THE UNIVERSITY of EDINBURGH

SuRF Shared University Research Facilities

MRC Medical Research Council

Document Number: SuRF-IMM-008.01

Title: Heat-induced Epitope Retrieval (HIER) Using a Pressure Cooker

Version 1.0

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Effective from:	01/03/2016
Reviewed annually	

SOP History		
Number:	**Date:**	**Reason for Change:**
01	01/03/2016	Original

1.0 Purpose:

The purpose of this Standard Operating Procedure (SOP) is to describe the current procedure for heat-induced epitope retrieval (HIER) using a domestic pressure cooker. Most formalin-fixed tissue requires an antigen retrieval step before immunohistochemical staining can proceed. This is due to the formation of methylene bridges during fixation, which cross-link proteins and therefore mask antigenic sites.

2.0 Scope:

This SOP applies to all staff, students, visitors and any other supervised/trained individuals involved in this procedure within the Shared University Research Facilities (SuRF), based in the Queen's Medical Research Institute (QMRI), Edinburgh.

3.0 Responsibilities:

This document is a guide only – on site training is essential before use

3.1 All staff involved in this procedure are responsible for ensuring that methods are followed in accordance with this SOP after suitable training.

3.2 All staff must have read and understood the Operation Manual for the Pressure Cooker and received appropriate training from a competent user.

3.3 All staff must have read and signed the relevant risk assessment document(s) before performing this procedure.

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4.0 Equipment:

4.1 Pressure Cooker

The pressure cooker is a programmable, electric, domestic, pressure cooker. Although it is programmable it also performs using "manual" settings and when used with the following procedure allows the precise pressurised heating necessary for antigen retrieval.

5.0 Procedure:

Follow operating instructions as per manufacturer's manual.

BRIEFLY

- Fill metal chamber with 1.5 litres of deionised water.
- Place tub with antigen retrieval buffer and racked slides in the metal chamber.
- Place lid on the pressure cooker and turn until a click is heard and/or felt.
- Switch pressure cooker on.
- Press the "Manual" button and change the default time from 30mins to 5mins using the + or – keys.
- Ensure the pressure release valve is in the middle at the 'sealing position'.
- The chamber will take 18-20 minutes to heat up, once up to temperature the display will change to read the time set above. Once the timed 5mins has elapsed turn the pressure release valve to the "venting" position to release the pressure.
- Leave the rack in the metal chamber and allow 20mins to cool down.
- Once the timed 20mins has elapsed, and using the heat resistant gloves provided, very carefully remove the chamber to the nearby sink and run cold water into the tub for 1-2mins.
- With the heat proof gloves provided, remove the metal chamber, empty, clean and dry off before relocating to the pressure cooker.

6.0 Related documents / references:

- RA1: SuRF-RA1-IMM-008: Heat-induced Epitope Retrieval (HIER) Using a Pressure Cooker

- COSHH: SuRF-COSHH-IMM-008: Heat-induced Epitope Retrieval (HIER) Using a Pressure Cooker

- Manufacturer's manuals / instructions

- The University of Edinburgh Health & Safety Policy / Codes of Practice (available on University's Health and Safety Department website)

- College of Medicine and Veterinary Medicine Health and Safety Manual (available on University's Health and Safety Department website)

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7.0 Approval and sign off:

Author:

Name: Lyndsey Boswell

Position: Principal Investigator

Signature: Date:

Management Approval by:

Name: Mike Millar

Position: Facility Manager

Signature: Date:

QA Release by:

Name: Robin Sellar

Position: QA Manager

Signature: Date:

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8.0 Verification by users:

Sign below to indicate you have read and understood the activity outlined above and the risk control measures that you must implement, use and / or wear. Ensure you have received sufficient information, instruction and training to enable you to conduct this activity with the minimum of risk to yourself and others.

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