



## External User Agreement Nuclear Magnetic Resonance – Mission Bay

### NMR Policy of Equipment Usage and Calendar Booking

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- Calendar time booked for a spectrometer will be compared to actual usage time. Time booked on the calendar and not removed will still be charged to the user as time reserved prevents another from accessing the machine.
- For complications with machine usage or a failed run, you must send an email with explanation and clearly stated time/day involved to [Alma.Agorilla@ucsf.edu](mailto:Alma.Agorilla@ucsf.edu) (cc' [Mark.Kelly@ucsf.edu](mailto:Mark.Kelly@ucsf.edu), and [jdgross@cgl.ucsf.edu](mailto:jdgross@cgl.ucsf.edu)). Your email must be received within 3 days after the date you are requesting an exception for or your exception will not be considered and you will be charged for the time.
- Verbal agreements made to “swap” calendar time between two parties need to be updated on the calendar, even if this is within the same lab. You must email [Alma.Agorilla@ucsf.edu](mailto:Alma.Agorilla@ucsf.edu) (cc' [Mark.Kelly@ucsf.edu](mailto:Mark.Kelly@ucsf.edu), and [jdgross@cgl.ucsf.edu](mailto:jdgross@cgl.ucsf.edu)) within 3 days after the date you swap calendar time if you cannot change the calendar in time.

By your signature you agree that you have read, agree to, and understand all NMR policies and procedures in regards to usage of and safety within the Nuclear Magnetic Resonance Facility at UCSF, Mission Bay.

X \_\_\_\_\_  
Signature Required

### **Safety Hazards of Strong Magnetic Fields from Magnets in NMR Lab**

The strong magnetic fields that surround superconducting magnets are capable of causing death or serious injury to individuals with implanted or attached medical devices such as pacemakers or prosthetic parts. Such fields can also suddenly pull nearby magnetic (metal) tools, equipment, gas cylinders, and dewars into the magnet body with considerable force, which could cause personal injury or serious damage. Moreover, strong magnetic fields can erase magnetic media such as tapes and floppy disks, disable the information stored on the magnetic strip of automated teller machine (ATM) and credit cards, and damage some watches and electronic devices (cell phones, music players etc.).

**WARNING: Cardiac pacemaker wearers *must* remain outside the 5-gauss perimeter from the**

magnet until safety is clearly established. An NMR superconducting magnet generates strong magnetic and electromagnetic fields that can inhibit operation of some cardiac pacemakers, which could result in death or serious injury to the user. Consult the pacemaker user's manual, contact the manufacturer, or confer with a physician to determine the effect on a specific pacemaker.

**WARNING:** Leave area immediately in the event of a magnet quench. If a magnet dewar should quench (sudden appearance of gasses from the top of the dewar), leave the area immediately. Sudden release of helium or nitrogen gases can rapidly displace oxygen in an enclosed space creating a possibility of asphyxiation. The NMR Lab is equipped with an Oxygen Alarm. If the oxygen concentration drops below a safe level an audible alarm will sound along with a flashing red light. In event of an alarm please leave the lab. Do not return until the oxygen level returns to normal.

If you have questions please contact:

[Mark.Kelly@ucsf.edu](mailto:Mark.Kelly@ucsf.edu) or [Subramaniam.Sukumar@ucsf.edu](mailto:Subramaniam.Sukumar@ucsf.edu)

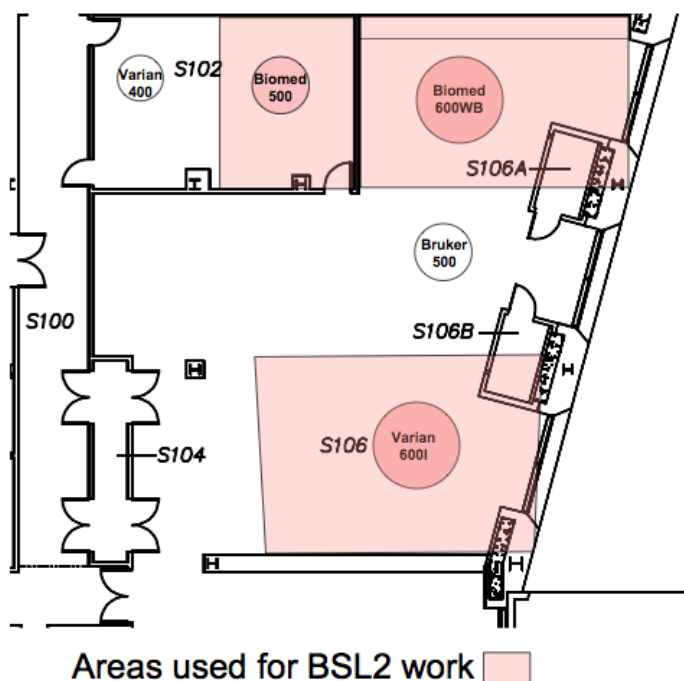
**STRONG MAGNETIC AND RADIO-FREQUENCY FIELDS ARE PRESENT**

<b>Pacemaker and Metallic Implant Hazard</b>	<b>Magnetic Media and ATM/Credit Cards</b>	<b>Tools and Equipment</b>
<p>Strong magnetic and radio-frequency fields are present that could cause serious injury or death to persons with implanted or attached medical devices, such as pacemakers and prosthetic parts.</p> <p>Such persons <i>must not</i> go closer to the magnet than the 5-GAUSS WARNING signs until safety at a closer distance is identified by a physician or medical device manufacturer.</p>	<p>Strong magnetic fields are present that could erase magnetic media such as floppies and tapes, disable ATM and credit cards, and damage some watches.</p> <p>Do not take such objects closer to the magnet than the 5-GAUSS WARNING signs.</p>	<p>Strong magnetic fields are present that could make some magnetic items suddenly fly towards the magnet body, which could cause personal injury or serious damage.</p> <p>Do not take tools, equipment, or personal items containing steel, iron, or other magnetic materials closer to the magnet than the 10-GAUSS WARNING signs.</p>

Pub. No. 87-250301-00 00094 Magnet Area Entrance Danger Sign

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## UCSF NMR Lab: BSL2 work NMR Systems GH-S102 & GH-S106



The three NMR systems (Varian 500 and 600WB) belonging to Radiology (Kurhanewicz and Ronen Labs) and the Varian 600I are being used for BSL2 work. The following magnets in the NMR Facility: Varian 400 (CHEM), Bruker 500, Varian 600II and Bruker 800) are not being used for BSL2 samples. The Radiology magnets used for BLS2 work are the Varian 500 system at the back of GH-102 (in the room with the 400) and the large new grey Varian 600WB magnet standing in the SE corner of the lab (near the fumehood) and Varian 600I at the south end of the larger part of GH-S106 (see attached NMR lab floor plan). Biosafety Level 2 is suitable for work involving agents of moderate potential hazard to personnel and the environment (see below). This includes measuring human tissue samples and experiments with cell cultures (cancer cell lines). Users should not touch these systems (areas in pink). This work is covered by a Biological Used Authorization (BUA) to the Radiology groups.



## **Biosafety Level 2 and Working Procedures.**

**BSL2** is suitable for work involving agents of moderate potential hazard to personnel and the environment (see below). This includes measuring human tissue samples and experiments with cultured cells. The Biomed 500MHz, Biomed 600WB and Varian 600I systems, as well as fumehood, safety hood and bench to the left of it are used for BSL2 experiments and sample handling. Users should not touch these systems or use the bench where samples are handled (areas in pink). **Users of the Varian 600I** should consider the NMR magnet, magnet leg, probe, cables, preamplifier as similar to other BSL2 equipment containing or that has contained risk group 2 agents (such as incubators used for BSL2 cell culture) and use the appropriate PPE (Personal Protective Equipment - gloves, lab coat and eye protection) when handling any part of the magnet or probe (e.g. sample insertion and extraction, tuning, changing cables for  $^{13}\text{C}/^1\text{H}/^{13}\text{P}$  detection or decoupling). Users who are not working directly with the bioreactors or working in another BSL2 lab (named on a BUA) are not required to take the BSL2 training.

If you have questions or concerns please contact the following:

John Kurhanewicz: [John.Kurhanewicz@radiology.ucsf.edu](mailto:John.Kurhanewicz@radiology.ucsf.edu)

The safety officer (DSA) for the Radiology Groups is: [arthur.lamsen@ucsf.edu](mailto:arthur.lamsen@ucsf.edu)

The safety officer (DSA) for the NMR Lab is: [Alex.Tan@ucsf.edu](mailto:Alex.Tan@ucsf.edu)

Here is a link to the Office of Environmental Health and Safety: <http://www.ehs.ucsf.edu/>