Guidelines for Standard Operating Procedures in the Daugherty Laboratory
University of Kentucky

Updated August, 2014

Preamble

We are striving for a productive and compliant research environment. Some elements of this environment include:

A. A lab that is organized in a cooperative manner.
B. Experiments that are thoughtfully planned in advance.
C. Transparent and standardized documentation of data.
D. A common mode of communication within the lab.

Laboratory Organization

The lab is organized on a workstation basis with all areas being considered common. Therefore, performing studies may require forward planning to ensure space and equipment availability. This communal organization requires that users of common space clean the area immediately after use.

Experimental Planning

Good scientific practice requires development of a complete written experimental plan prior to starting a study. These designs need to be read and approved by all people who are involved in the study prior to starting the study. Some elements of an appropriate experimental design include:

A. A study name
B. A complete listing of all reagents and procedures
C. Timing of each procedure
D. Definition of people needed to assist each procedure

Maintenance of Data Records

Data books need to be easily comprehended by anybody in the lab (and any outside inspectors!).

1. A daily record (Notebook) must be maintained that provides a bare-bone description of what was accomplished. Despite brief, it needs specific information to identify a study (For example, “Athero measurements for LDLR AngII S1a; N=20”...) *If this information is not placed on the book on that day, the notes should be annotated with the date they were entered into the book.*
2. All data reports should satisfy the following criteria
    A. Why was the study performed? (This should be unique for each study.)
    B. How was the study performed? (This means all specific details.)
    C. What is the interpretation of the study?

    For some studies, there should also be comments on what the next experiment is.
3. Data storage (in ring binders and on the server) should be organized, labeled, and indexed in a manner that facilitates data retrieval.
    Ring binders should have:
        Data separated on a thematic base
        Spine notes that include
            1. Aim and name of study
            2. Name of responsible individual
4. To facilitate the standardization and analysis of data, and the development of manuscripts and grants, all lab members should use the same software. These are:

Spreadsheets:	Quattro Pro or Excel
Statistics:	SigmaPlot
Graphs:	SigmaPlot
Slides:	Powerpoint
Word processing:	WordPerfect

5. Computer files should be maintained on the network. (The network is backed up every 24 hours.)
6. Original data books should NEVER leave the laboratory. Only copies of data can be taken off site (electronic or hardcopy).
7 . AD looks over both the notebook and data sheets on a weekly basis. Prior to books being given to AD each week, another person will review the note book and data sheets.

Experimental Protocols

For coherence of lab studies, experiments need to be performed using an accepted protocol. If a protocol needs to be amended, the lab member needs to rewrite this, and make sure everyone is aware of the new changes in case they have "private" copies that need to be changed. If a member is evolving a new technique, once this becomes standardized, it should be written using the AD lab format (Title, Materials, Procedure, Reference, File name). Referencing other protocols is acceptable, but must include file names of the referenced protocol.

All protocols and associated forms should be accessible on SharePoints. If no protocol and/or reporting form is available, it is the responsibility for the initiating person to complete this task.

Regulatory - Animals

1. Current approved protocols are posted on the lab SharePoints site - http://cvrc.med.uky.edu/cvrc-sharepoint-sites
2. IACUC personnel approval must be obtained for the trainee first (see IACUC and DLAR web page for information, tests and forms).
3. The IACUC protocol must be read and understood prior to any specific procedure being performed on an animal. Each lab member must be listed on an IACUC that has each procedure to be performed.
4. All breeding of mice will be done by JM, AB, or DR.
5. All mouse order forms must be approved by DR, HL or AD.

Regulatory - Chemical Hygiene

1. Current approved protocols are posted on the lab SharePoints site - http://cvrc.med.uky.edu/cvrc-sharepoint-sites
2. There is both a specific laboratory hygiene plan and a general University policy.

Regulatory - Radiation Safety

Handling of any radioactive material is not permitted without successfully passing the Radiation safety test. All general rules pertaining to use of radiation should be covered by this test. The specific requirements of the lab will be discussed by the person with designated responsibility. There is collective responsibility of all registered users for wipe tests and disposal of RAM.

Scheduling and Communication

1. Outlook UK e-mail address is the standard manner of electronic communication. UK e-mail should be checked each day.
2. Use the Outlook calendar to plan your week. Plan your next week on Fridays. Please have your weekly calendar included with your lab notebook.
3. Use Outlook calendar invite to communicate any assistance required to the staff.
4. All lab meeting presentations should be stored on adlab\AD Lab meeting presentations

Computers

1. Computers are considered a shared resource. Therefore, all computers will be set up in a standardized format.

2. No non-licensed software can be loaded on any AD lab computer.
3. No software should be downloaded that will adversely affect the computer performance.

Ordering

All order forms must be signed by DR, HL, or AD (restricted to non Federal), and only AD assigns a fund. It is each lab member's responsibility to maintain adequate stocks of all reagents. Opening the last box of a reagent constituents a responsibility to re-order that reagent. The order must be written by the individual requesting the reagent.

Manuscripts

1. All manuscripts are stored on the server in the following folders:
   IN PREPARATION - A folder for each manuscript with a descriptive name
   SUBMITTED - needs to include a folder with source files for all data prior to submission.
   PUBLISHED and archives - arranged by journal name.
2. Style and format. AD will be the final editor of manuscript style and format. AD will ensure consistency of the lab format and adherence to "instructions to authors". All non-specified formatting (fonts, paragraph style, figures, and tables) will be kept consistent for both text and figures. Formatting within a document should be kept to a minimum.
3. Guidelines for authorship and order of authorship. Guidelines for authorship include a significant involvement in at least one component of the conception, execution, analysis, and manuscript writing of the study. Order of authors is usually determined by the extent of contribution. For a person to be first author would require that they have performed the major technical part of the study AND write at least a first draft of all major sections of a manuscript (Abstract, Introduction, Methods, Results, Discussion, References, Figures, Figure Legends). All authors need to be able to discuss the general overview of the manuscript.
4. Corresponding author. Because the responsibility for overall scientific direction, integrity, and financial management rests with the principal investigator, AD will be the corresponding author on any manuscript originated from his lab.
5. Writing responsibility. The ultimate content of manuscripts is the responsibility of AD. To facilitate efficient writing of manuscripts, the first draft should contain Methods, Results, Figure Legends, and Figures. The next draft should contain an attempt at all sections.

Grants

Grant applications have to adhere to the following deadlines:

1. Initial draft of hypothesis and specific aims - 2 months ahead of submission date.
2. Initial draft of all administrative forms - deliver to Darin 2 weeks ahead of submission.

Failure to adhere to these deadlines may lead to the Institute being under no obligation to submit the application. The economic implications will be the responsibility of the applicant.

Presentations

All presentations are stored on the server and may be freely used by all members of the lab. There is a standard format for development of PowerPoint slides.

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Designated Responsibilities

Room/Area	Description of Use of room/area	Contact		
		Primary	Secondary	Other
206-1 to 4	Pathology	DH	AB	
206-5	Dissection	DH	AB	
206-6	Protein	DR	VS	
206-7	Molecular	JM	AB	
206-8	Cell culture	VS	DR	
206C	Microscope	DH	HL	
205	Cold room	AB	DH	
211	Storage room	AB	JM	

Processes or Reagents	Contact		
	Primary	Secondary	Other
Anesthetic solutions	AB	DH	JM
AngII and osmotic pump stock	DR	HL	
Antibody stocks	DH	HL	
cDNA stocks	DR	HL	
Cell Culture, supplies and sera	VS	DR	
Chemical listings	JM	HL	
Computers - Calling IT Help - 3-8586	Individual		
DEA regulatory/licensing	JM		
ELISA kit stock	HL		
Equipment manuals	DR		
Freezer/refrigerator organization	DH	HL	AB
IACUC	DR	HL	AD
IRB	DR	DC	
Irradiation	JM	AB	DR
Lab Order	AB	JM	
Lab Safety/OSHA requirements	HL	DR	AD
Mouse colony management	JM	AB	DR
Office supplies	JM	DR	HL
Orders – approval	DR	HL	AD
PCR primers, stock DNA	JM		
Protein standards	DR	HL	
Protocol books	DH	HL	
Radiation Safety	DR	AD	

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Processes or Reagents	Contact		
	Primary	Secondary	Other
Real time PCR reagent stocks	AB	JM	
Virus - stocks	DR		
Waste Management	JM		

Equipment	Contact for use and maintenance		
	Primary	Secondary	Other
Analytical scales	AB	DR	
Cell Culture	VS	DR	
Centrifuges - mid speed, micro	HL	DR	
Contractility	JM		
Cryostats	DH		
Dissection Scope, Supplies, Tools	DH		
DNA isolators - Promega	AB	JM	
Electrophoresis	VS	JM	DR
FPLC	DH	AB	
Freezers/Refrigerators	DH	HL	
Geiger meter	DR		
Hemavet	DH	AB	
Imaging software	DH	AB	
Kodak Image Station	JM	AB	
Metabolic cages	JM	AB	DR
Micro-Plate Reader – M2e and BioRad	AB	HL	
MicroProbe System	DH	HL	
Microscopes	AD	DH	
Microscopes - polarizing	HL		
Microtome	HL		
MilliQ water	VS		
Mouse blood pressure machines	AB	HL	DR
Nanodrop spectrophotometer	DR	HL	
PCR Machines	JM	AB	
pH Meter	DH	HL	
Pipettes	AB	DR	
Printers	DH	AB	JM
Real time PCR	HL	VS	

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Equipment	Contact for use and maintenance		
	Primary	Secondary	Other
SPOT and Nikon cameras	DH	AB	
Temperature IPTT reader system	HL		
Ultrasound machine	JM		

Techniques		Contact		
		Primary	Secondary	Other
ACE Activity Assay		HL		
Aorta Cleaning and Quantification		DH	AB	
Aortic Root Sectioning and Other Tissues		DH	HL	
Bleeding	Eye	DH	DR	HL
	Submandibular	HL		
Blood Pressure Measurement (Kent)		AB	DH	HL
Cell Culture	Bone Marrow-derived Macrophages	HL		
	Endothelial Cells	HL	DR	
	Mouse Peritoneal Macrophages	HL	DR	
	Smooth Muscle Cells	VS	DR	
Contractility		JM		
ELISA Development		HL	DR	
FPLC for Lipoprotein Distribution		DH	HL	AD
Immunostaining/Histology		DH	HL	DR
Microchip Implantation and Body Temperature		HL		
Mouse Colony Management		JM	AB	DR
Oral gavage		VS		
Osmotic Minipump Preparation		AB	DH	DR
Osmotic Minipump Implantation		DH	AB	DR
PCR Genotyping		JM	AB	HL
Plasma Cholesterol Concentration		DH	AB	HL
Protein Extraction and Concentration Assay		HL	DR	
Real-time PCR		HL	VS	
SDS-PAGE Electrophoresis and Western blotting		HL	VS	DR
Tissue Dissection		DH	AB	HL
Ultrasonography		JM	DR	