

Data = set1 - line ROIs by JEC (2023 v5 data)

Data from

/Users/jcoleman/Documents/--LARGE DATA--/#Pizzi/

... TBI-sham leak analysis/process_v4_062723/process_v5-2ii

ZT10_16X6x_gg_800nm_m5_roi2_00003.tif
ZT10_16X6x_gg_800nm_m6_roi1_00001.tif
ZT10_16X6x_gg_800nm_m7_roi1_00001.tif
ZT10_16X6x_gg_800nm_m9_roi1_00002.tif
ZT10_16X6x_gg_800nm_m10_roi1_00001.tif
ZT10_16X6x_gg_800nm_m11_roi1_00001.tif
ZT10_16X6x_gg_800nm_m12_roi1_00001.tif
ZT10_16X6x_gg_800nm_m13_roi1_00002.tif
ZT10_16X6x_gg_800nm_m15_roi1_00001.tif
ZT10_16X6x_gg_800nm_m16_roi1_00001.tif

grpA = ['m5', 'm6', 'm9', 'm10', 'm11', 'm12']
grpB = ['m7', 'm13', 'm15', 'm16']

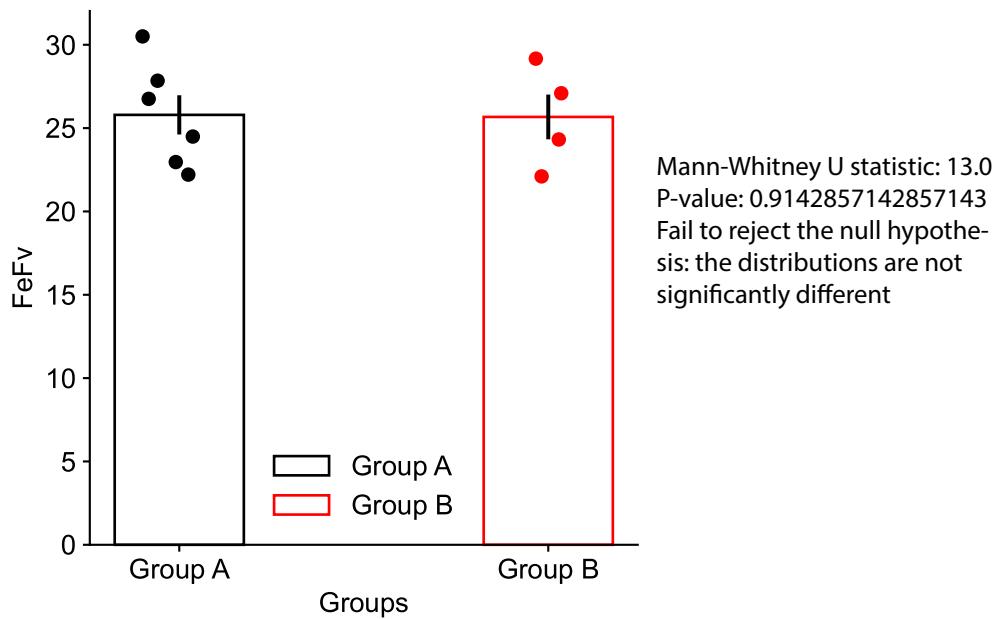
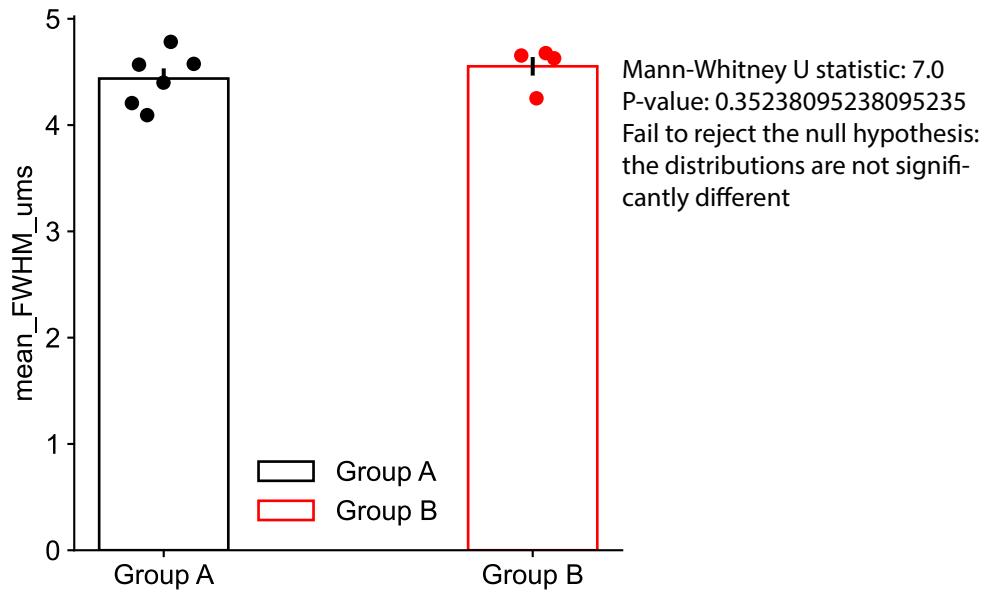
	Zrois_sorted_ZT10_16X6x_gg_800nm_m5_roi2_00003.zip	Jul 30, 2023 at 1:55 PM	10 KB ZIP archive
	Zrois_sorted_ZT10_16X6x_gg_800nm_m5_roi2_00003roiINFO.CSV	Jul 31, 2023 at 1:47 PM	4 KB CSV Document
	Zrois_sorted_ZT10_16X6x_gg_800nm_m6_roi1_00001.zip	Apr 26, 2023 at 9:00 AM	6 KB ZIP archive
	Zrois_sorted_ZT10_16X6x_gg_800nm_m6_roi1_00001roiINFO.CSV	Jul 31, 2023 at 1:48 PM	2 KB CSV Document
	Zrois_sorted_ZT10_16X6x_gg_800nm_m7_roi1_00001.zip	Jul 29, 2023 at 6:38 PM	4 KB ZIP archive
	Zrois_sorted_ZT10_16X6x_gg_800nm_m7_roi1_00001roiINFO.CSV	Jul 31, 2023 at 1:49 PM	2 KB CSV Document
	Zrois_sorted_ZT10_16X6x_gg_800nm_m9_roi1_00002.zip	Jul 29, 2023 at 6:53 PM	8 KB ZIP archive
	Zrois_sorted_ZT10_16X6x_gg_800nm_m9_roi1_00002roiINFO.CSV	Jul 31, 2023 at 1:50 PM	3 KB CSV Document
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	Zrois_sorted_ZT10_16X6x_gg_800nm_m10_roi1_00001roiINFO.CSV	Jul 31, 2023 at 1:38 PM	6 KB CSV Document
	Zrois_sorted_ZT10_16X6x_gg_800nm_m11_roi1_00001.zip	Jul 29, 2023 at 7:11 PM	7 KB ZIP archive
	Zrois_sorted_ZT10_16X6x_gg_800nm_m11_roi1_00001roiINFO.CSV	Jul 31, 2023 at 1:40 PM	3 KB CSV Document
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	Zrois_sorted_ZT10_16X6x_gg_800nm_m13_roi1_00002roiINFO.CSV	Jul 31, 2023 at 1:43 PM	4 KB CSV Document
	Zrois_sorted_ZT10_16X6x_gg_800nm_m15_roi1_00001.zip	Jul 30, 2023 at 11:34 AM	14 KB ZIP archive
	Zrois_sorted_ZT10_16X6x_gg_800nm_m15_roi1_00001roiINFO.CSV	Jul 31, 2023 at 1:44 PM	5 KB CSV Document
	Zrois_sorted_ZT10_16X6x_gg_800nm_m16_roi1_00001.zip	Jul 30, 2023 at 2:04 PM	16 KB ZIP archive
	Zrois_sorted_ZT10_16X6x_gg_800nm_m16_roi1_00001roiINFO.CSV	Jul 31, 2023 at 1:46 PM	6 KB CSV Document

means - take mean of all ROIs from all Z for each subject (n=1 mouse); CDF plots show the mean of each T-series for all ROIs from each subject (n=X rois from group1, etc)

From 7-19-24

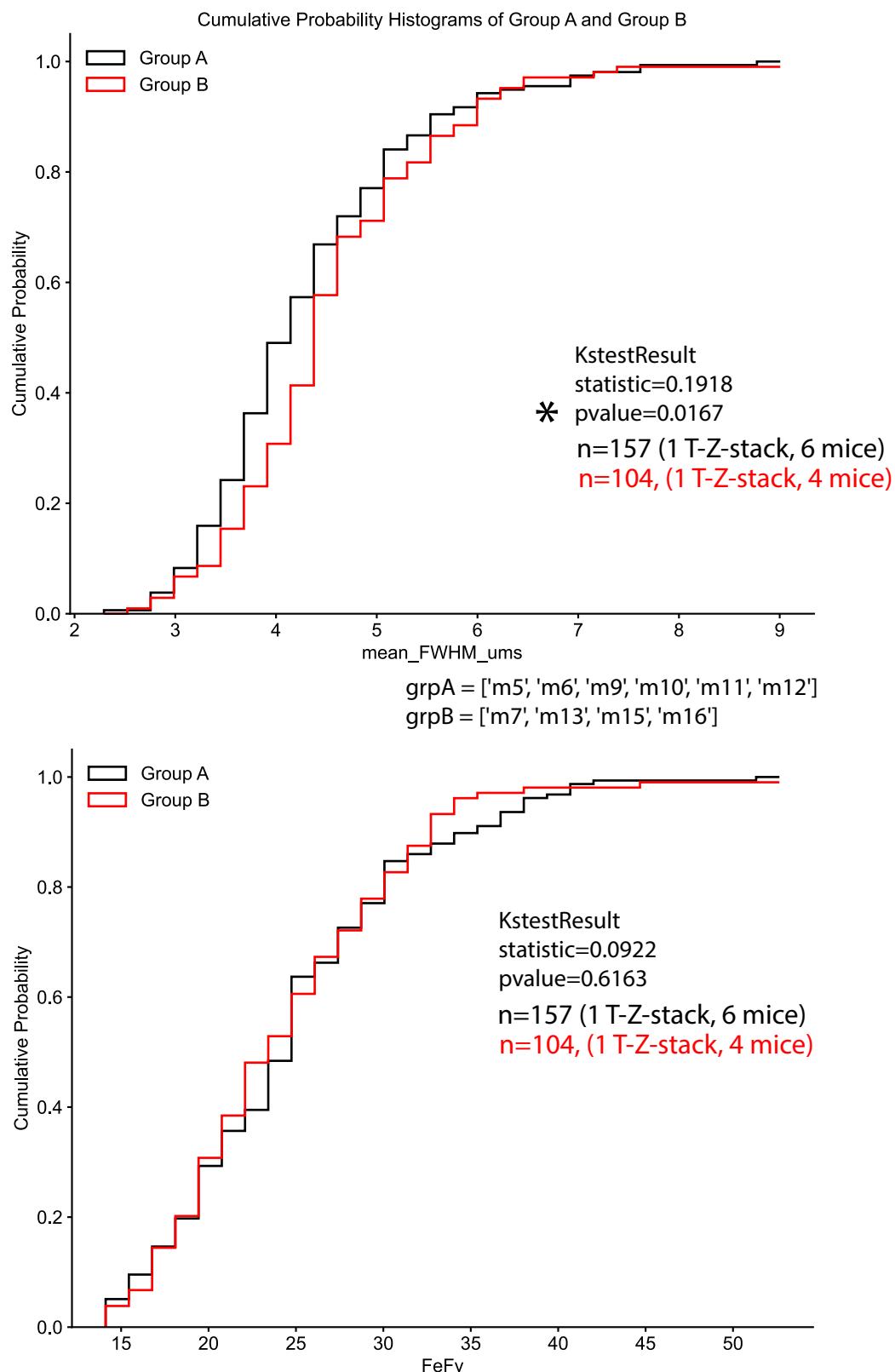
Data = set1 - line ROIs by JEC (2023 v5 data)

Bar-Scatter Plot of Means \pm SEM



From 7-19-24

Data = set1 - line ROIs by JEC (2023 v5 data)

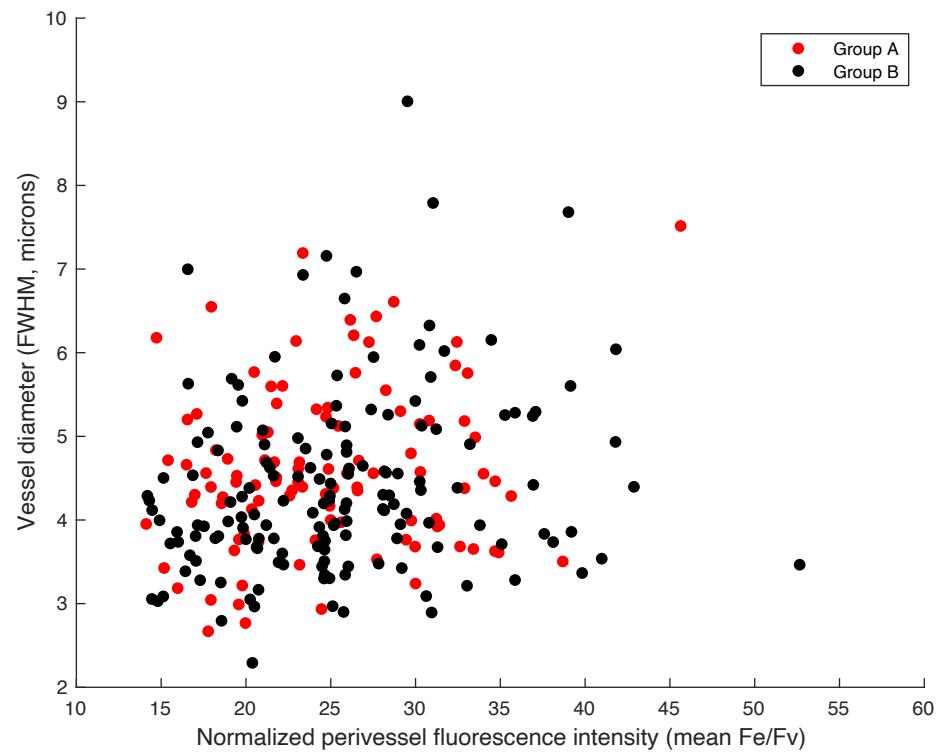
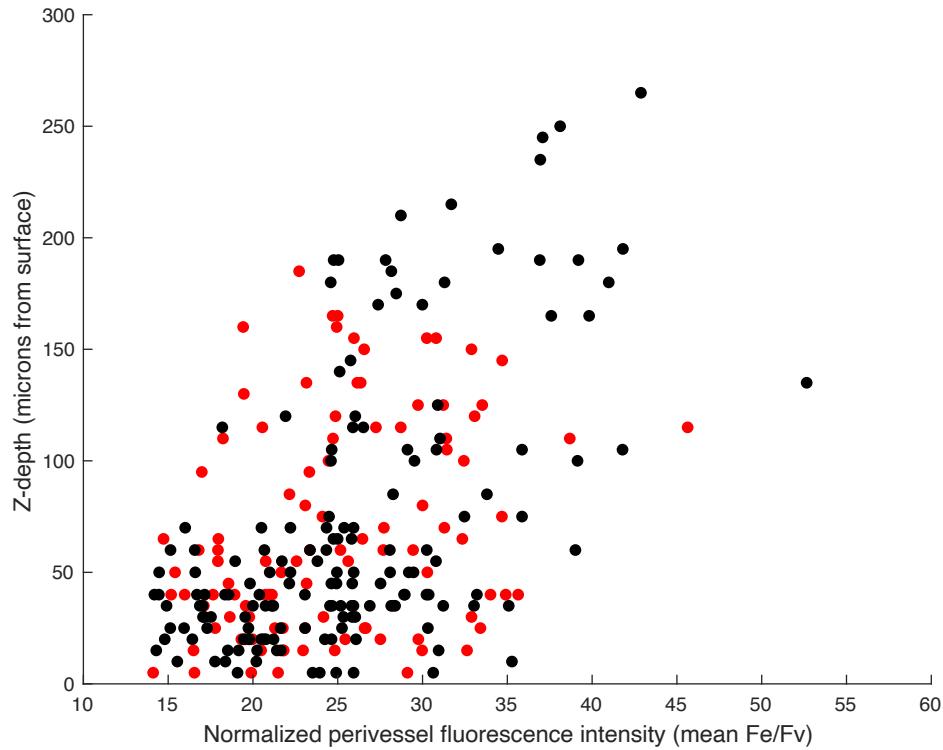


From 12-27-23 - 2D scatter plots

Data = set1 - line ROIs by JEC (2023 v5 data)

** See APPENDIX 3D-Scatter Figures for

- 1) location of ROIs in 3D (ie full XYZ data by subject/Zstack)
- 2) Associated FWHM or Fe/Fv values with each ROI in 3D



PCA (w/ scaled data, 3 components, blind to group)

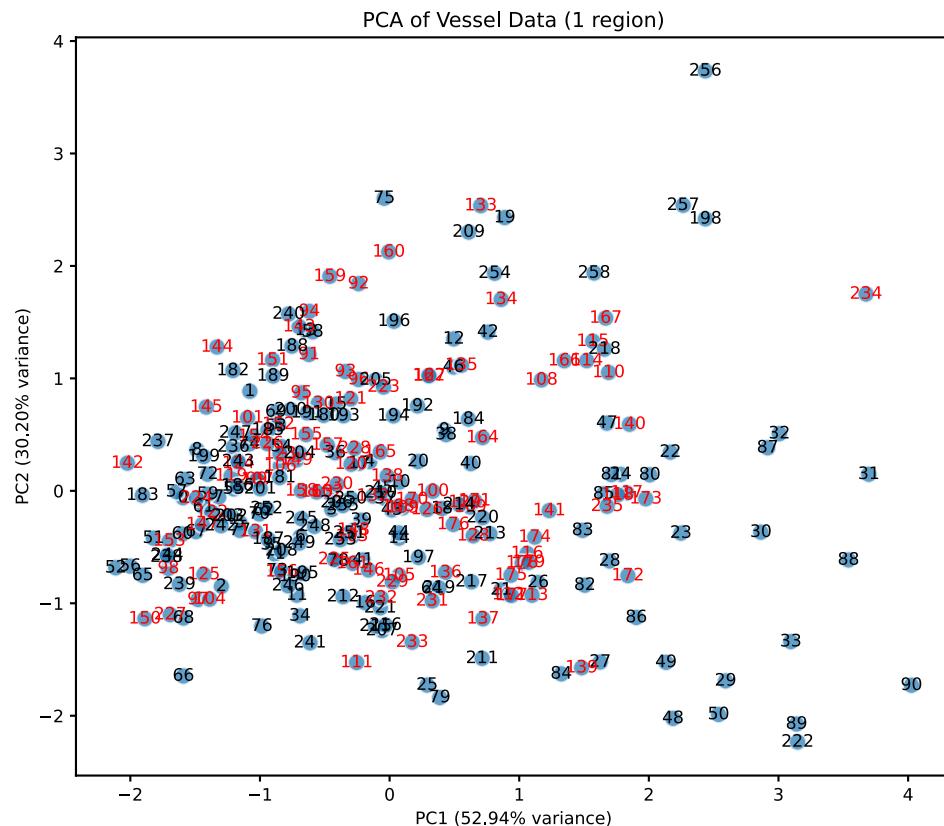
Variables: FeFv | Zmicrons | mean_FWHM_ums

** See "APPENDIX Results 1" for more explanation and stats

*** In the future, analyze w/ X, Y and trial with Tdata (over 10s; eg, mean, std, min, max, Fano factor)

**** Could employ additional/alternative ways to visualize and 'segment' data

(eg next step k-means clustering, UMAN)



Results for PC1:

Test: Mann-Whitney U test

Statistic: 7534.0

p-value: 0.4224659152628756

Results for PC2:

Test: Mann-Whitney U test

Statistic: 6909.0

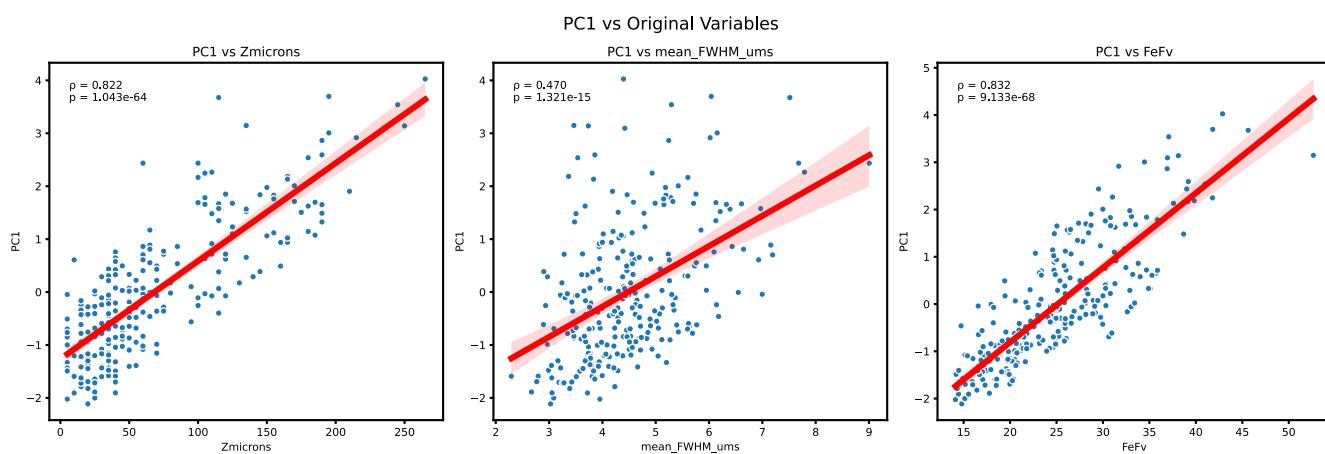
p-value: 0.062434681758270716

Results for PC3:

Test: t-test

Statistic: 0.7367184225588419

p-value: 0.4619655774546293



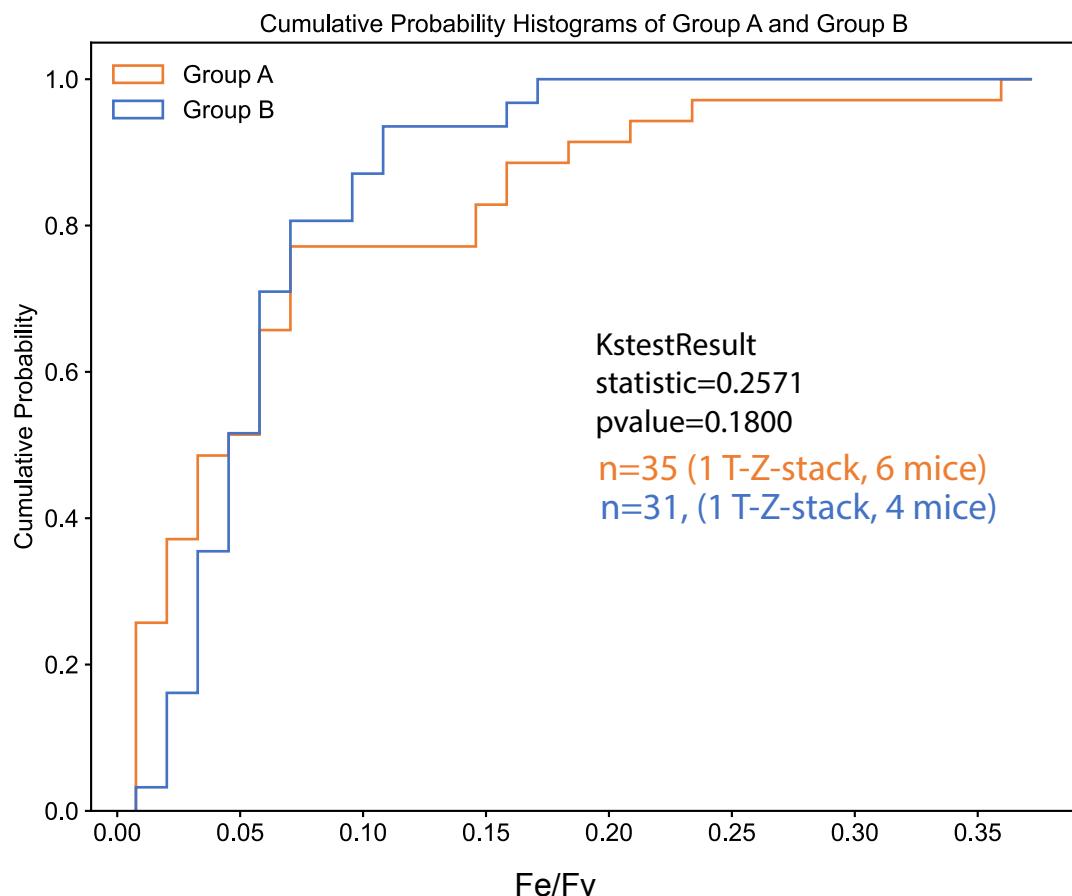
Data = set2 - line ROIs by M Pizzi (2024 Excel/CSV data)

Data collected by M Pizzi (new ROI-ZIP files, data sent as Excel)

ZT10_16X6x_gg_800nm_m5_roi2_00003.tif
ZT10_16X6x_gg_800nm_m6_roi1_00001.tif
ZT10_16X6x_gg_800nm_m7_roi1_00001.tif
ZT10_16X6x_gg_800nm_m9_roi1_00002.tif
ZT10_16X6x_gg_800nm_m10_roi1_00001.tif
ZT10_16X6x_gg_800nm_m11_roi1_00001.tif
ZT10_16X6x_gg_800nm_m12_roi1_00001.tif
ZT10_16X6x_gg_800nm_m13_roi1_00002.tif
ZT10_16X6x_gg_800nm_m15_roi1_00001.tif
ZT10_16X6x_gg_800nm_m16_roi1_00001.tif

Vessel Type	Group	Mid-capillary Fe/Fv	Post-bifurcation capillary Fe/Fv
Mid-capillary	rmTBI	~0.08	~0.09
	Sham	~0.07	~0.05
Post-bifurcation capillary	rmTBI	~0.09	~0.05
	Sham	~0.05	~0.04

means, SEM calculated from Excel sheet data (All values imported into Python script and processed)

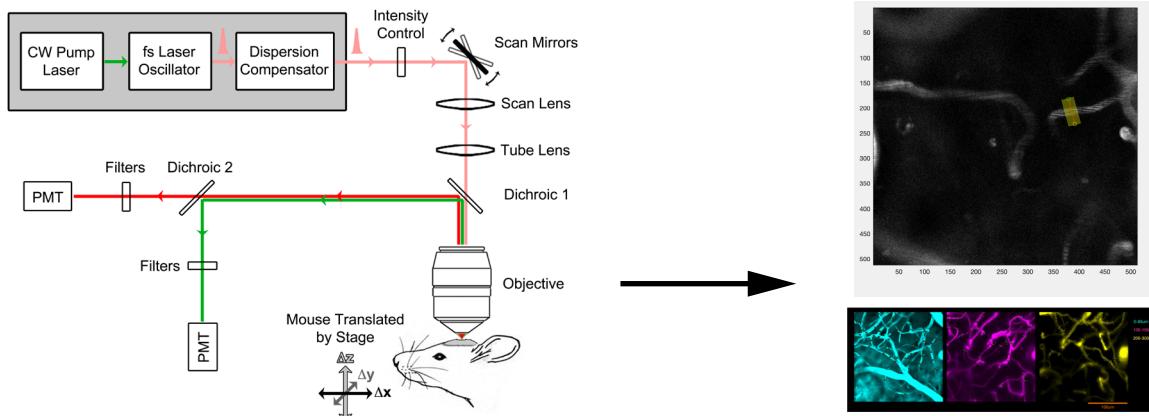


Location plots by Group



Vessel type plots by Group





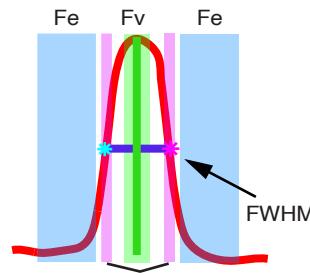
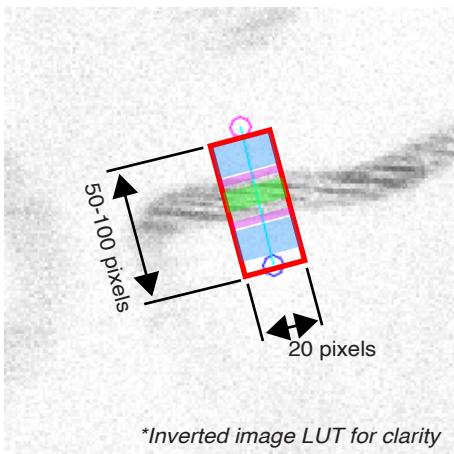
200-300 micron-thick
Z-stacks at 2-3 ROIs
within the cranial window

Identify line-ROIs for vessel
measurements in XYZ
($0.20 \times 0.20 \times 0.25 \text{ mm} = \sim 0.01 \text{ mm}^3$) (FIJI)

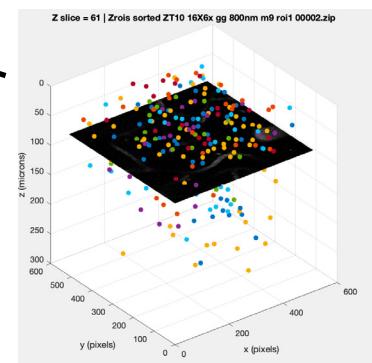
Extract data from stacks using FIJI scripts
Pre-process FIJI data using MATLAB

Import MATLAB data into Python

Grab intensities from
all T-Z slices calculate
mean FWHM, local intensity



Fe--> 10 pixels (2.88 microns) (Inside vessel fluoro. intensity)
Fi--> 5 pixels (nwall_pixels) about FWHM xvals (* *)
(1.44 microns, eg - 'fi1_tmp_indices_start')
Fv--> 9 pixels about 'PEAK PROMINENCE'
(2.60 microns)
> Calculate the mean of each vector (for final Fe, Fi, Fv values)



Analysis (data visualization, stats)
(Python + gpt3.5/4o, Claude3.5, llama3.1)

Upload figures and any statistics results test
Prompt with some experimental details/context

Results summary (Vetted/edited)
(e.g., plots, Claude3.5 > data summary report)