

New Tucker Hall Centrifuging Capabilities

New floor-model superspeed centrifuges and rotors

We now have two new Lynx 4000 Superspeed centrifuges in Room 404 Tucker Hall, along with rotors that together more than equal all the capabilities of the old Sorvall and Beckman floor-model centrifuges. Here is a list of the rotor specifications:

| Lynx rotor | Adaptors | Vessel | Maximum number of vessels | Angle | Maximum speed | Maximum RCF | k factor |
|----------------------------|----------|--------------------------|---------------------------|------------|---------------|-------------|----------|
| Fiberlite F12-6x500y | None | 500-ml centrifuge bottle | 6 | 20 degrees | 12 Krpm | 24,471 x g | 2,302 |
| Fiberlite F14-6x250y | None | 250-ml centrifuge bottle | 6 | 23 degrees | 14 Krpm | 30,240 x g | 1,699 |
| Fiberlite F14-14x50cy | None | 50-ml conical tube | 14 | 34 degrees | 14 Krpm | 33,746 x g | 798 |
| | Black | 15-ml conical tube | 8 | | | | |
| BIOFlex HS swinging bucket | None | 400-ml Biobottle | 4 | 90 degrees | 7 Krpm | 10,025 x g | 4,889 |
| | Gray | 250-ml centrifuge bottle | 4 | | | | |
| | Green | 50-ml conical tube | 16 | | | | |
| | Brown | 15-ml conical tube | 36 | | | | |

The operation of the centrifuges and use of the fixed-angle Fiberlite rotors are obvious. **There are special balancing requirements for the swinging-bucket rotor that are included at the end of this document and posted in the room.**

Options for 50- and 15-ml disposable conical centrifuge tubes

As you can see, these tubes can be accommodated either in the Fiberlite F14-13x50cy fixed-angle rotor or the swinging-bucket rotor. For most applications, especially pelleting cells, precipitated DNA, etc., the fixed-angle rotor is the better option. For one thing, the maximum RCF achievable is more than 3 times greater. More importantly, the pellet ends up at the centrifugal **corner** of the tube rather than the tip; the supernatant can be more thoroughly removed from a corner pellet than from a pellet at the tip.

Gaining access to the rotors and adaptors

Because two expensive Fiberlite rotors previously went missing from Room 404, we're keeping the rotors and adaptors in a locked cabinet. Please see Rebecca for the combination to the lock; she'll ask you to enter your name and pawprint on a sign-up sheet, so we'll know who has access to the combination. Please don't divulge the combination to anyone else: ask them to get it directly from Rebecca.

Centrifuge bottles for general use

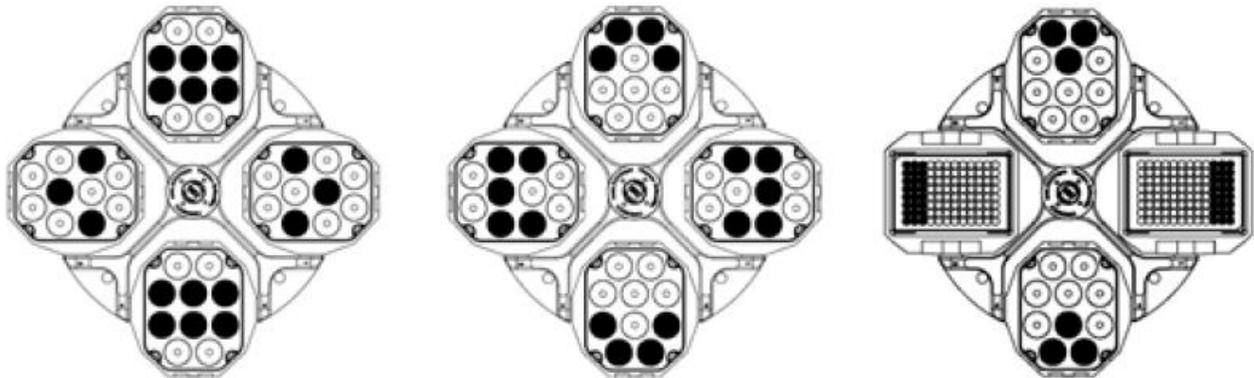
Pam Brown and I will make 250- and 500-ml polypropylene centrifuge bottles available in Room 404 for general use in the near future. Some of the bottles will be autoclaved and ready for sterile applications. They will have autoclave tape on the caps indicating proper autoclaving; be sure to remove the autoclave tape before centrifuging in order to avoid gumming up the rotors with sticky wads of dislodged tape.

After using general-use bottles, please clean them, and reautoclave them if applicable. **The cap must be very loose when you autoclave**; otherwise, the bottle collapses as the autoclave cools. Tighten the cap only when the bottle has cooled to room temperature.

Collapsed bottles are usually obvious, but sometimes the collapse is partial and is evident only as a relatively slight distortion from roundness. In either case, the bottle must be repaired as follows. First, wash the bottle if necessary. Run a little deionized water into the bottle and screw the cap on tight. Put the bottle in a polypropylene pan or other autoclavable containment, and autoclave very briefly on the dry (“gravity”) setting; the internal water vapor pressure will expand the bottle to its original shape. As soon as the bottle comes out of the autoclave, loosen the cap before the vapor cools and the bottle collapses again. Wear gloves and use caution when loosening the cap: there will be some steam pressure inside.

Balancing the swinging-bucket rotor

Opposite buckets must be carefully balanced as suggested in the following diagrams:



Adjacent buckets must not differ in weight by more than 200 grams. That means that you must **never use the rotor with only 2 buckets**, and you must use dummy vessels with water as necessary to reduce the weight difference between adjacent buckets. The diagrams below show 2 examples of improper balancing:

