



SPAN STANDARD EXPERIMENT

#1	LAB INFORMATION		
Report Title		SPAN: MRI Pipeline Validation	
Report Author		Patrick Lyden Cenk Ayata	
Dates of Experiment		March 2021-June 2021	
Responsible Person(s)		Patrick Lyden Cenk Ayata Ryan Cabeen	
Location of Experiment		At Sites	
#2	Purpose		

The Stage 1 MRI pipeline yields several morphometric measures, including total cerebral volume, lesion volume, ventricular volume, and midline shift. The values obtain from each time point scan will be compared to:

Chronic Lesion comparison: Day 29 scan will be compared to morphometric values obtained from Cresyl Violet stained sections from Stage 1 banked brain tissue.

Acute Lesion comparison: TTC imaged sections obtained immediately after Day 2 MRI scan from 4 young mice (60 min MCAo) at each site. Each site performs 4 animals =total sample size is 24.





#3

REFERENCES TO OTHER SOPS

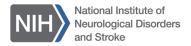
SPAN SOP 6 Mouse Middle Cerebral Occlusion SPAN SOP 17 Reperfusion SPAN SOP 35 MRI Acquisition Stage 1 SPAN SOP 45 Tissue Banking SPAN SOP 59 TTC Staining

#4

METHODS

Chr	onic Lesion (Stage 1 Day 30 Scans vs Cresyl violet)	Notes/Observations
1.	CC will select brains from tissue bank to cover a range of lesion sizes. Selection will be made via LONI image analyst (Ryan Cabeen)	Retrospective analysis of Stage 1 subjects already
	Sites will perform Histology for total n=20 mouse brains, approximately n=3-4 per site 25 micron thick, 2 sections taken every 500	obtained. SPAN SOP 45 Tissue
	microns, exhaustive sectioning from frontal pole to midbrain	Banking Note:
5.	Cresyl violet staining Mount/cover slip/image Using Image J or other software, delineate area	For scanned images Do Not have the lesion/hemispheric
O.	of hemispheres (ipsi and contra), ventricles and visible lesion.	outlines permanently embedded on the images
	Acute Lesion (Day 2 scans vs TTC)	Notes/Observations
1.	Each site to perform 60 min. right side MCAo on n=4 young mice.	SPAN SOP 6 Mouse Middle Cerebral Occlusion SPAN SOP 17 Reperfusion
2.	Perform 48-hour MRI followed <u>immediately</u> (or within 12 hrs. of scan) with sacrifice and TTC	SPAN SOP 35 MRI Acquisition Stage 1
3.	staining. Follow SOP 59 for TTC Staining procedure.	SPAN SOP 59 TTC Staining
4.	Upload the D2 MRI Scan in IDA with the visit code: "MRI Validation D2". Email the CC	Note: if sites have an existing TTC protocol in current use,
	spancc@usc.edu when files have been uploaded.	they may use their own protocol
	Include the following details in your email: Animal ID	
	Date of Scan	





	Data Transfer		
2. 3	Sites will transcribe data onto a CSV Send CSV upon completion to the Coordinating Center (spancc@usc.edu) Include images of slides with the CSV	Note: For scanned images Do Not have the lesion/hemispheric outlines permanently embedded on the images	
	Power Analysis		
2. F	Brain and lesion volumes will be compared MRI vs histology using Pearson's or Spearman's correlation coefficient. Power analysis with power 80%, alpha 0.05, with n = 20 gives sufficient sample size to detect whether the correlation coefficient is greater than 0.97		
#4	4 RESULTS		
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#5	LESSONS LEARNED/ NEXT STEPS		
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