicate how it is sterilized or determined to be pathogen-free.

Agent

Glyburide

Category

Agent

Common /trade name

Concentration of agent

100mg/ml

Dose administered

500mg/Kg

Volume administered

100ul

Route of Administration

Gavage;IP

Other Route of Administration

Frequency of administration

18 hr and 1 hr prior to clamping

Will this agent be modified?

Yes ○ No ◉

Please list all modifications to the agent

Is this a Pharmaceutical Grade Agent?

Yes ◉ No ○

Please justify the use of this agent and indicate how it is sterilized or determined to be pathogen-free.

Agent

Chloroquine

Category

Chemical

Common /trade name

Concentration of agent

36mg/ml

Dose administered

50mg/ kg body weight

Volume administered

50ul

Route of Administration

Gavage;IP

Other Route of Administration

Frequency of administration

18hr and 1hr before clamping

Will this agent be modified?

Yes ○ No ◉

Please list all modifications to the agent

Is this a Pharmaceutical Grade Agent?

Yes ◉ No ○

Please justify the use of this agent and indicate how it is sterilized or determined to be pathogen-free.

Agent

Erythromycin

Category

Agent

Common /trade name

Concentration of agent

10mg/ml

Dose administered

57mg/kg body weight

Volume administered

170ul

Route of Administration

Gavage;IP

Other Route of Administration

Frequency of administration

18hr and 1hr before clamping

Will this agent be modified?

Yes ○ No ◉

Please list all modifications to the agent

Is this a Pharmaceutical Grade Agent?

Yes ◉ No ○

Please justify the use of this agent and indicate how it is sterilized or determined to be pathogen-free.

Agent

Roflumilast

Category

Agent

Common /trade name

Daliresp

Concentration of agent

1mg/ml

Dose administered

5mg/kg body weight

Volume administered

150ul

Route of Administration

Gavage

Other Route of Administration

Frequency of administration

18hr and 1hr before clamping

Will this agent be modified?

Yes ○ No ◉

Please list all modifications to the agent

Is this a Pharmaceutical Grade Agent?

Yes ◉ No ○

Please justify the use of this agent and indicate how it is sterilized or determined to be pathogen-free.

Please attach all requested documentation, as applicable, including:
Hazardous Materials Safety Questions Documents - If the classification of the agent selected requires it, please fill out and append the appropriate safety review sheet:

- Biological (http://www.uwo.ca/animal-research/doc/biological-questions.doc)
- Chemical/Pharmaceutical (http://www.uwo.ca/animal-research/doc/chem-pharm-questions.doc)
- Imaging & Laser (http://www.uwo.ca/animal-research/doc/imaging-laser-questions.doc)
- Nuclear/Radiation (http://www.uwo.ca/animal-research/doc/nuclear-radiation-questions.doc)

Material Safety Data Sheet (MSDS) or Equivalent - Occupational Health & Safety requires that you attach the current MSDS for each newly added agent as this is an essential element of safety review.

SOP List

Add all Standard Operating Procedures that will be followed within this AUP.

Go to the ACVS SOPs web page for SOP details - http://uwo.ca/animal-research/sops/index.html (http://uwo.ca/animal-research/sops/index.html)

SOP Name	Divergences
311 - Maximum Holding Period	
330 - Post-operative Care - Rodents	
343 - Surgical Prep - Rodent - Recovery Surgery	
345 Anesthesia And Intraoperative Care - Rodent	
Cln-321 - Criteria For Early Euthanasia In Rodents	

SOP Name	Divergences
Cln-323 - Euthanasia By C02 Asphyxia	
Cln-361 - Blood Collection In Mice	

Select an SOP

311 - Maximum Holding Period

Are you following the SOP exactly?

Yes ◉ No ○

If you are not following the SOP exactly, please list and justify all divergences from the SOP

Select an SOP

330 - Post-operative Care - Rodents

Are you following the SOP exactly?

Yes ◉ No ○

If you are not following the SOP exactly, please list and justify all divergences from the SOP

Select an SOP

343 - Surgical Prep - Rodent - Recovery Surgery

Are you following the SOP exactly?

Yes ◉ No ○

If you are not following the SOP exactly, please list and justify all divergences from the SOP

Select an SOP

345 Anesthesia And Intraoperative Care - Rodent

Are you following the SOP exactly?

Yes ◉ No ○

If you are not following the SOP exactly, please list and justify all divergences from the SOP

Select an SOP

Cln-321 - Criteria For Early Euthanasia In Rodents

Are you following the SOP exactly?

Yes ◉ No ○

If you are not following the SOP exactly, please list and justify all divergences from the SOP

Select an SOP

Cln-323 - Euthanasia By C02 Asphyxia

Are you following the SOP exactly?

Yes ◉ No ○

If you are not following the SOP exactly, please list and justify all divergences from the SOP

Select an SOP

Cln-361 - Blood Collection In Mice

Are you following the SOP exactly?

Yes ◉ No ○

If you are not following the SOP exactly, please list and justify all divergences from the SOP

Procedures Checklist for Reporting and Training

Use the checklist below to identify all AUP elements to be used **with this species**. If none of the listed AUP elements pertain to this species, select *Not Applicable.

Entries selected here will be linked to other AUP pages, including Personnel Training Requirements and the eSirius Training Module where animal user training records are maintained. Therefore, please ensure that this list is complete.

Procedure Name
01. Blood Collection - Intracardiac
02. Blood Collection - All Other Sites (species-specific)
03. Injections - Iv
04. Injections - Sq
05. Injections - Im
06. Injections - Ip
16. Anesthesia - Gas
17. Anesthetics - Injectable
19. Surgery - Recovery
21. Skin Incisions - Closure
23. Oral Gavage
C. Metabolic Caging

Procedures Narrative

In view of the live animal activities identified within this AUP and listed below, provide a concise description of the procedural events identified within the **Groups and Timelines** page associated with this specific species.

The intent is to name and briefly describe the procedural events and associate them with each experimental group within this species.

Specific detail pertaining to drug dosage, monitoring, euthanasia/endpoint method, breeding, and physical restraint methods have been captured within other AUP sections, so they do not need to be described in detail here.

Species	Description
Mouse	01. Blood Collection - Intracardiac
Mouse	02. Blood Collection - All Other Sites (species-specific)
Mouse	03. Injections - Iv
Mouse	04. Injections - Sq
Mouse	05. Injections - Im
Mouse	06. Injections - Ip
Mouse	16. Anesthesia - Gas
Mouse	17. Anesthetics - Injectable
Mouse	19. Surgery - Recovery
Mouse	21. Skin Incisions - Closure

Species	Description
Mouse	23. Oral Gavage
Mouse	C. Metabolic Caging
Mouse	Tail Restraint (mouse)
Mouse	311 - Maximum Holding Period
Mouse	330 - Post-operative Care - Rodents
Mouse	343 - Surgical Prep - Rodent - Recovery Surgery
Mouse	345 Anesthesia And Intraoperative Care - Rodent
Mouse	Cln-321 - Criteria For Early Euthanasia In Rodents
Mouse	Cln-323 - Euthanasia By C02 Asphyxia
Mouse	Cln-361 - Blood Collection In Mice

Use the following formatting method to complete **each procedure listed** within this section:

1. **Bold Font for Procedure Name - e.g. Anesthesia**
2. *Italicized Font for Group Identifiers - e.g. Groups 1, 2, and 6*
3. Regular Font for Procedure Description - e.g. Animals will be placed in a clean cage for transport to the OR

Please note that the AUP will be returned for updates if this section does not align with the above formatting method.

Procedures Narrative

Anesthesia / Analgesia

Mouse Aim 1 and 2

Mice will first be sedated with a mixture of ketamine/xylazine IM. They will also have a separate injection of atropine given subcutaneously. Isoflurane will be given during the procedure. To maintain body temperature, mice will be placed on a heating pad and a rectal thermometer is used to monitor the temperature continuously during surgery. Anesthetic depth will be monitored constantly by checking breathing rhythm, chest movement and reflection. Other vitals including heart rate and color of organ will be monitored in the meantime. To supplement fluid loss, saline will be given post-op. For recovery surgery, mice will be given buprenorphine SR IM, administered pre-emptively.

Renal Ischemia Reperfusion Injury Surgery

Mouse Aim 1

Surgery will be performed by experienced microsurgeons equipped with surgical gloves, mask, head cover and gown in a dedicated operation room. Mice will be anesthetized as previously described and a surgical prep will be performed. A ventral midline incision will be made and kidneys will be subjected to up to 60 min renal pedicle clamping. Control groups will include untreated animals and animals subjected to laparotomy alone. Treated mice will be given with antiinflammatory drug 1 hr or 18 hrs ip or oral gavage prior to clamping. Following 1 hour, the clamps will be released and the abdomen and skin will be closed before reperfusion is confirmed by the color of kidney and blood inflation of the vessels then animal recovered. 24 hours later, the animals will be euthanized by CO_2 and exsanguination and kidneys collected.

Renal Transplant

Mouse Aim 2

DONOR PROCEDURE: Donor mice will be anesthetized as previously described. In some cases, donor mice may be treated either 1 hour or 18 hours ip/oral gavage prior to a one hour clamping procedure which can be part of the organ procurement process. The animals will be shaven and the skin sterilized with betadine and alcohol. 200 units of heparin is then injected into the penile vein. A transverse abdominal incision is performed and the inferior vena cava is transected. The aorta is ligated proximal and distal to the take offs of the renal arteries and 2 ml of flush solution is flushed into the aorta with a 25 gauge needle immediately after the IVC is transected. The two kidneys are taken from the donor mice with preservation of aortic, venous cuffs and ureter with a cuff or bladder. The kidneys are then separated and placed in cold perfusate solution. The carcass is disposed by the routine manner. RECIPIENT PROCEDURE: Some recipients may be pretreated 1 hour or 18

hours ip/oral gavage prior to transplant surgery Recipient mice are anesthetized as previously described and prep'd and draped. The surgeon will wear surgical gloves, mask, head cover and gown as decribed above. A midline incision is performed. The aorta and IVC are isolated and clamped below the renal vessels. The venotomy and arteriotomy are made in the IVC and aorta. The donor renal artery and renal vein are sutured to the recipient aorta and cava of the right kidney. Clamps are released restoring flow to the allograft and end to end ureterovesical anastomoses are performed. The native kidneys are removed. The abdominal wall and skin are closed with absorbable suture. The mouse is then awakened and its recovery is observed. Mice will be maintained up to a post op day 10

Blood Collection

Mouse Aim-2

Mice will be manually restrained, blood (50-100ul) will be collected at day 3 for serum creatinine and this will be taken by saphenous vein puncture. At the time of euthanasia, following CO_2 overdose, a terminal bleed will be conducted via cardiac puncture.

Oral Gavage

Mouse Aim 1 and Aim 2

Mice will be gently restrained to immobilize the head and are maintained in an upright (vertical) position and the gavage needle (18-22 gauge) will pass along the side of the mouth. Following the roof of the mouth, advance the needle into the esophagus and toward the stomach. After the needle is passed to the correct length, the compound will be injected. If the animal coughs, chokes or begins to struggle after compound administration begins, stop and withdraw the needle immediately. If it appears that material has been injected into the lungs the animal should be euthanized. Struggling during administration or excessive force in advancing the needle should be avoided as these may lead to rupture of the esophagus or stomach.

Injection

Mouse Aim 1 and Aim 2

Intraperitoneal Injections

Scruff the mouse firmly and hold in dorsal recumbency. Insert the needle bevel up in a position below the bend of the knees; to the left or right of the midline. Angle the needle approximately 30°-45° to the body and inject.

Subcutaneous injections

Firmly scruff the mouse and create a skin tent between the shoulder blades or over the flank. Insert the needle into the pocket and aspirate prior to injection to ensure the needle is properly positioned. If no blood is seen in the syringe, proceed with the injection. The outline of the needle should be clearly visible under the skin when correctly situated.

Intramuscular injections

Gently pull the mouse into the restrainer as normal, but pull the leg through the top. Be careful to not dislocate or twist the leg. Insert the needle angled perpendicular to the femur and pull back slightly on the plunger to ensure the needle is not in a blood vessel. Proceed with the injection if no blood is aspirated. Do not inject if blood is aspirated. Care must be taken to avoid the sciatic nerve and the femoral vein, artery and nerve.

CO_2 Euthanasia

Mouse Aim 1 and 2

Remove each animal from the housing chamber and place into the euthanasia chamber. Turn on the valve located on top of the CO_2 tank. Set the flow meter by adjusting the regulator valve. Standard DCM Shoebox style MOUSE cage: 1.8 liters per minute (lpm). Continue to allow CO_2 to flow into the chamber for one minute after breathing stops (approximately 6 minutes for mice).

Procedural Consequences & Monitoring

From both the project overview & detail perspectives, identify and describe specific procedural or other/combined elements of this AUP that may produce pain, distress, or impairment - and identify all possible consequences - Behavioural, Physical, Biochemical, Physiological, and Reproductive - for this species.

Renal pedicle clamping surgery and kidney transplantation cause pain and distress. Loss of appetite, weight loss and lethargy can be visible signs.

Detail relief to be provided for each of the above-stated potential consequences, and, if relief is not planned, offer scientific justification for not doing so.

Microsurgeon will provide analgesic, SQ fluids and recovery gels routinely to alleviate these symptoms. Moistened food/gel diet will be provided at bottom of cage post-op to help with eating and fluid recovery.

The CCAC and OMAFRA require that all AUPs include:

- a 'Monitoring Plan' to minimize animal pain, distress, or discomfort, and
- a plan for 'Early Euthanasia' for the purpose of emergency intervention in advance of the experimental endpoint.

As per UCAC's *Animal Care and Use Records Policy*, http://uwo.ca/animal-research/doc/ACU_Records.pdf (http://uwo.ca/animal-research/doc/ACU_Records.pdf) Animal Records, e.g. scoring sheets, procedure logs, anaesthetic and surgery records (except those involved in Field Studies) must be kept with the animals at all times.

Has a monitoring sheet used for determining interventions and early euthanasia endpoints been developed for this species, e.g. scoring sheets, anaesthetic record, surgery record.
If YES, please attach the monitoring sheet(s) below.

If NO, please complete the following checklist

Yes ◉ No ○

Weight -*When checked, this indicates that weights will be recorded*

☑

Food/Water Intake

☑

Behaviour

☑

Fecal/Urine Output

☑

Body Condition Score

☑

Appearance

☑

Other Monitoring

☑

Please Specify Other Monitoring Type.

Serum Creatinine

For every individual monitoring element checked above:
Describe the frequency, Specify the intervention points including criteria for early euthanasia, Provide other relevant detail. If attached monitoring sheets capture this information, then indicate this here.

Post-op monitoring except for weight will be twice daily for one week then daily thereafter. Weight monitoring will be daily. Serum creatinine will be monitored on day 3 post-op and at endpoint.

In case when significant weight loss >15%, and/or lack of urine production, or day 3 serum creatinine >240uM are spotted, animals will be euthanized following the SOPs.

All MMC SOPs,(including the monitoring), will be followed.

Please attach your monitoring sheets.

Endpoint Method Information

Endpoint Method
Drug-Agent Overdose
Exsanguination Under Anesthesia

Endpoint Method

Drug-Agent Overdose

CCAC Classification

Acceptable

This method is conditionally acceptable. Please provide sufficient justification for using this method. Please note that conditionally acceptable methods may require additional training prior to use.

Provide Additional experimental endpoint detail, as required

Aim 1: animals will be euthanized 24 hrs after surgery and kidneys will be retrieved for study. Blood will be collected too. Aim 2-Recipient: Recipient mouse will be euthanized 10 days after the surgery. Kidneys will be retrieved for study. Blood will be collected too.

Provide endpoint detail for animals not euthanized

For endpoint methods selected above that use drugs, please list them below, and include the dosage.

Drug	Dosage
Carbon Dioxide	3L/min

Endpoint Method

Exsanguination Under Anesthesia

CCAC Classification

Acceptable

This method is conditionally acceptable. Please provide sufficient justification for using this method. Please note that conditionally acceptable methods may require additional training prior to use.

Provide Additional experimental endpoint detail, as required

Aim 2-Donor: mouse will be euthanized immediately after kidney retrieval by exsanguination under anesthesia.

Provide endpoint detail for animals not euthanized

For endpoint methods selected above that use drugs, please list them below, and include the dosage.

Drug	Dosage
Carbon Dioxide	

Animal Numbers Requested

With a view to the animal numbers disclosed on the **Groups and Timelines** web page, please provide your requested total four- and first-year animal numbers by Category of Invasiveness as well as justification for these numbers.

Please consider the activities selected for this species in the list below with a view to their combined impact upon an animal.

Species	Type	Description
Mouse	Procedures	01. Blood Collection - Intracardiac
Mouse	Procedures	02. Blood Collection - All Other Sites (species-specific)
Mouse	Procedures	03. Injections - Iv
Mouse	Procedures	04. Injections - Sq
Mouse	Procedures	05. Injections - Im
Mouse	Procedures	06. Injections - Ip
Mouse	Procedures	16. Anesthesia - Gas
Mouse	Procedures	17. Anesthetics - Injectable
Mouse	Procedures	19. Surgery - Recovery
Mouse	Procedures	21. Skin Incisions - Closure
Mouse	Procedures	23. Oral Gavage
Mouse	Procedures	C. Metabolic Caging
Mouse	Restraints	Tail Restraint (mouse)
Mouse	Surgery	311 - Maximum Holding Period
Mouse	Surgery	330 - Post-operative Care - Rodents
Mouse	Surgery	343 - Surgical Prep - Rodent - Recovery Surgery
Mouse	Surgery	345 Anesthesia And Intraoperative Care - Rodent
Mouse	Surgery	Cln-321 - Criteria For Early Euthanasia In Rodents
Mouse	Surgery	Cln-323 - Euthanasia By C02 Asphyxia
Mouse	Surgery	Cln-361 - Blood Collection In Mice

Please select the top Category of Invasiveness for this species and, for AUPs containing breeding colonies, please separate these numbers into the 'Z' category.

Categories of Invasiveness – Levels assigned to AUPs in accordance with CCAC policy. Experiments involving:

- **B -** Little or no discomfort or stress
- **C -** Minor stress or pain of short duration
- **D -** Moderate to severe distress or discomfort

- **E -** Procedures causing severe pain at or above the pain tolerance threshold of unanaesthetized conscious animals
- **Z -** Animals used for breeding purposes (internal letter designation to separate out breeding from research numbers - a CCAC requirement)

For more detail go to the CCAC Website:

http://www.ccac.ca/en_/standards/policies/policy-categories_of_invasiveness (http://www.ccac.ca/en_/standards/policies/policy-categories_of_invasiveness)

CCAC Category	4 YR #	1st YR #
B	0	0
C	0	0
D	102	0
E	0	0
Z	0	0

Justification for Number of Animals Requested

For the derivation of statistical significance of data, we need certain number of animals in which similar experiment will be conducted. Peer review system expects us to do at least 3 animals per group. We aim to do 5 animals per group with 1 extra in case of any failure. Considering two different dosing in each drug test, we plan to use 3 animals for each dose first (3x2=6 mice), then use 3 extra animals for the better dosage so that we can have 6 animals in that dosage group to generate statistical sound data. Depending on treatment group, we will always try to minimize use of animals. Therefore we kept it 9 in the flow chart for Approach 1. Since the better dosage of a drug has already been determined in Approach 1, we only need 6 mice/group in the transplantation stage.

Pig

Tissue Collection

Will live animals be used in this study?

Yes

Will this species be used exclusively for tissue collection?

Yes ○ No ◉

Justification for Choice of Species

Justify the choice of species by stating why
a) this is the most appropriate species, and
b) a species lower on the phylogenic scale is not appropriate.

Prior to the transplantation of donor kidney in humans, ex vivo protection of clinical renal allografts is an extremely necessary step. Development of normothermic oxygen system is important for functional improvement and prolonged preservation solution are very important. More preclinical work must be undertaken to demonstrate improved histologic and functional parameters. Porcine models are more feasible and as relevant as dog or primate models. However, in order to use less pigs to address the issue, before we conduct pig experiment, we have used mouse model to screen the candidate drugs.

the 3Rs: Replace, Reduce, Refine

The Three Rs concept originated from the scientific community and is a widely accepted cornerstone of policies on animal-based science around the world.

Ethical animal use requires consideration of animal welfare needs http://3rs.ccac.ca (http://3rs.ccac.ca)

Prior to any animal-based science, the 3 Rs should be considered.

Replacement refers to methods which avoid or replace the use of animals in an area where animals would otherwise have been used

Please show how you've considered the tenet of Replacement in your AUP.

For more information, please see Western's Alternative Use Guide (https://guides.lib.uwo.ca/animalalternatives).

Replacement Consideration

At this stage of this kind of research, it is unfortunate that there will be no alternative of animal use. As we are seeking a closer model (both in size and function) to human, use of pigs are only way to optimize the condition of organ preservation. However, we are committed to use smaller group size to minimize the number of animals to be investigated.

Reduction refers to any strategy that will result in fewer animals being used.

Please show how you've considered the tenet of Reduction in your AUP.

For more information, please see Western's Alternative Use Guide (https://guides.lib.uwo.ca/animalalternatives).

Reduction Consideration

For auto-transplant of treated kidney (1 kidney) , we will use the same donor in case we do that within 24 hours. This is how we can reduce total number of animals.

Refinement refers to the modification of husbandry or experimental procedures to minimize pain and distress in your animals.

Please show how you've considered the tenet of Refinement in your AUP.

For more information, please see Western's Alternative Use Guide (https://guides.lib.uwo.ca/animalalternatives).

Refinement Consideration

Current protocol will investigate the optimization of organ preservation and re-perfusion ex vivo. Blood withdrawal as well as kidney procurement will be done in clinically anesthetic animals. we have a group of surgeons and technicians who are highly specialized in the field of transplantation surgery.In this model of animal IR injury, the procedure we have established, animals will be completely free of pain and sufferings.

Species Strains

Species Strain	Age/Weight	Vendor Stock#
Farm	30-65 Kg	Caughell Farm

Strain Name

Farm

Is this strain acquired commercially?

Yes ◉ No ○

Are the animals coming from a non-commercial source or another AUP?

Provide 'supplier name' and stock #, if available

Caughell Farm

Age or weight at procurement

30-65 Kg

Provide phenotype detail for non-genetically altered strains

Is this strain genetically altered?

Yes ○ No ◉

If Genetically Altered Animals are COMMERCIALLY AVAILABLE, insert VENDOR STRAIN INFO URL - This page is now complete.

If Genetically Altered Animals are from a NON-COMMERCIAL SOURCE, PROVIDE the Original Source of Animal(s)

Describe the NATURE of the genetic modification in heterozygous and homozygous animals. Identify the SYSTEMS AFFECTED and SPECIAL CARE required.

Animal Transfers

Will animals originate from a DIFFERENT CITYWIDE PROTOCOL NUMBER?

Yes ○ No ◉

Are any animals being transferred from another AUP that have previous use?

Yes ○ No ◉

List AUP number and PI name from which animals will be transferred

Describe the previous use of animals sourced from different citywide AUPs.

Environmental Enrichment

Will all animals be group housed?

Yes ○ No ◉

Justify why group housing is not planned and specify which experimental animals will be singely housed

Cannot be sedated safely

May Animal Care staff provide ENVIRONMENTAL ENRICHMENT to all animals of this species, as per its facility-specific Environmental Enrichment SOPs?

Yes ◉ No ○

May FOOD TREATS be given to all animals of this species by animal care staff as per its facility-specific Environmental Enrichment SOPs?

Yes ◉ No ○

Explain why additional enrichment and/or food treats may not be provided by Animal Care staff

Will any animals of this species undergo fasting at any point in the project?

Yes ◉ No ○

Provide justification and duration of fasting.

Pigs are not fed for approximately 12 hours prior to surgery. They will get half of their scheduled PM food then. This partially depends on the time that surgery is booked for.

If this species has other specialized caging, dietary or environmental requirements that you wish the animal facility manager(s) to be aware of, please identify them here.

Animal Holding/Housing and Use Location Information

Location/Building	Room	Type
*West Valley Animal Care Facility	22	USE
*West Valley Animal Care Facility	20	USE
*West Valley Animal Care Facility	*Housing Room	HOUSING
*West Valley Animal Care Facility	12	USE
LINDROS LEGACY BUILDING/C-STAR	B8-219	USE

ANIMAL LOCATION

*West Valley Animal Care Facility 22

Location Type

USE

Identify the Procedure Location PURPOSE

Anesthesia;Injections;Recovery Surgery

ANIMAL LOCATION

*West Valley Animal Care Facility 20

Location Type

USE

Identify the Procedure Location PURPOSE

Anesthesia;Injections

ANIMAL LOCATION

*West Valley Animal Care Facility *Housing Room

Location Type

HOUSING

Identify the Procedure Location PURPOSE

ANIMAL LOCATION

*West Valley Animal Care Facility 12

Location Type

USE

Identify the Procedure Location PURPOSE

Euthanasia

ANIMAL LOCATION

LINDROS LEGACY BUILDING/C-STAR B8-219

Location Type

USE

Identify the Procedure Location PURPOSE

Anesthesia;Blood Collection;Euthanasia;Injections;Non-recovery Surgery;Recovery Surgery

Holding beyond 12 hours

Will animals be held outside an arms-length-managed animal holding facility beyond 12 hours?

Yes ○ No ◉

Explain and justify why animals must be held outside of an arms-length-managed facility for more than 12 hours.

Identify the frequency and duration of animal 'holding' or 'use' (live animal work) outside an arms-length-managed facility beyond 12 hours.

Acclimatization Period & Quarantine

Will this species be held for the species-appropriate holding period prior to any form of USE, as per SOP 310?

Yes ◉ No ○

Provide Justification for this exemption

Will this species require quarantine?

Yes ○ No ◉

If quarantine requirements differ from the animal holding/housing facility's standard practice, please outline the requested QUARANTINE DETAIL.

Veterinary Drugs

Add all veterinary drugs to be used for therapeutic purposes in this AUP - planned veterinary treatments, e.g. anaesthesia, analgesia, post-op care, and euthanasia.

Note: Agents, materials, drugs and devices that are included in the experimental design of this AUP for this species should be added to the next **Experimental Agents** web page.

Drug	Dosage	Route of Administration	Frequency	Justification of Divergence	Pharma Grade
Atropine Sulphate	0.05mg/kg IV - 0.02-0.05mg/kg IM	IM;IV			
Bupivacaine	2.0mg/kg max peri-neural	OTHER	once		
Buprenorphine	0.05-0.1 mg/kg	IM;SC	q 8 hrs		
Enrofloxacin	7.5mg/kg sq once; 2.5-5mg/kg IM/PO	IM;PO;SC	q24		
Fentanyl Patch	5 ug/kg	Transdermal	q 3 days		
Heparin	100-300 units/kg	IV			
Pentobarbital Sodium	100-150mg/kg - Euthanasia	IV	Once		
Xylazine	1-4.4mg/kg	IM			
Isoflurane	5% induction, 2% maintenance	Inhalation	per session		
Buprenorphine Sr	0.24mg/kg	SC	once		

Drug Generic Name

Atropine Sulphate

Drug Type

Anticholinergic

Drug Dosage

0.05mg/kg IV - 0.02-0.05mg/kg IM

Frequency of Administration

Route of Administration

IM;IV

Please justify any divergence from the standard dosage

Is this a Pharmaceutical Grade Drug?

Yes ○ No ○

Please justify the use of this drug and indicate how it is sterilized or determined to be pathogen-free.

Drug Generic Name

Bupivacaine

Drug Type

Anesthetic, Sedative

Drug Dosage

2.0mg/kg max peri-neural

Frequency of Administration

once

Route of Administration

OTHER

Please justify any divergence from the standard dosage

Is this a Pharmaceutical Grade Drug?

Yes ○ No ○

Please justify the use of this drug and indicate how it is sterilized or determined to be pathogen-free.

Drug Generic Name

Buprenorphine

Drug Type

Analgesic, AntiInflammator

Drug Dosage

0.05-0.1 mg/kg

Frequency of Administration

q 8 hrs

Route of Administration

IM;SC

Please justify any divergence from the standard dosage

Is this a Pharmaceutical Grade Drug?

Yes ○ No ○

Please justify the use of this drug and indicate how it is sterilized or determined to be pathogen-free.

Drug Generic Name

Enrofloxacin

Drug Type

Antibiotic, Antihelminthic

Drug Dosage

7.5mg/kg sq once; 2.5-5mg/kg IM/PO

Frequency of Administration

q24

Route of Administration

IM;PO;SC

Please justify any divergence from the standard dosage

Is this a Pharmaceutical Grade Drug?

Yes ○ No ○

Please justify the use of this drug and indicate how it is sterilized or determined to be pathogen-free.

Drug Generic Name

Fentanyl Patch

Drug Type

Analgesic, AntiInflammator

Drug Dosage

5 ug/kg

Frequency of Administration

q 3 days

Route of Administration

Transdermal

Please justify any divergence from the standard dosage

Is this a Pharmaceutical Grade Drug?

Yes ○ No ○

Please justify the use of this drug and indicate how it is sterilized or determined to be pathogen-free.

Drug Generic Name

Heparin

Drug Type

Cardiovascular

Drug Dosage

100-300 units/kg

Frequency of Administration

Route of Administration

IV

Please justify any divergence from the standard dosage

Is this a Pharmaceutical Grade Drug?

Yes ○ No ○

Please justify the use of this drug and indicate how it is sterilized or determined to be pathogen-free.

Drug Generic Name

Pentobarbital Sodium

Drug Type

Drug Dosage

100-150mg/kg - Euthanasia

Frequency of Administration

Once

Route of Administration

IV

Please justify any divergence from the standard dosage

Is this a Pharmaceutical Grade Drug?

Yes No

Please justify the use of this drug and indicate how it is sterilized or determined to be pathogen-free.

Drug Generic Name

Xylazine

Drug Type

Anesthetic, Sedative

Drug Dosage

1-4.4mg/kg

Frequency of Administration

Route of Administration

IM

Please justify any divergence from the standard dosage

Is this a Pharmaceutical Grade Drug?

Yes No

Please justify the use of this drug and indicate how it is sterilized or determined to be pathogen-free.

Drug Generic Name

Isoflurane

Drug Type

Anesthetic, Sedative

Drug Dosage

5% induction, 2% maintenance

Frequency of Administration

per session

Route of Administration

Inhalation

Please justify any divergence from the standard dosage

Is this a Pharmaceutical Grade Drug?

Yes No

Please justify the use of this drug and indicate how it is sterilized or determined to be pathogen-free.

Drug Generic Name

Buprenorphine Sr

Drug Type

Analgesic, AntiInflammator

Drug Dosage

0.24mg/kg

Frequency of Administration

once

Route of Administration

SC

Please justify any divergence from the standard dosage

Is this a Pharmaceutical Grade Drug?

Yes No

Please justify the use of this drug and indicate how it is sterilized or determined to be pathogen-free.

Experimental Agents Information

Select all agents, materials, drugs and devices that are included in the experimental design of this AUP for this species.

Note: Veterinary drugs to be used for planned veterinary treatments, e.g. anaesthesia, analgesia, post-op care, and euthanasia, are to be included on the previous **Veterinary Drugs** web page.

Agent Name	Common /trade name	Class	Category	Pharma Grade
Carbon Monoxide		Regulated Health Hazard (ohsa) - Complete Safety Form	Chemical	No
Dimethylsulphoxide (dmso)		Exempt From Safety Review	Chemical	Yes
Taurine		Exempt From Safety Review	Agent	No
Uw Solution (viaspan)		Exempt From Safety Review	Agent	Yes

Agent Name	Common /trade name	Class	Category	Pharma Grade
Metformin		Exempt From Safety Review	Pharmaceutical	Yes
Alpha 1 Anti-trypsin		Exempt From Safety Review	Agent	No
Colchicine		Health Hazard (ghs) - Complete Safety Form	Chemical	Yes
Glyburide		Exempt From Safety Review	Agent	Yes
Chloroquine		Health Hazard (ghs) - Complete Safety Form	Chemical	Yes
Erythromycin		Exempt From Safety Review	Agent	Yes
Roflumilast	Daliresp	Exempt From Safety Review	Agent	Yes

Agent

Carbon Monoxide

Category

Chemical

Common /trade name

Concentration of agent

20 ppm

Dose administered

5%

Volume administered

25 ml

Route of Administration

OTHER

Other Route of Administration

ex vivo and added to preservation solution

Frequency of administration

once

Will this agent be modified?

Yes ○ No ◉

Please list all modifications to the agent

Is this a Pharmaceutical Grade Agent?

Yes ○ No ◉

Please justify the use of this agent and indicate how it is sterilized or determined to be pathogen-free.

It is going to be filtered through 0.2um filter.

Agent

Dimethylsulphoxide (dmso)

Category

Chemical

Common /trade name

Concentration of agent

100%

Dose administered

used as solvent

Volume administered

500ul

Route of Administration

OTHER

Other Route of Administration

ex vivo and added to preservation solution

Frequency of administration

once

Will this agent be modified?

Yes ○ No ◉

Please list all modifications to the agent

Is this a Pharmaceutical Grade Agent?

Yes ◉ No ○

Please justify the use of this agent and indicate how it is sterilized or determined to be pathogen-free.

It will be filter through 0.2um filter.

Agent

Taurine

Category

Agent

Common /trade name

Concentration of agent

20mg/ml

Dose administered

100mg/kg B W

Volume administered

500ul

Route of Administration

OTHER

Other Route of Administration

ex vivo and added to preservation solution

Frequency of administration

once

Will this agent be modified?

Yes ○ No ◉

Please list all modifications to the agent

Is this a Pharmaceutical Grade Agent?

Yes ○ No ◉

Please justify the use of this agent and indicate how it is sterilized or determined to be pathogen-free.

It will be filtered through 0.2um syringe filter.

Agent

Uw Solution (viaspan)

Category

Agent

Common /trade name

Concentration of agent

100%

Dose administered

used as preservation solution

Volume administered

500ml

Route of Administration

OTHER

Other Route of Administration

ex vivo and added to preservation solution

Frequency of administration

once

Will this agent be modified?

Yes ○ No ◉

Please list all modifications to the agent

Is this a Pharmaceutical Grade Agent?

Yes ◉ No ○

Please justify the use of this agent and indicate how it is sterilized or determined to be pathogen-free.

Agent

Metformin

Category

Pharmaceutical

Common /trade name

Concentration of agent

50mg/ml

Dose administered

200mg/kg B . W

Volume administered

400ul

Route of Administration

OTHER

Other Route of Administration

ex vivo and added to preservation solution

Frequency of administration

once

Will this agent be modified?

Yes ○ No ◉

Please list all modifications to the agent

Is this a Pharmaceutical Grade Agent?

Yes ◉ No ○

Please justify the use of this agent and indicate how it is sterilized or determined to be pathogen-free.

Agent

Alpha 1 Anti-trypsin

Category

Agent

Common /trade name

Concentration of agent

1mg/ml

Dose administered

5mg/kg B W

Volume administered

5ml

Route of Administration

OTHER

Other Route of Administration

ex vivo and added to preservation solution

Frequency of administration

once

Will this agent be modified?

Yes ○ No ◉

Please list all modifications to the agent

Is this a Pharmaceutical Grade Agent?

Yes ○ No ◉

Please justify the use of this agent and indicate how it is sterilized or determined to be pathogen-free.

It will be filtered through 0.2 um filter.

Agent

Colchicine

Category

Chemical

Common /trade name

Concentration of agent

0.5mg/ml

Dose administered

2mg/kg B W

Volume administered

4ml

Route of Administration

OTHER

Other Route of Administration

ex vivo and added to preservation solution

Frequency of administration

once

Will this agent be modified?

Yes ○ No ◉

Please list all modifications to the agent

Is this a Pharmaceutical Grade Agent?

Yes ◉ No ○

Please justify the use of this agent and indicate how it is sterilized or determined to be pathogen-free.

Agent

Glyburide

Category

Agent

Common /trade name

Concentration of agent

Dose administered

500mg/Kg

Volume administered

Route of Administration

OTHER

Other Route of Administration

ex vivo and added to preservation solution

Frequency of administration

once

Will this agent be modified?

Yes ○ No ◉

Please list all modifications to the agent

Is this a Pharmaceutical Grade Agent?

Yes ◉ No ○

Please justify the use of this agent and indicate how it is sterilized or determined to be pathogen-free.

Agent

Chloroquine

Category

Chemical

Common /trade name

Concentration of agent

36mg/ml

Dose administered

50mg/ml

Volume administered

140ul

Route of Administration

OTHER

Other Route of Administration

ex vivo and added to preservation solution

Frequency of administration

once

Will this agent be modified?

Yes ○ No ◉

Please list all modifications to the agent

Is this a Pharmaceutical Grade Agent?

Yes ◉ No ○

Please justify the use of this agent and indicate how it is sterilized or determined to be pathogen-free.

Agent

Erythromycin

Category

Agent

Common /trade name

Concentration of agent

10mg/ml

Dose administered

57 mg/ Kg B W

Volume administered

570ul

Route of Administration

OTHER

Other Route of Administration

ex vivo and added to preservation solution

Frequency of administration

once

Will this agent be modified?

Yes ○ No ◉

Please list all modifications to the agent

Is this a Pharmaceutical Grade Agent?

Yes ◉ No ○

Please justify the use of this agent and indicate how it is sterilized or determined to be pathogen-free.

Agent

Roflumilast

Category

Agent

Common /trade name

Daliresp

Concentration of agent

1mg/ml

Dose administered

5mg/kg B W

Volume administered

5ml

Route of Administration

OTHER

Other Route of Administration

ex vivo and added to preservation solution

Frequency of administration

once

Will this agent be modified?

Yes ○ No ◉

Please list all modifications to the agent

Is this a Pharmaceutical Grade Agent?

Yes ◉ No ○

Please justify the use of this agent and indicate how it is sterilized or determined to be pathogen-free.

Please attach all requested documentation, as applicable, including:
Hazardous Materials Safety Questions Documents - If the classification of the agent selected requires it, please fill out and append the appropriate safety review sheet:

- Biological (http://www.uwo.ca/animal-research/doc/biological-questions.doc)
- Chemical/Pharmaceutical (http://www.uwo.ca/animal-research/doc/chem-pharm-questions.doc)
- Imaging & Laser (http://www.uwo.ca/animal-research/doc/imaging-laser-questions.doc)
- Nuclear/Radiation (http://www.uwo.ca/animal-research/doc/nuclear-radiation-questions.doc)

Material Safety Data Sheet (MSDS) or Equivalent - Occupational Health & Safety requires that you attach the current MSDS for each newly added agent as this is an essential element of safety review.

SOP List

Add all Standard Operating Procedures that will be followed within this AUP.

Go to the ACVS SOPs web page for SOP details - http://uwo.ca/animal-research/sops/index.html (http://uwo.ca/animal-research/sops/index.html)

SOP Name	Divergences
311 - Maximum Holding Period	
334 - Post-operative Care/post-anesthetic Care Lvl 4 Non-rodent	
356 - Post-operative Analgesia In Large Mammals	
Cln-320 - Methods Of Euthanasia	
Cln-322 - Criteria For Early Euthanasia In Mammals/non-rodents	
Cln-359 - Food And Water Restriction	
Cln-360 - Blood Collection Volumes Overview	

Select an SOP

311 - Maximum Holding Period

Are you following the SOP exactly?

Yes ◉ No ○

If you are not following the SOP exactly, please list and justify all divergences from the SOP

Select an SOP

334 - Post-operative Care/post-anesthetic Care Lvl 4 Non-rodent

Are you following the SOP exactly?

Yes ◉ No ○

If you are not following the SOP exactly, please list and justify all divergences from the SOP

Select an SOP

356 - Post-operative Analgesia In Large Mammals

Are you following the SOP exactly?

Yes ◉ No ○

If you are not following the SOP exactly, please list and justify all divergences from the SOP

Select an SOP

Cln-320 - Methods Of Euthanasia

Are you following the SOP exactly?

Yes ◉ No ○

If you are not following the SOP exactly, please list and justify all divergences from the SOP

Select an SOP

Cln-322 - Criteria For Early Euthanasia In Mammals/non-rodents

Are you following the SOP exactly?

Yes ◉ No ○

If you are not following the SOP exactly, please list and justify all divergences from the SOP

Select an SOP

Cln-359 - Food And Water Restriction

Are you following the SOP exactly?

Yes ◉ No ○

If you are not following the SOP exactly, please list and justify all divergences from the SOP

Select an SOP

Cln-360 - Blood Collection Volumes Overview

Are you following the SOP exactly?

Yes ◉ No ○

If you are not following the SOP exactly, please list and justify all divergences from the SOP

Procedures Checklist for Reporting and Training

Use the checklist below to identify all AUP elements to be used **with this species**. If none of the listed AUP elements pertain to this species, select *Not Applicable.

Entries selected here will be linked to other AUP pages, including Personnel Training Requirements and the eSirius Training Module where animal user training records are maintained. Therefore, please ensure that this list is complete.

Procedure Name
01. Blood Collection - Intracardiac
02. Blood Collection - All Other Sites (species-specific)
03. Injections - Iv
04. Injections - Sq

Procedure Name
05. Injections - Im
11. Cannulation - Iv
16. Anesthesia - Gas
17. Anesthetics - Injectable
18. Closed Endotracheal Intubation
19. Surgery - Recovery
20. Surgery - Non-recovery
21. Skin Incisions - Closure
22. Skin Incisions - No Closure
E. Surgical Fasting

Procedures Narrative

In view of the live animal activities identified within this AUP and listed below, provide a concise description of the procedural events identified within the **Groups and Timelines** page associated with this specific species.

The intent is to name and briefly describe the procedural events and associate them with each experimental group within this species.

Specific detail pertaining to drug dosage, monitoring, euthanasia/endpoint method, breeding, and physical restraint methods have been captured within other AUP sections, so they do not need to be described in detail here.

Species	Description
Pig	01. Blood Collection - Intracardiac
Pig	02. Blood Collection - All Other Sites (species-specific)
Pig	03. Injections - Iv
Pig	04. Injections - Sq
Pig	05. Injections - Im
Pig	11. Cannulation - Iv
Pig	16. Anesthesia - Gas
Pig	17. Anesthetics - Injectable
Pig	18. Closed Endotracheal Intubation
Pig	19. Surgery - Recovery
Pig	20. Surgery - Non-recovery
Pig	21. Skin Incisions - Closure

Species	Description
Pig	22. Skin Incisions - No Closure
Pig	E. Surgical Fasting
Pig	311 - Maximum Holding Period
Pig	334 - Post-operative Care/post-anesthetic Care Lvl 4 Non-rodent
Pig	356 - Post-operative Analgesia In Large Mammals
Pig	Cln-320 - Methods Of Euthanasia
Pig	Cln-322 - Criteria For Early Euthanasia In Mammals/non-rodents
Pig	Cln-359 - Food And Water Restriction
Pig	Cln-360 - Blood Collection Volumes Overview

Use the following formatting method to complete **each procedure listed** within this section:

1. **Bold Font for Procedure Name - e.g. Anesthesia**
2. *Italicized Font for Group Identifiers - e.g. Groups 1, 2, and 6*
3. Regular Font for Procedure Description - e.g. Animals will be placed in a clean cage for transport to the OR

Please note that the AUP will be returned for updates if this section does not align with the above formatting method.

Procedures Narrative

Anaesthetic regimes

Pig Aim 1 and 2

The pigs will be tranquilized with telazol reconstituted with xylazine (in case of bradycardia, atropine intramuscular injection is given) prior to transport to CSTAR LHSC University Campus. The animal will feel slight discomfort momentarily during the injection of Telazol. Once at CSTAR the animal is intubated using a 6.5-7.5 mm cuffed endotracheal tube and maintained on isoflurane. It will be ventilated at a rate of approximately 20 bpm and tidal volume of 10-15 ml/kg to maintain normal physiological end-tidal CO_2. ECG leads will be placed on the limbs. Temperature probe will be placed An intravenous line using lactated ringers will be placed in the marginal ear vein for fluid administration at a rate of 10 ml/kg/hour maintenance. The pulse oximeter is clipped to the tongue to measure oxygen saturation. The capnograph is connected in-line to monitor end-tidal CO_2. Blood gas analysis is available if required. On the right leg a 6 Fr sheath and dilator will be introduced using the Seldinger technique to provide continuous blood pressure parameters and on the left as well for further administration of fluids. The animal will be placed on a heated water blanket for heat preservation. All necessary precautions will be taken to monitor anesthesia and maintain a surgical plan of anesthesia.

Analgesic

Pig Aim 2

Pigs will be given one dose of buprenorphine as well as a fentanyl patch which will be applied transdermally. They will also receive long acting bupvicaine IM.

Organ Procurement

Pig Aim 1 and Aim 2

FOR EX VIVO PRESERVATION STUDIES: Kidneys will be procured from pigs euthanized from other projects if they are available. If they are not available, donor will be acquired specifically for this purpose. The donor will be prepped and draped in a routine fashion. A midline incision will be used for exposure. The kidney with the ureter will be dissected free from the retro peritoneum, leaving intact blood supply to the ureter. The ureter will then be divided. The renal vascular pedicle will be left as long as possible by freeing the renal artery and vein up to the aorta and vena cava. 3000 u heparin iv infusion will be given prior to clamping. The renal artery and vein will be clamped for 60 min (DCD) then ligated and cut. After nephrectomy, the donor renal artery will be cannulated immediately and flushed with preservation solution. For ex vivo preservation study - both kidneys are used and the donor is euthanized by blood drain under anesthesia. . Procured kidneys will be optimized ex vivo by using different preservation solutions (with or without optimizing agents) to reduce ischemic kidney injury during and after procurement.

FOR AUTOTRANSPLANT STUDIES: Each donor pig will serve as its own recipient. The procedure of kidney procurement will be exactly the same as described above except only the left kidney will be subjected to a 60min pedicle clamping, ligation and retrival. Abdomen will be closed with 0 PDS sutures. After procurement the donor may remain under anesthesia during the time that the kidney is undergoing "treatment" OR the donor may be recovered and later anesthetized for transplant. Kidney "treatment" will be as previously described using the best optimization method.

Renal Transplant

Pig Aim 2

Animals under general anesthesia will be prep'd and draped as routine. A midline incision will be exposed and the viscera rotated. Aorta and cava will be exposed. The common iliac artery will be used for the arterial anastomosis and the cava or right iliac vein will be used for venous anastomosis to the donor renal vein. 6.0 prolene will be used for the transplant. The ureter will be stented with a 14 cm double-j stent and the ureter anastomosed to the bladder with 5.0 PDS sutures in a refluxing fashion. A three layer surgical closure will be performed and the animal recovered. Anesthesia and analgesia will be done as outlined in procedures 1 and 2. In order to facilitate blood collection and fluid administration, an indwelling catheter with an access port will be placed into external jugular vein. An incision is made on the neck at the level of the jugular vein, and vein is isolated between 2-0 silk ties. A small venotomy will be made in the jugular vein between the two 2-0 silk ties and advanced proximally and a sterile catheter will be inserted and tied in place. The catheter line will be tunnelled underneath the skin and exiting out the back of the pigs neck.Once secure, the skin incision overtop of the jugular vein will be closed using 3-0 prolene stiches. The area behind the neck of the pig where the catheter exits will be closed using a purse string 0-prolene stich and the catheter fixed to the skin using 3-0 silk stiches. A protective covering will be fashioned overtop to minimize any potential of accidental pulling of the port. The animal will be housed in a cage. Blood and urine will be collected on day 0 (day of surgery), post op day 2,4,7; animals will be euthanized on day 7.

Blood Collection

Pig Aim1 and 2

Terminal blood collection (donor): Under anesthesia, the incision will be extended towards the chest to expose the heart. Direct cardiac puncture (using large bore cannulas connected to blood collection bags) will be used to drain the entire blood (Approx. 2 L) and collect it in special containers. after collecting entire blood kidneys will be taken out for futher experiments in the laboratory.

Routine Blood collection: 10ml of blood will be collected from the access port of the indwelling catheter in external jugular vein at time points outlined in the timelines.

Urine Collection

Pig Aim 2

Urine will be collected by an apparatus constructed of elastic, waterproof cloth, fabric fastener and a waterproof bag which was devised by Paulson and Cottrell for male swine (1984).

Injections

Pig Aim 1 and 2

IV injection: The pig will be restrained using a snare. Experimetal agents needed to be administered IV will be injected through the access port of indwelling catherter in jugular vein.

IM injection: The pig will be restrained using a snare. Use a spot on the neck just behind and below the ear, but in front of the shoulder. Inject only into clean, dry areas using a 16-20 gauge needle perpendicular to the injection site.

SQ injection: The pig will be restrained using a snare. The ideal injection site is approximately 25-75mm behind and on the level of the base of the ear, using a 16-20 gauge needle at a 45° angle. Slide needle under the skin away from the site of skin puncture before depositing the compound.

Euthanasia

Pig Aim 1 and 2

Euthanasia by exsanguination: Once full anesthesia (detailed in section)is confirmed, euthanasia will be performed of anesthetic pig by draining the entire blood (Approx. 1.5 L) Euthanasia by pentobarbital:For aim 2, donor pigs are euthanized with a lethal dose (150 mg/kg) of pentobarbital. Cardiac arrest will be confirmed by direct observation of the heart.

Procedural Consequences & Monitoring

From both the project overview & detail perspectives, identify and describe specific procedural or other/combined elements of this AUP that may produce pain, distress, or impairment - and identify all possible consequences - Behavioural, Physical, Biochemical, Physiological, and Reproductive - for this species.

Animals (non-recovery group) will undergo surgery to procure both kidney and collection of blood (approx. 2L) under general anesthesia and animal will not suffer from any sort of pain.

Animals underwent surgery (nephrectomy or transplantation) may be at risk for bleeding, sepsis and pain.

Volume loss may result from surgery.

Since this is a renal transplant survival model, renal impairment leading to uremia and electrolyte abnormality can occur. Renal impairment can cause nausea, vomiting, loss of appetite, and weight loss and cardiac dysfunction leading to physical impairment and death.

As in any complicated surgery, a certain percentage of mortality can happen. We expect it to be <0.5%. Although it is almost inevitable that the transplanted kidney has sustained some degree of ischemia-reperfusion injury, we believe less than 1% of pigs will develop uremia requiring euthanasia in advance of the endpoint.

Detail relief to be provided for each of the above-stated potential consequences, and, if relief is not planned, offer scientific justification for not doing so.

Regarding volume loss due to surgery, this will be replaced by iv saline bolus.

Regarding pain, it will be dealt with via analgesia.

Regarding animals with sepsis, significant weight loss (>15%), physical impairment or other endpoints listed in the monitoring sheet, animals will be euthanized and the transplant kidneys removed and blood recovered for analysis in transplant recipients.

Since nausea, vomiting and loss of appetite are some symptoms of uremia which are the results of severe damage to kidney, these symptoms combined with blood chemistry (BUN, creatinine etc.) will determine if euthanasia will be applied. Otherwise ACVS vet will be consulted for a treatment plan.

The CCAC and OMAFRA require that all AUPs include:

- a 'Monitoring Plan' to minimize animal pain, distress, or discomfort, and
- a plan for 'Early Euthanasia' for the purpose of emergency intervention in advance of the experimental endpoint.

As per UCAC's *Animal Care and Use Records Policy*, http://uwo.ca/animal-research/doc/ACU_Records.pdf (http://uwo.ca/animal-research/doc/ACU_Records.pdf) Animal Records, e.g. scoring sheets, procedure logs, anaesthetic and surgery records (except those involved in Field Studies) must be kept with the animals at all times.

Has a monitoring sheet used for determining interventions and early euthanasia endpoints been developed for this species, e.g. scoring sheets, anaesthetic record, surgery record.
If YES, please attach the monitoring sheet(s) below.

If NO, please complete the following checklist

Yes ◉ No ○

Weight -*When checked, this indicates that weights will be recorded*

☑

Food/Water Intake

☑

Behaviour

☑

Fecal/Urine Output

☑ **Body Condition Score**

☑ **Appearance**

☑ **Other Monitoring**

☑ **Please Specify Other Monitoring Type.**

BUN, Creatinine

For every individual monitoring element checked above:
Describe the frequency, Specify the intervention points including criteria for early euthanasia, Provide other relevant detail. If attached monitoring sheets capture this information, then indicate this here.

Weight: everytime we anaesthetize the animal
Food Intake: daily
Behaviour: daily
Urine Output: daily

All parameters on monitoring sheet are to be assessed and recorded daily with the exception of weight (at anesthetic procedures) and clinical chemistry values will be analyzed and recorded on day 0,2,4 and 7.

Please attach your monitoring sheets.

Endpoint Method Information

Endpoint Method
Drug-Agent Overdose
Exsanguination Under Anesthesia

Endpoint Method

Drug-Agent Overdose

CCAC Classification

Acceptable

This method is conditionally acceptable. Please provide sufficient justification for using this method. Please note that conditionally acceptable methods may require additional training prior to use.

At time of exsanguination, donor pigs are euthanized with a lethal dose (150 mg/kg) of pentobarbital. Cardiac arrest will be confirmed by direct observation of the heart.

Provide Additional experimental endpoint detail, as required

Aim 2: 7 days after the surgery, the recipient pig will be euthanized by overdose pentobarbital sodium injection.

Provide endpoint detail for animals not euthanized

For endpoint methods selected above that use drugs, please list them below, and include the dosage.

Drug	Dosage

Drug	Dosage
Pentobarbital Sodium	100mg/kg

Endpoint Method

Exsanguination Under Anesthesia

CCAC Classification

Acceptable

This method is conditionally acceptable. Please provide sufficient justification for using this method. Please note that conditionally acceptable methods may require additional training prior to use.

Provide Additional experimental endpoint detail, as required

Aim 1: Pig will be euthanized immediately after kidney retrieval and blood collection by exsanguination under anesthesia.

Provide endpoint detail for animals not euthanized

For endpoint methods selected above that use drugs, please list them below, and include the dosage.

Drug	Dosage

Animal Numbers Requested

With a view to the animal numbers disclosed on the **Groups and Timelines** web page, please provide your requested total four- and first-year animal numbers by Category of Invasiveness as well as justification for these numbers.

Please consider the activities selected for this species in the list below with a view to their combined impact upon an animal.

Species	Type	Description
Pig	Procedures	01. Blood Collection - Intracardiac
Pig	Procedures	02. Blood Collection - All Other Sites (species-specific)
Pig	Procedures	03. Injections - Iv
Pig	Procedures	04. Injections - Sq
Pig	Procedures	05. Injections - Im
Pig	Procedures	11. Cannulation - Iv
Pig	Procedures	16. Anesthesia - Gas
Pig	Procedures	17. Anesthetics - Injectable
Pig	Procedures	18. Closed Endotracheal Intubation
Pig	Procedures	19. Surgery - Recovery

Species	Type	Description
Pig	Procedures	20. Surgery - Non-recovery
Pig	Procedures	21. Skin Incisions - Closure
Pig	Procedures	22. Skin Incisions - No Closure
Pig	Procedures	E. Surgical Fasting
Pig	Surgery	311 - Maximum Holding Period
Pig	Surgery	334 - Post-operative Care/post-anesthetic Care Lvl 4 Non-rodent
Pig	Surgery	356 - Post-operative Analgesia In Large Mammals
Pig	Surgery	Cln-320 - Methods Of Euthanasia
Pig	Surgery	Cln-322 - Criteria For Early Euthanasia In Mammals/non-rodents
Pig	Surgery	Cln-359 - Food And Water Restriction
Pig	Surgery	Cln-360 - Blood Collection Volumes Overview

Please select the top Category of Invasiveness for this species and, for AUPs containing breeding colonies, please separate these numbers into the 'Z' category.

Categories of Invasiveness – Levels assigned to AUPs in accordance with CCAC policy. Experiments involving:

- **B -** Little or no discomfort or stress
- **C -** Minor stress or pain of short duration
- **D -** Moderate to severe distress or discomfort
- **E -** Procedures causing severe pain at or above the pain tolerance threshold of unanaesthetized conscious animals
- **Z -** Animals used for breeding purposes (internal letter designation to separate out breeding from research numbers - a CCAC requirement)

For more detail go to the CCAC Website:

http://www.ccac.ca/en_/standards/policies/policy-categories_of_invasiveness (http://www.ccac.ca/en_/standards/policies/policy-categories_of_invasiveness)

CCAC Category	4 YR #	1st YR #
B	0	0
C	0	0
D	60	0
E	0	0
Z	0	0

Justification for Number of Animals Requested

4 animals/ group (12 groups) will be used for Aim1.
12 animals will be used for Aim 2.

For statistical analysis and significance. We kept one extra in each group in case of technical difficulty and unexpected outcome in overall experimentation. The extra numbers of animals have already been reflected in the flow chart.

Personnel List

Complete the table below to include all individuals directly associated with animal-based science activities for this AUP. In this section personnel must be associated with the specific animal activities they will be involved with.

For Personnel Already Listed Below - Please highlight the table row containing each name, and then select the 'Edit Personnel' button to complete or update information.

Name	Role	Phone	Primary Email	HANDS ON?
Luke, Patrick W	Principal Investigator	519-614-2696	patrick.luke@lhsc.on.ca	No
Jiang, Jifu	PI Staff	641-94	jjiang2@uwo.ca	Yes
Daniels, Rachel	Researcher Staff Members	685-8500X32634	rachel.daniels@lhsc.on.ca	Yes
Bhattacharjee, Rabindranath	Researcher Staff Members	EXT. 32207	rbhatta4@uwo.ca	Yes
Sener, Alp	Researcher Staff Members	33352	alp.sener@lhsc.on.ca	No
Cadieux Pitre, Heather	Registered Lab Animal Technician	86746	vettech@uwo.ca	Yes
Murphy, Lara	Researcher Staff Members	36447	lara.murphy@lhsc.on.ca	Yes
Krawecki, Matthew	PI Staff	37500	matthew.krawecki@lhsc.on.ca	No
Mohamed, Mahms	PI Staff	36578	mahms.mohamed@lhsc.on.ca	No
Aquil, Shahid	Researcher Staff Members	34769	shahid.aquil@lhsc.on.ca	No
Skaro, Anton	Researcher Staff Members	34769	anton.skaro@lhsc.on.ca	No
Ruthirakanthan, Aushanth	Researcher Staff Members	34769	aruthira@uwo.ca	Yes
Sun, Qizhi (steven)	Researcher Staff Members	32207	qsun8@uwo.ca	Yes
Juriasingani, Smriti	Researcher Staff Members	34769	sjuriasi@uwo.ca	Yes
Zhang, Max	Researcher Staff Members	34769	maxzhang15@hotmail.com	Yes
Akbari, Masoud	Researcher Staff Members	34592	masoud.akbari@lhsc.on.ca	Yes
Patel, Sanjay	Researcher Staff Members	343-17	spatel55@uwo.ca	Yes
Cooke, Ashley	Researcher Staff Members		acooke25@uwo.ca	Yes
Al-Olgaili, Rafid	Researcher Staff Members	34779	rafid.al-olgaili@lhsc.on.ca	Yes
Siroen, Karen	Researcher Staff Members	365-78	Karen.Siroen@lhsc.on.ca	Yes
Lian, Dameng	Researcher Staff Members	329-84	dlian@uwo.ca	Yes

Name	Role	Phone	Primary Email	HANDS ON?
Hague, Nicole	Animal Health Technician	226-235-5557	mhague2@uwo.ca	Yes
Pettypiece, Hannah	Researcher Staff Members	35452	hannah_1590@hotmail.com	Yes
Mandurah, Moaath	Researcher Staff Members		moaath.mandurah@lhsc.on.ca	No
Levine, Max	Researcher Staff Members	34779	max.levine@lhsc.on.ca	
Sogutdelen, Emrullah	Researcher Staff Members		esogutde@uwo.ca	No
Seifi, Behjat	Researcher Staff Members		b-seifi@turns.ac.ir	No

Name

Luke, Patrick W

Role

Principal Investigator

Organization Department

Lawson Health Research Institute Lhsc-uh

Weekday Phone #

519-614-2696

Emergency Contact #

685-8500 PG18154

UWO or Lawson Email

patrick.luke@lhsc.on.ca

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ○ No ◉

Species Name	Type	Procedure Description
Pig	Procedures	01. Blood Collection - Intracardiac

Species Name	Type	Procedure Description
Pig	Procedures	02. Blood Collection - All Other Sites (species-specific)
Pig	Procedures	03. Injections - Iv
Pig	Procedures	04. Injections - Sq
Pig	Procedures	05. Injections - Im
Pig	Procedures	11. Cannulation - Iv
Pig	Procedures	16. Anesthesia - Gas
Pig	Procedures	17. Anesthetics - Injectable
Pig	Procedures	18. Closed Endotracheal Intubation
Pig	Procedures	19. Surgery - Recovery
Pig	Procedures	20. Surgery - Non-recovery
Pig	Procedures	21. Skin Incisions - Closure
Pig	Procedures	22. Skin Incisions - No Closure
Pig	Procedures	E. Surgical Fasting

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID
Assessment, Monitoring and Intervention	Behavioural responses of research animals in pain; how to assess; monitoring procedures	Internet-based Course		AMI
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course	01/01/2008	BACUEC
Gas Anaesthesia - Pigs		Demonstration		GASAPIG
Handling & Care - Pig	Introduction to species - includes behavior, health monitoring	Demonstration		HCPIG
Husbandry and Enrichment - Pig		Demonstration		HSBENPIG

Training Event	Description	Type	Date Certified	Training ID
Large Animal Module Unit Training - Pig	Tour and review of procedures specific to the unit and species.	Demonstration		LAMTNPIG
Sterile Injection Techniques	mandatory workshop involving injection techniques.	Demonstration		STINTECH

Name

Jiang, Jifu

Role

PI Staff

Organization Department

Lawson Health Research Institute Lhsc-uh

Weekday Phone #

641-94

Emergency Contact #

672-9871 7

UWO or Lawson Email

jjiang2@uwo.ca

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ◉ No ○

Species Name	Type	Procedure Description
Mouse	Procedures	16. Anesthesia - Gas
Mouse	Procedures	17. Anesthetics - Injectable
Mouse	Procedures	19. Surgery - Recovery
Mouse	Procedures	21. Skin Incisions - Closure

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Has animal training.

Training Event	Description	Type	Date Certified	Training ID
Aseptic Principals of Surgery - Mouse	Aseptic principals of surgery for mouse species.	Demonstration		APSMSE
Assessment, Monitoring and Intervention	Behavioural responses of research animals in pain; how to assess; monitoring procedures	Internet-based Course	05/25/2004	AMI
Decapitation Without Anesthesia - Mouse	Decapitation without the use of anesthesia for the mouse	Demonstration		DECWAMSE
Gas Anesthesia - Mouse	Principals of Gas Anesthesia in Mice including set-up, monitoring, record keeping and recovery.	Demonstration		GASAMSE
Handling & Care - Mouse	covers behaviour, moving mice, sexing, euthanasia and some scruffing. Students complete webcts: basic handling of rodents, and assessment, intervention and monitoring	Demonstration		HCMSE
Injectable Anesthesia - Mouse	Anesthesia principals, including set-up, monitoring, record keeping, control drug records and recovery.	Demonstration	05/03/2004	INANMSE

Name

Daniels, Rachel

Role

Researcher Staff Members

Organization Department

Lawson Health Research Institute Lhsc-uh

Weekday Phone #

685-8500X32634

Emergency Contact #

519-649-7840

UWO or Lawson Email

rachel.daniels@lhsc.on.ca

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ◉ No ○

Species Name	Type	Procedure Description
Pig	Procedures	01. Blood Collection - Intracardiac
Pig	Procedures	02. Blood Collection - All Other Sites (species-specific)
Pig	Procedures	03. Injections - Iv
Pig	Procedures	04. Injections - Sq
Pig	Procedures	05. Injections - Im
Pig	Procedures	11. Cannulation - Iv
Pig	Procedures	16. Anesthesia - Gas
Pig	Procedures	17. Anesthetics - Injectable
Pig	Procedures	18. Closed Endotracheal Intubation
Pig	Procedures	21. Skin Incisions - Closure
Pig	Procedures	22. Skin Incisions - No Closure
Pig	Procedures	E. Surgical Fasting

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Has animal training.

Training Event	Description	Type	Date Certified	Training ID
Assessment, Monitoring and Intervention	Behavioural responses of research animals in pain; how to assess; monitoring procedures	Internet-based Course	06/13/2003	AMI
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course	01/01/2008	BACUEC
Gas Anaesthesia - Pigs		Demonstration		GASAPIG
Handling & Care - Pig	Introduction to species - includes behavior, health monitoring	Demonstration	01/01/2009	HCPIG
Husbandry and Enrichment - Pig		Demonstration		HSBENPIG
Large Animal Module Unit Training - Pig	Tour and review of procedures specific to the unit and species.	Demonstration		LAMTNPIG
Sterile Injection Techniques	mandatory workshop involving injection techniques.	Demonstration		STINTECH

Name

Bhattacharjee, Rabindranath

Role

Researcher Staff Members

Organization Department

Lawson Health Research Institute Lhsc-uh

Weekday Phone #

EXT. 32207

Emergency Contact #

519-614-2696

UWO or Lawson Email

rbhatta4@uwo.ca

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes (●) No ( )

Species Name	Type	Procedure Description
Mouse	Procedures	16. Anesthesia - Gas
Mouse	Procedures	17. Anesthetics - Injectable
Mouse	Procedures	21. Skin Incisions - Closure
Pig	Procedures	03. Injections - Iv

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID
Aseptic Principals of Surgery - Mouse	Aseptic principals of surgery for mouse species.	Demonstration		APSMSE
Assessment, Monitoring and Intervention	Behavioural responses of research animals in pain; how to assess; monitoring procedures	Internet-based Course	07/17/2007	AMI
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course	01/01/2013	BACUEC
Decapitation Without Anesthesia - Mouse	Decapitation without the use of anesthesia for the mouse	Demonstration		DECWAMSE
Gas Anesthesia - Mouse	Principals of Gas Anesthesia in Mice including set-up, monitoring, record keeping and recovery.	Demonstration	06/21/2013	GASAMSE
Handling & Care - Mouse	covers behaviour, moving mice, sexing, euthanasia and some scruffing. Students complete webcts: basic handling of rodents, and assessment, intervention and monitoring	Demonstration		HCMSE
Handling & Care - Pig	Introduction to species - includes behavior, health monitoring	Demonstration		HCPIG

Training Event	Description	Type	Date Certified	Training ID
Husbandry and Enrichment - Pig		Demonstration		HSBENPIG
Injectable Anesthesia - Mouse	Anesthesia principals, including set-up, monitoring, record keeping, control drug records and recovery.	Demonstration		INANMSE
Large Animal Module Unit Training - Pig	Tour and review of procedures specific to the unit and species.	Demonstration		LAMTNPIG

Name

Sener, Alp

Role

Researcher Staff Members

Organization Department

Schulich School Of Medicine & Dentistry Microbiology & Immunology

Weekday Phone #

33352

Emergency Contact #

33352

UWO or Lawson Email

alp.sener@lhsc.on.ca

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ○ No ◉

Species Name	Type	Procedure Description

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course	01/01/2009	BACUEC

Name

Cadieux Pitre, Heather

Role

Registered Lab Animal Technician

Organization Department

Research Western Animal Care & Veterinary Services

Weekday Phone #

86746

Emergency Contact #

UWO or Lawson Email

vettech@uwo.ca

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ◉ No ○

Species Name	Type	Procedure Description
Pig	Euthanasia	Drug-Agent Overdose
Pig	Procedures	17. Anesthetics - Injectable

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID
Assessment, Monitoring and Intervention	Behavioural responses of research animals in pain; how to assess; monitoring procedures	Internet-based Course		AMI
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course		BACUEC
Handling & Care - Pig	Introduction to species - includes behavior, health monitoring	Demonstration		HCPIG
Husbandry and Enrichment - Pig		Demonstration		HSBENPIG
Large Animal Module Unit Training - Pig	Tour and review of procedures specific to the unit and species.	Demonstration		LAMTNPIG

Name

Murphy, Lara

Role

Researcher Staff Members

Organization Department

London Health Sciences Centre C-star

Weekday Phone #

36447

Emergency Contact #

519-282-0405

UWO or Lawson Email

lara.murphy@lhsc.on.ca

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ◉ No ○

Species Name	Type	Procedure Description

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course	01/01/2013	BACUEC

Name

Krawecki, Matthew

Role

PI Staff

Organization Department

London Health Sciences Centre C-star

Weekday Phone #

37500

Emergency Contact #

37500

UWO or Lawson Email

matthew.krawecki@lhsc.on.ca

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ○ No ◉

Species Name	Type	Procedure Description

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID

Name

Mohamed, Mahms

Role

PI Staff

Organization Department

Lawson Health Research Institute Lhsc-uh

Weekday Phone #

36578

Emergency Contact #

UWO or Lawson Email

mahms.mohamed@lhsc.on.ca

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ○ No ◉

Species Name	Type	Procedure Description

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID

Name

Aquil, Shahid

Role

Researcher Staff Members

Organization Department

Schulich School Of Medicine & Dentistry Surgery

Weekday Phone #

34769

Emergency Contact #

UWO or Lawson Email

shahid.aquil@lhsc.on.ca

Other Email

Copy this Individual on all Emails

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ○ No ◉

Species Name	Type	Procedure Description

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course	03/01/2019	BACUEC

Name

Skaro, Anton

Role

Researcher Staff Members

Organization Department

Schulich School Of Medicine & Dentistry Surgery

Weekday Phone #

34769

Emergency Contact #

UWO or Lawson Email

anton.skaro@lhsc.on.ca

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ○ No ◉

Species Name	Type	Procedure Description

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course		BACUEC

Name

Ruthirakanthan, Aushanth

Role

Researcher Staff Members

Organization Department

Schulich School Of Medicine & Dentistry Microbiology & Immunology

Weekday Phone #

34769

Emergency Contact #

UWO or Lawson Email

aruthira@uwo.ca

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ◉ No ○

Species Name	Type	Procedure Description
Mouse	Procedures	16. Anesthesia - Gas
Mouse	Procedures	17. Anesthetics - Injectable
Pig	Procedures	17. Anesthetics - Injectable

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID
Assessment, Monitoring and Intervention	Behavioural responses of research animals in pain; how to assess; monitoring procedures	Internet-based Course		AMI
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course	01/01/2017	BACUEC
Decapitation Without Anesthesia - Mouse	Decapitation without the use of anesthesia for the mouse	Demonstration		DECWAMSE

Training Event	Description	Type	Date Certified	Training ID
Gas Anesthesia - Mouse	Principals of Gas Anesthesia in Mice including set-up, monitoring, record keeping and recovery.	Demonstration	07/18/2017	GASAMSE
Handling & Care - Mouse	covers behaviour, moving mice, sexing, euthanasia and some scruffing. Students complete webcts: basic handling of rodents, and assessment, intervention and monitoring	Demonstration		HCMSE
Handling & Care - Pig	Introduction to species - includes behavior, health monitoring	Demonstration	07/10/2017	HCPIG
Husbandry and Enrichment - Pig		Demonstration		HSBENPIG
Injectable Anesthesia - Mouse	Anesthesia principals, including set-up, monitoring, record keeping, control drug records and recovery.	Demonstration	07/18/2017	INANMSE
Large Animal Module Unit Training - Pig	Tour and review of procedures specific to the unit and species.	Demonstration		LAMTNPIG

Name

Sun, Qizhi (steven)

Role

Researcher Staff Members

Organization Department

London Health Sciences Centre Urology

Weekday Phone #

32207

Emergency Contact #

2269841624

UWO or Lawson Email

qsun8@uwo.ca

Other Email

Steven.Sun@lhsc.on.ca

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ◉ No ○

Species Name	Type	Procedure Description
Mouse	Procedures	01. Blood Collection - Intracardiac
Mouse	Procedures	02. Blood Collection - All Other Sites (species-specific)
Mouse	Procedures	03. Injections - Iv
Mouse	Procedures	04. Injections - Sq
Mouse	Procedures	05. Injections - Im
Mouse	Procedures	06. Injections - Ip
Mouse	Procedures	16. Anesthesia - Gas
Mouse	Procedures	17. Anesthetics - Injectable
Mouse	Procedures	23. Oral Gavage
Pig	Procedures	02. Blood Collection - All Other Sites (species-specific)
Pig	Procedures	04. Injections - Sq

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID
Assessment, Monitoring and Intervention	Behavioural responses of research animals in pain; how to assess; monitoring procedures	Internet-based Course		AMI
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course	08/01/2017	BACUEC
Blood Collection Techniques - Mouse	Various blood collection methods in the mouse reviewed/practiced, including saphenous and tail nick.	Demonstration		BCTMSE
Decapitation Without Anesthesia - Mouse	Decapitation without the use of anesthesia for the mouse	Demonstration		DECWAMSE

Training Event	Description	Type	Date Certified	Training ID
Gas Anesthesia - Mouse	Principals of Gas Anesthesia in Mice including set-up, monitoring, record keeping and recovery.	Demonstration	09/14/2017	GASAMSE
Handling & Care - Mouse	covers behaviour, moving mice, sexing, euthanasia and some scruffing. Students complete webcts: basic handling of rodents, and assessment, intervention and monitoring	Demonstration		HCMSE
Handling & Care - Pig	Introduction to species - includes behavior, health monitoring	Demonstration		HCPIG
Husbandry and Enrichment - Pig		Demonstration		HSBENPIG
Injectable Anesthesia - Mouse	Anesthesia principals, including set-up, monitoring, record keeping, control drug records and recovery.	Demonstration	09/14/2017	INANMSE
Intracardiac Blood Collection - Mouse	Intra-cardiac blood collection reviewed and practised. with Iso or Co2.	Demonstration	04/24/2019	INCBLMSE
Intramuscular Injection Techniques - Mouse		Demonstration		IMITMSE
Intraperitoneal and Subcutaneous Injection Techniques - Mouse	IP and SQ sterile Injection techniques demonstrated and practiced in Mice.	Demonstration	08/01/2017	IPSCITMSE
Intravenous Injection Techniques - Mouse	IV tail vein injections demonstrated and practiced in mice.	Demonstration		IVITMSE
Large Animal Module Unit Training - Pig	Tour and review of procedures specific to the unit and species.	Demonstration		LAMTNPIG
Oral Gavage - Mouse		Demonstration		GAV-MSE
Sterile Injection Techniques	mandatory workshop involving injection techniques.	Demonstration		STINTECH

Name

Juriasingani, Smriti

Role

Researcher Staff Members

Organization Department

Schulich School Of Medicine & Dentistry Microbiology & Immunology

Weekday Phone #

34769

Emergency Contact #

UWO or Lawson Email

sjuriasi@uwo.ca

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ◉ No ○

Species Name	Type	Procedure Description
Mouse	Procedures	01. Blood Collection - Intracardiac
Mouse	Procedures	02. Blood Collection - All Other Sites (species-specific)
Mouse	Procedures	03. Injections - Iv
Mouse	Procedures	04. Injections - Sq
Mouse	Procedures	21. Skin Incisions - Closure
Mouse	Procedures	C. Metabolic Caging

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID
Aseptic Principals of Surgery - Mouse	Aseptic principals of surgery for mouse species.	Demonstration		APSMSE

Training Event	Description	Type	Date Certified	Training ID
Assessment, Monitoring and Intervention	Behavioural responses of research animals in pain; how to assess; monitoring procedures	Internet-based Course		AMI
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course	01/01/2017	BACUEC
Blood Collection Techniques - Mouse	Various blood collection methods in the mouse reviewed/practiced, including saphenous and tail nick.	Demonstration	10/31/2018	BCTMSE
Decapitation Without Anesthesia - Mouse	Decapitation without the use of anesthesia for the mouse	Demonstration		DECWAMSE
Gas Anesthesia - Mouse	Principals of Gas Anesthesia in Mice including set-up, monitoring, record keeping and recovery.	Demonstration	10/12/2018	GASAMSE
Handling & Care - Mouse	covers behaviour, moving mice, sexing, euthanasia and some scruffing. Students complete webcts: basic handling of rodents, and assessment, intervention and monitoring	Demonstration	10/04/2018	HCMSE
Intracardiac Blood Collection - Mouse	Intra-cardiac blood collection reviewed and practised. with Iso or Co2.	Demonstration		INCBLMSE
Intraperitoneal and Subcutaneous Injection Techniques - Mouse	IP and SQ sterile Injection techniques demonstrated and practiced in Mice.	Demonstration	10/12/2018	IPSCITMSE
Intravenous Injection Techniques - Mouse	IV tail vein injections demonstrated and practiced in mice.	Demonstration		IVITMSE
Sterile Injection Techniques	mandatory workshop involving injection techniques.	Demonstration		STINTECH

Name

Zhang, Max

Role

Researcher Staff Members

Organization Department

Schulich School Of Medicine & Dentistry Microbiology & Immunology

Weekday Phone #

34769

Emergency Contact #

UWO or Lawson Email

maxzhang15@hotmail.com

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ◉ No ○

Species Name	Type	Procedure Description
Mouse	Procedures	03. Injections - Iv
Mouse	Procedures	04. Injections - Sq

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID
Assessment, Monitoring and Intervention	Behavioural responses of research animals in pain; how to assess; monitoring procedures	Internet-based Course		AMI
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course	03/02/2018	BACUEC
Decapitation Without Anesthesia - Mouse	Decapitation without the use of anesthesia for the mouse	Demonstration		DECWAMSE
Handling & Care - Mouse	covers behaviour, moving mice, sexing, euthanasia and some scruffing. Students complete webcts: basic handling of rodents, and assessment, intervention and monitoring	Demonstration		HCMSE

Training Event	Description	Type	Date Certified	Training ID
Intraperitoneal and Subcutaneous Injection Techniques - Mouse	IP and SQ sterile Injection techniques demonstrated and practiced in Mice.	Demonstration		IPSCITMSE
Intravenous Injection Techniques - Mouse	IV tail vein injections demonstrated and practiced in mice.	Demonstration		IVITMSE
Sterile Injection Techniques	mandatory workshop involving injection techniques.	Demonstration		STINTECH

Name

Akbari, Masoud

Role

Researcher Staff Members

Organization Department

Schulich School Of Medicine & Dentistry Microbiology & Immunology

Weekday Phone #

34592

Emergency Contact #

UWO or Lawson Email

masoud.akbari@lhsc.on.ca

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ◉ No ○

Species Name	Type	Procedure Description
Mouse	Procedures	16. Anesthesia - Gas
Mouse	Procedures	17. Anesthetics - Injectable
Mouse	Procedures	19. Surgery - Recovery

Species Name	Type	Procedure Description
Mouse	Procedures	21. Skin Incisions - Closure
Pig	Procedures	17. Anesthetics - Injectable

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID
Aseptic Principals of Surgery - Mouse	Aseptic principals of surgery for mouse species.	Demonstration		APSMSE
Assessment, Monitoring and Intervention	Behavioural responses of research animals in pain; how to assess; monitoring procedures	Internet-based Course		AMI
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course	01/01/2017	BACUEC
Decapitation Without Anesthesia - Mouse	Decapitation without the use of anesthesia for the mouse	Demonstration		DECWAMSE
Gas Anesthesia - Mouse	Principals of Gas Anesthesia in Mice including set-up, monitoring, record keeping and recovery.	Demonstration		GASAMSE
Handling & Care - Mouse	covers behaviour, moving mice, sexing, euthanasia and some scruffing. Students complete webcts: basic handling of rodents, and assessment, intervention and monitoring	Demonstration		HCMSE
Handling & Care - Pig	Introduction to species - includes behavior, health monitoring	Demonstration		HCPIG
Husbandry and Enrichment - Pig		Demonstration		HSBENPIG
Injectable Anesthesia - Mouse	Anesthesia principals, including set-up, monitoring, record keeping, control drug records and recovery.	Demonstration		INANMSE

Training Event	Description	Type	Date Certified	Training ID
Large Animal Module Unit Training - Pig	Tour and review of procedures specific to the unit and species.	Demonstration		LAMTNPIG

Name

Patel, Sanjay

Role

Researcher Staff Members

Organization Department

Schulich School Of Medicine & Dentistry Microbiology & Immunology

Weekday Phone #

343-17

Emergency Contact #

UWO or Lawson Email

spatel55@uwo.ca

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ◉ No ○

Species Name	Type	Procedure Description
Mouse	Procedures	16. Anesthesia - Gas
Mouse	Procedures	17. Anesthetics - Injectable
Mouse	Procedures	19. Surgery - Recovery
Mouse	Procedures	21. Skin Incisions - Closure
Pig	Procedures	17. Anesthetics - Injectable

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID
Aseptic Principals of Surgery - Mouse	Aseptic principals of surgery for mouse species.	Demonstration		APSMSE
Assessment, Monitoring and Intervention	Behavioural responses of research animals in pain; how to assess; monitoring procedures	Internet-based Course	01/01/2004	AMI
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course	01/01/2004	BACUEC
Decapitation Without Anesthesia - Mouse	Decapitation without the use of anesthesia for the mouse	Demonstration		DECWAMSE
Gas Anesthesia - Mouse	Principals of Gas Anesthesia in Mice including set-up, monitoring, record keeping and recovery.	Demonstration		GASAMSE
Handling & Care - Mouse	covers behaviour, moving mice, sexing, euthanasia and some scruffing. Students complete webcts: basic handling of rodents, and assessment, intervention and monitoring	Demonstration		HCMSE
Handling & Care - Pig	Introduction to species - includes behavior, health monitoring	Demonstration	01/29/2018	HCPIG
Husbandry and Enrichment - Pig		Demonstration		HSBENPIG
Injectable Anesthesia - Mouse	Anesthesia principals, including set-up, monitoring, record keeping, control drug records and recovery.	Demonstration		INANMSE
Large Animal Module Unit Training - Pig	Tour and review of procedures specific to the unit and species.	Demonstration		LAMTNPIG

Name

Cooke, Ashley

Role

Researcher Staff Members

Organization Department

London Health Sciences Centre C-star

Weekday Phone #

Emergency Contact #

UWO or Lawson Email

acooke25@uwo.ca

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ◉ No ○

Species Name	Type	Procedure Description
Mouse	Procedures	C. Metabolic Caging

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID
Assessment, Monitoring and Intervention	Behavioural responses of research animals in pain; how to assess; monitoring procedures	Internet-based Course		AMI

Training Event	Description	Type	Date Certified	Training ID
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course	01/01/2015	BACUEC
Decapitation Without Anesthesia - Mouse	Decapitation without the use of anesthesia for the mouse	Demonstration		DECWAMSE
Handling & Care - Mouse	covers behaviour, moving mice, sexing, euthanasia and some scruffing. Students complete webcts: basic handling of rodents, and assessment, intervention and monitoring	Demonstration	11/10/2015	HCMSE

Name

Al-Olgaili, Rafid

Role

Researcher Staff Members

Organization Department

London Health Sciences Centre Urology

Weekday Phone #

34779

Emergency Contact #

UWO or Lawson Email

rafid.al-olgaili@lhsc.on.ca

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ◉ No ○

Species Name	Type	Procedure Description
Pig	Procedures	01. Blood Collection - Intracardiac

Species Name	Type	Procedure Description
Pig	Procedures	02. Blood Collection - All Other Sites (species-specific)
Pig	Procedures	03. Injections - Iv
Pig	Procedures	04. Injections - Sq
Pig	Procedures	05. Injections - Im
Pig	Procedures	11. Cannulation - Iv
Pig	Procedures	16. Anesthesia - Gas
Pig	Procedures	17. Anesthetics - Injectable
Pig	Procedures	18. Closed Endotracheal Intubation
Pig	Procedures	21. Skin Incisions - Closure
Pig	Procedures	22. Skin Incisions - No Closure
Pig	Procedures	E. Surgical Fasting

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID
Assessment, Monitoring and Intervention	Behavioural responses of research animals in pain; how to assess; monitoring procedures	Internet-based Course		AMI
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course		BACUEC
Gas Anaesthesia - Pigs		Demonstration		GASAPIG
Handling & Care - Pig	Introduction to species - includes behavior, health monitoring	Demonstration		HCPIG
Husbandry and Enrichment - Pig		Demonstration		HSBENPIG
Large Animal Module Unit Training - Pig	Tour and review of procedures specific to the unit and species.	Demonstration		LAMTNPIG

Training Event	Description	Type	Date Certified	Training ID
Sterile Injection Techniques	mandatory workshop involving injection techniques.	Demonstration		STINTECH

Name

Siroen, Karen

Role

Researcher Staff Members

Organization Department

Schulich School Of Medicine & Dentistry Surgery

Weekday Phone #

365-78

Emergency Contact #

672-0608

UWO or Lawson Email

Karen.Siroen@lhsc.on.ca

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ◉ No ○

Species Name	Type	Procedure Description
Pig	Procedures	01. Blood Collection - Intracardiac
Pig	Procedures	02. Blood Collection - All Other Sites (species-specific)
Pig	Procedures	03. Injections - Iv
Pig	Procedures	04. Injections - Sq
Pig	Procedures	05. Injections - Im
Pig	Procedures	11. Cannulation - Iv

Species Name	Type	Procedure Description
Pig	Procedures	16. Anesthesia - Gas
Pig	Procedures	17. Anesthetics - Injectable
Pig	Procedures	18. Closed Endotracheal Intubation
Pig	Procedures	21. Skin Incisions - Closure
Pig	Procedures	22. Skin Incisions - No Closure
Pig	Procedures	E. Surgical Fasting

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

UWO ACVS WebCTs

Karen has extensive anesthesia experience with pigs.

Training Event	Description	Type	Date Certified	Training ID
Assessment, Monitoring and Intervention	Behavioural responses of research animals in pain; how to assess; monitoring procedures	Internet-based Course	06/07/2004	AMI
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course	01/01/2009	BACUEC
Gas Anaesthesia - Pigs		Demonstration		GASAPIG
Handling & Care - Pig	Introduction to species - includes behavior, health monitoring	Demonstration	01/01/2009	HCPIG
Husbandry and Enrichment - Pig		Demonstration		HSBENPIG
Large Animal Module Unit Training - Pig	Tour and review of procedures specific to the unit and species.	Demonstration		LAMTNPIG
Sterile Injection Techniques	mandatory workshop involving injection techniques.	Demonstration	11/03/2004	STINTECH

Name

Lian, Dameng

Role

Researcher Staff Members

Organization Department

Lawson Health Research Institute Lhsc-uh

Weekday Phone #

329-84

Emergency Contact #

675-9901

UWO or Lawson Email

dlian@uwo.ca

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ◉ No ○

Species Name	Type	Procedure Description
Mouse	Procedures	16. Anesthesia - Gas
Mouse	Procedures	17. Anesthetics - Injectable
Mouse	Procedures	19. Surgery - Recovery
Mouse	Procedures	21. Skin Incisions - Closure
Mouse	Procedures	23. Oral Gavage

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Has animal training.

Training Event	Description	Type	Date Certified	Training ID
Aseptic Principals of Surgery - Mouse	Aseptic principals of surgery for mouse species.	Demonstration		APSMSE
Assessment, Monitoring and Intervention	Behavioural responses of research animals in pain; how to assess; monitoring procedures	Internet-based Course	02/05/2007	AMI
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course	01/01/2007	BACUEC
Decapitation Without Anesthesia - Mouse	Decapitation without the use of anesthesia for the mouse	Demonstration		DECWAMSE
Gas Anesthesia - Mouse	Principals of Gas Anesthesia in Mice including set-up, monitoring, record keeping and recovery.	Demonstration		GASAMSE
Handling & Care - Mouse	covers behaviour, moving mice, sexing, euthanasia and some scruffing. Students complete webcts: basic handling of rodents, and assessment, intervention and monitoring	Demonstration	10/19/2001	HCMSE
Injectable Anesthesia - Mouse	Anesthesia principals, including set-up, monitoring, record keeping, control drug records and recovery.	Demonstration	11/22/2001	INANMSE
Intramuscular Injection Techniques - Mouse		Demonstration		IMITMSE
Intraperitoneal and Subcutaneous Injection Techniques - Mouse	IP and SQ sterile Injection techniques demonstrated and practiced in Mice.	Demonstration	05/24/2002	IPSCITMSE
Oral Gavage - Mouse		Demonstration		GAV-MSE
Sterile Injection Techniques	mandatory workshop involving injection techniques.	Demonstration	05/17/2002	STINTECH

Name

Hague, Nicole

Role

Animal Health Technician

Organization Department

Schulich School Of Medicine & Dentistry Medical Biophysics

Weekday Phone #

226-235-5557

Emergency Contact #

519-432-5213

UWO or Lawson Email

mhague2@uwo.ca

Other Email

NHAGUE07@GMAIL.COM

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ◉ No ○

Species Name	Type	Procedure Description
Pig	Procedures	01. Blood Collection - Intracardiac
Pig	Procedures	02. Blood Collection - All Other Sites (species-specific)
Pig	Procedures	03. Injections - Iv
Pig	Procedures	04. Injections - Sq
Pig	Procedures	05. Injections - Im
Pig	Procedures	11. Cannulation - Iv
Pig	Procedures	16. Anesthesia - Gas
Pig	Procedures	17. Anesthetics - Injectable
Pig	Procedures	18. Closed Endotracheal Intubation
Pig	Procedures	21. Skin Incisions - Closure
Pig	Procedures	22. Skin Incisions - No Closure
Pig	Procedures	E. Surgical Fasting

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID
Assessment, Monitoring and Intervention	Behavioural responses of research animals in pain; how to assess; monitoring procedures	Internet-based Course	01/01/2009	AMI
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course	02/11/2019	BACUEC
Gas Anaesthesia - Pigs		Demonstration		GASAPIG
Handling & Care - Pig	Introduction to species - includes behavior, health monitoring	Demonstration		HCPIG
Husbandry and Enrichment - Pig		Demonstration	12/05/2003	HSBENPIG
Large Animal Module Unit Training - Pig	Tour and review of procedures specific to the unit and species.	Demonstration		LAMTNPIG
Sterile Injection Techniques	mandatory workshop involving injection techniques.	Demonstration	05/17/2004	STINTECH

Name

Pettypiece, Hannah

Role

Researcher Staff Members

Organization Department

Research Western Animal Care & Veterinary Services

Weekday Phone #

35452

Emergency Contact #

UWO or Lawson Email

hannah_1590@hotmail.com

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ◉ No ○

Species Name	Type	Procedure Description
Pig	Procedures	01. Blood Collection - Intracardiac
Pig	Procedures	02. Blood Collection - All Other Sites (species-specific)
Pig	Procedures	03. Injections - Iv
Pig	Procedures	04. Injections - Sq
Pig	Procedures	05. Injections - Im
Pig	Procedures	11. Cannulation - Iv
Pig	Procedures	16. Anesthesia - Gas
Pig	Procedures	17. Anesthetics - Injectable
Pig	Procedures	18. Closed Endotracheal Intubation
Pig	Procedures	21. Skin Incisions - Closure
Pig	Procedures	22. Skin Incisions - No Closure
Pig	Procedures	E. Surgical Fasting

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Vet Technician

Training Event	Description	Type	Date Certified	Training ID
Assessment, Monitoring and Intervention	Behavioural responses of research animals in pain; how to assess; monitoring procedures	Internet-based Course		AMI
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course	01/01/2012	BACUEC
Gas Anaesthesia - Pigs		Demonstration		GASAPIG
Handling & Care - Pig	Introduction to species - includes behavior, health monitoring	Demonstration	01/01/2014	HCPIG
Husbandry and Enrichment - Pig		Demonstration		HSBENPIG

Training Event	Description	Type	Date Certified	Training ID
Large Animal Module Unit Training - Pig	Tour and review of procedures specific to the unit and species.	Demonstration		LAMTNPIG
Sterile Injection Techniques	mandatory workshop involving injection techniques.	Demonstration		STINTECH

Name

Mandurah, Moaath

Role

Researcher Staff Members

Organization Department

London Health Sciences Centre Urology

Weekday Phone #

Emergency Contact #

UWO or Lawson Email

moaath.mandurah@lhsc.on.ca

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ○ No ◉

Species Name	Type	Procedure Description

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course		BACUEC

Name

Levine, Max

Role

Researcher Staff Members

Organization Department

London Health Sciences Centre Urology

Weekday Phone #

34779

Emergency Contact #

UWO or Lawson Email

max.levine@lhsc.on.ca

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ○ No ○

Species Name	Type	Procedure Description

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course		BACUEC

Name

Sogutdelen, Emrullah

Role

Researcher Staff Members

Organization Department

London Health Sciences Centre Urology

Weekday Phone #

Emergency Contact #

UWO or Lawson Email

esogutde@uwo.ca

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ○ No ◉

Species Name	Type	Procedure Description

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course		BACUEC

Name

Seifi, Behjat

Role

Researcher Staff Members

Organization Department

London Health Sciences Centre Urology

Weekday Phone #

Emergency Contact #

UWO or Lawson Email

b-seifi@turns.ac.ir

Other Email

Copy this Individual on all Emails

☐

CCAC-Mandated Training Requirements – As per MAPP 7.10, each person working with live animals requires training that aligns with his/her hands-on animal activity.

At minimum, all individuals listed within this AUP must complete the *Basic Care and Use* online 'animal ethics' course.

The requirement for additional online training, hands-on workshops or competency assessments will be determined by the species and animal procedures associated with each individual as well as his/her previous Canadian training and experience.

For further information, please contact training@uwo.ca (mailto:training@uwo.ca).

Will person be handling animal species?

Yes ○ No ◉

Species Name	Type	Procedure Description

Based upon elements selected in the previous 'Personnel Activities' tab for this individual, below is a list of all required training activities - online OWL modules and/or hands-on workshops. Training activities listed below with dates indicates completion of that specific training element.

Please contact training@uwo.ca for further details.

Degrees

Experience and Qualifications

Training Event	Description	Type	Date Certified	Training ID
Basic Animal Care & Use Ethics Course	ethics, regulations, 3 Rs, SOPs, safety. Species specific animal care, housing, EE, etc.	Internet-based Course		BACUEC

Protocol Attachments

The following is a list of all attachments listed on this Protocol

File Name	Description	Original File Name
2018-178_1_0001_2018-178_MSC_20160208_Chloroquine_SDS.pdf (https://esirius.uwo.ca/eSirius3g/attachment/2018-178_1_0001_2018-178_MSC_20160208_Chloroquine_SDS.pdf)	Chloroquine SDS	2018-178_MSC_20160208_Chloroquine_SDS.pdf
2018-178_1_0001_2018-178_MSC_Colchicine_SDS.pdf (https://esirius.uwo.ca/eSirius3g/attachment/2018-178_1_0001_2018-178_MSC_Colchicine_SDS.pdf)	Colchicine SDS	2018-178_MSC_Colchicine_SDS.pdf
2018-178_1_0001_mouse monitoring plan_P1.pdf (https://esirius.uwo.ca/eSirius3g/attachment/2018-178_1_0001_mouse monitoring plan_P1.pdf)	Mouse monitoring plan-P1	mouse monitoring plan_P1.pdf
2018-178_1_0001_Mouse monitoring plan_P2.pdf (https://esirius.uwo.ca/eSirius3g/attachment/2018-178_1_0001_Mouse monitoring plan_P2.pdf)	Mouse monitoring plan-P2	Mouse monitoring plan_P2.pdf
2018-178_1_0001_2018-178_MSC_Colchicine_SDS.pdf (https://esirius.uwo.ca/eSirius3g/attachment/2018-178_1_0001_2018-178_MSC_Colchicine_SDS.pdf)	Colchicine SDS	2018-178_MSC_Colchicine_SDS.pdf
2018-178_1_0001_2018-178_MSC_20160208_Chloroquine_SDS.pdf (https://esirius.uwo.ca/eSirius3g/attachment/2018-178_1_0001_2018-178_MSC_20160208_Chloroquine_SDS.pdf)	Chloroquine SDS	2018-178_MSC_20160208_Chloroquine_SDS.pdf
2018-178_1_0001_2018-178_MSC_CO_SDS.pdf (https://esirius.uwo.ca/eSirius3g/attachment/2018-178_1_0001_2018-178_MSC_CO_SDS.pdf)	CO SDS	2018-178_MSC_CO_SDS.pdf
2018-178_1_0001_Luke, PP_mouse number and timeline -20190212.pptx (https://esirius.uwo.ca/eSirius3g/attachment/2018-178_1_0001_Luke, PP_mouse number and timeline -20190212.pptx)	mouse number and timeline	Luke, PP_mouse number and timeline -20190212.pptx

File Name	Description	Original File Name
2018-178_1_0001_Luke, PP_pig number and timeline -20190212.pptx (https://esirius.uwo.ca/eSirius3g/attachment/2018-178_1_0001_Luke, PP_pig number and timeline -20190212.pptx)	pig number and timeline	Luke, PP_pig number and timeline -20190212.pptx
2018-178_1_0001_Luke_ Post op monitoring - pig-20190213.doc (https://esirius.uwo.ca/eSirius3g/attachment/2018-178_1_0001_Luke_ Post op monitoring - pig-20190213.doc)	Pig monitoring sheet	Luke_ Post op monitoring - pig-20190213.doc
2018-178_1_0001_Pig intra-operative anesthetic monitoring sheet.pdf (https://esirius.uwo.ca/eSirius3g/attachment/2018-178_1_0001_Pig intra-operative anesthetic monitoring sheet.pdf)	Intra-operative anesthetic monitoring sheet	Pig intra-operative anesthetic monitoring sheet.pdf
2018-178_1_0001_Isoflurane Safety.doc (https://esirius.uwo.ca/eSirius3g/attachment/2018-178_1_0001_Isoflurane Safety.doc)	Isoflurane Safety Form	Isoflurane Safety.doc
2018-178_1_0001_Isoflurane Baxter MSDS 2016.pdf (https://esirius.uwo.ca/eSirius3g/attachment/2018-178_1_0001_Isoflurane Baxter MSDS 2016.pdf)	SDS	Isoflurane Baxter MSDS 2016.pdf
2018-178_1_0001_Colchicine Safety Form.doc (https://esirius.uwo.ca/eSirius3g/attachment/2018-178_1_0001_Colchicine Safety Form.doc)	Colchicine Safety Form	Colchicine Safety Form.doc
2018-178_1_0001_Chloroquine Safety Form.doc (https://esirius.uwo.ca/eSirius3g/attachment/2018-178_1_0001_Chloroquine Safety Form.doc)	Chloroquine Safety Form	Chloroquine Safety Form.doc
2018-178_1_0001_Isoflurane Safety.doc (https://esirius.uwo.ca/eSirius3g/attachment/2018-178_1_0001_Isoflurane Safety.doc)	Safety Form	Isoflurane Safety.doc
2018-178_1_0001_Isoflurane Baxter MSDS 2016.pdf (https://esirius.uwo.ca/eSirius3g/attachment/2018-178_1_0001_Isoflurane Baxter MSDS 2016.pdf)	SDS	Isoflurane Baxter MSDS 2016.pdf
2018-178_1_0001_Colchicine Safety Form.doc (https://esirius.uwo.ca/eSirius3g/attachment/2018-178_1_0001_Colchicine Safety Form.doc)	Colchicine Safety Form	Colchicine Safety Form.doc
2018-178_1_0001_Chloroquine Safety Form.doc (https://esirius.uwo.ca/eSirius3g/attachment/2018-178_1_0001_Chloroquine Safety Form.doc)	Chloroquine Safety Form	Chloroquine Safety Form.doc
2018-178_1_0001_Carbon Monoxide Safety Form.doc (https://esirius.uwo.ca/eSirius3g/attachment/2018-178_1_0001_Carbon Monoxide Safety Form.doc)	CO Safety Form	Carbon Monoxide Safety Form.doc

Amendment Reason

Protocol Number

2018-178

Protocol Version

2

Protocol Title

Preservation and protection of donor kidneys from ischemia reperfusion injury by repositioning anti-inflammatory drugs for transplantation

Approve Date

03/01/2019

Expiration Date

03/01/2023

Full Name

Luke, Patrick W

Reason for Change

add personnel