Document Number: **SASoM/EQUIP/073.v2**

Title: **Use and maintenance of the Beckman-Coulter Avanti J26-XP centrifuge**

Version: **v2**

Author: **Peter Mullen**

Effective from:	09/05/2019
Valid to:	08/05/2024

SOP History		
Number	Date	Reason for Change
v1	09/05/2014	Original
V2	09/05/2019	Update

1.0 Purpose –

The purpose of this SOP is to outline the principles of the routine use of the Beckman-Coulter Avanti J26-XP centrifuge in Laboratory 248 at the St Andrews School of Medicine (SASoM).

2.0 Scope –

This SOP applies to routine use and maintenance of the Beckman-Coulter Avanti J26-XP centrifuge within the SASoM.

3.0 Responsibilities –

It is the responsibility of all users of the Beckman-Coulter Avanti J26-XP centrifuge within the SASoM to comply with this SOP.

4.0 Procedure –

All users should be familiar with the risks associated with High Speed Centrifugation before using this equipment.

There are two suggested rotors available for use with this instrument:

- JA-25.50 Fixed Angle, 34° (Serial Number: 10E 658)
  (8 tubes with a maximum volume of 50ml; maximum speed 25,000rpm / 75600g).

- JA-10 Fixed Angle, 25° (Serial Number: 91E 3379)
  (6 tubes with a maximum volume of 500ml; maximum speed 10,000rpm / 17,700g).

The J-26XP centrifuge is fitted with a number of features which include:

- An automatic door lock system which prevents the door being opened whilst the instrument is in use.
- Automatic rotor identification system prevents any given rotor running above its prescribed maximum speed.

Operation:

1. Check the booking diary and if not booked, then enter booking.

2. Turn on the centrifuge by pressing the POWER switch which is located below the control panel to ON.

3. Open the centrifuge door.

4. If not already fitted, install the rotor, making sure that the rotor load is evenly balanced and that the rotor is securely fastened to the centrifuge drive hub. *Do not drop the rotor onto the drive hub as the drive shaft can get bent – always install the rotor by centreing it over the hub and carefully lowering it straight down onto the hub.*

5. Fill the tubes with sample and ensure that all tubes are correctly balanced. Tubes should be filled up to 50ml for the JA-25.50 Fixed Angle rotor and up to 500mL for the JA-10 Fixed Angle rotor. Since tubes can collapse if small volumes are used in high speed spins, manufacturers recommend filling tubes as close as possible to the maximum capacity of the tube (but no more).

6. Add or remove liquid so the tube weights balance within 0.1g. Ensure that balanced tubes are used in opposite pairs. You can leave empty spaces in the rotor providing they are again equally balanced (ie an empty position in the opposite position).

7. Place the lid on the rotor and secure in position by screwing in a clockwise manner. *Check that the rotor is securely fixed to the shaft by gently pulling vertically upwards – it should not become detached!*

8. Close the centrifuge door.

9. Turn the ROTOR knob until the installed rotor name appears in the ROTOR ID display.

10. Turn the SPEED knob until the required run speed (rpm) appears in the SPEED display. Alternatively, press [RPM/RCF] to select RCF mode and then turn the speed knob until the required RCF appears in the SPEED display.

11. Turn the TIME knob until the required run length appears in the TIME display. Alternatively, press [TIME/HOLD] for continuous operation.

12. Turn the TEMPERATURE knob until the required temperature appears in the TEMP °C display.

13. Press [ACCEL] repeatedly to select MAX (maximum) or SLOW acceleration.

14. Press [DECEL] repeatedly to select MAX (maximum) or SLOW deceleration. Alternatively select OFF (no brake).

15. Check that all of the parameters are correct and that the door is closed. Press START.

16. Wait for the set time to count down to zero, or end the run by pressing STOP.

17. When the run is complete, open the door, remove the lid from the rotor and then remove samples. The door is opened by stepping on the foot pedal located at the bottom right hand side of the instrument.

18. Lift out the rotor vertically and place on the stand. Carefully remove the buckets so as not to disturb any pellet.

19. Wipe out the chamber if any liquid present and close the lid before switching off the centrifuge. Often get condensation on the rotor as chilled so wipe with a paper towel. If necessary, wipe with 70% alcohol.

ERROR MESSAGES:

- *If the instrument shows a 'DRIVE' error code, do not use the instrument until a service engineer has been called.*
- *If the display panel shows '0 rpm' immediately after a failure, you MUST WAIT 4 (FOUR) HOURS BEFORE ATTEMPTING TO OPEN THE CENTRIFUGE.*
- DO NOT attempt to start another run until the instrument is serviced.

In all cases please inform either Mary Wilson or Simon Powis of any failure and enter details of the failure in the Centrifuge Log Sheet.

5.0 Personal protection –
Howie coat must be worn at all times.

6.0 Training –
All users have to be trained before using the Instrument by a designated person.

7.0 Related documents –

7.1 Risk assessments – RA/GEN/002 (Centrifuges)

7.2 Code of Practice for use of centrifuges - University booklet on “Guidance on Chemical and Biological Safety – part 2 Biological and Genetic Modification Safety.”

7.3 School Handbook – Health and Safety section (online)

8.0 Approval and sign off –

Author:

Name: Peter Mullen

Position: Research Fellow

Signature: Date:

Management Approval:

Name: Peter Mullen

Position: SOP Administrator

Signature: Date:

QA release by:

Name: Alex MacLellan

Position: QA Manager

Signature: Date:

STANDARD OPERATING PROCEDURE

Please sign below to indicate you have read this S.O.P and understand the procedures involved.

NAME	POSITION HELD	SIGNATURE	DATE