

Title:	Guidelines for use of High Speed and Ultracentrifuge		
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Keyword(s):	Eye wash, emergency response, safety		

1.0 PURPOSE

This procedure document demonstrates how safely use Ultracentrifuges and High Speed centrifuges at KRCBS.

2.0 PROCEDURE

For training and access, please contact: ResearchFacilities@unityhealth.to

Considerations BEFORE using an Ultra or High speed Centrifuge

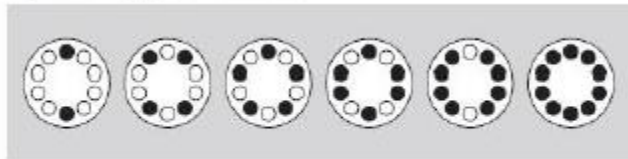
- Ultracentrifuge – speed range up to 80,000 RPM (LE-80K on 4th floor) or up to 100,000 RPM (L100-XP on 5th floor). High Speed – speed range up to 26,000 RPM (Avanti J20 on 5th floor) or up to 21,000 RPM (J2-MC on 4th floor)
- Centrifugal force (g-force or x g) depends on the rotor you are using. Determine which centrifuge is appropriate for your protocol and which rotor you need to achieve the required force
- NOTE- Determine you need a fixed angle or swing bucket rotor (Swing bucket only Available for Ultracentrifuge)
- Every rotor has a maximum speed and you cannot exceed that limit! Consult the rotor manual on the website or call the company directly if you have any questions.
- Ensure your protocol is within the limits of the rotor and which rotor you require.
- Only certain tubes can accommodate the speeds you require for your protocol. Ensure tube volume and type (i.e. polypropylene vs polycarbonate) are compatible with your experiment. Consult the tube/adaptor manual on the website or call the company directly if you have any questions. Always use tubes as specified by the manufacturer.

- When centrifuging biohazardous materials, use tightly capped tubes and/or sealable safety cups or rotors that can be loaded and unloaded in a fume hood or biosafety cabinet, depending on hazard.
- When centrifuging hazardous materials, wait at least 10 minutes (preferably 30 min) after run to allow aerosols to settle before opening centrifuge.
- Check for leaks/spills: In samples, rotor, safety cups/buckets, and centrifuge well.

Considerations WHEN using an Ultra or High speed Centrifuge

- Protect the bottom of the rotor, it is marked with spots that work with the tachometer sensor, damaging or obstructing them will cause issues.
- Always transport the rotor on the appropriate rotor stand.
- Do not overfill the centrifuge tubes. Weigh your tubes to ensure proper equilibrium in the rotor (opposing samples should be weighed and matched in weight to within 0.05 g (preferably 0.01g).
- Load samples evenly in the rotor to prevent imbalance, which can lead to equipment failure or damage:

Figure 2 Arranging Tubes in the Rotor



NOTE Two, four, five, six, eight, or ten tubes can be centrifuged per run if they are arranged in the rotor as shown.

- Regularly monitor the centrifuge during operation and be attentive to any unusual sounds, vibrations, or odors.

DEFINITIONS

Term/Acronym	Definition
KRCBS	Keenan Research Centre for Biomedical Sciences

Version	Approval/Sub-approval body	Approval date
01	Research Biosafety Committee	January 1, 2021
02	Research Biosafety Committee	February 1, 2021
03	Director Research Facilities	November 27, 2023
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