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Title:	Seahorse XFp Analyser		
Version:	v2		
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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 Seahorse XFp Analyser in Laboratory 248 at the St Andrews School of Medicine (SASoM).

#### 2.0 Scope -

This SOP applies to routine use and maintenance of the Seahorse XFp Analyser within the SASoM.

#### 3.0 Responsibilities -

It is the responsibility of all users of the Seahorse XFp Analyser within the SASoM to comply with this SOP.

## 4.0 Procedure –

### Running the XFp Analyser

To turn on the machine, flip black switch on the back. Allow 20 minutes for the machine to warm up and equilibrate (green tick mark will appear in upper right corner when ready). To turn the machine off, select the power button on the touch screen and wait until screen turns black, then flip switch on the back of instrument.

To run an assay on the XFp Analyser, select Start on the menu screen.

A template can be selected from the local tab for the assay being run, alternatively a protocol can be designed on the external software and loaded via the Seahorse USB drive onto the instrument.

Once template has been selected, the plate map and groups should be verified. The groups can be edited by touching the group name, followed by the wells to be included.

The instrument protocol should then be reviewed. Following this, a review summary will be generated and the "Start Assay" option will appear. This review page will allow for instrument detected errors or warnings to be displayed. Additionally, it will allow the operator to edit the Assay name, add any notes, or include the email notification system.

When prompted, load the cartridge and utility plate onto the open tray. Ensure that the cartridge is fitted properly and in the correct orientation, and that the lid is removed. The instrument will then perform a 20 minute calibration of the sensor cartridge.

Following the calibration, a prompt will appear which will allow you to open the tray and remove the utility cartridge. Once removed, place in the cell plate in the correct orientation and remove lid.

Once the cell plate is loaded, press continue and the assay will begin.

During the assay, the data generated will be automatically available to visualise on the screen. There will be two tabs present. The Overview displays oxygen consumption rate (OCR) and extracellular acidification rate (ECAR) as a function of time. Red vertical lines display injections, and are labelled with the port letter. The chart view can be adjusted by selecting the Zoom. Move or Reset options. Additional information can be displayed by touching the Options button (two cogs), which will allow you to show the standard deviation, the concentration (level) data from which the rate is derived, and allow you to switch to well mode from group mode. The OCR vs. ECAR tab plots OCR (Y axis) against ECAR (X axis).

Once the assay has finished, the instrument will prompt the user to eject the cartridge and cell plate.

After the assay is complete, the data will be automatically saved to the inserted Seahorse USB drive.

## Modifying the XFp Analyser

To adjust the settings of the XFp Analyser, touch the Settings button on the start page. This will allow for the adjustment of Environmental settings (temperature tolerance and alarm, atmospheric pressure), the Backup Assay Results settings (all assays performed on the instrument will have their data saved to the local storage for 60 days), as well as Assay Autonaming and Template Management.

## XFp Analyser Diagnostics

Diagnostics can be accessed through the start page. Through this option, a full systems check can be performed, as well as a measurement system check, thermal performance check and further advanced measurements. Details of all of these are contained within the XFp Analyser User Manual.

## 5.0 Personal protection –

Howie coat must be worn at all times.

Care should be taken when loading trays to avoid pinch hazards, by catching your hand in the door.

## 6.0 Training –

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

### 7.0 Related documents -

7.1 XFp Analyser User Manual XFp Analyser Basic Procedures Manual



# 8.0 Approval and sign off -

Author:		
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Position:	Research Felow	
Signature:		Date:
Management Appr	roval:	
Name:	Peter Mullen	
Position:	Research Felow	
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