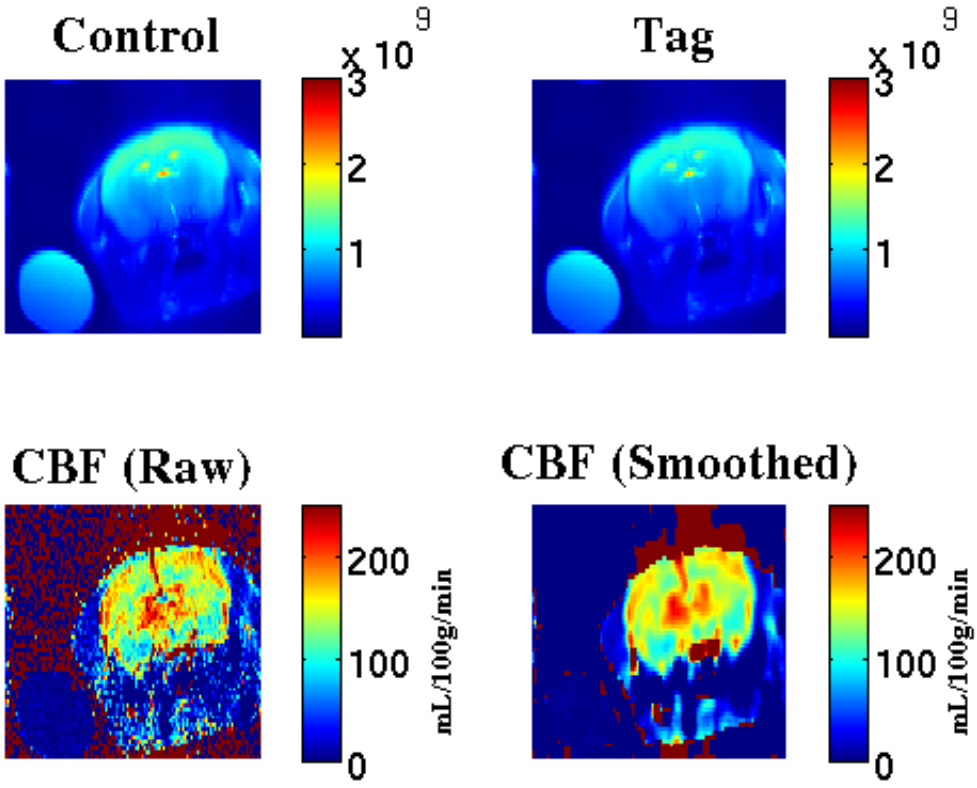
Protocol: Mouse Perfusion, CASL RARE

Purpose

- Measurement of perfusion in mouse brain.



Important Note

You should have the same gain and power settings between the ASL and CSF scans which will not happen if you run both using the traffic light. Instead, run the ASL scan with the traffic light then run the CSF scan by clicking the GOP button.

CASL Protocol, Mouse Brain – "C_CASL_RARE_Mouse"				
Type	**Protocol Name**	**In-plane resolution, slice thickness**	**Slices**	**Scan time**
Localizer	*1_tripilot_Mouse*			
Angiogram	*2_FlashTofAngiogram*	96µm X 166 µm, 2 mm	10	4 min
ASL	*3_CaslRare*	150µm X 250 µm, 1 mm	1	9 min
CSF Scan[i] (GOP)	*4_CsfRare*	150µm X 150 µm, 1 mm	10	4 min
MinCon[ii]	*5_MinConRare*	150µm X 250 µm, 1 mm	1	1.5 min
T1T2Map[iii]	*6_RareT1T2Map*	150µm X 250 µm, 1 mm	1	4 min

Instructions

1. Place a saline tube somewhere that it can be seen in your scans for the CSF calibration scan.
2. Decide which method you will use to process the data (Alsop/Detre or Buxton, et.al.). This will determine which of the scans you will need and which you will not need.
3. Use the localizer scan for positioning as usual and to estimate the *bregma* position.
4. Acquire an angiogram by locating the slice package posterior of the cerebellum so that no brain slices are acquired. Identify the best tagging plane position by finding the plane where the main arteries are the most perpendicular to the axial plane. Note the distance to isocenter, which you can find at the lower right hand side of the image. If your image plane was -7.88 mm from isocenter, this would be labeled "Pos -7.88 mm."
5. Enter the tagging plane position in the ASL scan with "Edit Scan -> Research -> CASL -> 'Labelling->Isocenter Distance'." Good results have been obtained by labeling 8-15 mm posterior to the *bregma*, but this is likely to vary. Acquire the ASL data.
6. If you plan to use Buxton's method you will also need to acquire the CSF scan and the MinCon scan, but not the T1/T2 map. If you plan to use Alsop's method you will not need the CSF scan, but you will need the T1/T2 map. With Alsop's method you do not need the MinCon scan to calculate ASL.

Notes

Before running this protocol, you should consider which method you will use to analyze the data. Depending on which method you choose (Alsop vs. Buxton), you may not need to run all of the scans in this protocol.

Post-Processing Support

compCaslGui is available for quick assessment of your CASL data during or after your scan session.

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[i] The CSF scan is required for the Buxton method, but not the Alsop method.
[ii] The MinCon scan is required for the Buxton method, but not the Alsop method.
[iii] The T1/T2 map is required for the Alsop method, but not the Buxton method.