Rules & Procedures

Department of Biochemistry Small-molecule NMR Core

I. SAFETY

1. New users must complete the MR safety I & II trainings and sign and submit the MR Screening Form and the Biochemistry NMR Safety Form before they are permitted to enter the magnet rooms or request NMR training. There will be no exception to this rule. Anyone who let an unauthorized person into a magnet room, such as lending your key or opening the door for that person, will be held accountable and face disciplinary and/or possible legal actions.
2. Individuals with ferromagnetic objects or medical devices in or on their bodies, such as metal fragments, cardiac pacemakers, orthopedic implants, prostheses and hearing aids, must be cleared by their doctors as well as the University's MR safety screening before requesting access to the NMR core facility.
3. Regardless of their prior NMR experience, users who are new to this facility must complete a formal training with the facility manager on an instrument before they are allowed to operate on that instrument, including inserting samples in the spinners or placing samples in the sample tray or on top of the magnet. There will be no exception to this rule. Anyone who let an untrained person use the instrument will be held accountable for any resulting damages and lose his/her NMR privileges.
4. If a magnet quenches, vacate the magnet room immediately and notify the facility manager.
5. Upon entering the magnet rooms, if you notice smoke, unusual smell or noises, flooding, powders, broken glass, chemical spills, or anything that you feel is not right or someone who is not supposed to be there (such as a janitor, a building maintenance worker, or someone who you know has not been trained but is operating an instrument), notify the manager immediately and contact relevant department/campus personnel if it's an emergency.
6. Always leave your personal items such as phones, wallets, and watches on the computer tables upon entering the magnet rooms. Do not bring any other ferromagnetic objects into the magnet rooms, including gas cylinders, stapler/staples, paper clips, scissors, or tools of any kind.
7. No radioactive or other highly dangerous samples are allowed on any instrument in the facility. Check with the manager if you are unsure.
8. High pressure samples and experiments are not allowed without the explicit permission of the manager.
9. Users must receive formal VT training on an instrument from the manager before they are allowed to change temperature on that instrument.
10. Do not touch any power button on any piece of equipment in the NMR facility.

11. Do not disconnect or connect any cable or component on any piece of equipment in the NMR lab, unless you have been given explicit instruction and permission by the manager to do so. This includes, but not limited to computer mouse, keyboard, ethernet cable and USB devices, and every cable and component of the spectrometer.
12. No food or drink of any kind is allowed in the magnet rooms. Do not dispose of food or drink containers, even empty ones, in the magnet rooms.
13. Do not share your personal NMR account with anyone else, or your group NMR account with anyone outside of your group. This includes, but not limited to login names and passwords for the spectrometers and the on-line reservation system. Anyone who violates this rule will lose his/her NMR privileges.
14. Do not wear your lab coats or lab gloves to the magnet rooms - take them off before leaving your lab, not after entering the magnet rooms. Make sure your hands and NMR tubes are clean before coming to the magnet rooms.
15. No chipped or cracked NMR tubes are allowed on any of the instruments.
16. Closely follow the operating procedures for each instrument. If there is anything you don't know or are not sure about, ask the NMR manager. Try first and ask later will most likely get you into trouble.
17. Take great care when handling spinners and samples, especially around the magnet. Reckless or careless behaviors around the magnet will not be tolerated.
18. Observe the rules, pay attention to what you are doing, and do not rush – these will go a long way in ensuring everyone's safety and avoiding costly mistakes and damages to the instruments.
19. Access to the NMR Core instruments is a privilege. Serious and/or repeated violation of the facility's rules and policies will result in your access being suspended or revoked.

II. SIGNUP & USAGE

1. There are a large number of researchers who use the NMR Core's instruments. Please show your fellow users respect, curtesy and consideration. Observe all the rules, follow all the procedures, and report promptly any instrument problem as well as any violation of the rules and procedures to the manager so that these issues can be resolved in a timely manner. This is part of your responsibility as a user. Your cooperation is key to the smooth and effective operation of the facility.
2. Observe the scheduling and usage rules for each instrument. Reservations are allowed only on the UI500 instrument. You may sign up for blocks of time that are 40 minutes or longer (including overnight time) 24 hours in advance. Users can only use the time they themselves reserved. You are not allowed to reserve time for others, or use time reserved by others.
3. You are not allowed to reserve the time blocks immediately preceding the overnight time in order to start your overnight run early.

4. Reserve only what you need, and modify or cancel your reservation as soon as you know your needs have changed. No show is unacceptable and repeated offender will be put on notice and may face restriction or removal of certain NMR privileges.
5. Show up and finish at your reserved time. You will forfeit your reserved time if you are more than 5 minutes late.
6. On the automated MR400 and AN400 instruments, smooth and effective operation requires that every single user carefully follow the instruments' rules and operating procedures. These instruments' operation is closely monitored and any misuse or abuse of the rules or the instrument will not be tolerated.
7. For usage and scheduling purposes, University observed holidays will be treated as Saturdays.
8. Users are required to sign the logbook every time they use the instruments.
9. Data can be accessed instantly, conveniently, and remotely on your own computer via network drives. Data processing should be done off-line. License and download for Mestrelab's Mnova NMR processing software are available upon request.

III. Instrument Specific Rules

1. MR400

Weekdays

7:00AM – 9:00AM	DayQ, unrestricted
9:00AM – 6:00PM	DayQ, one 30 minutes block per user *(see note below)*
6:00PM – 7:00AM	NightQ, unrestricted *(Submission starts at 4:00PM)*

Weekends

9:00AM – 5:00PM (Sat.)	DayQ, one 60 minutes block per user *(see note below)*
5:00PM (Sat.) – 7:00AM (Mon.)	NightQ, unrestricted *(Submission starts at 1:00PM Sat.)*

Note: One hour after the finish of your previous 30-minutes block (60 minutes for Saturdays), you may submit another block of samples. There is no limit on how many blocks one can have in a day as long as this one hour rule is followed.

2. AN400

Weekdays

8:00AM – 6:00PM	DayQ, one 30 minutes block per user *(see note below)*
6:00PM – 8:00AM	NightQ, unrestricted *(Submission starts at 4:00PM)*

Weekends

8:00AM – 6:00PM (Sat.)	DayQ, one 60 minutes block per user *(see note below)*
6:00PM (Sat.) – 8:00AM (Mon.)	NightQ, unrestricted *(Submission starts at 1:00PM Sat.)*

Note: One hour after the finish of your previous 30-minutes block (60 minutes for Saturdays), you may submit another block of samples. There is no limit on how many blocks one can have in a day as long as this one hour rule is followed.

3. UI500

Weekdays

8:00AM – 9:00AM	Max two 15 minutes blocks, up to 30 minutes
9:00AM – 6:00PM	Walkup – limited to 10 minutes *when others are waiting*
6:00PM – 8:00PM	Max two 15 minutes blocks, up to 30 minutes
8:00PM – 8:00AM	Overnight, unrestricted *(24 hours advanced reservation)*

Weekends

9:00AM – 6:00PM	Walkup – limited to 15 minutes *when others are waiting*
6:00PM – 9AM(Sun)/8AM(Mon)	Overnight, unrestricted *(24 hours advanced reservation)*

IV. Protocols for Dealing with Broken Samples

1. ***Samples broken on top of the magnet or in the sample tray:*** In this case, always assume there are glass fragments and/or chemicals inside the magnet or sample tray and do the following:

   a. ***On the MR400***, stop the automation queue **IMMEDIATELY** by going to the {Automation} menu -> Automation Controls -> Abort Automation.
   On the AN400, stop the automation queue **IMMEDIATELY** by pressing the Emergency Stop RED button on top of the sample tray.
   On the UI500, remove the spinner if it's still on top of the magnet and turn off the eject air if it's on.

   b. Flip the "Broken Sample" sign behind the computer monitor over.

   c. ***Damaged/contaminated/dirty spinner:*** If a sample is broken while in the spinner, the spinner is assumed contaminated with broken glass and chemicals. Do not try to clean the spinner or remove glass fragments from the spinner. Just hand it over to the NMR manager. If the NMR manager is not around, take it back to your lab and bring it to him later. Follow the same policy for the sample depth gauge if it's contaminated.

   d. ***Cleanup:*** Whenever a sample is broken in the magnet rooms, it's your responsibility to properly clean up the broken glass and chemicals yourself. Contact the University Biological and Chemical Safety Office at 8-2250 for the cleanup if you are unable to do it yourself.

   e. ***Reporting:*** Notify the NMR manager immediately, and record the incident in the logbook in as much details as possible.

2. ***Samples broken away from the magnet or outside of the sample tray:*** Do the following if a sample is broken away from the magnet or outside of the tray:

   a. ***Damaged/contaminated/dirty spinner:*** If a spinner is involved, follow the instructions for damaged/contaminated/dirty spinner above.

   b. ***Cleanup:*** Follow the cleanup procedures above.

   c. ***Reporting:*** Follow the reporting procedures above.