Updated 9/17/19

**Stockwell Lab New Member Information Sheet**

**Computers & data:** You must save all data both locally on your computer and to the server as you generate it, as well as placing all data in **Lab Archives.** All your data on the server should placed in a folder with your name, and then organized logically within this folder so anyone can find relevant presentations, data, etc. Speak to Anthony Gomez (ag2231@columbia.edu) about logging in to the server. All methods and methods and protocols must be carefully recorded and saved in a folder in your server folder, and must reference the relevant laboratory notebook pages.

**E-mail Address:** See the attached e-mail sheet

**ID Card:** See Joshua Sakolsky (in 500 Fairchild) for information.

**Incubators:** One person from the lab is responsible for the incubators (i.e. repair and autoclaving), but make sure to monitor the tray at the bottom of the incubator you are using. It should always have water in it. If this is running low, fill it with sterile water from the shelf above the microscopes.

**Job List:** The list is posted in the lab and on the server. This is updated periodically and lab members are given specific responsibilities. Elise can direct you to the current version.

**Access:** Access to NWC and the mezzanine level can be granted by Will Lannon.

# **Lab Meetings:** The lab meets each Wednesday at 11:00 in our 12th floor conference room. We alternate between data blitz meetings and regular meetings. During a data blitz, each lab member presents one power point presentation. These presentations should be 5-10 minutes. Regular presentations are 45 minutes. One lab member is responsible for bringing a snack to the meeting each week. We have subgroup meetings each week as well.

Everyone is required to save all lab presentations in the “Lab meetings & presentations” folder on the server. This should be done prior to the lab meeting. This assists Brent in reviewing earlier results in the lab, especially after people leave the lab.

**Lab Members:** There is a Google doc of lab members and their contact information (e-mail and phone numbers) in the lab. Provide this information to Brent upon joining the lab. This is critical to contact you in case of an emergency.

**Lab-wide e-mail:** Please ask Joleen to be added to the lab email list.To send e-mail to the entire lab, write to stockwelllab@columbia.edu

**Orders:** Place all of your orders through the Quartzy ordering system. Speak to Joleen about how to use the system.

**Payroll:** For questions about payroll, see Josh Sakolsky (room #500, x4-5016): js2381@columbia.edu

**Style Guide** In advance of submitting any written document to Brent Stockwell for review, please make sure to have read the Stockwell Lab style guide and to ensure that none of the errors listed therein are found in your document. You should also have one other person read your document and offer comments. When you submit your writing to Brent Stockwell, please provide the name of the person who read your document, and your assurance that the Style Guide was followed.

 The style guide is available in the BSLab\_Shared server under “Writing Tips”.

**Notebooks:** We keep the new and retired physical lab notebooks in the administrative office. We have now switched to using Lab Archives as an electronic lab notebook (ELN) platform. All data should be put into this ELN system. However, any physical data, notes or other materials should be stored in a folder or taped into a physical lab notebook. You should ask Elise for a notebook when you start. You will be responsible for keeping track of your experiments in the ELN. Give all physical notebooks back to Elise when you terminate your position in the lab. All experiments, ideas, conclusions, etc. must be carefully and neatly recorded in the ELN. All data, results, interpretations, etc must be recorded in the ELN. It is an official record of your work. Instructions and training in the responsible conduct of research can be found here: <http://www.columbia.edu/cu/compliance/docs/training/Responsible_Conduct_of_Research/index.html>

You should be familiar with the responsible conduct of research and act accordingly**.**

Specific information on good laboratory notebook practices can be found here:

 <http://www.columbia.edu/cu/compliance/pdfs/tutorial_LabNotebook_V8.pdf>

 You should always use good laboratory notebook practice. Your physical notebook should never leave the lab (i.e. don't take it home). When you do ultimately leave the lab, the notebook stays in the lab. You should record all ideas, references, interpretations etc in the ELN so we can reconstruct your thought process later. You must put copies of all data in your notebook, even if you have it in electronic form. For every experiment, you should have a detailed explanation of the rationale of the experiment, the protocol, the data and the conclusions. We should be able to review everything you have been working on simply by reviewing your notebook. You should also keep your electronic data well organized on the fileserver so it can easily be cross-references to the relevant notebook page.

 For notebook guidelines, see Appendix I

 When you are using Lab Archives, our electronic notebook system, ask Elise to send you a google doc that outlines the setup procedure

**PhD Timeline & Limit:**

Chemistry PhD candidates have a departmental limit of 5 years to graduate. Candidates of Biological Sciences have a departmental limit of 6 years. However, all graduate students should strive to finish in 5 years, with 6 years optional for Biology students if necessary. Please plan your research timeline accordingly.

**Stockroom:** A variety of chemicals and lab/office supplies are stored in the stockroom store on the 2nd floor of Shapiro and in Chemstores. You should ask a lab member to accompany you down there for the first time.

**Tissue Culture:** Keeping the tissue culture area clean and in order is very important. You must be trained by a senior lab member before Elise can give you access to the hoods. Please familiarize yourself with the “tissue culture etiquette” sheet on the front of each hood.

**Absences:** If you will be away for any reason, please note it on the Google calendar.

**Visitors**: No visitors are permitted in the lab without prior approval of Brent Stockwell. If you have a visitor you would like to bring to the lab, please contact Brent. If you see anybody in the lab or on the floor that you don’t recognize, approach them and ask what they are doing in the lab or on the floor. If they do not provide a satisfactory answer, notify Brent Stockwell and/or security immediately.

**Data integrity**: You are responsible for ensuring that all data you report and procedures that you perform are reproducible, accurate, and reliably recorded. The expectation is that anyone can come in and read your lab notebooks and data files and reproduce the experiments you have performed with the same result. It’s the lab policy that from time to time other members of the lab will be asked to reproduce your experiments, especially if they report interesting findings. Plan your research and record keeping with this in mind.

**Professionalism**: All lab members are expected to be respectful of each other, and to be professional with each other in and outside of the lab. It is not acceptable to send texts, email messages or other communications with inappropriate content to anyone else in the lab. No comments or communications are permitted regarding sexual innuendo, use of illicit substances, or of a racially, misogynistic, or culturally insensitive nature. In addition, everyone is expected to keep approximately normal working hours to facilitate interactions. Finally, under no circumstances may any lab member enter the lab or associated spaces (mezzanine, conference room, lunch room, etc) under the influence of alcohol or drugs.

**Intellectual Property**: It is critical that you record all data in manner consistent with protection of intellectual property. This means recording all data in your ELN in the manner described above for record keeping. You agree to assist in the preparation of any materials needed for protection of intellectual property, such as patent applications. In some cases, research you are involved in may be patented and eventually licensed to a company to translate these discoveries into a useful form for society. You agree that the Office of the General Counsel at Columbia, Columbia Technology Ventures and Professor Stockwell will have discretion to determine inventor status, in accordance with U.S. law. If you are named as an inventor on a patent application or invention report, you agree to any division of royalty sharing determined by Columbia Technology Ventures, University Policies and/or Professor Stockwell. The Columbia University statement of policy on proprietary rights in the intellectual property of faculty activity can be found here:

<http://www.columbia.edu/cu/vpaa/handbook/appendixd.html>

**IDP** You must maintain an Individual Development Plan (IDP). Each year, you should meet with Brent and review your IDP along with your lab notebook entries. See:

<https://gsas.columbia.edu/student-guide/professional-development/individual-development-plan>

<https://www2.gsas.columbia.edu/idp/node/3>

**University Policies** It is your responsibility to ensure that you are in in compliance at all times with all University Policies. These can be found here:

<http://www.essential-policies.columbia.edu>

In the event that any of the conditions described in this document are violated, the lab member in question will be subject to disciplinary action, including possible termination from Columbia and from the Stockwell lab.

### Stockwell Lab New Member Information Sheet

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Columbia Email address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Non-Columbia Email address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Phone number(s):

 Home: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Cell: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

I have read and understand the contents of this Stockwell Lab New Member Information Sheet, including all appendices, and agree to abide by the policies herein.

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_

(Please fill this out, sign, scan and return to Brent Stockwell within 24 hours)

***Appendix I. Notebook Guidelines***

Updated: 11/11/16

**Notebook Guidelines**

Each notebook entry (Physical or electronic/LabArchives) should include:

1. **Rationale/Hypothesis**—link this back to previous experiments, if applicable
2. **Design of experiment**—including the thought process leading up to the design
3. **Protocol(s)—**cite any adaptations to the original or most commonly used protocol and explain why you chose to change it from the original protocol
4. **Data & Results**—including all figures, graphs, etc
5. **Conclusions/Interpretation of results**—including research strategies and experiments worth repeating, leading into (6) Future experiments planned
6. **Future experiments planned**
7. **Safety notes**—including any:
	1. Issues that occurred during the experimental procedure
	2. “Near misses” that could have resulted in a safety issue but were luckily or consciously avoided.
	3. Safety precautions taken during a particular experiment or reaction setup including explanations why
	4. General safety precautions that should be taken at all times
8. **Witnessing**—all notebook entries in paper and electronic lab notebooks should be witnessed by at least one other person. This should happen monthly.

\*Note: All data, graphs, and any other files that start electronically need to be printed out and pasted into the lab notebook on the date of the experiment.

Lab Archives users: For the narrative of each notebook entry, you can either make a separate folder of “narratives” and associate them with each experiment, or you can simply add this narrative section to the page that has the result and protocols for each experiment.

***Appendix II. Email set up***

### E-mail

Setting up your columbia.edu e-mail account (20 MB quota):

1. Go to www.columbia.edu and search for your last name in the search field in the upper-right hand corner of the screen. Be sure to select “people.”
2. If your name is found, go to www.columbia.edu/acis/accounts/create/current.html and proceed to step 4.
3. If your name is not found, confirm that Muin Rashid has processed your paperwork and ask him when you can expect to be listed in the directory, and thus able to request a UNI (pronounced you-knee).
4. Click on “Activate a NEW account” and follow the on-screen instructions.

***Appendix III. “Close Encounters of the Lab Kind”***

“Close Encounters of the Lab Kind: The Santayana Report” is a series from Environmental Health & Safety (EH&S) written about recent incidents at the University.  The information presented is intended to provide awareness and help readers plan against the occurrence of a similar situation in their laboratory or work area.  We encourage you to forward this message to your research staff, students, and fellow colleagues at the University, and to visit our Lessons Learned[website](https://www1.columbia.edu/sec/cu/ehrs/LabLessonsLearnedNews.html) to read more about recent laboratory incidents at the University.

**An Imperfect Match**

**February 2015**

Two recent chemical storage incidents exemplify how improperly stored chemicals can pose a health and safety hazard, result in property or equipment damage, and become an inconvenience to research activities. In the first incident, a metal storage cabinet was used to house corrosive materials, including a commercial product containing nitric acid. Over time the container, inadvertently stored on its side, became brittle and began to leak through the cap, resulting in acid vapor corroding the locking mechanism to the point where the cabinet could not be opened. The condition was discovered when a researcher attempted to open the cabinet, and after coordination with Environmental Health & Safety and a locksmith from Facilities, the cabinet was carefully opened and the leaking contents were discovered and safely discarded. The cabinet, however, was a bit worse for wear and needed to be discarded.

In a separate incident the contents of a chemical storage cabinet became repeatedly covered in a fine white powder, suspected to be an ammonium salt, after a bottle of hydrochloric acid was inadvertently left open near a bottle of ammonium hydroxide. Upon noticing the condition for the first time the laboratory took care to wipe the cabinet clean of the salt formations, but the condition recurred. After consultation with EH&S, it was determined that while the cap to a bottle of hydrochloric acid appeared closed by visual inspection, it was not properly seated on the threads on the neck of the bottle and remained open. This condition allowed acid vapor to escape into the cabinet, resulting in the continued salt formations. The salt formations can be irritating to the respiratory system when disturbed and are a nuisance to clean up.

**Lessons Learned**

o   EH&S is always available to consult and assist with chemical storage issues, including providing guidance on safely storing hazardous chemicals. Both laboratories engaged EH&S after noticing an issue, and both issues were resolved in short order by working together to identify the causes and implement corrective actions.

o   While inadvertent chemical reactions between stored chemicals are not uncommon, they are typically 100% preventable by employing good chemical hygiene principles. This includes ensuring incompatible materials are stored separately from one another, ensuring containers are always tightly sealed, and ensuring that chemical residues are promptly cleaned off of the outside of chemical containers or off of the surface they are stored on.

o   Inadvertent chemical reactions are not just limited to occurring between two or more chemical containers, but can also take place between a chemical and cabinet or other storage surfaces. In the first incident, a metal cabinet, which is susceptible to acid corrosion, was used to store corrosive materials, including a strong acid. When the acid leaked, vapor released into the cabinet caused the metal to corrode and caused permanent damage to the cabinet. For this reason, plastic should always be chosen when selecting a cabinet or storage surfaces for corrosive materials.

For further information on this or any other safety matter, please contact the EH&S office (<http://ehs.columbia.edu/Contact.html>).

**Read All About It!**

**November 2015**

When handed a new product the first thing we do is read the manual and look at the warning labels, right? Unfortunately, this approach is atypical and failing to do so can lead to a serious incident.

Recently, a laboratory inadvertently created chlorine gas when a guanidine hydrochloride containing buffer solution and bleach were mixed together and poured down the drain. When the laboratory noticed the pungent, irritating odor of chlorine, they immediately flushed the drain with water and opened the windows to help ventilate the space. Fortunately, no one was made ill by the situation.

The lab was extracting DNA from cell culture and used a new “miniprep” kit that contained a guanidine hydrochloride buffer. After completing the extraction the researcher deactivated the remaining cell culture with bleach and poured the solution down the drain, a standard practice. However, the resulting chemical reaction generated chlorine gas inside the sink! Fortunately, chlorine is heavier than air and little gas was produced, so most of the gas stayed within the sink and no one was made ill by the situation.

The kit’s warning label stated that the buffer solution was chemically incompatible with bleach, but the researcher had not read the label before using the kit. In retrospect, this incident could have been prevented if the researcher read the kit’s warning label and instructions before proceeding, and used an alternative disinfectant to deactivate the remaining cell culture.

**Lessons Learned**

* Heeding the manufacturer’s instructions and warnings when using a product, even when part of an established and routine protocol, can be the difference between completing an experiment safely or not.
* An alternative disinfectant to bleach should be used when deactivating guanidine hydrochloride containing solutions.

For further information, or to view previous Santayana Reports, please visit our [lessons learned website.](https://www1.columbia.edu/sec/cu/ehrs/LabLessonsLearnedNews.html) For any other safety related matter, please contact the [EH&S office](http://www.ehs.columbia.edu/Contact.html).

**September 2015**

Environmental rooms, known more colloquially as warm and cold rooms, are designed for storing or handling laboratory materials in a constant-temperature environment. On the surface the majority of these are just big walk-in refrigerators, but have you ever considered how environmental rooms maintain their constant temperature? Or wondered about the potential hazards that could be lurking inside?

Environmental rooms regulate their temperature by heating or cooling recirculated air. By conditioning recirculated air, less energy is used than to condition the fresh air that is supplied to traditional laboratory spaces. Sounds good, right? While recirculating the air has the aforementioned benefits, and offers cost and energy savings to the University, there is another, hidden cost to consider, and that can be your safety. Recirculating the air within the room means that fresh air is only entrained into the room when the door is opened and closed. If a hazardous material were to be released into the room, the atmosphere could quickly become explosive, toxic, or oxygen deficient! Unfortunately, this type of incident occurred at the University recently.

A container of dimethyl formamide was inadvertently released inside of a cold room, resulting in a very hazardous situation. In addition to being flammable, dimethyl formamide, or DMF, is a reproductive and liver toxin. Nobody was injured during this particular event, but the potential for this type of incident to cause serious harm is real. So what can you do to ensure that environmental rooms are safe for you and your colleagues?

**Lessons Learned**

* Keep food and beverages in the pantry, and not in the cold room.
* Safely store hazardous materials in main laboratories rather than environmental rooms.
* For more detailed information about keeping your environmental room safe, please visit the EH&S website at [http://ehs.columbia.edu](http://ehs.columbia.edu/) and search for “environmental room safety”.
* Interested in the safety conditions of the other environmental rooms at the University? Look for the Fall 2015 edition of the SafetyMatters newsletter coming in September 2015.

For further information, or to view previous Santayana Reports, please visit our [lessons learned website.](https://www1.columbia.edu/sec/cu/ehrs/LabLessonsLearnedNews.html)For any other safety related matter, please contact the [EH&S office](http://www.ehs.columbia.edu/Contact.html).

**Ethers:** Ethers (e.g., THF, diethyl ether, dioxane) need to be labeled with the date that they are opened. After standing for a long time, they become an explosion hazard. ***Isopropyl ether*** is especially dangerous and should only be kept for three (3) months after opening.

**MeOH & EtOH:** There are now barcodes on all EtOH and MeOH bottles. After use, these bottles must be triple rinsed and disposed of in the yellow bins outside the elevators. (If the bar code is not returned, it is still on record that the solvent is in our lab and counts towards our flammable limit.)

**Safety gear:** Please get a lab coat, goggles and suitable gloves. You must wear these at all times in the lab. No eating is allowed in the lab. Shoes must be worn at all times in the lab.

**General Safety:** Within five days of joining the lab, you must provide the following information to Environmental Health and Radiation Services at Columbia (see Greg Homison for information on how to send them this information:

Name, UNI#, Title, Supervisor (Brent Stockwell), location (614 Fairchild, Morningside Campus), Start date, Job responsibilities (or student), Required Level B Courses (Bloodborne Pathogens, Formaldehyde, Radiation Safety, Shipping/Handling)

 Also, you cannot store any flammable solvents in non-explosion-proof freezers. This includes methanol, isopropyl alcohol, etc, as well as minute quantities in kits, such as the Fugene transfection kit. All such organic solvents (and kits) must be stored in explosion-proof freezers.

 Avoid doing large-scale extractions using ether, as this can lead to an explosion.

 All gas cylinders have a date on them and you must check the date to be sure it is current when the cylinder arrives. Do not rely on the vendor to supply up to date cylinders!

Gas cylinder must be secured to a stable item, like a wall.

 All solvents must be dated when the bottle is opened and initialed. Ethers should be disposed of within 3 months of opening.

 We can only have 15 gallons of flammable solvents, including all waste. So please make sure that when you are ordering new flammable solvents, we will not go over the 15 gallon limit.

 All hazardous waste tags must be legible. Please use plastic tape on top of the tag to prevent it from smearing.

 All peroxide-forming solvents must be labeled with both the date received and the date opened. This includes dioxane and isopropyl alcohol, as well as a number of other solvents. TO BE SAFE, PLEASE DATE ALL SOLVENTS WITH BOTH THE DATE RECEIVED AND THE DATE OPENED.

 You cannot leave any canisters or equipment in the hallways, even for a few seconds.

 We can be fined by the fire department for any of these fines so please pay careful attention to them.

 All containers must be clearly labeled with their contents, the date it was opened and your initials. If you cover a bottle with foil or any other covering, you must label the OUTSIDE of the foil to prevent a violation.

There must be 18 inches of space between any boxes and the ceiling.

During a regular weekly inspection of Columbia University laboratories, the FDNY inspector examined the contents of a lab freezer. Inside the freezer, a small centrifuge tube containing ethanol was found. When lab workers were asked about the container, they protested stating “it was put into the freezer temporarily to cool it down for an experiment”. The lab was issued a Notice of Violation (NOV). No matter the quantity, concentration, or duration, no flammable liquids may be kept in refrigerators or freezers that are not either “explosion proof” or “flammable materials”. If your lab does not have the appropriate kind of refrigerator/freezer, a dry ice bath is recommended for temporarily cooling samples of flammable liquids.

During a regular weekly inspection of Columbia University laboratories, an FDNY Inspector observed several glass bottles of various chemicals stored on the floor of a laboratory. The inspector issued a Notice of Violation (NOV) for improper storage of hazardous materials. Hazardous materials including flammable, corrosive or toxic chemicals must be stored safely, in such a manner as to prevent accidental release. If bottles are stored on the floor, they must be protected by secondary containment measures, such as tubs, constructed of a chemical-compatible material.  Please ensure that all chemicals in your laboratory are stored safely. For more information about proper segregation, refer to our chemical segregation chart (http://www.ehs.columbia.edu/chemSegChart.pdf <<http://www.ehs.columbia.edu/chemSegChart.pdf>> ).

During a regular weekly inspection of Columbia University laboratories, the FDNY inspector examined the contents of a chemical storage cabinet and noted that a lecture bottle of propane gas was being stored alongside acids and flammable liquids. The inspector issued a Notice of Violation (NOV) for improper segregation of hazardous chemicals. Small cylinder gases, such as lecture bottles, can never be stored in the same cabinets with any liquids, such as flammables, acids, and bases. Ensure that all chemicals in your laboratory are stored safely and segregated according to hazard class. For more information about proper segregation, refer to our chemical segregation chart (<http://www.ehs.columbia.edu/chemSegChart.pdf>).

During a regular weekly inspection of Columbia University laboratories, the FDNY inspector examined the contents of a cold room. Inside the cold room, a spray bottle containing 70% ethanol was found.  When lab workers were asked about the container, they stated “it was used to decontaminate the bench top and equipment inside the cold room”.  The lab was issued a Notice of Violation (NOV). No matter the quantity, concentration, or duration, no flammable liquids may be kept in refrigerators, freezers, or cold rooms that are not either “explosion proof” or designed to store “flammable” materials.

During a regular weekly inspection of Columbia University laboratories, the FDNY inspector examined the contents of a chemical storage cabinet and noted that Hydrochloric Acid was being stored alongside Acetic Acid in the same secondary container. The inspector issued a Notice of Violation (NOV) for improper segregation of hazardous chemicals. Inorganic acids, such as Hydrochloric Acid, and organic acids, such as Acetic Acid, must be stored separately and not in the same tray/container. Ensure that all chemicals in your laboratory are stored safely and segregated according to hazard class. For more information about proper segregation, refer to our chemical segregation chart (<http://www.ehs.columbia.edu/chemSegChart.pdf>).

During a regular weekly inspection of Columbia University laboratories, the FDNY inspector observed several cylinders of cryogenic materials in storage in a hallway outside a laboratory. The inspector issued a Violation Order (VO) for improper storage of liquid cryogenic containers.

Storage of liquid nitrogen cylinders in corridors, whether temporary or permanent is prohibited by the FDNY., . Please properly store all liquid nitrogen tanks inside labs whether they are empty or full, and arrange for vendors to remove them directly from inside the lab or storage area. If more than 60 gallons of cryogenics are present, there must be an oxygen sensor installed and a G-97 Certificate of Fitness holder present. For information on obtaining a G-97 Certificate of Fitness, please visit (<http://www.ehs.columbia.edu/Firecodes.html#g97>)

During the evening of September 30 (2009) a small fire occurred in a Columbia laboratory as "dry" sodium hydride (95% NaH) was being weighed on a toploading balance. Such NaH, although it does not usually ignite in air, is called "pyrophoric" by some authors and should be handled with extreme care.

Everyone should either (a) use NaH as a 60 % dispersion in mineral oil, OR (b) use the pure, "dry" (95%) stuff in an inert atmosphere box - Jack Norton (Chair of Safety Committee – Dept. of Chemistry)

During a regular weekly inspection of Columbia University laboratories, the FDNY inspector found nitric acid, a strong oxidizing acid, in the same chemical storage cabinet as acetic acid. Strong oxidizers present a fire hazard when stored next to organic acids such as acetic acid. The inspector explained to the lab that these incompatible chemicals can be stored in the same cabinet as long as they are kept in separate secondary containers, e.g. plastic bins.

During a regular weekly inspection of Columbia University laboratories, the FDNY inspector found that a lab which had previously been storing only a small dewar of liquid nitrogen had recently increased its use of the cryogenic material, storing two large dispensing tanks in the laboratory. Because this quantity of liquid nitrogen brought the lab over the 60-gallon threshold defined by the FDNY, the inspector wrote the lab a violation requiring the installation of an oxygen sensor and the acquisition of a G-97 Certificate of Fitness for the Storage and Use of Cryogenic Liquid Gases.

While all laboratories currently using large amounts of cryogenic materials have had oxygen sensors installed with the help of EH&S, future use can always change, leading to the need for more sensors and G-97 COF holders in areas where they were not previously needed.

During a regular weekly inspection of Columbia University laboratories, the FDNY inspector issued a violation to a laboratory for failure to produce documentation/evidence from a New York City Certificate of Fitness Holder (C-15) demonstrating that the blackout curtains being used in the laboratory were “tested and certified” as either inherently flame resistant (IFR) or flameproofed, as required by the recently revised Fire Code.

During his regular rounds, the FDNY Laboratory Inspector attempted to activate the laboratory’s eyewash/deluge hose to ensure its proper function. The eyewash/deluge hose did not produce water as required. He asked the lab personnel when the eyewash/deluge hose was last tested. No one in the laboratory could remember. As a result, a violation was written. A chemical splash to the eye or face could occur at any time in a laboratory. All types of eyewashes must be tested by laboratory personnel weekly to ensure proper operation. If problems are noted during weekly testing, please contact your campus Facilities department for maintenance.

When a laboratory purchases blackout curtains, the curtains must meet new Fire Code requirements, including documentation from a C-15 holder that the curtains were “tested and certified”. EH&S strongly advises laboratories to purchase IFR curtains for use in the laboratory because once “tested and certified” by a C-15 holder, these curtains do not require any additional testing or maintenance.

A recent inspection of a Columbia University Laboratory led to a Notice of Violation when the FDNY inspector found that no Certificate of Fitness (C-14) holders were present. During FDNY lab inspections, the inspector will always request to see the credentials of a Certificate Fitness for the Supervision of Chemical Laboratories. In this lab comprised of six individuals, three were C-14 holders, but each were absent at the time of the inspection.

According to the NYC Fire Code, each laboratory must be under the direct supervision of a C-14 COF holder when in operation. Laboratories are encouraged to have as many people as possible apply for a Certificate of Fitness to ensure that there will be coverage at all times in the case of absences. For more information about obtaining the COF, please visit <http://ehs.columbia.edu/COFreq.html>.

During a regular weekly inspection of Columbia University laboratories, the FDNY inspector issued a violation to a laboratory when he noticed that its fire extinguisher did not have sufficient pressure needed to discharge its contents (the pressure gauge arrow was in the “red zone”).

When questioned, the laboratory personnel informed EH&S that the fire extinguisher was used briefly two weeks prior to the inspection and was not reported because its contents were not fully discharged. A fire extinguisher must be replaced after each use regardless of the amount of material discharged. Whenever the lever is squeezed, it will gradually lose pressure over time and will not be effective for use when needed.

While fire extinguishers are maintained and inspected monthly by EH&S at Morningside and Facilities at the Medical Center campus, it is the responsibility of laboratory personnel to contact the appropriate department for replacements whenever they are used.

During a regular weekly inspection of Columbia University laboratories, the FDNY inspector issued violations to separate laboratories when he observed that access to the fire extinguishers was blocked. In one instance, the extinguisher was mounted over a bench, at a height of 6-feet, making it difficult for most lab personnel to reach the unit. The second violation was issued because the laboratory had positioned a new piece of equipment in front of the extinguisher.

Means of egress from the laboratory and access to emergency equipment must not be blocked. An unobstructed path to the exit must be maintained at all times. Access to emergency equipment, safety showers, eyewashes, fire extinguisher, first aid kits, etc. must not be obstructed allowing for easy access by laboratory personnel. If concerned with the location of your fire extinguisher, contact your building’s Research Safety Specialist or place a work order with Facilities Operations to have the extinguisher repositioned to a more accessible height or location.

During a regular weekly inspection of Columbia University laboratories, the FDNY inspector issued a violation to a laboratory when he observed that its emergency eye was blocked by lab equipment and inaccessible.

 Laboratory personnel had placed lab equipment on the sink counter, blocking access to the emergency eyewash. Furthermore, since the eyewash was “out of sight, out of mind” for so long, it failed to work adequately upon testing by the FDNY inspector. Had a true emergency occurred here, such as a chemical splash to the eyes, the risk of permanent eye damage would have greatly increased, as lab members scrambled for an alternative emergency flushing source.

 It is the lab’s responsibility to test all emergency eyewashes weekly. Failure to perform these tests may hide problems, such as a drop in water pressure from a steady flow to barely a trickle, or a sudden elevation in pressure, which might actually increase the risk of physical damage to the eyes. Like a sink faucet that is rarely used, the eyewash may also become clogged with dirt and debris, preventing any water from escaping, or the water may be brown and odorous; unsafe conditions as well.

Don’t wait for an emergency to find out the emergency eyewash is blocked and/or not working. Test the eyewash at least weekly and keep a log to ensure it is maintained. To help you remember, use the eyewash to rinse your glassware. If the water pressure is too low or high, clogged, dirty, or not working at all, place a service request with Facilities

A recent accident involved a drying oven located on the floor near a research bench. A small (approx. 250 mL) squirt bottle of hexane fell from the bench top onto the floor. The cap was loose, and the hexane flowed under the oven, where its vapor was ignited by the heating coil. Fortunately the fire was quickly extinguished (by a student who had recently received training in the use of extinguishers).

We suggest several precautions:

--Be careful when using flammable solvents near drying ovens.

--Keep solvent containers — even squirt bottles — away from the edge of bench tops (at least 6 inches ).

--Keep the caps on squirt bottles tight enough to prevent them from spilling their contents if they fall.

During several recent Columbia University laboratory inspections, the FDNY fire inspector issued violation orders for improperly storing nitric acid. Proper storage of chemicals in laboratories is a critical safety concern for both the university and regulatory agencies.

Nitric acid, which is a highly reactive chemical, MUST be stored separately from all other acids and chemicals. This strong oxidizer should be physically placed in a chemically resistant secondary container within an acid cabinet and should be the only acid in that secondary container. The secondary container can be made of polyethylene, PYREX or Nalgene. It can also be stored in its own acid cabinet if feasible.

Below are a few other important safety tips to remember when storing nitric acid:

• Do not store near combustible materials.

• Do not store in direct sunlight.

• Keep nitric acid containers closed when not in use.

• Store in a cool, dry, well-ventilated area away from incompatible substances.

• Keep away from metals and never store on a bare metal shelf.

• Store away from alkalies and organic materials.

• Inspect periodically for damage or evidence of leaks or corrosion.

WHAT: Dichloromethane Needle Stick

SUMMARY: The affected worker was in the process of filling a flask with dichloromethane when the injury occurred. While holding the flask in one hand, and the hypodermic needle in the other, the affected worker applied significant pressure to penetrate the stopper with the needle. The needle slipped, and struck the affected worker on the top of the hand, penetrating the skin and impacting bone. A few microliters of dichloromethane were injected under the skin. The affected worker immediately halted their work and washed the wound for several minutes. The affected worker then referenced the Safety Data Sheet for the product, where they learned of the potential for carboxyhemoglobinemia (carbon monoxide poisoning). As a result of the severe pain and the toxicity potential, the affected worker sought emergency care within 30 minutes of the needle stick. At the hospital, the affected worker’s carboxyhemoglobin levels were monitored for several hours, and they were released the following morning when several tests revealed no elevated levels. Skin irritation and numbness continued for several days after the event.

FINDINGS:

• The same operation is routinely completed with the flask clamped to the monkey bars in a chemical fume hood, minimizing the risk of a needle stick. In this instance, the flask was held by hand as a perceived time saving measure.

• The affected worker responded to the event appropriately, by washing the wound and consulting the Safety Data Sheet to learn that further medical attention was necessary.

• The affected worker immediately notified their supervisor, who notified Environmental Health & Safety shortly after the event occurred.

PREVENTIVE MEASURES:

• Always attempt to minimize the risk for puncture injuries by keeping the body clear of the direction where force is applied.

• Use controls measures, such as clamps, to steady an item.

• Do not allow time pressure, whether academic or personal, to influence the safe completion of the work.

• Referencing a Safety Data Sheet is a key component of responding to an emergency.

Flammable Materials in the Wrong Type of Refrigerator

During a regular weekly inspection of Columbia University laboratories, the FDNY fire inspector issued a violation to a lab for storing a flammable liquid chemical in a non-flammable material storage refrigerator. This type of refrigerator, essentially the equivalent of a household model, is common in labs and can be safely used to store non-flammable materials including buffers and biological items. These same refrigerators however, are not safe for the storage of flammable items due to their unprotected internal wiring and motor. The safest approach for refrigerating liquid flammable materials is to purchase a specifically designed flammable material storage refrigerator. Unlike regular refrigerators these units have spark proof interiors that prevent sparks from escaping during opening and closing, a specialized thermostat, and door gaskets that provide airtight seals that insulate and prevent the release of hazardous fumes. While these refrigerators do cost more than standard models, the safety value is an important return.

Need to cool your ethanol for an experiment, such as DNA precipitation? Place room temperature ethanol on an ice bath until it reaches the desired temperature, and then return your stock bottle to general storage.

FDNY regulations and EH&S policy require that all refrigerated flammable materials be stored only in approved refrigerators. Please ensure that a Memorandum of Understanding and Agreement is submitted prior to any refrigerator purchase. Proper storage of flammables can prevent fires and non-compliance issues. Remember, safety first!

For a consultation before the FDNY inspector gets around to your lab, or for any question, concern, or help, please contact a Research Safety Specialist.

Extension Cord Use in Research Laboratories

During a regular weekly inspection of Columbia University laboratories, the FDNY fire inspector issued a violation to a lab for improper use of an electrical extension cord, after observing a laboratory refrigerator connected to an extension cord, rather than directly into a wall outlet. When working in a laboratory in New York City, the use of extension cords and power strips is limited to **portable devices and equipment** only. Examples of portable devices include computers, bench top lab equipment such as microcentrifuges, and other small appliances. All **stationary equipment**, including refrigerators and incubators, must be plugged directly into a wall outlet, and never connected via an extension cord or power strip.

In addition, if your laboratory does use extension cords for approved equipment, the fire code states that extension cords and flexible cords shall not be affixed to buildings or structures, extended through walls, ceilings or floors, or under doors or floor coverings, nor shall such cords be subject to environmental damage or physical impact. Remember, power cords can present slip, trip and fall hazards in addition to electrical hazards, if used improperly.

For a consultation before the FDNY inspector gets around to your lab, or for any question, concern, or help, please contact your Laboratory Safety Officer.

Morningside Campus: <http://www.ehs.columbia.edu/LabAssignment.html>

Medical Center Campus: <http://www.ehs.columbia.edu/LabAssignmentMC.html>

To all:

Please take a look at the descriptions below of safety incidents that occurred in the chemistry department between June and December 2013.   The purpose of sending this information is help make you aware of the types of accidents that occur so that they are not repeated.   Note also how you can draw on support from EHS for spill cleanups, thermometer exchanges, and safety information.

Please feel free to send comments and suggestions to me and/or Greg Kwolek of EHS.  The department safety committee in cooperation with EHS plans to send these reports periodically as a way to inform and to improve safety in the chemistry department.

Jay Kirschenbaum,

on behalf of the chemistry department safety committee

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**1) Broken Mercury Manometer:** A graduate student discovered that several milliliters of elemental mercury leaked from a manometer they were using. The spill was contained to a chemical fume hood and remediated by EH&S.

Research groups are encouraged to transition to mercury-free devices when suitable alternatives are available. EH&S continues to offer the free exchange of mercury containing thermometers for NIST certified liquid in glass thermometers. Other mercury containing devices, such as manometers and barometers, can be disposed of at no cost through EH&S.

**2) Phosphorus (V) Oxychloride Quench:** A reaction using phosphorus (V) oxychloride, 5-bromo-2-chloropyrimidine, and N,N-dimethylaniline erupted inside a chemical fume hood during the quench. The graduate student, who was wearing a flame-resistant lab coat, safety glasses, and nitrile gloves at the time, working at the chemical fume hood was splashed lightly on the neck by the solution and immediately flushed the area with water. They reported to Student Health Services for evaluation where they were released with no complications.

Free liquid from the spill was cleaned up by EH&S, and the remaining acidic residue on equipment inside the chemical fume hood was neutralized by the research group the following day.

**3) Potassium Hydroxide and PETG Compatibility:** On two separate occasions in 2013 containers holding a concentrated potassium hydroxide solution became brittle and cracked, leaking their contents into the laboratory.

EH&S reviewed the containers being used for storage and determined that the container material, polyethylene terephthalate (PETG), was incompatible with strong hydroxide solutions. This information was relayed to the research group by EH&S, along with resource material for determining chemical container compatibility.

**4) Acetyl Chloride Spill:** A graduate student dropped a 500 milliliter bottle of acetyl chloride while removing it from the shipping container. The student held the metal shipping container in one hand, while pulling on the packing material with the other. When the packing material came loose the bottle fell out of the container, hitting the ground and shattering. The contents splashed the student on the feet. The student briefly left the laboratory, but then returned to remove their shoes and socks. They then proceeded to a lavatory to rinse off their feet.

No symptoms or complications were reported. The lab was evacuated, and EH&S remediated the spill.

Two researchers were splashed with a chemical when a container was accidentally dropped during a procedure. The researcher performing the procedure at the bench was doing so for the first time and with the assistance of a more experienced researcher, as such procedures should be performed.  While the researcher performing the procedure for the first time donned the proper Personal Protective Equipment (PPE), specifically a lab coat, safety glasses and gloves, the more experienced researcher did not don PPE to assist with the procedure. The lab cleaned up the liquid and immediately contacted Environmental Health & Safety (EH&S). The two researchers removed contaminated clothing and washed affected areas.  EH&S referred the exposed personnel to Workforce Health & Safety for medical attention and following an assessment of the spill area, EH&S cleared the laboratory for re-occupancy.

Lessons Learned

·         The laboratory did many things right:

o   The junior researcher was working with the assistance of a senior lab member to receive task-specific training on the procedure being performed.

·         Actions that may help prevent this type of incident from occurring again include:

o   Ensuring PPE is worn by all researchers in the “Splash Zone,” thus ensuring everyone in the immediately vicinity of hazardous materials work is protected.

The Methylene (Chloride) Blues

July 2014

Three liters of methylene chloride (dichloromethane), a chlorinated solvent suspected of causing cancer in humans, was spilled in a laboratory during a recent incident at the University. After re-filling a four liter glass bottle from a 20 liter drum a research scientist placed the glass bottle on the bare laboratory floor, where it cracked and released its contents. Floor tiles, boxes, chemical containers, and the researcher’s shoes were all damaged after coming into contact with the solvent. Within a few minutes, the solvent evaporated and filled the laboratory air with a hazardous concentration of chemical vapor. The laboratory was closed for several hours until air monitoring measurements taken by Environmental Health & Safety (EH&S) indicated the laboratory was safe to reoccupy.

Lessons Learned

·         Always use care when handling glass containers. For safety and compliance reasons, glass containers must not be placed on the laboratory floor. The New York City Fire Code prohibits glass containers from being stored on the laboratory floor.

For further information on this or any other safety matter, please contact the EH&S office (<http://ehs.columbia.edu/Contact.html>).

***Appendix IV. MD-PhD and PhD Student Information***

1. All students in the MD-PhD program and in PhD programs will have at least one first-authored, original research publication **accepted** ("in press", not simply "submitted") before being awarded the PhD and returning to the major clinical year. A first-authored original contribution to new knowledge in a respectable journal is essential to the candidate's training.
2. All MD-PhD students will spend one day per month on clinical activities during the entire portion of their PhD training. They are required to participate in the monthly clinical competence course with an assigned preceptor group 0.5 days/month and with a selected medical specialist 0.5 days/month.
3. All MD-PhD students will complete the PhD in <4 years and PhD students are expected to complete their PhD within 5 years. Extenuating circumstances that may lengthen the time it will take a student to complete the PhD should be discussed with the program directors at the latest by the start of the third year of the PhD (beginning of 5th year in MD-PhD program).
4. All students in the MD-PhD program are paid a stipend equal to other graduate students at Columbia. The MD-PhD program covers the stipend, tuition and fees for the first two years of Medical School, and then the first two years in the PhD portion (starting in July of the student’s third year in the MD-PhD program through June of the fourth year in the MD-PhD program).
5. All students must apply for fellowships from the NIH or other fellowship programs for which they are eligible.
6. If a student receives an individual fellowship from the NIH, the MD-PhD program will supplement the tuition and stipend. The MD-PhD Program will only supplement the stipend and tuition/fees for F30 or F31 fellowships.
7. We expect that all students will take a qualifying exam by the end of the end of the first year of the PhD program (third year in MD-PhD program).
8. Active participation in the annual MD-PhD Student Research Symposium by students is required. Participation by their mentors is strongly encouraged. Students who are in the second year (and higher) of the PhD are expected to present a poster at the poster session, or to give a research talk during lunch.
9. All students are required to attend annual meetings with the MD-PhD program directors in the fall. An updated student biographical form must be submitted prior to the meeting.
10. Students who are supported by the MSTP Training Grant will be required to associate the MSTP TG number to any publications that resulted from work done while they were on the grant. Students who are supported by an F30 or F31 NIH fellowship are also required to associate their grant ID to any of their publications that resulted from work done while they were on the fellowship.

**Time-Off GSAS Policy for Doctoral Students**

For full-time doctoral students on twelve-month research and teaching appointments in the sciences and related fields, the period between the fall and spring semesters, as well as the summer months, are considered to be active time of research, research training, and teaching preparation rather than holidays.﻿

However, in any given academic year, such students are entitled to two weeks\*\* beyond the eleven (Morningside Campus) or twelve (CUMC Campus) designated University/Federal holidays listed immediately below:﻿

**For the Morningside Campus:**

New Year’s (2)

Martin Luther King, Jr. Day (1)

Memorial Day (1)

Independence Day (1)

Labor Day (1)

Election day (1)

Thanksgiving (2)

Christmas (2)

**Total: 11 days**

\*\*A “week” is defined by the number of days in a given calendar week that students are expected to be available to discharge their responsibilities.

Time off during the designated University/Federal holidays listed above is non-negotiable. Doctoral students who plan to take time off at other times may do so only after coordinating with a) their advisor or PI when holding a research appointment; and/or b) the faculty instructor or lead course coordinator when holding a teaching appointment. This will ensure that the requested time off does not conflict with the responsibilities attendant to the research enterprise or the course. ﻿