**Procedure:** Centrifugation: High-speed floor centrifuges  
**School/Department:** School of Molecular Bioscience  
**SOP prepared by:** Angela Nikolic and Nick Coleman  
**Version:** SMB007.2

### Section 1 - Personal Protective Equipment

1. Lab coat or lab gown  
2. Safety glasses if handling eye hazards  
3. Proper enclosed footwear  
4. Hair tied back if long

### Section 2 – Equipment, Potential Hazards + Safety precautions

Note that the information in the section below is relevant to all high-speed centrifugation using large floor centrifuges, regardless of the model

1. Equipment: Sorvall RC-6 PLUS Superspeed Centrifuge in Room 642 or 744  
2. **This equipment must not be used unless you have been trained by the equipment custodian** (currently Angela Nikolic, x16491, Room 610).  
3. Rotor imbalance can cause catastrophic failure of centrifuge (explosion), injuring user. Always balance the centrifuge tubes (by weight, not just by eye), and put the balanced tubes in opposing positions in the rotor.  
4. Rotor can fail due to excessive speed, causing catastrophic failure of centrifuge, injuring user – know the speed limits of the rotor and don’t exceed these. Max speed varies from one rotor to another; large rotors cannot be spun as fast as small ones. **Ensure that the rotor is firmly attached to the spindle and that the rotor lid is VERY TIGHT** before starting the machine.  
5. Rotor can fail due to extensive wear and tear, causing catastrophic failure of centrifuge, injuring user – inspect regularly, replace if damaged.  
6. Centrifuge tubes can break in rotor due to excessive wear and tear or inappropriate use, causing imbalance of rotor, catastrophic failure of centrifuge, injuring user. Ensure you use the correct tubes for the sample type, and do not use cracked or broken tubes. Phenol and chloroform will rapidly destroy polycarbonate tubes and must be used in polypropylene tubes.  
7. Wait until the centrifuge gets up to full speed before walking away. If anything is going to go wrong (e.g. an imbalance), it will usually occur in this initial period. You need to be there to take action if this occurs.

### Section 3 – Procedure

Note that the detailed procedure below is specific for the Sorvall RC-6 machine, it may not be appropriate for other models.

1. Know the location of spill kits, eyewashes, safety showers before starting work  
2. Prepare suspensions to be centrifuged in appropriate tubes. The maximum volume level in each tube should not exceed 75% of the tube capacity.  
3. Make sure that each pair of tubes is balanced by weighing them. Ensure that lids are correctly fitted.  
4. Place tubes into the correct Sorvall/Fiberlite rotor (if using Sorvall RC-6 PLUS machine) **NOTE:** The SLC-6000 rotor WILL NOT FIT into this machine. If your rotor doesn’t appear to attach correctly, don’t force it ! Seek assistance from the equipment custodian,.  
5. Switch the centrifuge ON. Open the chamber door. Make sure you push the door all the way back. Injury can occur if the door falls closed on parts of your body – we have seen this before in our school !  
6. Install the rotor by placing the rotor base onto the drive spindle. Check that it is securely fitted and centrally located onto the spindle  
7. Place the rotor cover on to the rotor base and lock the cover into place and the rotor in to place by turning the rotor locking knobs counter-clockwise. Lock in the larger knob first. **LOCK THESE KNOBS AS TIGHT AS YOU CAN** by hand, but don’t use other tools – this would over-tighten
8. Check that the rotor is firmly attached by attempting to lift it off the spindle. You should not be able to do this. If you can, open up the rotor, and restart from 5 above.
9. Close the chamber door, and use the Run Screen at the rear right hand side of the machine to program in all parameters.
10. Enter the ID Code and password. (this is given at time of training)
11. Enter the Rotor Code of the rotor you are using. Press enter. (This is done by scrolling through the rotor names and codes listed and entering the correct code that matches your rotor.)
12. Program in the required SPEED, TIME and TEMPERATURE. Note: Acceleration and Deceleration are set at 9:9 but can be adjusted for more delicate runs.
13. Close the lid gently when ready to begin centrifuging, and hit the Start button to begin the run. Note that the machine and rotor can also be pre-cooled by doing a short run for 10 minutes at 4 degrees.
14. Once the run has ended, the machine will beep, but the door will remain closed. Open the door, remove your rotor and samples. If you need to do another run with the same rotor and samples, re-tighten the rotor locking screws.
15. Switch off the machine but leave the lid open. Clean out the rotor with 80% ethanol if there have been any leaks. Do not use bleach – this will corrode the rotor. Leave the rotor upside down back in the correct storage location to drain out any residual ethanol.

Section 4 – Disposal / Spills / Incidents

1. Depending on the nature of the spill, clean up as described in SOPs for Biohazard Spills, Flammables, Corrosives, or Toxic Substances.
2. If a breakage and /or spillage occurs, clean rotors and centrifuge chamber immediately with 80% ethanol. The rubber sealing will deteriorate if spills are not attended to promptly.
3. Depending on the nature of the materials used, dispose of wastes as described in SOPs for Biohazard Spills, or Chemical Wastes
4. Any large spills of hazardous materials (>1L) or incidents resulting in injury must be reported to your supervisor immediately and via the online incident report form within 24 h. Near misses (dangerous situations not leading to an incident) should also be reported.

Section 5 – Repairs / Certification / Validation

1. Ensure centrifuges and especially rotors are undamaged and in good repair. Consult the equipment custodian if in doubt.

Section 6 - References

1. Risk assessment for centrifugation.
2. Other: SOPs for Biohazard Spills (SMB004), Flammables (SMB013), Corrosives (SMB009), Toxic Substances (SMB034), Chemical Waste (SMB008), Biohazard Waste (SMB039).

SOP Consultation, Training and Approval

Print names and enter signatures and dates to certify that the persons named in this section have been consulted/trained in relation to the development and implementation of this Standard Operating Procedure. WHS Representative (WHS Committee) certifies that consultation has taken place.
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**Name Authorising (Printed):** DIANNE FISHER

**Signature:** .......................................................... **Date:** 3/6/14 ................................................................

**WHS Committee Representative Name (Printed):** MARKUS HOFER

**Signature:** .......................................................... **Date:** 11/7/14 ..............................................