TITLE: *SOP4007 TabulateFLIm data and quick overlays*

HISTORY:

Version	Date	Authors	Modification
A	7/11/2023	Alba Alfonso-Garcia	Create for the NCIBT Summer School FLImBrush Demo
B	7/12/2024	Alba AG	Update images
C			

PURPOSE: This document describes the workflow for tabulating FLIm data and retrieving image overlays.

SCOPE: This SOP applies to the multispectral APD system versions 1

APPLICABLE DOCUMENTS:

EQUIPMENT & MATERIAL NEEDED: This list references equipment and materials for this procedure.

Description	**Reference**	**Supplier**
FLImBrush system	SOP2004	Marcu Lab
DeConv code	SOP4001	Marcu Lab
FLImDemo code		Marcu Lab

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▲ **INSPECT** –. The red triangle is used to identify inspection /verification tasks designated as Acceptance Activity. The results of which must be recorded on the routing sheet

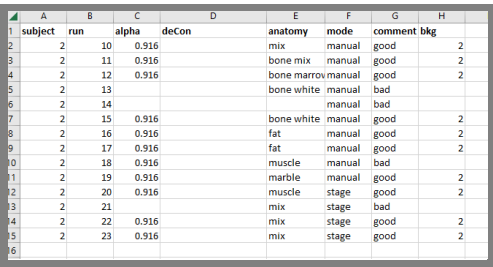
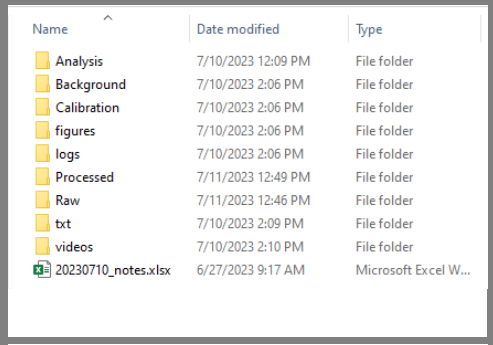
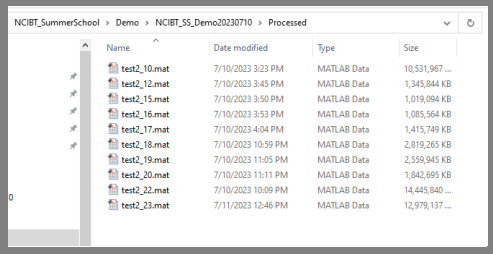
■ **WORK CONTENT –** The yellow square is used to identify the task to be performed.

● **CONFIRM –** The blue circle is used to identify a confirmation of process set-up or processing detail. Recording of confirmation results is not mandatory.

✚ **SAFETY –** The green cross is used to identify safety issues.

GENERAL INSTRUCTIONS:

Prepare environment and deconvolve the data

1.		Create an Excel document with columns: Subject, run, alpha, deCon, anatomy, mode, comment, bkg, and populate it with the notes from the imaging session. Save it as '*date*_notes.xlsx'
2.		Assemble your data folder with the data from the - VIZ computer including folders /figures, /logs, / txt, and /videos - ACQ computer including folders /Background, /Calibration, and all the raw data - Make a /Raw folder and move in the raw data - Make a /Processed folder and leave it blank - Make an /Analysis folder and leave it blank Include the .xlsx file with the imaging notes
3.		Deconvolve the raw data using the FLImBrushDataProcessingTool repo (Github), code: mainTriplexGui ➔ See SOP4001 for details
4.		Move the deconvolved files to the /Processed folder created in step 2. Fill in the deCon column in the notes file with good/bad according to the results of the deconvolution.

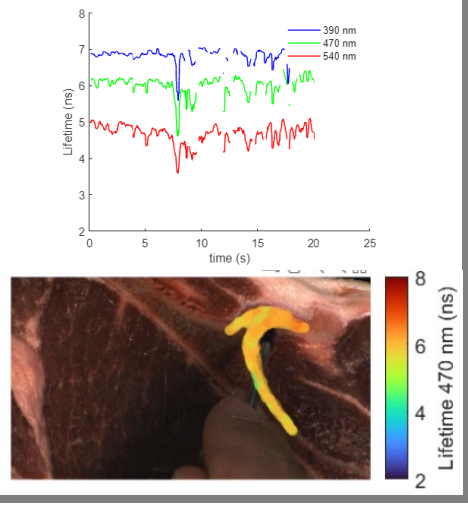
TABULATE FLIM DATA

5.		Run **FLImDemo.mlx** Modify as needed: - root - folderName - labelNotesFile
6.		Aiming Beam locations - If the online version works, go to 7 and then skip to 9 - If aiming beam segmentation is required, go to step 8 and then move on to 9

7.	**Get predefined positions**
	select root folder
	`root = 'C:\Users\Alba Alfonso Garcia\Box\NCIBT_SummerSchool\Demo';`
	`folderName = 'NCIBT_SS_Demo20230710';`
	Extract positions detected during measurements from the text files in the txt folder
	and save them in an independent matlab matrix
	`cd([root '\' folderName '\txt']);`
	`files = dir('*.txt');`
	`runNum0 = numel(files);`
		Convert the text positions to a “pos.mat” file

8.	**Aiming Beam segmentation (manual)**
	`root2 = [root '\' folderName];`
	`cd([root2 '\videos']);`
	Choose video to segment manually
	`videoFile = 'test2_run15.avi';`
	Run manual segmentation code.
	A new window will appear. Be ready to click on the center of the blue spot or where you think the blue spot may be (considering the probe location and the trajectory of the aiming beam in past frames).
	`cd([root '\code'])`
	`run manualABseg.m`
		Perform Aiming Beam segmentation (if necessary) for each video separately.

9.	**Image Reconstruction**
	`cd([root '\' folderName]);`
	`run imageRecon.m`
		Reconstruct the image for each run/scan
		- if the image is already reconstructed skip to step 10
		- else, run **imageRecon.m** and follow the cues to load:
		  ○ decon file from /Processed
		  ○ txt file from /txt
		  ○ pos file from /txt
		  ○ video file from /videos
		- run
		
		The output will be a file: run name_ImgRecon.mat

10.	`run renameOutput.m`	Run rename output
11.		Plot traces and overlays