

TBI MRI 1.5T Protocol - Preferred

(NOTE: Please follow the sequence order)

	Head (Center at the orbital ridge)						
Sequence Order	#1	#2	#3	#4	#5	#6	#7
	3D FLAIR	3D SWI	DWI	T1 MPRAGE	3D T2	T2 GRE optional*	DTI
Sequence	tse_vfl	swilPAT	ep2d_diff	tfl	tse_vfl	gre_r	ep2d_diff
Orientation	Sagittal	Axial	Axial	Sagittal	Sagittal	Axial	Axial
TR (ms)	6000	50	5400	2000	3500	1110	6500
TE (ms)	353	40	100	3.22	355	26	100
TI (ms)	2200	-	-	1000	-	-	-
FA (degree)	-	15		8	-	20	-
FOV (mm ²)	260x215	256x192	256x256	256x256	260x211	256x192	256x256
Matrix size	256x256	512x256	128x128	512x256	256x256	256x256	128x128
Nz/TH (mm)/slab	160/1	64/2	32/4	120/2	160/1	32/4	32/2
Voxel size (mm ³)	1x1x1	0.5x1x2	2x2x4	0.5x1x2	1x1x1	1x1x4	2x2x2
Ave./Meas.	1/1	1/1	3/1	1/1	1/1	1/1	10/1
Concatenations	1	1	1	1	1	1	1
Phase oversmpl.	0%	0%	0%	0%	0%	0%	0%
Dist. factor	-	-	0%	-	-	0%	0%
Phase Enc. Dir	A>>P	R>>L	A>>P	A>>P	A>>P	R>>L	A>>P
iPAT	None	2/24	2/24	None	None	None	2/24
BW (Hz/pixel)	888	80	1502	160	751	78	1502
Flow Comp	-	Yes	-	-	-	Yes	-
Phase partial Fourier	Off	Off	6/8	Off	Off	Off	6/8
Slice partial Fourier	6/8	Off	Off	Off	6/8	Off	Off
Filter	Elliptical	-	-	Elliptical	-	Elliptical	-
Saturation Band	None	None	None	-	None	None	None
Gap/Thickness (mm)	-	-	-	-	-	-	-
Diffusion Mode	-	-	3-Scan Trace	-	-	-	MDDW
Diff. Weightings	-	-	3	-	-	-	2
Noise level/Diff Directions	-	-	40/3	-	-	-	40/6
b-values	-	-	0, 500, 1000	-	-	-	0, 1000
Echo spacing (ms)	3.3	-	0.75	10	3.38	-	0.75
Turbo factor	213	-	-	-	209	-	-
Echo trains per slice	-	-	-	-	-	-	-
Coils	8 Channel Head	8 Channel Head	8 Channel Head	8 Channel Head	8 Channel Head	8 Channel Head	8 Channel Head
Time	8:50	5:47	2:27	8:32	7:05	3:35*	8:16
Total Time							41:02(44:37*)

Note:

- FLAIR, SWI, 3D T2, T2 GRE sequences are acquired with a rectangular FOV.
- Elliptical filter is ON in FLAIR, T1 MPRAGE, and T2 GRE sequences. All other filters are OFF.

TBI MRI 1.5T Protocol - Alternate

(NOTE: Please follow the sequence order)

	Head (Center at the orbital ridge)						
Sequence Order	#1	#2	#3	#4	#5	#6	#7
	2D FLAIR	3D SWI	DWI	T1 MPRAGE	T2 TSE	T2 GRE optional*	DTI
Sequence	tse	swiPAT	ep2d_diff	tfl	tse	gre_r	ep2d_diff
Orientation	Axial	Axial	Axial	Sagittal	Axial	Axial	Axial
TR (ms)	9540	50	5400	2000	7000	1110	6500
TE (ms)	114	40	100	3.22	106	26	100
TI (ms)	2500	-	-	1000	-	-	-
FA (degree)	150	15		8	160	20	-
FOV (mm ²)	256x192	256x192	256x256	256x256	256x192	256x192	256x256
Matrix size	256x256	512x256	128x128	512x256	256x256	256x256	128x128
Nz/TH (mm)/slab	32/4	64/2	32/4	120/2	32/4	32/4	32/2
Voxel size (mm ³)	1x1x4	0.5x1x2	2x2x4	0.5x1x2	1x1x4	1x1x4	2x2x2
Ave./Meas.	2/1	1/1	3/1	1/1	1/1	1/1	10/1
Concatenations	2	1	1	1	1	1	1
Phase oversmpl.	0%	0%	0%	0%	0%	0%	0%
Dist. factor	0%	-	0%	-	0%	0%	0%
Phase Enc. Dir	R>>L	R>>L	A>>P	A>>P	R>>L	R>>L	A>>P
iPAT	2/30	2/24	2/24	None	None	None	2/24
BW (Hz/pixel)	201	80	1502	160	130	78	1502
Flow Comp	No	Yes	-	-	No	Yes	-
Phase partial Fourier	Off	Off	6/8	Off	Off	Off	6/8
Slice partial Fourier	Off	Off	Off	Off	Off	Off	Off
Filter	Elliptical	-	-	Elliptical	Elliptical	Elliptical	-
Saturation Band	None	None	None	-	None	None	None
Gap/Thickness (mm)	-	-	-	-	-	-	-
Diffusion Mode	-	-	3-Scan Trace	-	-	-	MDDW
Diff. Weightings	-	-	3	-	-	-	2
Noise level/Diff Directions	-	-	40/3	-	-	-	40/6
b-values	-	-	0, 500, 1000	-	-	-	0, 1000
Echo spacing (ms)	9.5	-	0.75	10	11.8	-	0.75
Turbo factor	29	-	-	-	17	-	-
Echo trains per slice	-	-	-	-	-	-	-
Coils	8 Channel Head	8 Channel Head	8 Channel Head	8 Channel Head	8 Channel Head	8 Channel Head	8 Channel Head
Time	2:53	5:47	2:27	8:32	2:55	3:35*	8:16
Total Time							30:50(34:25*)

Note:

- FLAIR, SWI, T2 TSE, T2 GRE sequences are acquired with a rectangular FOV.
- Elliptical filter is ON in FLAIR, T1 MPRAGE, T2 TSE and T2 GRE sequences. All other filters are OFF.