

**Equipment Operation Procedure** 

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Title:	Biorad T100 Thermal Cycler
Version:	v2
Author:	Peter Mullen

Effective from:	01/02/2020	
Valid to:	31/01/2025	

SOP History		
Number	Date	Reason for Change
v1	01/02/2015	Original
v2	01/02/2020	Quinquennial Update

### 1.0 Purpose -

The purpose of this SOP is to outline the principles of the routine use of the Biorad T100 Thermal cycler in Laboratory 248 at the St Andrews School of Medicine (SASoM).

### 2.0 Scope -

This SOP applies to routine use and maintenance of the Biorad T100 Thermal cycler within the SASoM.

### 3.0 Responsibilities -

It is the responsibility of all users of the Biorad T100 Thermal cycler within the SASoM to comply with this SOP.

### 4.0 Procedure -

Always wear gloves when handling PCR tubes and putting them into the machine.

The machine has one 96-well block that is programmed using the touch screen interface.

### The machine is turned ON/OFF using the black button on the back of the machine.

The Home screen on the touch screen allows you to 1) create and save a new protocol; 2) access saved protocols; 3) incubate at a constant temperature set by the user; or 4) access system information, settings, or initiate a self-test.



**<u>Opening and closing the heated lid:</u>** The lid can be opened by lifting up on the handle. The lid will remain open without assistance. To close the lid, push the lid handle down until it stops.

**Loading samples:** Confirm that the block is clean before loading samples. Firmly press the individual tubes or microplate into the block wells. When running individual tubes, place the support ring in the block to prevent deformation of the tubes by the heated lid.

### Creating a new protocol or Editing an existing protocol:

To create a new protocol, touch **New Protocol** on Home screen. To edit an existing protocol, touch **Saved Protocols** on Home Screen, and select the protocol to be modified and touch **Edit** (this will open the editing screen).

An editable protocol will appear showing temperatures and times for each step, along with the sample volume, temperature of lid, and numbers of cycles required. Touch the appropriate box on the screen to edit the time or temperature of each step, dsing the numeric keypad. When finished editing or creating the protocol, touch **Run** to Run the protocol immediately (without saving), or touch **Save** and choose the folder location for saving the protocol. Touch **Run** to run the protocol.

<u>Temperature parameters:</u>  $4.0^{\circ}$ C –  $100.0^{\circ}$ C <u>Time:</u> 1sec – 18hrs, or infinity ( $^{\circ}$ , 0) <u>Gradient:</u> Front row 30.0°C – 99.0°C; **Back row**: 25.0°C – 100.0°C <u>Increment:</u> -10.0°C – +10.0°C per cycle in tenths of a degree. <u>Ramp rate:</u> A number from 0.1 to 4.0°C per sec <u>Extend:</u> A time from -60 to 60 sec.

**<u>Running a protocol</u>**: To start a run, create a new protocol or select a saved protocol. Touch **Run** to initiate selected protocol.

**Incubating samples:** Touch **Incubate** on the Home Screen to open up the Incubate screen. Edit the **Block Temperature, Lid Temperature, and Hold time**. Touch **Run**. To end the incubation, select **Cancel**.

# 5.0 Personal protection -

Howie coat must be worn at all times. Gloves should be worn when loading samples.

# 6.0 Training -

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

# 7.0 Related documents -

- 7.1 Manufacturer's operation manual
- 7.2 Risk Assessments RA/COSHH/012 RA/GEN/003



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# 8.0 Approval and sign off -

Author:		
Name:	Peter Mullen	
Position:	Research Fellow	
Signature:		Date:
Management Appr	oval:	
Name:	Peter Mullen	
Position:	Research Fellow	
Signature:		Date:
QA release by:		
Name:	Alex MacLellan	
Position:	QA Manager	
Signature:		Date:





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# 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