



STRUCTURAL BIOLOGY CENTER

ARGONNE NATIONAL LABORATORY, Building 202
9700 South Cass Avenue • Argonne, Illinois 60439

Dear Users of the APS 19ID and 19BM beamlines,

The SBC Hazard Assessment Form and the APS Experiment Safety Approval Form (ESAF) **must** be completed and submitted to the SBC User Office at least three weeks before your group's visit. It is essential that **all** experimenters contribute to the completion of the form. Failure to provide accurate or **complete** information may result in a cancellation or delay in the start of your experiments.

Completion of the Hazard Assessment form includes providing information about how you will transport samples, chemicals, and solutions to Argonne. Transport (including hand carried packages) of all hazardous materials to Argonne should conform with applicable regulations of the U. S. Department of Transportation. We call your attention to regulation 49 CFR 173.4 that has only minimal requirements for shipping small quantities of hazardous materials and the APS Technical Update (TUD-23) <http://www.aps.anl.gov/xfd/tech/TB14www/tud23.html>. Your university's shipping department can provide assistance.

The shipment of samples frozen in propane **must abide** with all DOT and IATA regulations, the failure to do so may result in a delay or loss of your shipment along with possible fines. Argonne National Laboratory has obtained a letter of competent authority from the US DOT for the legal shipment via air transport of macromolecules frozen in propane, freon, and other flammable and nonflammable gases when packaged in a dry shipper. Please refer to APS Technical Updates on the shipment of samples frozen in propane at <http://www.aps.anl.gov/xfd/tech/TB14www/tud25.html> (Technical Publications TUD-25) for shipping instructions.

The APS Experiment Safety Approval Form should be submitted using the electronic web-based ESAF version found at <http://www.aps.anl.gov/xfd/tech/esafwww/esaf.html>

Please contact Stephan L. Ginell at (630) 252-3972 or Ginell@anl.gov if you have any problems or questions about either completing the Hazard Assessment form or the transportation of samples or materials.

Principal Investigator's Name _____

HAZARD ASSESSMENT
for Experiments at the Structural Biology Center

Proposal No. _____
(completed by SBC)

INSTRUCTIONS

1. **Submit 3-6 weeks prior to your group's visit** (required to avoid possible delays in your start of beamtime).
2. Complete the questionnaire and appropriate appendixes. Answer for all group members.
3. Enter names and signatures for principal investigator(s) and all personnel who will visit the SBC. Signatures indicate that all answers are accurate, and that you will inform SBC staff about any changes prior to your visit. Significant differences between the information provided here vs. actual conditions when you arrive could delay your experiment.

QUESTIONS

	YES	NO	If YES, complete Appendix
1. Will any of your group's samples be:			
a. A virus or virus component, other infectious agent, or a biologically-derived toxin?	_____	_____	C-2
b. Other health or agricultural hazard?	_____	_____	C-2
c. Derivatized with a heavy atom compound?	_____	_____	C-1
d. Radioactive?	_____	_____	C-1
e. Derived from human tissue/blood or cells?	_____	_____	C-3
2. Will you use other chemicals or solutions?	_____	_____	A
3. Describe transport of samples and other materials.			B
4. Will your experiment require special/unusual safety precautions or pre-arrival safety planning?	_____	_____	If yes, explain on separate page
5. Will any of your group's experiments use:			
a. Cryogenic liquid (e.g., propane, freon, ethane) other than liquid nitrogen?	_____	_____	
b. Pressurized systems or gases?	_____	_____	
c. Radioactive source, laser/uv; microwave, RF, or magnetic fields, or any other nonstandard equipment?	_____	_____	

INVESTIGATORS

Institution _____

Principal Investigator(s) Name _____ Signature _____

Name _____ Signature _____

Other investigators

<u>Print Name</u>	<u>Signature</u>	<u>Date</u>	<u>SBC Arrival</u> (leave blank)

SBC REVIEW (completed by SBC Staff)

Proposal review: _____ Arrival review: _____
(SBC review Signature, date) (SBC Staff Signature, date)

APPENDIX A. Chemical Materials other than Sample**INSTRUCTIONS**

1. Describe all solids, liquids, solutions, and gases required to conduct your experiment at the SBC. Answer for all experimenters.
2. For solutions, describe the major components and any minor components that are themselves hazardous.
3. Contact SBC personnel if proprietary information must be protected.
4. Avoid bringing common organic solvents because they are available at ANL.
5. Minimize the quantities of chemical materials transferred to ANL.
6. If feasible, plan to leave excess materials at the SBC for disposal or use by others.
7. Send a Material Safety Data Sheet for each hazardous material.

No.	Chemical name or Description of solution (Include sample buffer if crystal suspension brought)	CAS Number	Hazard ¹	Quantity (approximate)			
				Transfer to ANL	Req'd from ANL stock	Dispose at ANL	Return to home lab
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Check here if continuation page was used.

¹Enter one or more hazard codes from definitions below. (Definitions based on U.S. Department of Transportation regulations.)

<u>Flammable liquid (FL)</u> flash point $\leq 60^\circ\text{C}$ <u>Combustible liquid (CL)</u> flash point $60 - 93^\circ\text{C}$ <u>Heavy atom</u> compound (HA)	<u>Corrosive</u> to skin, steel, or aluminum (CO) <u>Carcinogen, mutagen, or teratogen</u> (CA) <u>Radioactive</u> (R), ($> 2\text{ nCi/gram}$); includes compounds of U, Th, Lu, Sm, Tc	<u>Poisonous (P)</u> Acute oral toxicity $\text{LD}_{50} \leq 500\text{ mg/kg}$ for liquid $\text{LD}_{50} \leq 200\text{ mg/kg}$ for solid Acute dermal toxicity $\text{LD}_{50} \leq 1000\text{ mg/kg}$	<u>Acute inhalation toxicity</u> $\text{LD}_{50} \leq 10\text{mg/L}$, dust/mist <u>Other, (O)</u> including organic peroxide, oxidizer, explosive, pyrophoric, noxious, flammable gas or solid, infectious, toxin <u>None of these codes, (N)</u>
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APPENDIX B: Packaging and transportation for samples and other materials**1. SAMPLES TRANSPORTED TO ANL** (Check all that apply.)Crystal pre-frozen in your lab? YES NOCrystals in suspension? YES NO

If pre-frozen

 Packaged in DOT-approved "dry shipper" Crystals frozen in Propane, Freon, Ethane**Must abide** with all DOT and IATA regulations
(See information for samples frozen in propane) Other packaging Explain _____ Ship via commercial carrier (e.g., FedEx) Transport from home via road in a passenger vehicle Transport as airline baggage, then via road in a passenger vehicle Other transport mode Explain _____

If in suspension

 Packaged per 49 CFR 173.4 Other packaging, explain Ship via FedEx Transport from home in passenger vehicle Airline baggage, then by car Carry-on airline baggage; then by car Other transport mode Explain _____**2. OTHER CHEMICALS & SOLUTIONS TRANSPORTED TO ANL**

For yes responses, enter line numbers from table in Appendix A

 YES NO Items shipped directly from a vendor to ANL.
_____ YES NO Items shipped from your institution to Argonne via commercial carrier.
_____ YES NO Items you will bring with you as checked or carry-on airline baggage.

APPENDIX C: Sample Characteristics**C-1. HEAVY ATOM DERIVATIVES AND RADIOACTIVE SAMPLES**

- NONE (If none, go to C-2.)
- YES NO Sample(s) will be derivatized with a heavy atom compound before or after your arrival. If yes, identify the heavy atom compounds.
- before after _____

NOTE: Naturally occurring radioactive elements include: U, Th, Lu, Sm, Tc

- YES NO You will pre-derivatize the sample(s) (in your lab) with a radioactive (> 2 nano Curie/gram) heavy atom compound. If yes, what is the compound and its approximate specific activity? _____
- YES NO You will derivatize the sample(s) at the SBC with a radioactive (> 2 nano Curie/gram) heavy atom compound. If yes, what is the compound, its approximate specific activity, and its approximate concentration in the stock solution? _____
- YES NO Sample(s) will be otherwise radioactive. If yes, explain. _____

C-2. POTENTIAL HEALTH HAZARDS (If none, go to C-3.)

- NONE (If none, go to C-3.)

Check all applicable characteristics:

NOTE: Only BSL-1 biohazards are allowed at the SBC without additional review

- Virus, intact
- Virus, molecular component
- Virus, structural fragment
- Infectious, non-viral
- Molecular component of non-viral infectious agent

Complete:
Appendix C-2a
Questionnaire for Viruses

- Prion
- Biologically-derived toxin
- Other
- Requires certification/permit for use or shipping

Complete:
Appendix C-2b
Virus/Biohazard Information

C-3. HUMAN-DERIVED MATERIALS

<input type="checkbox"/> YES <input type="checkbox"/> NO 1. The sample is from an established human cell line. If yes, cite published description. Continue to question 2.	<input type="checkbox"/> YES <input type="checkbox"/> NO 2. The sample is directly from human tissue, blood, or primary cell culture. If yes, answer 3. and 4. If no, STOP.
<input type="checkbox"/> YES <input type="checkbox"/> NO 3. The funding agency determined that the project involves research with human subjects. If yes, provide documentation. If no, explain.	<input type="checkbox"/> YES <input type="checkbox"/> NO 4. Your Institutional Review Board reviewed and approved the project. If yes, provide documentation. If no, explain.