

Thawing Procedure for Cryopreserved, Advanced Therapy, Medicinal Products using a Water Bath

Creator: University Hospitals Birmingham
NHS Foundation Trust

Document version number: V1.0

Date written: September 2020

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Midlands-Wales
Advanced Therapy
Treatment Centre



Thawing Procedure for Cryopreserved, Advanced Therapy, Medicinal Products using a Water Bath

Version Number 1.0

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Coordinated by



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Scope:

This document applies to all nursing personnel involved in the administration of cryopreserved Advanced Therapy Medicinal Products (ATMPs) which require thawing using a water bath. It is also recommended reading for pharmacists involved in handling or overseeing the handling of cryopreserved ATMPs.

Entry Conditions:

All nurses must undergo a period of supervised practice and gain competency to use the thawing equipment. They should also sign to say they have read this document.

Introduction:

Some ATMPs contain living cells. These cell-based therapies may be cryopreserved to extend their shelf life, requiring carefully controlled thawing prior to administration. Failure to thaw the product correctly may impair the integrity of the cells (viability and/or function) and the product may be rendered unfit for purpose. The therapeutic product may be bespoke to the patient (manufactured using their own cells or tissues, i.e autologous) and could potentially be irreplaceable.

This SOP is based on in-house experience from clinical trials and may not be appropriate in all settings. Always refer to the trial protocol or manufacturer's product-specific instructions.

Responsibilities:

JOB TITLE:	ROLE:	RESPONSIBILITY:
Pharmacist	Receipt, storage and handling of ATMP shipper from pharmacy to patient bedside.	<p>To receive cryopreserved ATMPs from manufacturer.</p> <p>To check temperature recording during transit to site and storage on site.</p> <p>To check documentation accompanying the ATMP (full chain of custody, final release documentation) against the prescription.</p> <p>To remove/assist removal of ATMP from shipper and perform final check before release to nursing team for administration. To inspect final thawed product, as appropriate.</p> <p>To arrange return of the shipper post procedure, as appropriate.</p>
Nurse	Safe handling and thawing of ATMPs	<p>To set up equipment for safe thawing of ATMPs.</p> <p>To confirm patient identity before commencing any activity.</p> <p>To check final product with pharmacist, against prescription and confirmation of patient identity.</p> <p>Two nurses to check prior to start of thawing to ensure it is the right product for the correct patient.</p> <p>Thaw ATMPs as per trial protocol/procedure or as per manufacturer's instructions</p>

Thawing Device - Water Bath:

MATERIALS:

- Water bath with electrical lead.
- 2 x 1 litre bottles sterile water (in date). More may be necessary as cells need to be fully submerged.
- Stainless steel trolley.
- Reusable instrument (plastic) tray.
- Scissors.
- Gravity fed giving set. Trial protocol or manufacturer to state if an in-line filter for administration is necessary.
- Clinical Waste Sharps bin.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Cryogenic Gloves.
- Goggles/Visor (optional).
- Plastic apron.
- Disposable gloves.
- (optional sterile gloves may be requested by protocol or manufacturer).

CLEANING EQUIPMENT:

- Suitable surface disinfection wipes e.g. Clinell Universal Wipes (or equivalent as per local procedures).
- Paper towels.

Procedure:

(Patient's identity will be checked against trust identity bracelet in situ, prior to any activity. Patient will be cannulated, and any required pre-medication administered, as required and as prescribed)

1. Assemble all materials and equipment as described.
2. Disinfect the trolley and instrument tray with surface disinfectant wipes and allow to air dry.
3. Disinfect both the inner and outer surfaces of the water bath with surface disinfectant wipes and allow to air dry. Ensure on/off switch is set to off.
4. Fill the water bath to the required level with sterile water.
5. The water bath temperature should be pre-set to 37°C or as the product thaw procedure. Any alarms should also be pre-set. Do not adjust settings.
6. Dependent on the requirements of the product being thawed, it may be necessary to use an additional calibrated thermometer to record the water temperature of the water bath instead.
7. Plug water bath into the socket and switch on. Allow temperature to reach 37°C
8. Record patient observations pre – infusion (e.g. temperature, blood pressure, heart rate, respiratory rate, O2 saturations) as required for the product.
9. Pharmacist, or suitable designee, will perform a final check of the storage temperature of the product. If there are no concerns, the shipper may be opened.
10. Water bath to have come up to the required temperature and all staff who will be required to handle the products will wear appropriate PPE before proceeding beyond this step.
11. Using cryogenic gloves, the pharmacist or suitable designee will remove the product from the shipper. The product should be placed in a plastic instrument tray and the shipper closed immediately after removal. If the dose is made up of more than one bag, remove one bag at a time for thaw and administration. Subsequent bags may be thawed whilst the previous bag is being infused, if appropriate for the product.
12. The pharmacist will perform the required pharmacy checks for final release of the product against the prescription.
13. The nurse will check the product (product name, dose, volume, batch number, expiry date) and patient details against the prescription with the pharmacist at handover.
14. Due to the novel nature of the product, it is recommended for a 2 nurse check prior to thaw to ensure it is the correct product for the correct patient.
15. The cryopreserved product will be removed from the secondary packaging and labelling on the primary container checked against the prescription.

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16. Nurse will place the cell product into the water bath until it is fully submerged. Gently agitate and rotate the bag in the water to ensure the cell product is thawed evenly. If there are any clumps of cells, these may be gently squeezed to help break them up. The time taken to thaw will vary between products but best practice is to remove the cells from the water bath when just a few clumps remain frozen. If required, - record time the thaw starts and ends as this may impact on the expiry time once thawed.
17. Once the thaw is complete, hold the cells to the light to inspect the contents of the bag. Some cloudiness or minor clumping may be seen but this is normal for cellular products – refer to the product information for further guidance. If some clumping is seen, gently massage the bag to disperse the clumps. There should be no crystals or other particulate matter present in the solution. If these are observed, discuss with the pharmacist before proceeding further and contact with the manufacturer may be required. Thawed products have a very short shelf-life therefore any action must be taken swiftly.
18. Signs of leakage – Sponsor/Manufacture requirements may differ as per product. Some products may not be viable and need to be discarded (discard as per local procedures). In this instance, notify trial sponsor/manufacturer as soon as able and report as per local procedures. Other products may tolerate leakage, due to the use of secondary packaging. Be advised by sponsor or manufacturer requirements and discuss concerns with pharmacist immediately.
19. Remove the inner bag by cutting the top off the outer bag and pulling out (take care not to cut the inner bag)
20. If required - remove the inner label and file in the patient notes – this will contain the patient details and the batch number of the cells.
21. Cells are now ready to infuse. Record the infusion start and finish time for each bag of cells as per trial protocol or local procedures.
22. Follow the same process for any additional bags. Observations to be recorded every 15 minutes during the infusion and at the end of the infusion. Dispose of cell packaging as clinical waste, as per local procedures or as advised by protocol/manufacturer.
23. After all cell product has been removed from the shipper, the shipper will be returned to pharmacy along with all pharmacy documentation.
24. Nurse to turn off the water bath and unplug the equipment. Empty the water into the sink and pat dry with the paper towels.
25. Clean water bath with surface disinfectant wipes and allow to air dry. Return to storage.

Monitoring Suggested Standards:

This SOP will be stored on the ATTC website. Nurses to sign below to confirm they have read and understood this SOP.

Nurse signature:

Date: / /
 DD/MM/YYYY