\\USER\Feinberglab\Suhyung\GRASE w/ CS\localizer_200V_nova			
	•	1.2×1.1×3.0 mm Rel. SNR: 1.00	SIEMENS: gre
			•
Properties		Phase resolution	90 %
Prio Recon	Off	Phase partial Fourier	6/8
Before measurement	-	Interpolation	On
After measurement		PAT mode	None
Load to viewer	On	Imaga Filtor	Off
Inline movie	Off	Image Filter Distortion Corr.	Off
Auto store images	On	Prescan Normalize	Off
Load to stamp segments	Off	Normalize	Off
Load images to graphic	Off	B1 filter	Off
segments	0"	Raw filter	Off
Auto open inline display Start measurement without	Off On	Elliptical filter	Off
further preparation	On	Coometry	
Wait for user to start	Off	Geometry Multi-slice mode	Sequential
Start measurements	single	Series	Interleaved
· ·	Sirigio		
Routine		Saturation mode	Standard
Slice group 1	_	Special sat.	None
Slices	5		
Dist. factor Position	20 % Isocenter	Table position	Н
Orientation	Sagittal	Table position	0 mm
Phase enc. dir.	A >> P	Inline Composing	Off
Rotation	0.00 deg	Tim CT mode	Off
Slice group 2	olog dog	System	
Slices	5	T1	On
Dist. factor	20 %	M2	On
Position	Isocenter	B4	On
Orientation	Coronal	M3	On
Phase enc. dir.	R >> L	V32	Off
Rotation	0.00 deg		FIV
Slice group 3	_	Positioning mode	FIX
Slices	5	MSMA Sogittal	S - C - T R >> L
Dist. factor Position	20 %	Sagittal Coronal	A >> P
Orientation	Isocenter Transversal	Transversal	F >> H
Phase enc. dir.	A >> P	Save uncombined	On
Rotation	0.00 deg	Coil Combine Mode	Sum of Squares
Phase oversampling	0 %	AutoAlign	
FoV read	280 mm	Auto Coil Select	Off
FoV phase	100.0 %	Shim mode	Tune up
Slice thickness	3.0 mm	Adjust with body coil	Off
TR	10.0 ms	Confirm freq. adjustment	Off
ŢE	3.00 ms	Assume Silicone	Off
Averages	1	! Ref. amplitude 1H	200.000 V
Concatenations	15 None	Adjustment Tolerance	Auto
Filter Coil elements	None B4;M2,3;T1	Adjust volume	
ı	D4,IVIZ,3,1 1	Position	Isocenter
Contrast		Orientation	Transversal
TD	0 ms	Rotation	0.00 deg
MTC	Off	R >> L	350 mm
Magn. preparation	None	A >> P F >> H	263 mm 350 mm
Flip angle	10 deg	F >> F	330 IIIII
Fat suppr.	None None	Physio	
Water suppr. SWI	Off	1st Signal/Mode	None
		Segments	1
Averaging mode	Short term	Tagging	None
Reconstruction	Magnitude	Dark blood	Off
Measurements	1		O#
Multiple series	Each measurement	Resp. control	Off

Inline

Subtract

Off

Resolution

Base resolution

256

Liver registration Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time MIP-Sag MIP-Cor MIP-Tra MIP-Time Save original images	Off
Wash - In	Off
Wash - Out	Off
TTP	Off
PEI	Off
MIP - time	Off
MapIt	None
Contrasts	1

Sequence

Introduction	On
Dimension	2D
Phase stabilisation	Off
Asymmetric echo	Allowed
Bandwidth	320 Hz/Px
Flow comp.	No
 RF pulse type	Normal
Gradient mode	Whisper
Excitation	Slice-sel.
RF spoiling	On

\\USER\Feinberglab\Suhyung\GRASE w/ CS\BP_grase_IV_CS_VFA_24SL

TA: 0:00 PAT: Off	Voxel size: 0.8×0.8×0.8 mm	n Rel. SNR: 1.00 USER:	BP_grase_IV_CS_SH
Properties		Orientation Special sat.	Coronal None
Prio Recon	Off		
Before measurement		Table position	Н
After measurement		Table position	0 mm
Load to viewer	On O"	Inline Composing	Off
Inline movie	Off	System	
Auto store images	On O"		On
Load to stamp segments	Off	M2	On
Load images to graphic	Off	B4	On
segments	•	M3	On
Auto open inline display	Off	V32	Off
Start measurement without	On		
further preparation	•	Positioning mode	REF
Wait for user to start	Off	MSMA	S - C - T
Start measurements	single	Sagittal	R >> L
Routine		Coronal	A >> P
Slab group 1		- Transversal	F >> H
Slabs	1	Save uncombined	Off
Dist. factor	0 %	Coil Combine Mode	Adaptive Combine
Position	Isocenter	AutoAlign	
Orientation	Transversal	Auto Coil Select	Default
Phase enc. dir.	A >> P	China mada	Otomaloud
Rotation		Shim mode	Standard
	0 deg 0 %	Adjust with body coil	Off
Phase oversampling		Confirm freq. adjustment	Off
Slice oversampling	0.0 %	Assume Silicone	Off
Slices per slab	24	! Ref. amplitude 1H	220.000 V
FoV read	89.6 mm	Adjustment Tolerance	Auto
FoV phase	25.0 %	Adjust volume	
Slice thickness	0.8 mm	Position	Isocenter
TR	3000 ms	Orientation	Transversal
TE	20.26 ms	Rotation	0.00 deg
Averages	1	R >> L	90 mm
Concatenations	1	A >> P	23 mm
Filter	None	F >> H	20 mm
Coil elements	B4;M2,3;T1	Dhysis	
Contrast		Physio 1st Signal/Mode	None
Magn. preparation	None	=	None
Flip angle	180 deg	Composing	
Fat suppr.	Fat sat.	Coguenes	
Fat sat. mode	Strong	Sequence	0"
		Introduction	Off
Averaging mode	Long term	Dimension	3D
Reconstruction	Magnitude	Reordering	Centric
Measurements	92	Contrasts	1
Pause after meas.	0 s	Bandwidth	1144 Hz/Px
Multiple series	Off	Turbo factor	24
Decelution		EPI factor	12
Resolution	440	RF pulse type	Normal
Base resolution	112	Gradient mode	Fast
Phase resolution	100 %		
Slice resolution	100 %	refocussing type	variable sinc
Slice partial Fourier	Off	flip angle excit	90
Interpolation	Off	phase encoding	ON
PAT mode	None	Maxwell compensation	Off
		ICE program	single
Prescan Normalize	Off	prepscans	0
Raw filter	Off	actual ETL	10
Geometry		excite duration	2560
	Interleaved	refoc duration	2560
Series	Interleaved	excite BWTP	12
Sat. region 1		refoc BWTP	8
Thickness	20 mm	Variable Flip Angle 01	98
Position	Isocenter	Variable Flip Angle 02	58
1		1	

Variable Flip Angle 03	53
Variable Flip Angle 04	51
Variable Flip Angle 05	55
Variable Flip Angle 06	60
Variable Flip Angle 07	67
Variable Flip Angle 08	76
Variable Flip Angle 09	90
Variable Flip Angle 10	133
Variable Flip Angle 11	180
Variable Flip Angle 12	180
Variable Flip Angle 13	180
Variable Flip Angle 14	180
Crusher Gr	0

\\USER\Feinberglab\Suhyung\GRASE w/ CS\BP_grase_IV_CS_VFA_24SL

Properties	TA: 0:00 PAT: Off	Voxel size: 0.8×0.8×0.8 mm	Rel. SNR: 1.00 USER:	BP_grase_IV_CS_SH
Pro Recon Diff Belore measurement After measurement Afte				
After measurement Load to viewer On Inline movie Off Auto store images On TT Concarding the properties of graphic Off System Off M2 On On M2 On M2 On M2 On M3 On M4		Off		
Load to viewer On				
Inline movie		05		
Auto store images			Inline Composing	Oli
Load to stamp segments			System	
Load images to graphic segments			T1	On
Segments			M2	On
Auto Open inline display		Oll	B4	On
Start measurement without further preparation Walt for user to start Off Start measurements Single Sc. C - T Sagttal Sc. C - T Sc. C		Off	M3	On
Further preparation Walf for user to start Start measurements Single Sagittal R >> L			V32	Off
Walt for user to start Off Start measurements Single Sagittal R >> L		Oli	Positioning mode	DEE
Sajtra measurements		Off		
Routine				
Transversal F >> H	ı	5g.5		
Sale group Sal				
Dist. factor				
Distriction				
Position Contraction Con				
Orientation Transversal Phase enc. dir. A > P A S P A S P A S P A S Imm mode Standard Phase oversampling 0 % Confirm freq. adjustment Off Off Off A Silce wersampling 0.0 % Confirm freq. adjustment Off A Sume Silicone Off P S Silce sersable 24 I Ref. amplitude 1H 220.000 V A V A Sume Silicone Off A Sume Silicone Off A Sume Silicone Auto A V				Default
Rotation				
Phase oversampling				
Silce oversampling				
Silces per slab				
FoV read				
FoV phase 25.0 % Slice thickness 0.8 mm Position Isocenter				
Slice thickness 0.8 mm				Auto
TR 3000 ms Orientation Transversal TE 20.26 ms Rotation 0.00 deg Averages 1 R.> L 90 mm Concatenations 1 A.>> P 23 mm Filter None F.> H 20 mm Coil elements B4;M2,3;T1 Physio Contrast Magn. preparation None None Filip angle 180 deg Composing Fat suppr. Fat sat. Sequence Fat suppr. Fat sat. Sequence Fat sat. mode Strong Introduction Off Averaging mode Long term Recordering Centric Reconstruction Magnitude Reordering Centric Massurements 92 Contrasts 1 Pause after meas. 0 s Handwidth 1144 Hz/Px Resolution 112 Repulse type Normal Phase resolution 100 % Gradient mode Fast Slice			1 -	laasantar
TE 20.26 ms Rotation 0.00 deg Averages 1 R >> L 90 mm Concatenations 1 A >> P 23 mm Filter None F >> H 20 mm Coil elements B4;M2,3;T1 Physio Contract Magn. preparation None Composing Filt suppr. Fat sat. Sequence Fat suppr. Fat sat. Sequence Fat sat. mode Strong Introduction Off Averaging mode Long term Recordering Centric Reconstruction Magnitude Reordering Centric Measurements 92 Bandwidth 1144 Hz/Px Multiple series Off Turbo factor 24 Epl factor 12 Resolution 112 Phase resolution 100 % Gradient mode Fast Slice partial Fourier Off If page excit 90 Interpolation Off Maxwell compensation Off<				
Averages				
Concatenations		1		•
Filter Coil elements None B4;M2,3;T1 F > H 20 mm Contrast Physio 1st Signal/Mode None Magn, preparation Flip angle 180 deg Composing Fat suppr. Fat sat. Sequence Fat sat. mode Strong Introduction Off Averaging mode Reconstruction Long term Reordering Centric Measurements 92 Bandwidth 1144 Hz/Px Pause after meas. 0 s Bandwidth 1144 Hz/Px Multiple series Off Turbo factor 24 Resolution 112 RF pulse type Normal Phase resolution 100 % Gradient mode Fast Slice resolution 100 % Gradient mode Fast Slice partial Fourier Off If ign angle excit 90 Interpolation Off phase encoding ON PAT mode None ICE program single Prescan Normalize Off prepscans 0 Raw filter		1		
Coil elements		None		
Contrast Magn. preparation Flip angle Fat suppr. Fat sat. Fat sat. mode Reconstruction Magnitude Measurements Pause after meas. Multiple series Off Physio Areagilition Slice partial Fourier Interpolation Off PAT mode Remitter Geometry Series Sequence Introduction Off Dimension Sequence Introduction Off Dimension Off Reordering Centric Contrasts 1 Bandwidth 1144 Hz/Px Turbo factor 24 EPI factor 12 RF pulse type Normal Gradient mode Fast refocussing type variable sinc flip angle excit 90 Interpolation Off ICE program single prepscans Off Awawell compensation Off ICE program single prepscans Off Pactual ETL 10 excite duration 2560 excite BWTP 12 Sat. region 1 Thickness 20 mm Variable Flip Angle 01 82			I	20 111111
Magn. preparation Flip angleNoneComposingFat suppr. Fat sat. modeStrongIntroductionOffAveraging mode Reconstruction Measurements Pause after meas. Multiple seriesLong term MagnitudeReordering Contrasts BandwidthCentric Contrasts BandwidthCentricResolutionTurbo factor EPI factor Slice resolution24 EPI factor FastPhase resolution Slice partial Fourier Interpolation112 Off OffRefocusing type flip angle excit phase encoding phase encoding DN Maxwell compensation Off DIFF of the prepscans OffVariable sinc flip angle excit phase encoding DN Maxwell compensation Off DICE program prepscans On CeometryOff DICE program prepscans On Cexite duration excite duration 2560	ı	,,-,	-	
Flip angle 180 deg Fat suppr. Fat sat. Fat sat. mode Strong Sequence Averaging mode Long term Dimonsion 3D Reconstruction Magnitude Measurements 92 Bandwidth 1144 Hz/Px Multiple series Off Turbo factor 24 EPI factor 12 Resolution 100 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off Slice partial Fourier Off Raw filter Off Series Interleaved Sat. region 1 Thickness 20 mm Sequence Seque			1st Signal/Mode	None
Fat suppr. Fat sat. Fat sat. mode Strong Averaging mode Reconstruction Measurements 92 Pause after meas. Multiple series Off Phase resolution Slice partial Fourier Interpolation Off PAT mode Prescan Normalize Prescan Normalize Recometry Series Interleaved Sat. region 1 Thickness Sequence Introduction Off Dimension Sequence Introduction Off Dimension Sloequence Introduction Off Dimension Sloequence Introduction Off Dimension Sloequence Introduction Off Dimension Sequence Introduction Off Dimension Sequence Introduction Off Dimension Sequence Introduction Off Dimension Sequence Introduction Off Dimension Square Reordering Centric Contrasts 1 Introduction Off Turbo factor 24 EPI factor 12 RF pulse type Normal Gradient mode Fast refocussing type variable sinc flip angle excit 90 Interpolation Off ICE program single prepscans 0 Maxwell compensation Off ICE program single prepscans 0 cactual ETL 10 excite duration 2560 refoc duration 2560 refoc duration 2560 excite BWTP 12 Stat. region 1 Thickness 20 mm Variable Flip Angle 01 82			Composing	
Fat sat. mode Strong Introduction Off Dimension Reconstruction Magnitude Reconstruction Measurements 92 Pause after meas. Multiple series Off Resolution Base resolution Slice resolution Slice partial Fourier Interpolation Off Dimension Recordering Contrasts 1 Bandwidth 1144 Hz/Px Turbo factor 24 EPI factor Repulse type Normal Gradient mode Fast Fast Resolution Slice partial Fourier Interpolation Off Mawwell compensation ICE program prepscans Off Rew filter Off Geometry Series Interleaved Sat. region 1 Thickness 20 mm Introduction Off Dimension 3D Reordering Centric Contrasts 1 Bandwidth 1144 Hz/Px Turbo factor 24 EPI factor 12 RF pulse type Normal Gradient mode Fast Fefocussing type variable sinc flip angle excit 90 phase encoding ON Maxwell compensation ICE program prepscans 0 actual ETL 10 excite duration 2560 refoc duration 2560 refoc duration 2560 excite BWTP 12 Thickness 20 mm Variable Flip Angle 01 82		•		
Averaging mode Reconstruction Magnitude Reconstruction Magnitude Measurements 92 Pause after meas. 0 s Multiple series Off Turbo factor 24 EPI factor 12 Resolution 100 % Gradient mode Fast Patient Phase resolution 100 % Gradient mode Fast Phase resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Prescan Normalize Raw filter Off Geometry Series Interleaved Since partial Fourier Off Series Series Interleaved Since partial Fourier Off Series S				
Reconstruction Magnitude Reconstruction Magnitude Measurements 92 Pause after meas. 0 s Multiple series Off Resolution Base resolution 112 Phase resolution 100 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Prescan Normalize Off Raw filter Off Series Interleaved Geometry Series Interleaved Recordering Centric Contrasts 1 Bandwidth 1144 Hz/Px Turbo factor 24 EPI factor 12 RF pulse type Normal Gradient mode Fast Tefocussing type variable sinc flip angle excit 90 Phase encoding ON Maxwell compensation Off ICE program single prepscans 0 actual ETL 10 excite duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 82	rat sat. mode	Strong		
Measurements 92 Pause after meas. 0 s Multiple series Off Turbo factor 24 Resolution 112 Phase resolution 100 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Prescan Normalize Off Raw filter Off Series Interleaved Series Interleaved Measurements 92 Contrasts 1 Bandwidth 1144 Hz/Px Turbo factor 24 EPI factor 12 RF pulse type Normal Gradient mode Fast refocussing type variable sinc flip angle excit 90 phase encoding ON Maxwell compensation Off ICE program single prepscans 0 actual ETL 10 excite duration 2560 refoc duration 2560 excite BWTP 12 Sat. region 1 Thickness 20 mm Contrasts 1 Bandwidth 1144 Hz/Px EPI factor 12 RF pulse type Normal Fast Fefocussing type variable sinc flip angle excit 90 ICE program of lip angle excit 100 phase encoding ON Maxwell compensation Off ICE program single prepscans 0 actual ETL 10 excite duration 2560 refoc duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01	Averaging mode	Long term		
Pause after meas. Nultiple series Off Resolution Base resolution Phase resolution Slice partial Fourier Interpolation Off PAT mode Prescan Normalize Raw filter Off Series Interleaved Series Interleaved Series Series Interleaved Bandwidth 1144 Hz/Px Turbo factor 24 EPI factor 12 RF pulse type Normal Gradient mode Fast refocussing type variable sinc flip angle excit 90 Maxwell compensation ICE program prepscans 0 actual ETL excite duration excite BWTP 12 Series Series Interleaved Variable Flip Angle 01 82	Reconstruction	Magnitude	~	
Multiple series Off Resolution 112 Phase resolution 100 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Prescan Normalize Raw filter Off Raw filter Off Series Interleaved Sat. region 1 Thickness 20 mm Turbo factor 24 EPI factor 12 RF pulse type Normal Gradient mode Fast refocussing type variable sinc flip angle excit 90 Maxwell compensation Off ICE program single prepscans 0 actual ETL 10 excite duration 2560 refoc duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 Variable Flip Angle 01				•
Resolution Base resolution 112 Phase resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Prescan Normalize Off Raw filter Off Raw filter Off Series Interleaved Sat. region 1 Thickness 20 mm Figure 12 F				1144 112/FX
Resolution Base resolution Phase resolution Slice resolution Slice partial Fourier Interpolation Off PAT mode Prescan Normalize RF pulse type Gradient mode Fast refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans Raw filter Off Geometry Series Interleaved Sat. region 1 Thickness 20 mm RF pulse type Gradient mode Fast Normal Fast Normal Fast Variable sinc flip angle excit phase encoding None ICE program single prepscans actual ETL excite duration refoc duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 82	Multiple series	Off	Turbo factor	
Base resolution 112 Phase resolution 100 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Prescan Normalize Off Raw filter Off Series Interleaved Series Interleaved Sat. region 1 Thickness 20 mm RF pulse type Gradient mode Fast Repulse type Gradient mode Fast Prefocusing type variable sinc flip angle excit 90 Maxwell compensation Off ICE program single prepscans 0 actual ETL 10 excite duration 2560 refoc duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 82	Resolution			12
Phase resolution100 %Gradient modeFastSlice resolution100 %refocussing typevariable sincSlice partial FourierOffflip angle excit90InterpolationOffphase encodingONPAT modeNoneMaxwell compensationOffPrescan NormalizeOffICE programsingleRaw filterOffactual ETL10Geometryexcite duration2560SeriesInterleavedexcite BWTP12Sat. region 1refoc BWTP8Thickness20 mmVariable Flip Angle 0182		112		Normal
Slice resolution 100 % refocussing type variable sinc Slice partial Fourier Off Interpolation Off PAT mode None Maxwell compensation ICE program single Prescan Normalize Off prepscans 0 actual ETL 10 excite duration refoc duration 2560 excite BWTP 12 refoc BWTP 8 Tarking Fig. 10 Sat. region 1 Thickness 20 mm Variable Flip Angle 01 82		100 %	Gradient mode	Fast
Slice partial Fourier Off Interpolation Off Off PAT mode None ICE program single Prescan Normalize Off Agw filter Off Agreemetry Series Interleaved Sat. region 1 Thickness 20 mm flip angle excit 90 phase encoding ON Maxwell compensation Off ICE program single prepscans 0 actual ETL 10 excite duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 82	Slice resolution		refocussing type	variable sinc
Interpolation Off phase encoding ON Maxwell compensation Off ICE program single Prescan Normalize Off prepscans Off actual ETL 10 excite duration 2560 refoc duration excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 82				
PAT mode None Maxwell compensation ICE program Off Single Prescan Normalize Off prepscans 0 Raw filter Off actual ETL 10 Geometry excite duration 2560 Series Interleaved excite BWTP 12 Sat. region 1 refoc BWTP 8 Thickness 20 mm Variable Flip Angle 01 82		Off		
ICE program single		Name		
Prescan Normalize Off prepscans 0 Raw filter Off actual ETL 10 Geometry excite duration 2560 refoc duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 82	PAT MODE	NONE		
Raw filter Off actual ETL 10 Geometry excite duration 2560 refoc duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 82	Prescan Normalize	Off		-
Geometry excite duration refoc duration 2560 Series Interleaved Sat. region 1 Thickness 20 mm Variable Flip Angle 01 82	Raw filter			_
Series	Goometry			
Sat. region 1 refoc BWTP 8 Thickness 20 mm Variable Flip Angle 01 82		Interlegyed		
Thickness 20 mm Variable Flip Angle 01 82	Selles	mileneaved	excite BWTP	12
Thickness 20 mm Variable Flip Angle 01 82	Sat. region 1		refoc BWTP	8
Position Isocenter Variable Flip Angle 02 47	Thickness	20 mm		
	Position	Isocenter	Variable Flip Angle 02	47

Variable Flip Angle 03	43
Variable Flip Angle 04	42
Variable Flip Angle 05	45
Variable Flip Angle 06	49
Variable Flip Angle 07	57
Variable Flip Angle 08	66
Variable Flip Angle 09	82
Variable Flip Angle 10	130
Variable Flip Angle 11	180
Variable Flip Angle 12	180
Variable Flip Angle 13	180
Variable Flip Angle 14	180
Crusher Gr	0

TA: 0:00 PAT: Off	\\USER\F	einberglab\Suhyung\GRASE	w/ CS\BP_grase_IV_CS_	VFA_24SL	
Prior Resourcement	TA: 0:00 PAT: Off	Voxel size: 0.8×0.8×0.8 mm	Rel. SNR: 1.00 USER:	BP_grase_IV_CS_SH	
Prio Recon Before measurement After measurement Load to viewer On Inline movie Off Auto store images Concluding the property On Inline movie Off Auto store images Concluding the property Off M3	Dranautica		Orientation	Coronal	
Before measurement		0"	Special sat.	None	
After measurement Load to viewer On Inline movie Off		Oli	Table position	 ⊔	
Load to viewer On					
Inline movie		On		-	
Auto store images				Oli	
Load to stamp segments			· · · · · · · · · · · · · · · · · · ·		
Load images to graphic segments Sagments	•			_	
segments B4 On Auto open inline display Off M3 On Start measurement without turther preparation Visit for user to start Off Wait for user to start Sing transparation Positioning mode REF Start measurements single Single Transversal As > L Coronal As > L Result Sagittal R > L Coronal As > L Resolution Transversal As > D Transversal As > P Transversal As Sagittal R > L As yet mucombined Off Coronal As yet mucombined Addiptive Combine Auto Coil Combine Mode Adaptive Combine Auto Coil Select Default Adaptive Combine Auto Coil Select Default Auto Coil Select Auto Coil Select Default Auto Coil Select Default Auto Coil Select Default Auto Coil Select Auto Coil Select Auto Coil Select Auto Coil Select Default Auto Coil Select <td< td=""><td></td><td>_</td><td></td><td>_</td></td<>		_		_	
Auto open inline display					
Start measurement without further preparation Wait for user to start Off MSMA S - C - T		Off			
Wait for user to start Off Start measurements Single Sagittal R > L			V32	Off	
Wait for user to start Off Start measurements Single Sagittal R >> L	further preparation		Positioning mode	REF	
Sagital R >> L		Off			
Routine	Start measurements	single	_		
Slab group 1	Pouting	_		A >> P	
Siabs				F >> H	
Dist. factor		1	Save uncombined	Off	
Position Socenter Auto Align Image:			Coil Combine Mode	Adaptive Combine	
Orientation Transversal Auto Coil Select Default Phase enc. dir. A >> P Shim mode Standard Rotation 0 deg Adjust with body coil Off Slice oversampling 0.0 % Assume Slicone Off Slice oversampling 0.0 % Adjust with body coil Off Slice trickness 0.8 mm Adjust volume Adjust volume Scouter Postion 1 mm Adjust volume Scouter Magint volume Position Isocenter TE 20.26 ms Rotation 0.00 deg None Transversal TE 20.26 ms Rotation 0.00 deg None Physio <td colsp<="" td=""><td></td><td></td><td>AutoAlign</td><td> ·</td></td>	<td></td> <td></td> <td>AutoAlign</td> <td> ·</td>			AutoAlign	·
Phase enc. dir. A >> P Shim mode Standard Rotation 0 deg Adjust with body coil Off Phase oversampling 0.0 % Confirm freq. adjustment Off Slices oversampling 0.0 % Assume Silicone Off Slice sper slab 24 ! Ref. amplitude ! H 220.000 V FoV read 89.6 mm Adjust volume Auto FoV phase 25.0 % Adjust volume Auto Slice thickness 0.8 mm Position Isocenter TR 3000 ms Rotation 0.00 deg Averages 1 Rotation 0.00 deg R >> L 90 mm A > P 23 mm Filter None F > H 20 mm Contrast Physio Ist Signal/Mode None Contrast Introduction Off Averaging mode Long term Composing Reconstruction Magnitude Reordering Centric Mesculation 0.0 Reordering			Auto Coil Select	Default	
Rotation			Chim mode	Standard	
Phase oversampling					
Slice oversampling				_	
Slices per slab					
FoV read					
FoV phase	•	89.6 mm			
Slice thickness 0.8 mm				rato	
TR 3000 ms Orientation Transversal TE 20.26 ms Rotation 0.00 deg Averages 1 R >> L 90 mm Concatenations 1 A >> P 23 mm Filter None F >> H 20 mm Coil elements B4;M2,3;T1 Physio Physio Contrast Magn. preparation None Flip angle 180 deg Composing Fat suppr. F at sat. Sequence Fat sat. mode Strong Introduction Off Averaging mode Long term Reordering Centric Averaging mode Long term Reordering Centric Measurements 92 Contrasts 1 Pause after meas. 0 s Bandwidth 1144 Hz/Px Resolution 112 Resolution 12 Resolution 112 Replace resolution 10 % Slice partial Fourier Off Fast	•	0.8 mm	1 -	Isocenter	
Averages 1 R > L 90 mm Concatenations 1 A > P 23 mm Filter None F > H 20 mm Coil elements B4;M2,3;T1 Physio Contrast Magn. preparation None Tst Signal/Mode None Magn. preparation None Composing Fat suppr. Fat sat. Sequence Fat suppr. Fat sat. Sequence Fat sat. mode Strong Introduction Off Averaging mode Long term Recordering Centric Reconstruction Magnitude Reordering Centric Contrasts 1 Contrasts 1 Measurements 92 Contrasts 1 Pause after meas. 0 s Bandwidth 1144 Hz/Px Resolution 112 Fast pulse type Normal Resolution 100 % Fast pulse type Normal Slice resolution 100 % Fast pulse type Variable	TR	3000 ms			
Averages 1 R >> L 90 mm Concatenations 1 A >> P 23 mm Filter None F >> H 20 mm Contrast Physio Physio Contrast Test signal/Mode None Magn. preparation Flip angle None Composing Fat suppr. Fat sat. Fat sat. mode Strong Introduction Off Averaging mode Reconstruction Magnitude Long term Reordering Centric Reconstruction Measurements 92 Contrasts 1 Pause after meas. 0 s Bandwidth 1144 Hz/Px Resolution 112 Fl factor 12 Resolution 112 RF pulse type Normal Slice resolution 100 % Fast Fast Slice partial Fourier Off phase encoding ON Slice partial Fourier Off phase encoding ON PAT mode None ICE program Off Prescan Normalize Raw filter Off actual ET	TE	20.26 ms	Rotation	0.00 deg	
Filter Coil elements None B4;M2,3;T1 F >> H 20 mm Contrast Physio Physio Magn. preparation Flip angle 180 deg Composing Fat suppr. Fat sat. Fat sat. mode Strong Sequence Averaging mode Reconstruction Magnitude Long term Reordering Centric Contrasts Contrasts 1 Measurements 92 Pause after meas. 0 s Multiple series Off Turbo factor 24 Resolution 112 Phase resolution 100 % Fast Fast Slice partial Fourier Interpolation 100 % Fast Slice partial Fourier Interpolation Off Phase encoding Phase	Averages	1	R >> L	<u> </u>	
Coil elements B4;M2,3;T1 Physio Contrast 1st Signal/Mode None Magn. preparation Flip angle 180 deg Composing Fat suppr. Fat sat. Sequence Fat sat. mode Strong Introduction Off Averaging mode Long term Reconstruction Magnitude Reordering Centric Measurements 92 Bandwidth 1144 Hz/Px 1144 Hz/Px Pause after meas. 0 s Bandwidth 1144 Hz/Px 1144 Hz/Px Resolution 112 Fell factor 12 RF pulse type Normal Phase resolution 100 % Gradient mode Fast Fast Slice partial Fourier Off flip angle excit 90 Phase encoding ON PAT mode None ICE program single Frepscan Normalize Off prepscans 0 O Centric Centric Centric Contrasts 1 1 Centric Fell factor 12 RF pulse type Norm	Concatenations	1	A >> P	23 mm	
Contrast			F >> H	20 mm	
Series Its Signal/Mode None None	Coil elements	B4;M2,3;T1	Physic		
Flip angle				None	
Fat suppr. Fat sat. Fat sat. mode Strong Introduction Off Averaging mode Long term Reconstruction Magnitude Measurements 92 Pause after meas. 0 s Multiple series Off Turbo factor 24 Resolution 112 Phase resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Persoan Normalize Raw filter Off Series Interleaved Strong Interleaved Sequence Sequence Sequence Interleaved Sequence Sequence Sequence Interded Sequence Se			Composing		
Fat sat. mode Strong Introduction Off	. 0	•	Composing		
Averaging mode			•		
Reconstruction Magnitude Reconstruction Magnitude Measurements 92 Pause after meas. 0 s Multiple series Off Resolution Base resolution 112 Phase resolution 100 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Prescan Normalize Reordering Centric Contrasts 1 Bandwidth 1144 Hz/Px Bandwidth 1144 Hz/Px Turbo factor 24 EPI factor 12 RF pulse type Normal Gradient mode Fast refocussing type variable sinc flip angle excit 90 phase encoding ON Maxwell compensation ICE program single prepscans 0 Raw filter Off acture of the phase of the program of the pro	Fat sat. mode	Strong			
Reconstruction Magnitude Measurements 92 Pause after meas. 0 s Multiple series Off Resolution Base resolution 112 Phase resolution 100 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Prescan Normalize Off Raw filter Off Series Interleaved Recordering Contracts 1 Recordering Cont	Averaging mode	Long term			
Measurements92Contrasts1Pause after meas. Multiple series0 sBandwidth1144 Hz/PxResolution112Turbo factor EPI factor24Base resolution112RF pulse typeNormalPhase resolution100 %Gradient modeFastSlice resolution100 %refocussing typevariable sincSlice partial Fourier InterpolationOffphase encodingONPAT modeNoneMaxwell compensation 		-	_		
Multiple series Off Turbo factor 24 Resolution 112 Phase resolution 100 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Prescan Normalize Raw filter Off Series Interleaved Series Interleaved Turbo factor 24 EPI factor 12 RF pulse type Normal Gradient mode Fast 100 % Fast 90 Normal Ferocussing type variable sinc 90 Filip angle excit 90 Maxwell compensation Off ICE program single Prepscan Normalize Off actual ETL 10 excite duration 2560 refoc duration 2560 refoc duration 2560 excite BWTP 12	Measurements	•		•	
Resolution Base resolution 112 Phase resolution 100 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Prescan Normalize Off Raw filter Off Resolution Solice partial Fourier Off ICE program single Prescan Normalize Off prepscans 0 Raw filter Off Series Interleaved Series Interleaved EPI factor 12 RF pulse type Normal Feat Maxwell pre variable sinc flip angle excit 90 Maxwell compensation Off ICE program single prepscans 0 actual ETL 10 excite duration 2560 refoc duration 2560 excite BWTP 12			Bandwidth	1144 Hz/PX	
Base resolution 112 Phase resolution 100 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Prescan Normalize Prescan Normalize Repulse type Normal Gradient mode Fast Repulse type Normal Gradient mode Fast refocussing type variable sinc flip angle excit 90 Phase encoding ON Maxwell compensation Off ICE program single Prepscan Normalize Off prepscans 0 Raw filter Off actual ETL 10 Geometry Series Interleaved excite BWTP 12	Multiple series	Off	Turbo factor	24	
Base resolution 112 Phase resolution 100 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Prescan Normalize Prescan Normalize RF pulse type Gradient mode Fast RF pulse type Gradient mode Fast refocussing type variable sinc flip angle excit 90 Phase encoding ON Maxwell compensation Off ICE program single Prepscans 0 Raw filter Off actual ETL 10 Edeometry Series Interleaved excite BWTP 12	Resolution		EPI factor	12	
Phase resolution 100 % Slice resolution 100 % Slice partial Fourier Off Ilip angle excit 90 Interpolation Off Maxwell compensation Off PAT mode None Maxwell compensation ICE program single Prescan Normalize Off prepscans 0 Raw filter Off actual ETL 10 Geometry Series Interleaved Fast refocussing type variable sinc 90 flip angle excit 90 Maxwell compensation Off ICE program single prepscans 0 actual ETL 10 excite duration 2560 refoc duration 2560 excite BWTP 12		112	RF pulse type	Normal	
Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Maxwell compensation Prescan Normalize Off Raw filter Off Geometry Series Interleaved refocussing type variable sinc flip angle excit 90 Maxwell compensation Off ICE program single prepscans 0 actual ETL 10 excite duration 2560 refoc duration 2560 excite BWTP 12			Gradient mode	Fast	
Slice partial Fourier Off Interpolation Off Interpolation Off PAT mode None ICE program single Prescan Normalize Off prepscans 0 actual ETL 10 excite duration 2560 excite BWTP 12			reference to the	voriable size	
Interpolation Off phase encoding ON Maxwell compensation Off ICE program single preparation Prescan Normalize Off actual ETL 10 excite duration 2560 excite BWTP 12					
PAT mode None Maxwell compensation Off Prescan Normalize Off ICE program single Prepscans 0 Raw filter Off actual ETL 10 Geometry Series Interleaved excite duration 2560 excite BWTP 12					
PAT fillode Notife ICE program single preparation preparation of actual ETL 10 excite duration 2560 excite BWTP 12					
Prescan Normalize Off prepscans 0 actual ETL 10 excite duration 2560 refoc duration excite BWTP 12	PAT mode	None			
Raw filterOffactual ETL10Geometryexcite duration2560SeriesInterleavedrefoc duration2560excite BWTP12		Off		-	
Geometry excite duration 2560 Series Interleaved refoc duration 2560 excite BWTP 12	Raw filter	Off		10	
Series Interleaved excite BWTP 12	Geometry		excite duration		
excite BWTP 12		Interleaved	refoc duration	2560	
Sat. region 1 refoc BWTP 8				12	
\mathbf{i}	Sat. region 1		refoc BWTP	8	

Thickness

Position

20 mm

Isocenter

Variable Flip Angle 01 Variable Flip Angle 02

68

38

Variable Flip Angle 03	36
Variable Flip Angle 04	35
Variable Flip Angle 05	38
Variable Flip Angle 06	42
Variable Flip Angle 07	48
Variable Flip Angle 08	58
Variable Flip Angle 09	75
Variable Flip Angle 10	126
Variable Flip Angle 11	180
Variable Flip Angle 12	180
Variable Flip Angle 13	180
Variable Flip Angle 14	180
Crusher Gr	0

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TA: 0:00 PAT: Off	Voxel size: 0.8×0.8×0.8 mm	Rel. SNR: 1.00 USER:	BP_grase_IV_CS_SH
Properties		Orientation Special sat.	Coronal None
Prio Recon	Off		
Before measurement		Table position	Н
After measurement	_	Table position	0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off	System	
Auto store images	On	T1	On
Load to stamp segments	Off	M2	On
Load images to graphic	Off	B4	On
segments	0#	M3	On
Auto open inline display Start measurement without	Off On	V32	Off
further preparation	On	Decitioning mode	DEE
Wait for user to start	Off	Positioning mode MSMA	REF S - C - T
Start measurements	single	Sagittal	R >> L
	Singio	Coronal	A >> P
Routine		Transversal	F >> H
Slab group 1		Save uncombined	Off
Slabs	1	Coil Combine Mode	Adaptive Combine
Dist. factor Position	0 %	AutoAlign	
Orientation	Isocenter Transversal	Auto Coil Select	Default
Phase enc. dir.	A >> P	Ohim mada	Oten dend
Rotation	0 deg	Shim mode	Standard
Phase oversampling	0 deg 0 %	Adjust with body coil Confirm freq. adjustment	Off Off
Slice oversampling	0.0 %	Assume Silicone	Off
Slices per slab	24	! Ref. amplitude 1H	220.000 V
FoV read	89.6 mm	Adjustment Tolerance	Auto
FoV phase	25.0 %	Adjust volume	, tate
Slice thickness	0.8 mm	Position	Isocenter
TR	3000 ms	Orientation	Transversal
TE	22.82 ms	Rotation	0.00 deg
Averages	1	R >> L	90 mm
Concatenations	1	A >> P	23 mm
Filter	None	F >> H	20 mm
Coil elements	B4;M2,3;T1	Physio	
Contrast		1st Signal/Mode	None
Magn. preparation	None		
Flip angle	180 deg	Composing	
Fat suppr.	Fat sat.	Sequence	
Fat sat. mode	Strong	Introduction	Off
Averaging mode	Long term	Dimension	3D
Reconstruction	Magnitude	Reordering	Centric
Measurements	92	Contrasts	1
Pause after meas.	0 s	Bandwidth	1144 Hz/Px
Multiple series	Off	Turbo factor	24
Resolution		EPI factor	12
Base resolution	112	RF pulse type	Normal
Phase resolution	100 %	Gradient mode	Fast
Slice resolution	100 %	refocussing type	sinc 2560
Slice partial Fourier	Off	flip angle excit	90
Interpolation	Off	phase encoding	ON
PAT mode	None	Maxwell compensation	Off
		ICE program	single
Prescan Normalize	Off	prepscans	0
Raw filter	Off	actual ETL	10
Geometry		excite duration	2560
Series	Interleaved	refoc duration	2560
		excite BWTP	12
Sat. region 1	00	refoc BWTP	8
Thickness	20 mm	Variable Flip Angle 01	180
Position	Isocenter	Variable Flip Angle 02	180

Variable Flip Angle 03	180
Variable Flip Angle 04	180
Variable Flip Angle 05	180
Variable Flip Angle 06	180
Variable Flip Angle 07	180
Variable Flip Angle 08	180
Variable Flip Angle 09	180
Variable Flip Angle 10	180
Variable Flip Angle 11	180
Variable Flip Angle 12	180
Variable Flip Angle 13	180
Variable Flip Angle 14	180
Crusher Gr	0

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TA: 0:00 PAT: Off	Voxel size: 0.8×0.8×0.8 mm	Rel. SNR: 1.00 USER:	BP_grase_IV_CS_SH
Properties		Orientation Special sat.	Coronal None
Prio Recon	Off	Special Sat.	
Before measurement		Table position	Н
After measurement		Table position	0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off	System	
Auto store images	On	T1	On
Load to stamp segments	Off	M2	On
Load images to graphic	Off	B4	On
segments		M3	On
Auto open inline display	Off	V32	Off
Start measurement without	On	V 32	
further preparation		Positioning mode	REF
Wait for user to start	Off	MSMA	S - C - T
Start measurements	single	Sagittal	R >> L
Routine		Coronal	A >> P
		Transversal	F >> H
Slab group 1 Slabs	4	Save uncombined	Off
Dist. factor	1 0 %	Coil Combine Mode	Adaptive Combine
		AutoAlign	'
Position	Isocenter	Auto Coil Select	Default
Orientation	Transversal		••••••
Phase enc. dir.	A >> P	Shim mode	Standard
Rotation	0 deg	Adjust with body coil	Off
Phase oversampling	0 %	Confirm freq. adjustment	Off
Slice oversampling	0.0 %	Assume Silicone	Off
Slices per slab	36	! Ref. amplitude 1H	220.000 V
FoV read	89.6 mm	Adjustment Tolerance	Auto
FoV phase	25.0 %	Adjust volume	
Slice thickness	0.8 mm	Position	Isocenter
TR	3000 ms	Orientation	Transversal
TE	20.26 ms	Rotation	0.00 deg
Averages	1	R >> L	90 mm
Concatenations	1	A >> P	23 mm
Filter	None	F >> H	29 mm
Coil elements	B4;M2,3;T1	Physio	
Contrast		1st Signal/Mode	None
Magn. preparation	None		140110
Flip angle	180 deg	Composing	
Fat suppr.	Fat sat.	Sequence	
Fat sat. mode	Strong	Introduction	Off
		Dimension	3D
Averaging mode	Long term	Reordering	Centric
Reconstruction	Magnitude	Contrasts	1
Measurements	92	Bandwidth	1144 Hz/Px
Pause after meas.	0 s		1 144 1 12/F X
Multiple series	Off	Turbo factor	36
Resolution		EPI factor	12
Base resolution	112	RF pulse type	Normal
Phase resolution	100 %	Gradient mode	Fast
Slice resolution	100 %		
Slice resolution Slice partial Fourier	Off	refocussing type	variable sinc
Interpolation	Off	flip angle excit	90
		phase encoding	ON O
PAT mode	None	Maxwell compensation	Off
Dragger Name Str.	O#	ICE program	single
Prescan Normalize	Off Off	prepscans	0
Raw filter	Off	actual ETL	14
Geometry			0500
		excite duration	2560
-	Interleaved	refoc duration	2560
Series	Interleaved	refoc duration excite BWTP	2560 12
Series Sat. region 1		refoc duration excite BWTP refoc BWTP	2560 12 8
Series	Interleaved 20 mm Isocenter	refoc duration excite BWTP	2560 12

Variable Flip Angle 03	42
Variable Flip Angle 04	40
Variable Flip Angle 05	41
Variable Flip Angle 06	43
Variable Flip Angle 07	46
Variable Flip Angle 08	50
Variable Flip Angle 09	54
Variable Flip Angle 10	59
Variable Flip Angle 11	65
Variable Flip Angle 12	74
Variable Flip Angle 13	89
Variable Flip Angle 14	135
Crusher Gr	0

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Properties	TA: 0:00 PAT: Off	Voxel size: 0.8×0.8×0.8 mm	Rel. SNR: 1.00 USER:	BP_grase_IV_CS_SH
Prio Recon Before measurement After measurement without Auto open inline display Off System Auto open inline display Off M3 On On On On M3 On On On On On M3 On On On On On On On O	Properties			
Before measurement Load to viewer On Inline move Off		Off	Special sat.	None
After measurement Load to viewer on Inline movie Off Inline Composing Off Inline Composition Asset Inline Composition Security Inline Composition Security Inline Composition Security Inline Composition Security Inline Composition </td <td></td> <td></td> <td>Table position</td> <td>Н</td>			Table position	Н
Load to viewer				
Inline movie		On		
Auto coling peagments Off	Inline movie	Off		
May	Auto store images	On		0.5
Data Images to graphic segments	Load to stamp segments	Off		_
segments M3 On Auto open inline display Off V32 Off Start measurement without further preparation Positioning mode REF Wait for user to start Off MSMA S. C. T Start measurements Single Sagittal R. >> L Routine Coronal A. >> P Transversal F. >> H Slabs 1 Coil Combine Mode Adaptive Combine Position Isocenter Active Combine Mode Adaptive Combine Orientation Transversal Auto Coil Select Default Phase enc. dir. A. >> P Shim mode Standard Adjust with body coil Off Adjust with body coil Off Phase oversampling 0.0% Adjust with body coil Off Slice oversampling 0.0% Adjust with body coil Off Slice oversampling 0.0% Adjust with body coil Off FoV read 89.6 mm Adjust with body coil Off FoV phase 25.0 % Ad	Load images to graphic	Off		_
V32				_
Start measurements without without preparation Wait for user to start Off MSMA SCT		Off		
Wait for user to start Off Start measurements Single Sagittal R > L		On		
Sart measurements		0.0		
Routine Siab group 1 Siabs 1 Save uncombined F > H			_	
Siab group 1 Slabs	Start measurements	single		
Sala group Slab S Dist. factor	Routine			
Sabs	Slab group 1			
Dist, factor 0 % Coil Combine Mode Adaptive Combine AutoAlign AutoAl		1		
Position				
Phase enc. dir.	Position	Isocenter		
Rotation	Orientation	Transversal	Auto Coil Select	Default
Phase oversampling	Phase enc. dir.	A >> P	Shim mode	Standard
Phase oversampling 0 % Confirm freq. adjustment Off Slice oversampling 0.0 % Assume Silicone Off Slice oversampling 36 ! Ref. amplitude 1H 220.000 V FoV read 89.6 mm Adjustment Tolerance Auto FoV phase 25.0 % Adjust volume Slocenter Slice thickness 0.8 mm Position Isocenter TR 3000 ms Orientation Transversal TE 20.26 ms Rotation 0.00 deg Averages 1 R > L 90 mm Averages 1 A > P 23 mm Filter None F > H 29 mm Contract Physio Tomosing Contract Physio Tomosing Contract Tomosing None Filter Dangle 180 deg Sequence Fat suppr. Fat sat. Sequence Fat suppr. Fat sat. Sequence Averaging mode Long term Resolution	Rotation	0 deg	Adjust with body coil	Off
Slice oversampling 0.0 % Assume Silicone Off	Phase oversampling	0 %		Off
FoV read 89.6 mm Adjustment Tolerance Auto FoV phase 25.0 % Adjust volume Slice thickness 0.8 mm Position Isocenter TR 3000 ms Orientation Transversal Averages 1 R >> L 90 mm Concatenations 1 R >> P 23 mm Filter None F >> H 29 mm Coil elements B4;M2,3;T1 Physio Contrast Magn. preparation None Fs + H 29 mm Flip angle 180 deg Composing None Fat suppr. Fat sat. Sequence Composing Averaging mode Long term Sequence Introduction Off Averaging mode Long term Reconstruction Magnitude Contrasts 1 Reconstruction Magnitude Contrasts 1 Reordering Centric Measurements 92 Contrasts 1 Turbo factor 36	Slice oversampling	0.0 %		Off
FoV phase		36	! Ref. amplitude 1H	220.000 V
Slice thickness 0.8 mm Position Isocenter			Adjustment Tolerance	Auto
TR 3000 ms Orientation Transversal TE 20.26 ms Rotation 0.00 deg Averages 1 R >> L 90 mm Concatenations 1 A >> P 23 mm Filter None F >> H 29 mm Coil elements B4;M2,3;T1 Physio Provided to the part of the	-		Adjust volume	
Rotation 0.00 deg				
Averages 1 R >> L 90 mm Concatenations 1 A >> P 23 mm Filter None F >> H 29 mm Contrast Physio				
Concatenations 1 A >> P 23 mm Filter None F >> H 29 mm Coll elements B4;M2,3;T1 Physio Contrast Physio Contrast Test sat. Signal/Mode None Magn. preparation None Composing Strong Introduction Off Fat sat, mode Strong Introduction Off Off Off Averaging mode Long term Reconstruction Magnitude Reordering Centric Reconstruction Magnitude Reordering Centric Contrasts 1 Pause after meas. 0 s Bandwidth 1144 Hz/Px Mall the Intervention 1144 Hz/Px Multiple series Off Turbo factor 36 EPI factor 12 Resolution 112 RF pulse type Normal Base resolution 100 % Fast Fast Slice partial Fourier Off Interpolation Off Passe encoding ON				
Filter Coil elements None B4;M2,3;T1 F >> H 29 mm Contrast Physio Magn. preparation Flip angle angle Fat suppr. Fat sat. Fat sat. mode Strong Composing Averaging mode Averaging mode Reconstruction Measurements 92 Long term Averaging Centric Contrasts 1 Dimension 3D Centric Contrasts 1 Pause after meas. Os Multiple series Off Turbo factor 36 Centric Contrasts 1 Resolution Phase resolution Phase resolution 100 % Slice partial Fourier Off Interpolation Off Turbo factor 12 Centric Contrasts 1 Slice partial Fourier Off Sak Willer Off Sak Willer Off Sak Willer Off Sak Willer Compensation Off Sak Willer Off Sak Wi	_			
Coil elements B4;M2,3;T1 Physio Contrast 1st Signal/Mode None Magn. preparation Flip angle 180 deg Composing Fat suppr. Fat sat. Fat suppr. Fat sat. mode Strong Introduction Off Averaging mode Reconstruction Magnitude Measurements Long term Magnitude Measurements Reordering Centric Contrasts Contracts 1 Pause after meas. Multiple series 0 s Multiple series Off Turbo factor 36 Resolution 112 Fl factor 12 RF pulse type Normal Phase resolution Phase resolution Slice partial Fourier Interpolation 100 % Fefocussing type variable sinc Slice partial Fourier Off Interpolation Off Maxwell compensation Off PAT mode None None ICE program single ON Prescan Normalize Raw filter Off actual ETL 14 4 Geometry Series Interleaved Series BWTP 12 2560 Sat. region 1 Thickness 20 mm Variable Flip Angle 01 69				_
Physio Tst Signal/Mode None Tst Signal/Mode None			F >> H	29 mm
Contrast Ist Signal/Mode None Magn. preparation None Composing Flip angle 180 deg Composing Fat suppr. Fat sat. Sequence Fat suppr. Fat sat. Sequence Averaging mode Long term Reordering Centric Reconstruction Magnitude Reordering Centric Measurements 92 Contrasts 1 Pause after meas. 0 s Bandwidth 1144 Hz/Px Multiple series Off Turbo factor 36 Resolution 112 RF pulse type Normal Base resolution 100 % Gradient mode Fast Slice partial Fourier Off If phase encoding ON Interpolation Off Maxwell compensation Off PAT mode None Maxwell compensation Off Prescan Normalize Off prescans 0 Rewiller Off catual ETL 14 excite BWTP	Coll elements	B4;IVI2,3;11	Physio	
Magn. preparation Filip angleNoneComposingFat suppr.Fat sat.SequenceFat sat. modeStrongIntroductionOffAveraging mode Reconstruction Measurements Pause after meas. Multiple seriesLong term MagnitudeReordering Contrasts BandwidthCentric Contrasts BandwidthCentric Contrasts BandwidthResolution112 Phase resolution Slice partial Fourier InterpolationTurbo factor EPI factor Gradient mode36 EPI factor FastSlice partial Fourier Interpolation100 % OffRefocussing type Gradient modevariable sinc flip angle excit phase encoding prepscans ComposingPrescan Normalize Raw filterOff OffMaxwell compensation prepscans ComposingON ON ON Maxwell compensation ICE program prepscans Composition SeriesOff ON ON ON DAT modeOff ON ON Maxwell compensation Off Departing Departing Departing ON ON DAT modeOff ON ON ON DAT modeON ON ON DAT modeON ON ON DAT modeSeriesInterleavedEV OFF 	Contrast			None
Fat suppr. Fat sat. Fat sat. mode Strong Introduction Off Averaging mode Long term Reconstruction Magnitude Resolution Measurements 92 Pause after meas. 0 s Multiple series Off Introduction 112 Base resolution 112 Phase resolution 100 % Gradient mode Fast Past Slice partial Fourier Interpolation Off Interpolation Off PaT mode None Prescan Normalize Raw filter Off Series Interleaved Sat. region 1 Sat. region 1 Thickness 20 mm Sequence Introduction Off Dimension 3D Reordering Centric Contrasts 1 Turbo factor 36 EPI factor 12 Repulse type Normal Gendering Off Filip angle excit 90 Maxwell compensation Off ICE program single prepscans 0 actual ETL 14 excite duration 2560 excite BWTP 12 Sat. region 1 Thickness 20 mm Sequence	Magn. preparation	None	-	
Fat sat. mode Strong Averaging mode Reconstruction Measurements 92 Pause after meas. Multiple series Off Base resolution Phase resolution Slice partial Fourier Interpolation Off PAT mode Prescan Normalize Reometry Series Interleaved Sat. region 1 Thickness Sugarda Long term Magnitude Dimension Reordering Centric Contrasts 1 Bandwidth 1144 Hz/Px Turbo factor 36 EPI factor 12 RF pulse type Normal Gradient mode Fast refocussing type variable sinc flip angle excit phase encoding None ICE program prepscans 0 actual ETL excite duration 2560 excite BWTP 12 Sat. region 1 Thickness 20 mm Introduction Off Dimension 3D Reordering Centric Contrasts 1 Turbo factor 36 EPI factor 12 RF pulse type Normal Fast Trefocussing type variable sinc flip angle excit phase encoding ON Maxwell compensation ICE program single prepscans 0 actual ETL excite duration 2560 excite BWTP 12 refoc BWTP 8	Flip angle	180 deg	Composing	
Fat sat. mode Strong Averaging mode Reconstruction Measurements 92 Pause after meas. Multiple series Off Base resolution Slice resolution Slice partial Fourier Interpolation Off PAT mode Prescan Normalize Raw filter Geometry Series Interleaved Strong Introduction Off Dimension Recordering Centric Contrasts 1 Bandwidth 1144 Hz/Px Turbo factor 36 EPI factor 12 RF pulse type Normal Gradient mode Fast refocussing type variable sinc flip angle excit 90 Maxwell compensation ICE program single prepscans 0 actual ETL excite duration 2560 excite BWTP 12 Sat. region 1 Thickness 20 mm Introduction Off Dimension 3D Reordering Centric Centric Centric Centrats 1 1 Bandwidth 1144 Hz/Px Turbo factor 36 EPI factor 12 RF pulse type Normal Fast Tefocussing type variable sinc flip angle excit 90 Maxwell compensation ICE program single prepscans 0 actual ETL excite duration 2560 excite BWTP 12 refoc BWTP 8		Fat sat.	Sequence	
Reconstruction Magnitude Reconstruction Magnitude Measurements 92 Pause after meas. 0 s Multiple series Off Resolution Base resolution 112 Phase resolution 100 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off Interpolation Off PAT mode None Prescan Normalize Off Raw filter Off Geometry Series Interleaved Recordering Centric Contrasts 1 Bandwidth 1144 Hz/Px Repulse type 36 FPI factor 12 RF pulse type Normal Gradient mode Fast refocussing type variable sinc flip angle excit 90 Maxwell compensation Off ICE program single prepscans 0 Axwell compensation Off ICE program single prepscans 0 Actual ETL 14 Geometry Series Interleaved Sat. region 1 Thickness 20 mm Reordering Centric Contrasts 1 Bandwidth 1144 Hz/Px Magnitude Contrasts 1 Reordering Centric Contrasts 1 Bandwidth 1144 Hz/Px Magnitude Contrasts 1 Reordering Centric Contrasts 1 Bandwidth 1144 Hz/Px Magnitude Contrasts 1 Turbo factor 36 EPI factor 12 RF pulse type Normal Frast Off Fast Variable sinc flip angle excit 90 Normal Frast ON Maxwell compensation Off ICE program single prepscans 0 actual ETL 14 excite duration 2560 refoc duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 69	Fat sat. mode	Strong		Off
Reconstruction Magnitude Measurements 92 Contrasts 1 Pause after meas. 0 s Bandwidth 1144 Hz/Px Multiple series Off Turbo factor 36 Resolution 112 Furbo factor 12 Resolution 100 % Fast Pulse type Normal Gradient mode Fast Fourier Off Interpolation Off PAT mode None Prescan Normalize Raw filter Off Series Interleaved Sat. region 1 Sat. region 1 Turbo factor 36 EPI factor 12 RF pulse type Normal Gradient mode Fast Fourier Off Ipangle excit 90 Maxwell compensation Off ICE program single prepscans 0 actual ETL 14 excite duration 2560 excite BWTP 12 Sat. region 1 Thickness 20 mm Variable Flip Angle 01 69	Averaging mode	Long term	Dimension	3D
Measurements92Contrasts1Pause after meas. Multiple series0 sBandwidth1144 Hz/PxResolution112Turbo factor36Resolution112RF pulse typeNormalPhase resolution Slice resolution Slice partial Fourier Interpolation100 %refocussing typevariable sincPAT modeNoneflip angle excit phase encoding None90PAT modeNoneMaxwell compensation ICE program prepscans actual ETL excite durationOffGeometrySeriesInterleavedexcite duration excite BWTP refoc BWTP12Sat. region 1 Thickness20 mmVariable Flip Angle 0169			Reordering	Centric
Pause after meas.0 sMultiple seriesOffTurbo factor36ResolutionEPI factor12Base resolution100 %FastSlice resolution100 %FastSlice partial Fourier InterpolationOffflip angle excit flip angle excit90PAT modeNoneMaxwell compensation ICE program Raw filterOffPrescan Normalize Raw filterOffprepscans actual ETL excite duration refoc duration actual ETL excite duration refoc duration excite BWTP refoc BWTP Variable Flip Angle 011144 Hz/PxBandwidth1144 Hz/PxTurbo factor SePI factor Turbo factor 12 RF pulse type Normal Presct Normal Prefocussing type flip angle excit phase encoding Maxwell compensation ICE program actual ETL excite duration refoc duration excite BWTP refoc BWTP Variable Flip Angle 01			Contrasts	1
Multiple series Off Resolution			Bandwidth	1144 Hz/Px
Resolution Base resolution 112 Phase resolution 100 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Prescan Normalize Raw filter Off Raw filter Off Series Interleaved Sat. region 1 Thickness 20 mm Pige factor 12 RF pulse type Normal RF pulse type Variable sinc 90 Radient mode Fast Normal Fast Normal Fast RF pulse type Variable sinc 90 Radient mode Fast It 2 RF pulse type Normal RF pulse type Variable sinc 90 Interpocusing type variable sinc 90 Interpocusion			Turbo factor	36
Base resolution 112 Phase resolution 100 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Prescan Normalize Raw filter Off Series Interleaved Series Interleaved RF pulse type Gradient mode Fast RF pulse type Normal RF pulse type Gradient mode Fast Refocussing type variable sinc flip angle excit 90 Phase encoding ON Maxwell compensation Off ICE program single Prepscans 0 actual ETL 14 excite duration 2560 refoc duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 69	•			
Phase resolution 100 % Slice resolution 100 % Slice partial Fourier Off flip angle excit 90 Interpolation Off Maxwell compensation ICE program single Prescan Normalize Off prepscans 0 Raw filter Off actual ETL 14 Geometry Series Interleaved Sat. region 1 Thickness 20 mm Gradient mode Fast Gradient mode Fast Fast Gradient mode Fast Fast Gradient mode Fast Fast 90 Maxwell compensation Off ICE program single prepscans 0 actual ETL 14 excite duration 2560 refoc duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 69				· -
Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None None ICE program single Prescan Normalize Off prepscans 0 actual ETL 14 Geometry Series Interleaved Example 12 Sat. region 1 Thickness 20 mm refocussing type variable sinc 90 hase encoding ON Maxwell compensation Off ICE program single prepscans 0 actual ETL 14 excite duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 69				
Slice partial Fourier Off Interpolation Off PAT mode None Maxwell compensation Off ICE program single Prescan Normalize Off actual ETL 14 excite duration 2560 refoc duration 2560 excite BWTP 12 refoc BWTP 8 Thickness 20 mm Variable Flip Angle 01 69				
Interpolation Off phase encoding ON Maxwell compensation Off ICE program single Prescan Normalize Off prepscans Off actual ETL 14 excite duration 2560 refoc duration 2560 excite BWTP 12 refoc BWTP 8 Thickness 20 mm Variable Flip Angle 01 69				
PAT mode None Maxwell compensation ICE program Off Single Prescan Normalize Off prepscans 0 Raw filter Off actual ETL 14 Geometry excite duration 2560 Series Interleaved excite BWTP 12 Sat. region 1 refoc BWTP 8 Thickness 20 mm Variable Flip Angle 01 69				
ICE program single	interpolation	OII		
Prescan Normalize Off prepscans 0 Raw filter Off actual ETL 14 Geometry excite duration 2560 Series Interleaved refoc duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 69	PAT mode	None		
Raw filter Off actual ETL 14 Geometry excite duration 2560 Series Interleaved refoc duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 69	Droopen Names III-	O#		_
Geometry excite duration 2560 Series Interleaved refoc duration 2560 Sat. region 1 excite BWTP 12 Thickness 20 mm Variable Flip Angle 01 69		_		_
Geometry Series Interleaved refoc duration excite BWTP 2560 Sat. region 1 refoc BWTP 12 Thickness 20 mm Variable Flip Angle 01 69	raw liller	OII		
Series Interieaved excite BWTP 12 Sat. region 1 refoc BWTP 8 Thickness 20 mm Variable Flip Angle 01 69	Geometry			
Sat. region 1 refoc BWTP 8 Thickness 20 mm Variable Flip Angle 01 69	Series	Interleaved		
Thickness 20 mm Variable Flip Angle 01 69	Sat region 1			
		20 mm		_
	Position	Isocenter	Variable Flip Angle 01 Variable Flip Angle 02	38

Isocenter

Variable Flip Angle 02

38

Position

Variable Flip Angle 03	35
Variable Flip Angle 04	33
Variable Flip Angle 05	34
Variable Flip Angle 06	35
Variable Flip Angle 07	38
Variable Flip Angle 08	41
Variable Flip Angle 09	46
Variable Flip Angle 10	51
Variable Flip Angle 11	58
Variable Flip Angle 12	67
Variable Flip Angle 13	82
Variable Flip Angle 14	130
Crusher Gr	0

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Price Recon Price Recond Pr	TA: 0:00 PAT: Off	Voxel size: 0.8×0.8×0.8 mm	Rel. SNR: 1.00 USER:	BP_grase_IV_CS_SH
Frito Record	Properties			
After measurement Load to viewer On Inline movie Off		Off		
Inline Composing				
Inline movie				
Auto store images On System Load to stamp seyments Off M2 On Auto open inline display Off M3 On Auto open inline display Off M3 On Start measurement without for user to start Off M3 On Wait for user to start Off MSMA S - C - T State measurements single Sagittal R >> L Routine Sagittal R >> L State or United States Sagittal R >> L Coronal A >> P Transversal F >> H Slabs or United States 1 Coronal A >> P Position Isocenter AutoAlign			Inline Composing	Off
Auto Storle magnets Off		_	Svstem	
Documents Docu	•			On
Sacrophic Segments				_
Segments Segments Auto apen inline display Off V32		Off		_
Auto open inline display Start measurement without further preparation				_
Start measurement will out of turther preparation Wait for user to start Off				_
Wait for user to start Off MSMA S - C - T Start measurements single Sagittal R > L Routine Coronal A > P Slab group 1 Sagittal F >> H Slabs 9 1 Coronal A > P Transversal T Save uncombined Off Position I socenter Auto Coll Select Default Orientation T Transversal Auto Coll Select Default Phase enc. dir. A >> P Auto Coll Select Default Phase oversampling 0 % Shim mode Standard Slice oversampling 0 % Adjust with body coil Off Slice oversampling 0 % Assume Silicone Off Slice restab 36 F Restantitude IH 220.00 V Slice thickness 0.8 mm Adjust with body coil Off FoV read 8.6 mm Adjust with body coil Off Rotation 0.0 mm Adjust with body coil Off Rice pation 1 mm </td <td></td> <td>On</td> <td></td> <td></td>		On		
Sagittal R >> L				
Siab group 1			_	
Slab group 1	Start measurements	single		
Slab group 1	Routine			
Slabs			Transversal	
Dist. factor 0 % Position Isocenter Orientation Transversal Phase enc. dir. A >> P Rotation 0 deg Adjust with body coil Off Phase oversampling 0 % Slice oversampling 0 % Slice sper slab 36 FoV read 89.6 mm Adjust volume Adjust volume Position Iscenting FoV read 89.6 mm FoV read 80.6 mm Foreition 100.0 mm Revitin None Folitin		1	Save uncombined	Off
Position			Coil Combine Mode	Adaptive Combine
Orientation Transversal Auto Coil Select Default Phase enc. dir. A > P Shim mode Standard Rotation 0 deg Adjust with body coil Off Phase oversampling 0 % Confirm freq. adjustment Off Slice oversampling 0.0 % Assume Silicone Off Slice sper slab 36 I Ref. ampittude 1H 220.000 V FOV pade 89.6 mm Adjustment Tolerance			AutoAlign	
Phase enc. dir.			Auto Coil Select	Default
Rotation			01:	
Phase oversampling				
Slice oversampling				
Ref. amplitude 1H				
FoV read				
FoV phase 25.0 % Adjust volume Sice thickness 0.8 mm Position Isocenter	·			
Slice thickness 0.8 mm				Auto
TR 3000 ms Orientation Transversal TE 20.26 ms Rotation 0.00 deg Averages 1 R >> L 90 mm Concatenations 1 R >> P 23 mm Filter None F >> H 29 mm Coil elements B4;M2,3;T1 Physio Physio Contrast Magn. preparation None 1st Signal/Mode None Fat suppr. Fat sat. Sequence Composing Fat suppr. Fat sat. Sequence Composing Averaging mode Long term Sequence Centric Averaging mode Long term Reordering Centric Measurements 92 Contrasts 1 Pause after meas. 0 s Bandwidth 1144 Hz/Px Multiple series Off Turbo factor 36 Resolution 112 RF pulse type Normal Phase resolution 100 % refocussing type variable sinc <t< td=""><td></td><td></td><td>Adjust volume</td><td></td></t<>			Adjust volume	
TE 20.26 ms Rotation 0.00 deg Averages 1 R >> L 90 mm Concatenations 1 A >> P 23 mm Filter None F >> H 29 mm Coil elements B4;M2,3;T1 Physio Ist Signal/Mode None Contrast Though and the properties of the part		0.8 mm	Position	Isocenter
Averages 1 R >> L 90 mm Concatenations 1 A >> P 23 mm Filter None F >> H 29 mm Coil elements B4;M2,3;T1 Physio Contrast Physio None Magn. preparation None Composing Flip angle 180 deg Composing Fat subpr. F at sat. Sequence Fat sat. mode Strong Introduction Off Averaging mode Long term Recordering Centric Averaging mode Long term Recordering Centric Measurements 92 Contrasts 1 Pause after meas. 0 s Bandwidth 1144 Hz/Px Multiple series Off Turbo factor 36 Resolution 12 RF pulse type Normal Phase resolution 100 % Gradient mode Fast Slice partial Fourier Off flip angle excit 90 Interpolation Off			Orientation	Transversal
Concatenations 1	TE	20.26 ms	Rotation	0.00 deg
Filter Coil elements None B4;M2,3;T1 F >> H 29 mm Contrast Physio 1st Signal/Mode None Magn. preparation Flip angle 180 deg Composing Fat suppr. Fat sat. Sequence Fat sat. mode Strong Introduction Off Averaging mode Reconstruction Long term Reordering Centric Measurements 92 Bandwidth 1144 Hz/Px Pause after meas. 0 s Bandwidth 1144 Hz/Px Multiple series Off Turbo factor 36 Resolution 112 RF pulse type Normal Phase resolution 100 % Gradient mode Fast Slice partial Fourier Off Ifip angle excit 90 Interpolation Off Phase encoding ON PAT mode None ICE program single Prescan Normalize Off prescans 0 Raw filter Off prescans 0 Geometry Interleave	Averages	1	R >> L	90 mm
Physio	Concatenations	1	A >> P	23 mm
Physio	Filter	None	F >> H	29 mm
Contrast None Magn. preparation None Flip angle 180 deg Fat suppr. Fat sat. Fat sat. mode Strong Averaging mode Long term Reconstruction Magnitude Measurements 92 Pause after meas. 0 s Multiple series Off Resolution 112 Base resolution 100 % Slice resolution 100 % Slice partial Fourier Off Introduction Off Resolution 112 Phase resolution 10 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Prescan Normalize Off Raw filter Off Geometry Interleaved Series Interleaved Sat. region 1 Variable Flip Angle 01 57	Coil elements	B4;M2,3;T1	l Bl. :	
Magn. preparation Flip angle Fat suppr. Fat sat. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. Multiple series Off Base resolution Slice partial Fourier Interpolation Off Off Off Off Off Off Off Off Off Of	Contract			
Flip angle		None	1st Signal/Mode	None
Fat suppr. Fat sat. Mode Strong Introduction Off Averaging mode Reconstruction Magnitude Resoultion Measurements 92 Contrasts 1 Pause after meas. 0 s Multiple series Off Turbo factor 12 Resolution 100 % Fast Place project of Interpolation Off Interpolation Off Interpolation Off Interpolation Off Series Interleaved Interleaved Interpolation 2560 Fast Place project of Sat. region 1 Sat. region 1 Fat sat. Sequence Introduction Off Dimension 3D Revordering Centric Contrasts 1 I 1 Bandwidth 1144 Hz/Px Turbo factor 36 EPI factor 12 RF pulse type Normal Gradient mode Fast Plip angle excit 90 Interpolation Off Interpolation Off ICE program single prepscans 0 Raw filter Off actual ETL 14 Excite duration 2560 refoc duration 2560 refoc duration 2560 refoc duration 2560 refoc duration 2560 excite BWTP 12 Sat. region 1 Thickness 20 mm Variable Flip Angle 01 57			Composing	
Fat sat. mode Strong Introduction Off Dimension Reconstruction Magnitude Measurements Multiple series Multiple series Multiple series Magnitude Base resolution Phase resolution Slice partial Fourier Interpolation Off Mognitude Magnitude Off Contrasts 1 Bandwidth 1144 Hz/Px Turbo factor EPI factor RF pulse type Normal Gradient mode Fast Fast Recousing type variable sinc flip angle excit phase encoding None PAT mode None Prescan Normalize Raw filter Off Geometry Series Interleaved Sat. region 1 Thickness Off Dimension Off Dimension Off Dimension Off Recordering Centric Contrasts 1 Turbo factor 36 EPI factor 12 RF pulse type Normal Geradient mode Fast Turbo factor 15 Bandwidth 1144 Hz/Px Turbo factor 16 Bandwidth 1144 Hz/Px Normal Fast Feocussing type variable sinc flip angle excit phase encoding ON Maxwell compensation ICE program single prepscans 0 actual ETL excite duration 2560 refoc duration 2560 refoc duration 2560 refoc duration 2560 excite BWTP 12 Sat. region 1 Thickness 20 mm Variable Flip Angle 01 57		•		
Averaging mode Reconstruction Magnitude Measurements Measurements Multiple series Off Resolution Base resolution Boy Mormal Gradient mode Fast Fefocussing type Mormal Gradient mode Fast Fefocussing type Fefocussing typ				
Reconstruction Magnitude Reconstruction Magnitude Measurements 92 Pause after meas. Multiple series Off Resolution Base resolution 112 Phase resolution 100 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Prescan Normalize Raw filter Off Raw filter Off Series Interleaved Sat. region 1 Thickness 20 mm Recordering Centric Contrasts 1 Bandwidth 1144 Hz/Px Reordering Contracts 1 Contrasts 1 Bandwidth 1144 Hz/Px Trubo factor 36 EPI factor 12 RF pulse type Normal Gradient mode Fast refocussing type variable sinc flip angle excit 90 Interpolation Off ICE program single prepscans 0 Actual ETL 14 excite duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 57	Fat sat. mode	Strong		
Reconstruction Magnitude Contrasts 1 Pause after meas. 0 s Multiple series Off Turbo factor 36 Resolution 112 Base resolution 100 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Pat made Raw filter Off Series Interleaved Sat. region 1 Geometry Series Interleaved Sat. region 1 Thickness 20 mm Recordering Centric Contrasts 1 Recordering Centric Contracts 1 Recordering Centric Contracts 1 Recordering Centric Contracts 1 Bandwidth 1144 Hz/Px Turbo factor 36 EPI factor 12 RF pulse type Normal Gradient mode Fast 1 Fast Pulse type Normal 1 Fast Pulse type Normal 1 Prescasing type variable sinc 1 flip angle excit 90 Maxwell compensation Off ICE program single prepscans 0 actual ETL 14 excite duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 57	Averaging mode	Lona term		
Measurements92Contrasts1Pause after meas. Multiple series0 sBandwidth1144 Hz/PxMultiple seriesOffTurbo factor36Resolution112EPI factor12Phase resolution100 %FastSlice resolution100 %refocussing typevariable sincSlice partial Fourier InterpolationOffphase encoding phase encoding 		•		Centric
Pause after meas. Multiple series Off Resolution Base resolution Base resolution Turbo factor EPI factor 12 RF pulse type Normal Gradient mode Fast refocussing type flip angle excit phase encoding phase encoding None PAT mode None Prescan Normalize Prescan Normalize Remetry Series Interleaved Bandwidth 1144 Hz/Px Turbo factor 36 EPI factor 12 RF pulse type Normal Gradient mode Fast refocussing type flip angle excit 90 Maxwell compensation ICE program prepscans 0 actual ETL excite duration refoc duration refoc duration refoc duration excite BWTP 12 Sat. region 1 Thickness 20 mm Series Bandwidth 1144 Hz/Px Turbo factor 36 EPI factor 12 RF pulse type Normal Fast Normal Orf flip angle excit 90 Phase encoding NA Maxwell compensation ICE program prepscans 0 actual ETL excite duration refoc duration refoc duration excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 57	Measurements	-		1
Multiple series Off Resolution Base resolution 112 Phase resolution 100 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Prescan Normalize Raw filter Off Raw filter Off Series Interleaved Sat. region 1 Turbo factor 36 EPI factor 12 RF pulse type Normal Gradient mode Fast refocussing type variable sinc flip angle excit 90 Maxwell compensation Off ICE program single prepscans 0 actual ETL 14 excite duration 2560 refoc duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 57	Pause after meas.		Bandwidth	1144 Hz/Px
Resolution Base resolution Phase resolution Slice resolution Slice partial Fourier Interpolation Off PAT mode Prescan Normalize Raw filter Off Series Interleaved Sat. region 1 Thickness PI factor 12 RF pulse type Gradient mode Fast refocussing type variable sinc flip angle excit 90 Phase encoding Naxwell compensation ICE program prepscans ocatual ETL excite duration single prepscans ocatual ETL excite duration refoc duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 57			Turbo factor	36
Base resolution 112 Phase resolution 100 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Prescan Normalize Raw filter Off Geometry Series Interleaved Sat. region 1 Thickness 20 mm PRE pulse type Gradient mode Fast Re pulse type Variable sinc Fast Refocussing type variable sinc Flip angle excit 90 Prefocusing type variable sinc Flip angle excit 90 Maxwell compensation Off ICE program single prepscans 0 actual ETL 14 excite duration 2560 refoc duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 57		.		
Phase resolution 100 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode Prescan Normalize Raw filter Off Series Interleaved Series Interleaved Sat. region 1 Thickness 20 mm Phase resolution 100 % Fast Gradient mode Fast Fa				
Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None ICE program single Prescan Normalize Off prepscans 0 actual ETL 14 Geometry Series Interleaved Excit 90 Interpolation Off ICE program single prepscans 0 actual ETL 14 excite duration 2560 excite BWTP 12 Sat. region 1 Thickness 20 mm Variable Flip Angle 01 57	Base resolution			
Slice partial Fourier Off Interpolation Off Off Interpolation Off Off Off Off Off Off Off Off Off Of	Phase resolution	100 %	Gradient mode	rast
Slice partial Fourier Off Interpolation Off Off PAT mode None ICE program single Prescan Normalize Off Actual ETL 14 excite duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 57	Slice resolution	100 %	refocussing type	variable sinc
Interpolation Off PAT mode None ICE program single Prescan Normalize Off prepscans 0 actual ETL 14 Geometry Erics Interleaved Excite BWTP 12 Sat. region 1 Thickness 20 mm Phase encoding ON Maxwell compensation Off ICE program single prepscans 0 actual ETL 14 excite duration 2560 refoc duration 2560 excite BWTP 12 Variable Flip Angle 01 57	Slice partial Fourier	Off		
PAT mode None Maxwell compensation ICE program single Prescan Normalize Raw filter Off Off prepscans 0 actual ETL 14 prepscans 2560 refoc duration 2560 refoc duration 2560 excite BWTP 12 refoc BWTP 8 Sat. region 1 Thickness 20 mm Variable Flip Angle 01 57	Interpolation	Off		
ICE program single	DAT I	N1		
Prescan Normalize Off prepscans 0 Raw filter Off actual ETL 14 Geometry excite duration 2560 Series Interleaved refoc duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 57	PAI mode	INONE		
Raw filter Off actual ETL 14 Geometry excite duration 2560 Series Interleaved refoc duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 57	Prescan Normalize	Off	1 -	_
Geometry excite duration 2560 Series Interleaved refoc duration 2560 excite BWTP 12 refoc BWTP 8 Variable Flip Angle 01 57			1	
Geometry Series Interleaved refoc duration excite BWTP 12 Sat. region 1 Thickness 20 mm Variable Flip Angle 01 57	Traw into	5		
Series Interleaved excite BWTP 12 Sat. region 1 refoc BWTP 8 Thickness 20 mm Variable Flip Angle 01 57	Geometry			
Sat. region 1 refoc BWTP 8 Thickness 20 mm Variable Flip Angle 01 57	Series	Interleaved		
Thickness 20 mm Variable Flip Angle 01 57	Cat ragion 1			
	_	20		
Position isocenter variable Filp Angle 02 31		_		
·	Position	isocenter	variable Filp Angle 02	31

Variable Flip Angle 03	29
Variable Flip Angle 04	27
Variable Flip Angle 05	29
Variable Flip Angle 06	30
Variable Flip Angle 07	32
Variable Flip Angle 08	35
Variable Flip Angle 09	40
Variable Flip Angle 10	45
Variable Flip Angle 11	53
Variable Flip Angle 12	64
Variable Flip Angle 13	82
Variable Flip Angle 14	136
Crusher Gr	0

\\USER\Feinberglab\Suhyung\GRASE w/ CS\BP_grase_IV_CS_CFA_36SL

TA: 4:36 PAT: Off	Voxel size: 0.8×0.8×0.8 mm	Rel. SNR: 1.00 USER:	BP_grase_IV_CS_SH
Properties		Orientation Special sat.	Coronal None
Prio Recon	Off		
Before measurement		Table position	H
After measurement	•	Table position	0 mm
Load to viewer	On O"	Inline Composing	Off
Inline movie	Off	System	
Auto store images	On	T1	On
Load to stamp segments	Off	M2	On
Load images to graphic	Off	B4	On
segments	•	M3	On
Auto open inline display	Off	V32	Off
Start measurement without	On		
further preparation		Positioning mode	REF
Wait for user to start	Off	MSMA	S - C - T
Start measurements	single	Sagittal	R >> L
Routine		Coronal	A >> P
Slab group 1		Transversal	F >> H
Slabs	1	Save uncombined	Off
Dist. factor	0 %	Coil Combine Mode	Adaptive Combine
Position	Isocenter	AutoAlign	
Orientation	Transversal	Auto Coil Select	Default
Phase enc. dir.	A >> P	Shim mode	Standard
Rotation	0.00 deg		Off
Phase oversampling	0 %	Adjust with body coil Confirm freq. adjustment	Off
Slice oversampling	0.0 %	Assume Silicone	Off
Slices per slab	36	! Ref. amplitude 1H	220.000 V
FoV read	89.6 mm	Adjustment Tolerance	Auto
FoV phase	25.0 %		Auto
Slice thickness	0.80 mm	Adjust volume Position	laccenter
TR	3000 ms	Orientation	Isocenter Transversal
TE	22.82 ms	Rotation	
Averages	1	R >> L	0.00 deg
Concatenations	1	A >> P	90 mm 23 mm
Filter	None	F >> H	
Coil elements	B4;M2,3;T1	F >> H	29 mm
I	D+,WZ,3,1 1	Physio	
Contrast		1st Signal/Mode	None
Magn. preparation	None	Composing	
Flip angle	180 deg	Composing	
Fat suppr.	Fat sat.	Sequence	
Fat sat. mode	Strong	Introduction	Off
Averaging mode	Long term	Dimension	3D
Reconstruction	Magnitude	Reordering	Centric
Measurements	92	Contrasts	1
Pause after meas.	0.0 s	Bandwidth	1144 Hz/Px
Multiple series	Off	Echo spacing	1.2 ms
	311	Turbo footor	26
Resolution		Turbo factor	36
Base resolution	112	EPI factor	12
Phase resolution	100 %	RF pulse type	Normal
Slice resolution	100 %	Gradient mode	Fast
Slice partial Fourier	Off	refocussing type	sinc 2560
Interpolation	Off	flip angle excit	90
PAT mode	None	phase encoding	ON
FAT IIIOUE	None	Maxwell compensation	Off
Prescan Normalize	Off	ICE program	Mosaic
Raw filter	Off	prepscans	0
1		actual ETL	6
Geometry		excite duration	2560
Series	Interleaved	refoc duration	2560
Sat. region 1		excite BWTP	12.0
Thickness	20 mm	refoc BWTP	8.0
Position	Isocenter	Variable Flip Angle 01	180
1 33.6311	.55551.161	Tanasio i np / mgio o i	

Variable Flip Angle 02	180
Variable Flip Angle 03	180
Variable Flip Angle 04	180
Variable Flip Angle 05	180
Variable Flip Angle 06	180
Variable Flip Angle 07	180
Variable Flip Angle 08	180
Variable Flip Angle 09	180
Variable Flip Angle 10	180
Variable Flip Angle 11	180
Variable Flip Angle 12	180
Variable Flip Angle 13	180
Variable Flip Angle 14	180
Crusher Gr	40000

\\USER\Feinberglab\Suh	vung\GRASE w/ CS\For	SetupFOV 36Slices
		Cotapi C v Cociloco

TA: 6.0 s PAT: Off Voxel size: 0.8x0.8x0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_IV_Regular_SH

Prio Recon Off Secondary Secondary	
Load to viewer	
Inline movie	
Tout bother images	
Load to stamp segments	
Load images to graphic segments	
Segments	
Auto open inline display	
Start measurement without further preparation wait for user to start	
further preparation Wait for user to start Start measurements Single Routine Slab group 1 Slabs	
Wait for user to start Start measurements Single Sagittal R >> L	
Start measurements Single Sagittal R >> L	
Routine	
Slab group 1 Slabs 1 Slab group 1 Slabs 1 Slabs 1 Slabs 1 Slabs 1 Save uncombined Coil Combine Mode Adaptive Combine Mode Pefalt Mode Confirm freq. Adjust with body coil Off Adaptive Combine Mode Adaptive Combine Mode Adaptive Combine Mode Confirm freq. Adjust with body coil Off Confirm freq. Adjust with body coil Off Adaptive Combine Mode Adaptive Combine Mode Adaptive Combine Mode Adaptive Combine Mode Confirm freq. Adjust with body coil Off Adjust volume Position Assume Silcone Of	
Slab group 1 Slabs	
Dist. factor	
Dist. 1actor Dosition Socenter Dosition Socenter Dosition Dosit	•
Position Orientation Transversal Phase enc. dir. A >> P Shim mode Standard Adjust with body coil Off Confirm freq. adjustment Off Slice oversampling 0.0 % Assume Silicone Off Slices per slab 36 ! Ref. amplitude 1H 220.000 V Adjust violume FoV phase 32.1 % Adjust violume Slice thickness 0.80 mm Adjust volume Position Isocenter TR 3000 ms Orientation Transversal Revarges 1 Rotation 0.00 deg Averages 1 Ref. amplitude 1H 29 mm Concatenations 1 R >> P 29 mm Filter None Filter None Filt ast. Fat sat. Fat sat. mode Strong Introduction Off Off Slice violation Off Off Off Off Off Off Off Off Off Of	6
Phase enc. dir. A >> P	
Rotation 0.00 deg Phase oversampling 0 % Confirm freq. adjustment Off Confirm freq. adjustment Off Slice oversampling 0.0 % Assume Silicone Off Slices per slab 36 ! Ref. amplitude 1H 220.000 V FoV read 89.6 mm Adjust volume Slice thickness 0.80 mm Position Isocenter TR 3000 ms Orientation Transversal TE 45.34 ms Rotation 0.00 deg Averages 1 Rotation 0.00 deg R R >> L 90 mm Concatenations 1 Rotation Filter None Filter None Filter None Filip angle 110 deg Fat suppr. Fat sat. Fat sat. mode Strong Introduction Off Dimension 3D Reordering Centric	
Phase oversampling 0 % Slice oversampling 0.0 % Slices per slab 36 FoV read 89.6 mm FoV phase 32.1 % Slice thickness 0.80 mm TR 3000 ms TE 45.34 ms Confirm freq. adjustment Off Assume Silicone Off Provided 1	
Phase oversampling Slice oversampling Slice oversampling Slice oversampling Slice sper slab Slice sper sper sper sper sper sper sper spe	
Slice oversampling Slices per slab Sloces per	
FoV read 89.6 mm Adjustment Tolerance Auto FoV phase 32.1 % Adjust volume Adjust volume Slice thickness 0.80 mm Position Isocenter TR 3000 ms Orientation Transversal TE 45.34 ms Rotation 0.00 deg Averages 1 R >> L 90 mm Concatenations 1 A >> P 29 mm Filter None F >> H 29 mm Coil elements B4;M2,3;T1 Physio Contrast Test Signal/Mode None Magn. preparation Flip angle None Composing Fat suppr. Fat sat. Sequence Fat sat. mode Strong Introduction Off Oimension 3D Reordering Centric	
FoV read 89.6 mm FoV phase 32.1 % Slice thickness 0.80 mm TR 3000 ms TE 45.34 ms Averages 1 Concatenations 1 Filter None Coil elements B4;M2,3;T1 Magn. preparation Flip angle 110 deg Fat suppr. Fat sat. mode Adjust volume Position Isocenter Orientation Transversal Rotation 0.00 deg R >> L 90 mm A >> P 29 mm Filter Physio Composing Sequence Introduction Off Dimension 3D Reordering Centric	
FoV phase 32.1 % Adjust volume Slice thickness 0.80 mm Position Isocenter TR 3000 ms Orientation Transversal TE 45.34 ms Rotation 0.00 deg Averages 1 R >> L 90 mm Concatenations 1 A >> P 29 mm Filter None F >> H 29 mm Coil elements B4;M2,3;T1 Physio Contrast Thysio Thysio Contrast Thysio Thysio Composing None Composing Fat suppr. Fat sat. Sequence Fat sat. mode Strong Introduction Off Dimension 3D Reconstruction Magnitude Reordering Centric	
Slice thickness 0.80 mm Position Isocenter TR 3000 ms Orientation Transversal TE 45.34 ms Rotation 0.00 deg Averages 1 R >> L 90 mm Concatenations 1 A >> P 29 mm Filter None F >> H 29 mm Coil elements B4;M2,3;T1 Physio Contrast 1st Signal/Mode None Magn. preparation None Composing Fat suppr. Fat sat. Sequence Fat sat. mode Strong Introduction Off Averaging mode Long term Dimension 3D Reconstruction Magnitude Reordering Centric	
TR 3000 ms TE 45.34 ms Rotation 0.00 deg Averages 1 R >> L 90 mm Concatenations 1 A >> P 29 mm Filter None Filter None Coil elements B4;M2,3;T1 Contrast Physio Contrast Physio Composing Fat suppr. Fat sat. Sequence Fat sat. mode Strong Introduction Off Averaging mode Long term Reconstruction Magnitude Orientation Transversal Rotation O.00 deg Restation 0.00 deg Restation 1.00 Onm Restation None Sequence Fat Signal/Mode None Composing Sequence Introduction Off Dimension 3D Reordering Centric	
Averages 1 R >> L 90 mm Concatenations 1 A >> P 29 mm Filter None F >> H 29 mm Coil elements B4;M2,3;T1 Physio Contrast 1st Signal/Mode None Magn. preparation None Flip angle 110 deg Composing Fat suppr. Fat sat. Sequence Fat sat. mode Strong Introduction Off Averaging mode Long term Dimension 3D Reconstruction Magnitude Reordering Centric	
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Filter None B4;M2,3;T1 Contrast Physio Contrast 1st Signal/Mode None Magn. preparation None Flip angle 110 deg Fat suppr. Fat sat. Fat sat. mode Strong Introduction Off Averaging mode Long term Reconstruction Magnitude F >> H 29 mm Composing Composing Introduction Off Dimension 3D Reordering Centric	
Contrast Physio	
Contrast Magn. preparation Flip angle Fat suppr. Fat sat. Fat sat. mode Averaging mode Reconstruction None Composing Composing Sequence Introduction Dimension Reordering Reordering Off Reordering Composing Sequence Introduction Dimension Reordering Contric	
Magn. preparation None Flip angle 110 deg Fat suppr. Fat sat. Fat sat. mode Strong Averaging mode Long term Reconstruction Magnitude Composing Sequence Introduction Off Dimension 3D Reordering Centric	
Flip angle 110 deg Fat suppr. Fat sat. Sequence Fat sat. mode Strong Introduction Off Averaging mode Long term Reconstruction Magnitude Reordering Centric	
Fat suppr. Fat sat. Sequence Fat sat. mode Strong Introduction Off Averaging mode Long term Dimension 3D Reconstruction Magnitude Reordering Centric	
Fat sat. mode Strong Introduction Off Averaging mode Long term Dimension 3D Reconstruction Magnitude Reordering Centric	
Averaging mode Long term Dimension 3D Reconstruction Magnitude Reordering Centric	
Reconstruction Magnitude Reordering Centric	
Reconstruction Magnitude Reordering Centric	
Measurements 2 Contrasts 1	
Pause after meas. 1 0.0 s Bandwidth 1144 Hz/Px	
Multiple series Off Echo spacing 1 ms	
Turbe feeter	
Resolution 20	
Dase resolution 112	
Triade resolution 100 /0	
Sice resolution 100 %	
Slice partial Fourier Off refocussing type sinc 2560	
Interpolation Off flip angle excit 90	
PAT mode None phase encoding ON	
Prescan Normalize Off ICE program single	
Raw filter Off prepscans 0	
Geometry excite duration 2560	
Series Interleaved refoc duration 2560	
Series Interieaved excite BWTP 12.0	
Sat. region 1 refoc BWTP 8.0	
Thickness 25 mm T2 Validation Off	
Position Isocenter pre-crusher 40000	

post-crusher1	40000
post-crusher2	40000
post-crusher3	40000
post-crusher4	40000
Variable Flip Angle 01	180
Variable Flip Angle 02	180
Variable Flip Angle 03	180
Variable Flip Angle 04	180
Variable Flip Angle 05	180
Variable Flip Angle 06	180
Variable Flip Angle 07	180
Variable Flip Angle 08	180
Variable Flip Angle 09	180
Variable Flip Angle 10	180
Variable Flip Angle 11	180
Variable Flip Angle 12	180
Variable Flip Angle 13	180
Variable Flip Angle 14	180
Variable Flip Angle 15	180
Variable Flip Angle 16	180
Variable Flip Angle 17	180
Variable Flip Angle 18	180
Variable Flip Angle 19	180
Variable Flip Angle 20	180

\USER\Feinberglab\Suhyung\GRASE w/ CS\BP grase IV Regular

TA: 10:00 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_IV_Regular_SH

Properties Prio Recon	Off	Orientation - Special sat.	Coronal None
Before measurement After measurement	Oli	Table position Table position	H 0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off		Oli
Auto store images	On	System	
Load to stamp segments	Off	T1	On
Load images to graphic	Off	M2	On
segments	OII	B4	On
Auto open inline display	Off	M3	On
Start measurement without	On	V32	Off
further preparation	OII	Desitioning models	REF
Wait for user to start	Off	Positioning mode MSMA	S-C-T
Start measurements	single	Sagittal	R >> L
otan measurements	Single	Coronal	A >> P
Routine		- Transversal	F >> H
Slab group 1			C >> II
Slabs	1	Save uncombined	
Dist. factor	0 %	Coil Combine Mode	Adaptive Combine
Position	Isocenter	AutoAlign Auto Coil Select	
Orientation	Transversal	Auto Coll Select	Default
Phase enc. dir.	A >> P	Shim mode	Standard
Rotation	0.00 deg	Adjust with body coil	Off
Phase oversampling	0 %	Confirm freq. adjustment	Off
Slice oversampling	0.0 %	Assume Silicone	Off
Slices per slab	8	! Ref. amplitude 1H	220.000 V
FoV read	89.6 mm	Adjustment Tolerance	Auto
FoV phase	25.0 %	Adjust volume	
Slice thickness	0.80 mm	Position	Isocenter
TR	3000 ms	Orientation	Transversal
TE	37.74 ms	Rotation	0.00 deg
Averages	1	R >> L	90 mm
Concatenations	1	A >> P	23 mm
Filter	None	F >> H	7 mm
Coil elements	B4;M2,3;T1	I .	
Contract		Physio	
Contrast	None	1st Signal/Mode	None
Magn. preparation	180 deg	Composing	
Flip angle	Fat sat.		
Fat suppr.	0.	Sequence	
Fat sat. mode	Strong	Introduction	Off
Averaging mode	Long term	Dimension	3D
Reconstruction	Magnitude	Reordering	Centric
Measurements	200	Contrasts	1
Pause after meas.	0.0 s	Bandwidth	1144 Hz/Px
Multiple series	Off	Echo spacing	1 ms
Resolution		Turbo factor	6
Base resolution	112	- EPI factor	28
Phase resolution	100 %	RF pulse type	Normal
Slice resolution	100 %	Gradient mode	Fast
Slice resolution Slice partial Fourier	6/8		
Interpolation	Off	refocussing type	sinc 2560
micipolation	OII	flip angle excit	90
DAT		I phase encoding	ON
PAT mode	None	phase encoding	
		Maxwell compensation	Off
Prescan Normalize	Off	Maxwell compensation ICE program	Off single
		Maxwell compensation ICE program prepscans	Off single 0
Prescan Normalize Raw filter	Off	Maxwell compensation ICE program prepscans excite duration	Off single 0 2560
Prescan Normalize Raw filter Geometry	Off Off	Maxwell compensation ICE program prepscans excite duration refoc duration	Off single 0 2560 2560
Prescan Normalize Raw filter Geometry Series	Off	Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP	Off single 0 2560 2560 12.0
Prescan Normalize Raw filter Geometry Series Sat. region 1	Off Off Interleaved	Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP	Off single 0 2560 2560 12.0 8.0
Prescan Normalize Raw filter Geometry Series	Off Off	Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP	Off single 0 2560 2560 12.0

post-crusher1	40000
post-crusher2	40000
post-crusher3	40000
post-crusher4	40000
Variable Flip Angle 01	180
Variable Flip Angle 02	180
Variable Flip Angle 03	180
Variable Flip Angle 04	180
Variable Flip Angle 05	180
Variable Flip Angle 06	180
Variable Flip Angle 07	180
Variable Flip Angle 08	180
Variable Flip Angle 09	180
Variable Flip Angle 10	180
Variable Flip Angle 11	180
Variable Flip Angle 12	180
Variable Flip Angle 13	180
Variable Flip Angle 14	180
Variable Flip Angle 15	180
Variable Flip Angle 16	180
Variable Flip Angle 17	180
Variable Flip Angle 18	180
Variable Flip Angle 19	180
Variable Flip Angle 20	180

TA: 10:00 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_IV_Regular_SH

Properties Prio Recon	Off	Orientation - Special sat.	Coronal None
Before measurement After measurement	Oll	Table position Table position	H 0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off		
Auto store images	On	System	
Load to stamp segments	Off	T1	On
Load images to graphic	Off	M2	On
segments		B4 M3	On
Auto open inline display	Off		On O#
Start measurement without	On	V32	Off
further preparation		Positioning mode	REF
Wait for user to start	Off	MSMA	S - C - T
Start measurements	single	Sagittal	R >> L
Routine		Coronal	A >> P
		- Transversal	F >> H
Slab group 1 Slabs	4	Save uncombined	Off
Dist. factor	1 0 %	Coil Combine Mode	Adaptive Combine
Position	Isocenter	AutoAlign	
Orientation	Transversal	Auto Coil Select	Default
Phase enc. dir.	A >> P	Shim made	Standard
Rotation	0.00 deg	Shim mode Adjust with body coil	Standard Off
Phase oversampling	0.00 deg 0 %	Confirm freq. adjustment	Off
Slice oversampling	0.0 %	Assume Silicone	Off
Slices per slab	18	! Ref. amplitude 1H	220.000 V
FoV read	89.6 mm	Adjustment Tolerance	Auto
FoV phase	25.0 %	Adjust volume	Auto
Slice thickness	0.80 mm	Position	Isocenter
TR	3000 ms	Orientation	Transversal
TE	37.74 ms	Rotation	0.00 deg
Averages	1	R >> L	90 mm
Concatenations	1	A >> P	23 mm
Filter	None	F >> H	15 mm
Coil elements	B4;M2,3;T1	l	10 111111
0		Physio	
Contrast	Nege	1st Signal/Mode	None
Magn. preparation	None	Composing	
Flip angle	180 deg Fat sat.		
Fat suppr. Fat sat. mode	0.4	Sequence	~
	Strong	Introduction	Off
Averaging mode	Long term	Dimension Boardering	3D Contrin
Reconstruction	Magnitude	Reordering	Centric
Measurements	200	Contrasts Bandwidth	1 1144 Hz/Px
Pause after meas.	0.0 s	Echo spacing	1 144 HZ/PX 1 ms
Multiple series	Off		
Resolution		Turbo factor	14
Base resolution	112	- EPI factor	28
Phase resolution	100 %	RF pulse type	Normal
Slice resolution	100 %	Gradient mode	Fast
Slice partial Fourier	6/8	refocussing type	variable sinc
Interpolation	Off	flip angle excit	90
		phase encoding	ON
PAT mode	None	Maxwell compensation	Off
Prescan Normalize	Off	ICE program	single
Raw filter	Off	prepscans	0
1		excite duration	2560
Geometry		refoc duration	2560
Series	Interleaved	excite BWTP	12.0
Sat. region 1		refoc BWTP	8.0
Thickness	20 mm	T2 Validation	Off
Position	Isocenter	pre-crusher	40000
1		1 '	

post-crusher1	40000
post-crusher2	40000
post-crusher3	40000
post-crusher4	40000
Variable Flip Angle 01	90
Variable Flip Angle 02	49
Variable Flip Angle 03	45
Variable Flip Angle 04	43
Variable Flip Angle 05	43
Variable Flip Angle 06	43
Variable Flip Angle 07	42
Variable Flip Angle 08	43
Variable Flip Angle 09	46
Variable Flip Angle 10	51
Variable Flip Angle 11	58
Variable Flip Angle 12	67
Variable Flip Angle 13	77
Variable Flip Angle 14	90
Variable Flip Angle 15	180
Variable Flip Angle 16	180
Variable Flip Angle 17	180
Variable Flip Angle 18	180
Variable Flip Angle 19	180
Variable Flip Angle 20	180

\\USER\Feinberglab\Suhyung\GRASE w/ CS\BP_GRASE_CS_VFA_24SL

TA: 10:00 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_GRASE_SH

Properties Prio Recon	Off	Orientation - Special sat.	Coronal None
Before measurement After measurement	Oli	Table position Table position	H 0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off		
Auto store images	On	System	
Load to stamp segments	Off	T1	On
Load images to graphic	Off	M2	On
segments		B4 M3	On
Auto open inline display	Off		On O#
Start measurement without	On	V32	Off
further preparation		Positioning mode	REF
Wait for user to start	Off	MSMA	S - C - T
Start measurements	single	Sagittal	R >> L
Routine		Coronal	A >> P
		- Transversal	F >> H
Slab group 1 Slabs	1	Save uncombined	Off
Dist. factor	1 0 %	Coil Combine Mode	Adaptive Combine
Position	Isocenter	AutoAlign	
Orientation	Transversal	Auto Coil Select	Default
Phase enc. dir.	A >> P	Shim mode	Standard
Rotation	0.00 deg	Adjust with body coil	Off
Phase oversampling	0 %	Confirm freq. adjustment	Off
Slice oversampling	0.0 %	Assume Silicone	Off
Slices per slab	24	! Ref. amplitude 1H	220.000 V
FoV read	89.6 mm	Adjustment Tolerance	Auto
FoV phase	25.0 %	Adjust volume	Auto
Slice thickness	0.80 mm	Position	Isocenter
TR	3000 ms	Orientation	Transversal
TE	22.82 ms	Rotation	0.00 deg
Averages	1	R >> L	90 mm
Concatenations	1	A >> P	23 mm
Filter	None	F >> H	20 mm
Coil elements	B4;M2,3;T1	ļ	20 111111
0		Physio	
Contrast	Naga	1st Signal/Mode	None
Magn. preparation	None	Composing	
Flip angle	180 deg Fat sat.		
Fat suppr. Fat sat. mode	0.	Sequence	~
	Strong	Introduction	Off
Averaging mode	Long term	Dimension Boardering	3D Contrin
Reconstruction	Magnitude	Reordering	Centric
Measurements	200	Contrasts Bandwidth	1 1144 Hz/Px
Pause after meas.	0.0 s	Echo spacing	1144 HZ/PX 1.2 ms
Multiple series	Off	ECHO Spacing	1.2 1115
Resolution		Turbo factor	24
Base resolution	112	- EPI factor	12
Phase resolution	100 %	RF pulse type	Normal
Slice resolution	100 %	Gradient mode	Fast
Slice partial Fourier	Off	refocussing type	variable sinc
Interpolation	Off	refocussing type flip angle excit	90
		phase encoding	ON
PAT mode	None	Maxwell compensation	Off
Prescan Normalize	Off	ICE program	single
Raw filter	Off	prepscans	0
		excite duration	2560
Geometry		refoc duration	2560
Series	Interleaved	excite BWTP	12.0
Sat. region 1		refoc BWTP	8.0
I INICKNESS	22 mm	Variable Flip Angle 01	82
Thickness Position	22 mm Isocenter	Variable Flip Angle 01 Variable Flip Angle 02	82 47

Variable Flip Angle 03	43
Variable Flip Angle 04	42
Variable Flip Angle 05	45
Variable Flip Angle 06	49
Variable Flip Angle 07	57
Variable Flip Angle 08	66
Variable Flip Angle 09	82
Variable Flip Angle 10	130
Variable Flip Angle 11	180
Variable Flip Angle 12	180
Variable Flip Angle 13	180
Variable Flip Angle 14	180
Variable Flip Angle 15	180
Variable Flip Angle 16	180
Variable Flip Angle 17	180
Variable Flip Angle 18	180
Variable Flip Angle 19	180
Variable Flip Angle 20	180
Regular or CS	CS
actual ETL	10
Which areas?	Motor Cortex

\\USER\Feinberglab\Suhyung\GRASE w/ CS\BP_GRASE_CS_VFA_36SL

USER: BP_GRASE_SH

Voxel size: 0.8x0.8x0.8 mm Rel. SNR: 1.00

TA: 2:00

PAT: Off

171. 2.00	311 VOXC1 3126. 0.0X0.0X0.0	1.00 C	0211: BI _01010E_011
Properties		Pause after meas. 20	0.0 s
Prio Recon	Off	Pause after meas. 21	0.0 s
Before measurement	.	Pause after meas. 22	0.0 s
After measurement		Pause after meas. 23	0.0 s
Load to viewer	On	Pause after meas. 24	0.0 s
Inline movie	Off	Pause after meas. 25	0.0 s
Auto store images	On	Pause after meas. 26	0.0 s
Load to stamp segments	Off	Pause after meas. 27	0.0 s
Load images to graphic	Off	Pause after meas. 28	0.0 s
segments		Pause after meas. 29	0.0 s
Auto open inline display	Off	Pause after meas. 30	0.0 s
Start measurement without	On	Pause after meas. 31	0.0 s
further preparation	OII	Pause after meas. 32	0.0 s
Wait for user to start	Off	Pause after meas. 33	0.0 s
Start measurements		Pause after meas. 34	0.0 s
Start measurements	single	Pause after meas. 35	0.0 s
Routine		Pause after meas. 36	0.0 s
Slab group 1		Pause after meas. 37	0.0 s
Slabs	1	Pause after meas. 38	0.0 s
Dist. factor	0 %	Pause after meas. 39	0.0 s
Position	Isocenter	Pause after meas. 40	0.0 s
Orientation	Transversal	Pause after meas, 41	0.0 s
Phase enc. dir.	A >> P	Pause after meas, 42	0.0 s
Rotation	0.00 deg	Pause after meas. 43	0.0 s
Phase oversampling	0.00 deg 0 %	Pause after meas. 44	0.0 s
	0.0 %	Pause after meas. 45	0.0 s
Slice oversampling	36	Pause after meas. 46	0.0 s
Slices per slab		Pause after meas. 47	0.0 s
FoV read	89.6 mm	Pause after meas. 48	0.0 s
FoV phase	25.0 %	Pause after meas. 49	0.0 s
Slice thickness	0.80 mm		
TR	2000 ms	Pause after meas. 50	0.0 s
TE	24.1 ms	Pause after meas. 51	0.0 s
Averages	1	Pause after meas. 52	0.0 s
Concatenations	1	Pause after meas. 53	0.0 s
Filter	None	Pause after meas. 54	0.0 s
Coil elements	B4;M2,3;T1	Pause after meas. 55	0.0 s
Contrast		Pause after meas. 56	0.0 s
Magn. preparation	None	Pause after meas. 57	0.0 s
Flip angle	180 deg	Pause after meas. 58	0.0 s
Fat suppr.	Fat sat.	Pause after meas. 59	0.0 s
Fat sat. mode	Strong	Multiple series	Off
·····	·····	Resolution	
Averaging mode	Long term	Base resolution	112
Reconstruction	Magnitude	Phase resolution	100 %
Measurements	60	Slice resolution	100 %
Pause after meas. 1	0.0 s	Slice partial Fourier	Off
Pause after meas. 2	0.0 s	Interpolation	Off
Pause after meas. 3	0.0 s		
Pause after meas. 4	0.0 s	PAT mode	None
Pause after meas. 5	0.0 s	Prescan Normalize	Off
Pause after meas. 6	0.0 s	Raw filter	Off
Pause after meas. 7	0.0 s	Naw Iliter	Oli
Pause after meas. 8	0.0 s	Geometry	
Pause after meas. 9	0.0 s	Series	Interleaved
Pause after meas. 10	0.0 s		
Pause after meas. 11	0.0 s	Sat. region 1	
Pause after meas. 12	0.0 s	Thickness	22 mm
Pause after meas. 13	0.0 s	Position	Isocenter
Pause after meas. 14	0.0 s	Orientation	Coronal
Pause after meas. 15	0.0 s	Special sat.	None
Pause after meas. 16	0.0 s	Table position	Н
Pause after meas. 17	0.0 s	Table position	
Pause after meas. 18	0.0 s	Table position	0 mm Off
Pause after meas. 19	0.0 s	Inline Composing	Oii
i addo ditei ilieda. 13	-	7/50	

System	
T1	On
M2	On
B4	On
M3	On
V32	Off
Positioning mode	REF
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
AutoAlign	 ·
Auto Coil Select	Default
Shim mode	Standard
Adjust with body coil	Off
Confirm freq. adjustment	Off
Assume Silicone	Off
! Ref. amplitude 1H	220.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	90 mm
A >> P	23 mm
F >> H	
г >> п	29 mm
Physio	
1st Signal/Mode	None
Composing	
Sequence	
Introduction	Off
Introduction	Off
Dimension	3D
Dimension Reordering	3D Centric
Dimension Reordering Contrasts	3D Centric 1
Dimension Reordering Contrasts Bandwidth	3D Centric 1 1144 Hz/Px
Dimension Reordering Contrasts	3D Centric 1
Dimension Reordering Contrasts Bandwidth Echo spacing	3D Centric 1 1144 Hz/Px 1.2 ms
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor	3D Centric 1 1144 Hz/Px 1.2 ms
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor	3D Centric 1 1144 Hz/Px 1.2 ms
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor	3D Centric 1 1144 Hz/Px 1.2 ms
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal Fast variable sinc
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal Fast variable sinc 90
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal Fast variable sinc 90 ON
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal Fast variable sinc 90 ON Off
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal Fast variable sinc 90 ON Off single
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal Fast variable sinc 90 ON Off single 0
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal Fast variable sinc 90 ON Off single 0 2560
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal Fast variable sinc 90 ON Off single 0 2560 3840
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal Fast variable sinc 90 ON Off single 0 2560 3840 12.0
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal Fast variable sinc 90 ON Off single 0 2560 3840
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal Fast variable sinc 90 ON Off single 0 2560 3840 12.0
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal Fast variable sinc 90 ON Off single 0 2560 3840 12.0 8.0
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP Variable Flip Angle 01 Variable Flip Angle 02	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal Fast variable sinc 90 ON Off single 0 2560 3840 12.0 8.0 83
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP Variable Flip Angle 01 Variable Flip Angle 02 Variable Flip Angle 03	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal Fast variable sinc 90 ON Off single 0 2560 3840 12.0 8.0 83 46 42
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP Variable Flip Angle 01 Variable Flip Angle 02 Variable Flip Angle 03 Variable Flip Angle 04	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal Fast variable sinc 90 ON Off single 0 2560 3840 12.0 8.0 83 46 42 40
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP Variable Flip Angle 01 Variable Flip Angle 02 Variable Flip Angle 03 Variable Flip Angle 04 Variable Flip Angle 05	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal Fast variable sinc 90 ON Off single 0 2560 3840 12.0 8.0 83 46 42 40 41
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP Variable Flip Angle 01 Variable Flip Angle 02 Variable Flip Angle 03 Variable Flip Angle 04 Variable Flip Angle 05 Variable Flip Angle 05 Variable Flip Angle 06	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal Fast variable sinc 90 ON Off single 0 2560 3840 12.0 8.0 83 46 42 40 41 43
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP Variable Flip Angle 01 Variable Flip Angle 02 Variable Flip Angle 03 Variable Flip Angle 04 Variable Flip Angle 05 Variable Flip Angle 06 Variable Flip Angle 06 Variable Flip Angle 06 Variable Flip Angle 07	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal Fast variable sinc 90 ON Off single 0 2560 3840 12.0 8.0 83 46 42 40 41 43 46
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP Variable Flip Angle 01 Variable Flip Angle 02 Variable Flip Angle 03 Variable Flip Angle 04 Variable Flip Angle 05 Variable Flip Angle 06 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 08	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal Fast variable sinc 90 ON Off single 0 2560 3840 12.0 8.0 83 46 42 40 41 43 46 50
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP Variable Flip Angle 01 Variable Flip Angle 02 Variable Flip Angle 03 Variable Flip Angle 04 Variable Flip Angle 05 Variable Flip Angle 05 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 08 Variable Flip Angle 08 Variable Flip Angle 08 Variable Flip Angle 09	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal Fast variable sinc 90 ON Off single 0 2560 3840 12.0 8.0 83 46 42 40 41 43 46 50 54
Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP Variable Flip Angle 01 Variable Flip Angle 02 Variable Flip Angle 03 Variable Flip Angle 04 Variable Flip Angle 05 Variable Flip Angle 06 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 08	3D Centric 1 1144 Hz/Px 1.2 ms 36 12 Normal Fast variable sinc 90 ON Off single 0 2560 3840 12.0 8.0 83 46 42 40 41 43 46 50

Variable Flip Angle 12	74
Variable Flip Angle 13	89
Variable Flip Angle 14	135
Variable Flip Angle 15	180
Variable Flip Angle 16	180
Variable Flip Angle 17	180
Variable Flip Angle 18	180
Variable Flip Angle 19	180
Variable Flip Angle 20	180
Regular or CS	CS
actual ETL	14
Which areas?	Motor Cortex

\\USER\Feinberglab\Suhyung\GRASE w/ CS\BP	

TA: 8:00 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_GRASE_SH

Properties	0"	Orientation - Special sat.	Coronal None
Prio Recon Before measurement After measurement	Off	Table position Table position	H 0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off		Oli
Auto store images	On	System	
Load to stamp segments	Off	T1	On
Load images to graphic	Off	M2	On
segments		B4	On
Auto open inline display	Off	M3	On
Start measurement without	On	V32	Off
further preparation	5	Positioning mode	REF
Wait for user to start	Off	MSMA	S - C - T
Start measurements	single	Sagittal	R >> L
ı	g	Coronal	A >> P
Routine		- Transversal	F >> H
Slab group 1		Save uncombined	Off
Slabs	1	Coil Combine Mode	Adaptive Combine
Dist. factor	0 %	AutoAlign	
Position	Isocenter	Auto Coil Select	Default
Orientation	Transversal		
Phase enc. dir.	A >> P	Shim mode	Standard
Rotation	0.00 deg	Adjust with body coil	Off
Phase oversampling	0 %	Confirm freq. adjustment	Off
Slice oversampling	0.0 %	Assume Silicone	Off
Slices per slab	18	! Ref. amplitude 1H	220.000 V
FoV read	89.6 mm	Adjustment Tolerance	Auto
FoV phase	25.0 %	Adjust volume	
Slice thickness	0.80 mm	Position	Isocenter
TR	3000 ms	Orientation	Transversal
TE	24.1 ms	Rotation	0.00 deg
Averages	1	R >> L	90 mm
Concatenations	1	A >> P	23 mm
Filter	None	F >> H	15 mm
Coil elements	B4;M2,3;T1	Physio	
Contrast		1st Signal/Mode	None
Magn. preparation	None		
Flip angle	180 deg	Composing	
Fat suppr.	Fat sat.	Sequence	
Fat sat. mode	Strong	Introduction	Off
Averaging was als	1 4	Dimension	3D
Averaging mode	Long term	Reordering	Centric
Reconstruction Measurements	Magnitude 160	Contrasts	1
Pause after meas.	0.0 s	Bandwidth	1144 Hz/Px
Multiple series	Off	Echo spacing	1.2 ms
1	Oil		
Resolution		Turbo factor	18
Base resolution	112	- EPI factor	12 Normal
Phase resolution	100 %	RF pulse type	Normal
Slice resolution	100 %	Gradient mode	Fast
Slice partial Fourier	Off	refocussing type	sinc 2560
Interpolation	Off	flip angle excit	90
PAT mode	None	phase encoding	ON
	140HG	Maxwell compensation	Off
Prescan Normalize	Off	ICE program	single
Raw filter	Off	prepscans	0
Geometry		excite duration	2560
Geometry	Interlogued	refoc duration	3840
Series	Interleaved	excite BWTP	12.0
Sat. region 1		refoc BWTP	8.0
Thickness	20 mm	Variable Flip Angle 01	180
Position	Isocenter	Variable Flip Angle 02	180
1			

Variable Flip Angle 03	180
Variable Flip Angle 04	180
Variable Flip Angle 05	180
Variable Flip Angle 06	180
Variable Flip Angle 07	180
Variable Flip Angle 08	180
Variable Flip Angle 09	180
Variable Flip Angle 10	180
Variable Flip Angle 11	180
Variable Flip Angle 12	180
Variable Flip Angle 13	180
Variable Flip Angle 14	180
Variable Flip Angle 15	180
Variable Flip Angle 16	180
Variable Flip Angle 17	180
Variable Flip Angle 18	180
Variable Flip Angle 19	180
Variable Flip Angle 20	180
Regular or CS	CS
actual ETL	6
Which areas?	Motor Cortex

TA: 6.0 s PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_GRASE_SH

Properties		Orientation - Special sat.	Coronal None
Prio Recon	Off		
Before measurement		Table position	Н
After measurement		Table position	0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off	System	
Auto store images	On	System	
Load to stamp segments	Off	T1	On
Load images to graphic	Off	M2	On
segments	.	B4	On
Auto open inline display	Off	M3	On
Start measurement without	On	V32	Off
	Oli		
further preparation	0"	Positioning mode	REF
Wait for user to start	Off	MSMA	S - C - T
Start measurements	single	Sagittal	R >> L
Routine		Coronal	A >> P
Slab group 1		- Transversal	F >> H
Slabs	1	Save uncombined	Off
	1	Coil Combine Mode	Adaptive Combine
Dist. factor	0 %	AutoAlign	 '
Position	Isocenter	Auto Coil Select	Default
Orientation	Transversal		
Phase enc. dir.	A >> P	Shim mode	Standard
Rotation	0.00 deg	Adjust with body coil	Off
Phase oversampling	0 %	Confirm freq. adjustment	Off
Slice oversampling	0.0 %	Assume Silicone	Off
Slices per slab	36	! Ref. amplitude 1H	220.000 V
FoV read	89.6 mm	Adjustment Tolerance	Auto
FoV phase	32.1 %	Adjust volume	, 1310
Slice thickness	0.80 mm	Position	Isocenter
TR	3000 ms	Orientation	Transversal
TE	49.7 ms	Rotation	
	1		0.00 deg
Averages	1	R >> L	90 mm
Concatenations	•	A >> P	29 mm
Filter	None	F >> H	29 mm
Coil elements	B4;M2,3;T1	Physio	
Contrast		1st Signal/Mode	None
Magn. preparation	None	- Tot Oighai/Wode	None
Flip angle	180 deg	Composing	
Fat suppr.	Fat sat.	Coguenes	
Fat sat. mode	Strong	Sequence	
		Introduction	Off
Averaging mode	Long term	Dimension	3D
Reconstruction	Magnitude	Reordering	Centric
Measurements	2	Contrasts	1
Pause after meas, 1	0.0 s	Bandwidth	1144 Hz/Px
Multiple series	Off	Echo spacing	1.1 ms
1		Turbo factor	27
Resolution		- EPI factor	36
Base resolution	112	RF pulse type	Normal
Phase resolution	100 %		
Slice resolution	100 %	Gradient mode	Fast
Slice partial Fourier	6/8	refocussing type	sinc 2560
Interpolation	Off	flip angle excit	90
		phase encoding	ON
PAT mode	None	Maxwell compensation	Off
Prescan Normalize	Off		
Raw filter	Off	ICE program	single
Naw IIIICI	OII	prepscans	0
Geometry		excite duration	2560
Series	Interleaved	refoc duration	2560
		excite BWTP	12.0
Sat. region 1		refoc BWTP	8.0
Thickness	28 mm	Variable Flip Angle 01	180
Position	Isocenter	Variable Flip Angle 02	180
•		•	

Variable Flip Angle 03	180
Variable Flip Angle 04	180
Variable Flip Angle 05	180
Variable Flip Angle 06	180
Variable Flip Angle 07	180
Variable Flip Angle 08	180
Variable Flip Angle 09	180
Variable Flip Angle 10	180
Variable Flip Angle 11	180
Variable Flip Angle 12	180
Variable Flip Angle 13	180
Variable Flip Angle 14	180
Variable Flip Angle 15	180
Variable Flip Angle 16	180
Variable Flip Angle 17	180
Variable Flip Angle 18	180
Variable Flip Angle 19	180
Variable Flip Angle 20	180
Regular or CS	Regular
actual ETL	6
Which areas?	Visual Cortex

\USER\Feinberglab\Suhyung\GRASE w/ CS\BP grase IV Regular

TA: 3.0 s PAT: Off Voxel size: 1.0×1.0×1.0 mm Rel. SNR: 1.00 USER: BP_grase_clean_IV_Regular_SH

Properties		Orientation Special sat.	Sagittal None
Prio Recon	Off		
Before measurement		Table position	Н
After measurement		Table position	0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off	System	
Auto store images	On		05
Load to stamp segments	Off	T1	On On
Load images to graphic	Off	M2	On
segments		B4	On
Auto open inline display	Off	M3	On
Start measurement without	On	V32	Off
further preparation	311	Desitioning mode	REF
Wait for user to start	Off	Positioning mode	
Start measurements		MSMA	S-C-T
Start measurements	single	Sagittal	R >> L
Routine		Coronal	A >> P
Slab group 1		- Transversal	F >> H
Slabs	1	Save uncombined	Off
Dist. factor	0 %	Coil Combine Mode	Adaptive Combine
Position	Isocenter	AutoAlign	
Orientation	Transversal	Auto Coil Select	Default
Phase enc. dir.	R >> L	Chim made	Ctandard
Rotation	90.00 deg	Shim mode	Standard
1 10 10111011	90.00 deg 0 %	Adjust with body coil	Off
Phase oversampling		Confirm freq. adjustment	Off
Slice oversampling	0.0 %	Assume Silicone	Off
Slices per slab	22	! Ref. amplitude 1H	220.000 V
FoV read	112.0 mm	Adjustment Tolerance	Auto
FoV phase	25.0 %	Adjust volume	
Slice thickness	1.00 mm	Position	Isocenter
TR	1500 ms	Orientation	Transversal
TE	36.94 ms	Rotation	90.00 deg
Averages	1	A >> P	112 mm
Concatenations	1	R >> L	28 mm
Filter	None	F >> H	22 mm
Coil elements	B4;M2,3;T1	ļ	
	, , ,	Physio	
Contrast		1st Signal/Mode	None
Magn. preparation	None	Composing	
Flip angle	180 deg	Composing	
Fat suppr.	Fat sat.	Sequence	
Fat sat. mode	Strong	Introduction	Off
Averaging mode	Long term	Dimension	3D
Reconstruction	Magnitude	Reordering	Centric
Measurements	2	Contrasts	1
Pause after meas. 1	0.0 s	Bandwidth	1144 Hz/Px
Multiple series	Off	Echo spacing	1 ms
Multiple selles	Oli		
Resolution		Turbo factor	17
Base resolution	112	EPI factor	28
Phase resolution	100 %	RF pulse type	Normal
Slice resolution	100 %	Gradient mode	Fast
Slice partial Fourier	6/8	refocussing type	sinc 2560
Interpolation	Off	flip angle excit	90
		phase encoding	ON ON
PAT mode	None		Off
Prescan Normalize	Off	Maxwell compensation	
Raw filter	Off	ICE program	single
Naw IIIICI	Oil	prepscans	0
Geometry		excite duration	2560
Series	Interleaved	refoc duration	2560
		excite BWTP	12.0
Sat. region 1		refoc BWTP	8.0
Thickness	26 mm	T2 Validation	Off
Position	Isocenter	pre-crusher	40000

post-crusher1	40000
post-crusher2	40000
post-crusher3	40000
post-crusher4	40000
Variable Flip Angle 01	180
Variable Flip Angle 02	180
Variable Flip Angle 03	180
Variable Flip Angle 04	180
Variable Flip Angle 05	180
Variable Flip Angle 06	180
Variable Flip Angle 07	180
Variable Flip Angle 08	180
Variable Flip Angle 09	180
Variable Flip Angle 10	180
Variable Flip Angle 11	180
Variable Flip Angle 12	180
Variable Flip Angle 13	180
Variable Flip Angle 14	180
Variable Flip Angle 15	180
Variable Flip Angle 16	180
Variable Flip Angle 17	180
Variable Flip Angle 18	180
Variable Flip Angle 19	180
Variable Flip Angle 20	180

\\USER\Feinberglab\Suhyung\GRASE w/ CS\BP_GRASE_CS_CFA_22SL_0.8mm					
TA: 9:48	PAT: Off	Voxel size: 0.8x0.8x0.8 mm	Rel. SNR: 1.00	USER: BP_GRASE_SH	

Properties		Orientation Special sat.	Sagittal None
Prio Recon	Off		
Before measurement		Table position	Н
After measurement		Table position	0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off	System	
Auto store images	On	T1	On
Load to stamp segments	Off		On On
Load images to graphic	Off	M2	On
segments		B4	On
Auto open inline display	Off	M3	On
Start measurement without	On	V32	Off
further preparation		Positioning mode	REF
Wait for user to start	Off	MSMA	S - C - T
Start measurements	single	Sagittal	R >> L
1	5g.5	Coronal	A >> P
Routine		Transversal	F >> H
Slab group 1		Save uncombined	Off
Slabs	1	Coil Combine Mode	_
Dist. factor	0 %	AutoAlign	Adaptive Combine
Position	Isocenter		
Orientation	Transversal	Auto Coil Select	Default
Phase enc. dir.	R >> L	Shim mode	Standard
Rotation	90.00 deg	Adjust with body coil	Off
Phase oversampling	0 %	Confirm freq. adjustment	Off
Slice oversampling	0.0 %	Assume Silicone	Off
Slices per slab	22	! Ref. amplitude 1H	220.000 V
FoV read	82.0 mm	Adjustment Tolerance	Auto
FoV phase	37.3 %	Adjust volume	Auto
Slice thickness	0.80 mm	Position	laggenter
TR	1500 ms		Isocenter
TE	32.72 ms	Orientation	Transversal
		Rotation	90.00 deg
Averages	1	A >> P	82 mm
Concatenations	1 Nana	R >> L	31 mm
Filter	None	F >> H	18 mm
Coil elements	B4;M2,3;T1	Physio	
Contrast		1st Signal/Mode	None
Magn. preparation	None	-	140110
Flip angle	160 deg	Composing	
Fat suppr.	Fat sat.	Saguence	
Fat sat. mode	Strong	Sequence	0"
		Introduction	Off
Averaging mode	Long term	Dimension	3D
Reconstruction	Magnitude	Reordering	Centric
Measurements	392	Contrasts	1
Pause after meas.	0.0 s	Bandwidth	1140 Hz/Px
Multiple series	Off	Echo spacing	1.1 ms
Decelution		Turbo factor	22
Resolution	400	EPI factor	20
Base resolution	102	RF pulse type	Normal
Phase resolution	100 %	Gradient mode	Fast
Slice resolution	100 %		ı ası
Slice partial Fourier	Off	refocussing type	sinc 2560
Interpolation	Off	flip angle excit	90
DAT mode	None	phase encoding	ON
PAT mode	None	Maxwell compensation	Off
Prescan Normalize	Off	ICE program	single
Raw filter	Off	prepscans	0
		excite duration	2560
Geometry		refoc duration	3840
Series	Interleaved	excite BWTP	12.0
Sat. region 1		refoc BWTP	8.0
Thickness	30 mm	Variable Flip Angle 01	180
Position	Isocenter	Variable Flip Angle 01 Variable Flip Angle 02	180
FOSITION	1300611161	Variable Flip Arigie 02	100
		35/50	

Variable Flip Angle 03	180
Variable Flip Angle 04	180
Variable Flip Angle 05	180
Variable Flip Angle 06	180
Variable Flip Angle 07	180
Variable Flip Angle 08	180
Variable Flip Angle 09	180
Variable Flip Angle 10	180
Variable Flip Angle 11	180
Variable Flip Angle 12	180
Variable Flip Angle 13	180
Variable Flip Angle 14	180
Variable Flip Angle 15	180
Variable Flip Angle 16	180
Variable Flip Angle 17	180
Variable Flip Angle 18	180
Variable Flip Angle 19	180
Variable Flip Angle 20	180
Regular or CS	CS
actual ETL	8
Which areas?	Visual Cortex

\\USE	∃R∖Feinberg	اab\Suhyung\GRASE w/ CS	BP_GRASE_CS	_CFA_22SL_1.0mm	
TA: 9:48	PAT: Off	Voxel size: 1.0×1.0×1.0 mm	Rel. SNR: 1.00	USER: BP_GRASE_SH	

Prio Recon Prio Recon Prio Recon Before measurement After measurement Aft	Properties		Orientation - Special sat.	Sagittal None
Atter measurement Load to viewer On Inline movie Off	Prio Recon	Off		
Load to viewer				
Inline movie				_
Auto Store images		_	Inline Composing	Off
1		_	System	
Description Content				On
Bacton B				
Auto open inline display		Oπ		On
Start measurement without further preparation Wait for user to start Off MSMA RS C - T		0"	M3	On
Transportation Wait for user to start Off Start measurements Single Start measurements Single Start measurements Single Start measurements Single Sagittal R >> L			V32	Off
Wait for user to start Start measurements Single Sagittal R > L		On		
Satit measurements		Off	<u> </u>	
Routine			_	
Slab group 1	Start measurements	Single		
Sale group Sal	Routine			
Dist. factor	Slab group 1			
Position	Slabs			_
None	Dist. factor	0 %		
Orientation Transversal Phase enc. dir. R> L Shim mode Standard Rotation 90.00 deg Adjust with body coil Off Slices oversampling 0.0 % Confirm freq. adjustment Off Slices per slab 22 1 Ref. amplitude 1H 220,000 V FoV read 102.0 mm Adjustment Tolerance Auto FoV phase 37.3 % Adjust volume Standard Silce thickness 1.00 mm Position Isocenter TR 1500 ms Orientation Transversal TE 32.08 ms Rotation 90.00 deg Averages 1 A > P 102 mm Concatenations 1 R > P 102 mm Filter None F > H 22 mm Contract B4;M2,3;T1 Physic F Contrast Total Psequence None Filip angle 160 deg Composing Sequence Fat sat. Sequence Introduction	Position	Isocenter	•	
Rotation		Transversal	Auto Coli Select	Delauli
Phase oversampling 0.% Slice oversampling 0.0% Slice oversampling 0.0% Slice oversampling 0.0% Slice sper slab 22 1.8			Shim mode	Standard
Silice oversampling 0.0 % Assume Silicone Off			Adjust with body coil	Off
Silices per slab				Off
FoV read			Assume Silicone	Off
FoV phase 37.3 % Adjust volume Position Isocenter				220.000 V
Silice thickness				Auto
TR 1500 ms Orientation Transversal TE 32.08 ms Rotation 90.00 deg Averages 1 A >> P 102 mm Concatenations 1 R >> L 38 mm Filter None F >> H 22 mm Coil elements B4;M2,3;T1 Physio Contrast Magn. preparation None Composing Flip angle 160 deg Composing Fat suppr. Fat sat. Sequence Fat sat. mode Strong Introduction Off Averaging mode Long term Recordering Centric Averaging mode Long term Reordering Centric Measurements 392 Contrasts 1 Pause after meas. 0.0 s Bandwidth 1140 Hz/Px Multiple series Off Echo spacing 1.1 ms Resolution 102 Turbo factor 22 Phase resolution 100 % RF pulse type Normal				
TE 32.08 ms Rotation 90.00 deg Averages 1 A >> P 102 mm Concatenations 1 R >> L 38 mm Filter None F >> H 22 mm Coll elements B4;M2,3;T1 Physio This is Signal/Mode None Magn. preparation None Composing Flig angle 160 deg Composing Fat suppr. F at sat. Sequence Fat sat. mode Strong Introduction Off Averaging mode Long term Reordering Centric Reconstruction Magnitude Reordering Centric Messurements 392 Bandwidth 1140 Hz/Px Pause after meas. 0.0 s Bandwidth 1140 Hz/Px Multiple series Off Turbo factor 22 EPI factor 20 RF pulse type Normal Phase resolution 100 % Gradient mode Fast Slice partial Fourier Off				
Averages 1 A >> P 102 mm Concatenations 1 R >> L 38 mm Filter None F >> H 22 mm Contrast Physio Physio Contrast Tst Signal/Mode None Magn. preparation None Composing Flip angle 160 deg Composing Fat suppr. Fat sat. Sequence Fat sat. mode Strong Introduction Off Averaging mode Long term Dimension 3D Reconstruction Magnitude Contrasts 1 Measurements 392 Contrasts 1 Pause after meas. 0.0 s Bandwidth 1140 Hz/Px Echo spacing 1.1 ms 1.1 ms Resolution 102 Epl factor 22 EPl factor 22 Phase resolution 100 % RF pulse type Normal Slice partial Fourier Off refocussing type sinc 2560 Interpolation				
Concatenations 1 R >> L 38 mm Filter None F >> H 22 mm Coll elements B4;M2,3;T1 Physio Contrast Magn. preparation None Tst Signal/Mode None Magn. preparation None Composing Flip angle 160 deg Composing Fat suppr. Fat sat. Sequence Fat suppr. Fat sat. Sequence Fat sat. mode Long term Reordering Centric Reconstruction Magnitude Reordering Centric Measurements 392 Contrasts 1 Pause after meas. 0.0 s Echo spacing 1.1 ms Resolution 100 s Echo spacing 1.1 ms Resolution 100 w Turbo factor 22 Epl factor 20 RF pulse type Normal Slice resolution 100 % Gradient mode Fast Slice partial Fourier Off Forecussing type sinc 2		32.08 ms		
Filter Coil elements None B4:M2,3;T1 F⇒ H 22 mm Contrast Physio 1st Signal/Mode None Magn, preparation None Composing Fals auppr. Fat sat. Sequence Fat suppr. Fat sat. Sequence Averaging mode Long term Dimension 3D Reconstruction Magnitude Reordering Centric Measurements 392 Contrasts 1 Pause after meas. 0.0 s Bandwidth 1140 Hz/Px Echo spacing 1.1 ms 1.1 ms Resolution 102 File factor 20 Phase resolution 100 % Gradient mode Fast Slice partial Fourier Off refocussing type sinc 2560 Interpolation Off refocussing type sinc 2560 PAT mode None Maxwell compensation Off Prescan Normalize Off ICE program single Raw filter Off ICE program single <td>~</td> <td>1</td> <td></td> <td>_</td>	~	1		_
Physio		•		
Contrast Magn. preparation Filip angle 160 deg Fat suppr. Fat sat. Sequence			F >> H	22 mm
Contrast 1st Signal/Mode None Magn. preparation None Composing Magn. preparation None Composing Fat sat suppr. Fat sat. Sequence Fat sat. mode Strong Introduction Off Averaging mode Long term Dimension 3D Reconstruction Magnitude Reordering Centric Measurements 392 Contrasts 1 Pause after meas. 0.0 s Bandwidth 1140 Hz/Px Echo spacing 1.1 ms Resolution 100 % Echo spacing 1.1 ms Resolution 100 % RF pulse type Normal Slice resolution 100 % Gradient mode Fast Slice partial Fourier Off refocussing type sinc 2560 Interpolation Off Prescan Normalize ON Authority Averaging mode None Maxwell compensation Off Persocan Normalize Off Interleaved Certice duration 2560	Coll elements	B4;IVI2,3; I I	Physio	
Flip angle 160 deg Fat suppr. Fat sat. Fat sat. mode Strong Introduction Off Averaging mode Reconstruction Magnitude Measurements 392 Reordering Centric Contrasts 1 Pause after meas. 0.0 s Bandwidth 1140 Hz/Px Pause after meas. 0.0 s Bandwidth 1140 Hz/Px Pase resolution Turbo factor 22 EPI factor 20 Phase resolution 100 % RF pulse type Normal Slice partial Fourier Off Gradient mode Fast Interpolation Off	Contrast			None
Fat suppr. Fat suppr. Fat sat. mode Averaging mode Reconstruction Magnitude Measurements Pause after meas. Multiple series Coff Base resolution Slice partial Fourier Interpolation Off PAT mode Prescan Normalize Raw filter Off Geometry Series Interleaved Strong Introduction Off Dimension Recordering Centric Contrasts 1 Bandwidth 1140 Hz/Px Echo spacing 1.1 ms Turbo factor 22 EPI factor 20 RF pulse type Normal Gradient mode Fast refocussing type sinc 2560 flip angle excit 90 Maxwell compensation Off ICE program prepscans 0 excite duration 100 Maxwell compensation Off Series Interleaved Sat. region 1 Thickness 37 mm Position Isocenter Sequence Introduction Off Dimension Recordering Centric Contrasts 1 Introduction Off Dimension AB Dendwidth Introduction Off Dimension AB Peordering Centric Contrasts I Turbo factor 22 EPI factor 20 RF pulse type Normal Gradient mode Fast Introduction Off Introduction Onf Dimension AB Dendwidth Introduction Off Dimension AB Peordering Centric Contracts I Nam Normal Introduction Off Dimension AB Peordering Centric Contracts I Nam Normal Introduction Off Dimension AB Peordering Centric Contracts I Nam Normal Introduction Off Dimension AB Peordering Centric Contracts I Nam Normal Introduction Off Dimension AB Peordering Centric Contracts I Nam Normal Introduction Off Dimension AB Peordering Centric Contracts I Nam Normal Introduction Onf Dendering Centric Contracts I Nam Normal Introduction AB Ontroch Introduction Onf Dendering Introduction Onf Dendering Introduction Introduction Introduction Introduction Introduction Introduction Introduction In			Composing	
Fat sat. mode Strong Introduction Averaging mode Reconstruction Magnitude Measurements 392 Pause after meas. Multiple series Off Resolution Base resolution Slice resolution Interpolation Off PAT mode None Prescan Normalize Raw filter Off Geometry Series Interleaved Strong Introduction Off Dimension 3D Reordering Centric Contrasts 1 Bandwidth 1140 Hz/Px Echo spacing 1.1 ms Turbo factor 22 EPI factor 20 RF pulse type Normal Gradient mode Fast refocussing type flip angle excit 90 Maxwell compensation Off ICE program prepscans 0 excite duration 90 Maxwell compensation Off ICE program prepscans 0 excite duration 3840 excite BWTP 12.0 refoc BWTP 8.0 Variable Flip Angle 01 180 Variable Flip Angle 02 180		160 deg	Composing	
Averaging mode Reconstruction Magnitude Reconstruction Measurements Measurements Multiple series Off Resolution Slice resolution Slice partial Fourier Interpolation Off PAT mode None Resometry Series Interleaved Sat. region 1 Thickness Position Averaging mode Reconstruction Magnitude Reconstruction Magnitude Recordering Contrasts 1 Recordering Contrasts 1 Handwidth 11140 Hz/Px Echo spacing 1.1 ms Turbo factor 22 Fel factor 20 RF pulse type Normal Gradient mode Fast Felocussing type Sinc 2560 Interpolation Off ICE program Single Prescan Normalize Off Presc duration Single Prescans Off Secometry Series Interleaved Position Isocenter None No			Sequence	
Reconstruction Magnitude Reconstruction Measurements Measurements Measurements Multiple series Off Resolution Resolution Resolution Base resolution Phase resolution Slice resolution Slice partial Fourier Interpolation Off PAT mode None Perscan Normalize Raw filter Geometry Series Interleaved Recordering Contrasts 1 Bandwidth 1140 Hz/Px Echo spacing 1.1 ms Turbo factor 22 EPI factor 20 RF pulse type Normal Gradient mode Fast refocussing type sinc 2560 flip angle excit 90 Maxwell compensation Off ICE program single prepscans 0 excite duration 3840 excite BWTP 12.0 Sat. region 1 Thickness 37 mm Variable Flip Angle 02 180	Fat sat. mode	Strong	Introduction	Off
Reconstruction Magnitude Measurements 392 Pause after meas. 0.0 s Bandwidth 1140 Hz/Px Resolution Base resolution 102 Phase resolution 100 % Frescan Normalize Reformerly Raw filter Off Resometry Series Interleaved Recordering Centric Contrasts 1 Bandwidth 1140 Hz/Px Echo spacing 1.1 ms Turbo factor 22 EPI factor 20 RF pulse type Normal Gradient mode Fast refocussing type sinc 2560 flip angle excit 90 Maxwell compensation Off ICE program single prepscans 0 excite duration 2560 refoc duration 3840 excite BWTP 12.0 Sat. region 1 Thickness 37 mm Position Isocenter Recordering Centric Contrasts 1 Recordering Centric Contrasts 1 Recordering Centric Contrasts 1 1440 Hz/Px Echo spacing 11.1 ms Turbo factor 22 EPI factor 20 RF pulse type Normal Frescussing type sinc 2560 flip angle excit 90 Maxwell compensation Off ICE program single prepscans 0 excite duration 2560 refoc duration 3840 excite BWTP 12.0 refoc BWTP 8.0 Variable Flip Angle 01 180	Averaging mode	Long term	Dimension	3D
Measurements Pause after meas. Multiple series392 OffContrasts 	0 0	•	Reordering	Centric
Pause after meas. Multiple series0.0 s OffBandwidth Echo spacing1140 Hz/Px Echo spacingResolution102 Phase resolutionTurbo factor 22 EPI factor22 EPI factorPhase resolution Slice resolution Slice partial Fourier Interpolation100 % OffRF pulse type Gradient modeNormal FastPAT modeNonerefocussing type flip angle excit phase encoding Maxwell compensation90 ON Maxwell compensationPrescan Normalize Raw filterOff OffICE program prepscans excite duration excite duration excite duration0 2560 2			Contrasts	1
Multiple seriesOffEcho spacing1.1 msResolutionTurbo factor22Phase resolution100 %RF pulse typeNormalSlice resolution100 %Gradient modeFastSlice partial FourierOffrefocussing typesinc 2560InterpolationOffflip angle excit90PAT modeNonephase encodingONPrescan NormalizeOffICE programsingleRaw filterOffICE programsingleGeometrySeriesInterleavedexcite duration2560Sat. region 1refoc duration3840Thickness37 mmVariable Flip Angle 01180PositionIsocenterVariable Flip Angle 02180				1140 Hz/Px
Resolution Base resolution 102 Phase resolution 100 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Prescan Normalize Raw filter Off Raw filter Off Series Interleaved Series Interleaved Pat. region 1 Turbo factor 22 EPI factor 20 RF pulse type Normal Gradient mode Fast refocussing type sinc 2560 flip angle excit 90 Maxwell compensation Off ICE program single prepscans 0 excite duration 2560 refoc duration 3840 excite BWTP 12.0 Sat. region 1 Thickness 37 mm Variable Flip Angle 01 180 Variable Flip Angle 02 180	Multiple series		Echo spacing	1.1 ms
Base resolution 102 Phase resolution 100 % Slice resolution 100 % Slice partial Fourier Off Interpolation Off PAT mode None Maxwell compensation Off Raw filter Off Series Interleaved Excite BWTP Sat. region 1 Thickness 37 mm Position Isocenter Pase with some Pase resolution Proper Sinc 2560 EPI factor 20 RF pulse type Normal Prediction Normal Prediction Prediction Fast Past Past Past Past Past Past Past P	i ·		Turbo factor	22
Phase resolution 102 Phase resolution 100 % Slice partial Fourier Off refocussing type sinc 2560 Interpolation Off flip angle excit 90 PAT mode None phase encoding ON Prescan Normalize Off ICE program single Raw filter Off prepscans 0 Geometry excite duration 2560 Series Interleaved excite duration 3840 excite BWTP 12.0 Sat. region 1 Thickness 37 mm Variable Flip Angle 01 180 Position Isocenter Variable Flip Angle 02 180		102		
Slice resolution 100 % Slice partial Fourier Off refocussing type sinc 2560 flip angle excit 90 PAT mode None phase encoding ON Maxwell compensation Off ICE program single Prescan Normalize Off prepscans 0 excite duration 2560 refoc duration 3840 excite BWTP 12.0 Thickness 37 mm Variable Flip Angle 01 180 Variable Flip Angle 02 180				=-
Slice partial Fourier Off Interpolation Off Ilip angle excit 90 PAT mode None Prescan Normalize Off ICE program single Raw filter Off Period duration 2560 Geometry Series Interleaved Excit 90 Sat. region 1 Thickness 37 mm Variable Flip Angle 02 180 Figure partial Fourier Off Flip angle excit 90 Maxwell compensation Off ICE program single prepscans 0 excite duration 2560 refoc duration 3840 excite BWTP 12.0 Variable Flip Angle 01 180 Variable Flip Angle 02 180				
Interpolation Off flip angle excit 90 PAT mode None phase encoding ON Maxwell compensation Off Prescan Normalize Off ICE program single Raw filter Off prepscans 0 Geometry excite duration 2560 Series Interleaved excite BWTP 12.0 Sat. region 1 refoc BWTP 8.0 Thickness 37 mm Variable Flip Angle 01 180 Position Isocenter Variable Flip Angle 02 180				
PAT mode None phase encoding phase encoding ON Maxwell compensation Off ICE program single prepscans o excite duration refoc duration 3840 excite BWTP 12.0 Sat. region 1 refoc BWTP 8.0 Position Isocenter Variable Flip Angle 02 180		_		
Prescan Normalize Off ICE program single prepscans 0 Geometry excite duration 2560 Series Interleaved excite BWTP 12.0 Sat. region 1 refoc BWTP 8.0 Thickness 37 mm Variable Flip Angle 01 180 Position Isocenter Variable Flip Angle 02 180	Interpolation	OII		
Prescan Normalize Raw filterOffICE program prepscans excite duration refoc duration excite BWTPsingle 2560<	PAT mode	None		
Raw filter Off prepscans 0 Geometry excite duration 2560 refoc duration 3840 excite BWTP 12.0 Sat. region 1 refoc BWTP 8.0 Thickness 37 mm Variable Flip Angle 01 180 Position Isocenter Variable Flip Angle 02 180	Procean Normaliza	Off	-	
Geometry excite duration refoc duration refoc duration 2560 refoc duration refoc duration Sat. region 1 Thickness 37 mm refoc BWTP refoc BWTP 8.0 region 1 laso Position Isocenter Variable Flip Angle 01 laso 180 region 1 laso		_		-
Series Interleaved refoc duration 3840 Sat. region 1 excite BWTP 12.0 Thickness 37 mm refoc BWTP 8.0 Position Variable Flip Angle 01 180 Variable Flip Angle 02 180	Ivam IIIIGI	Oii		
Series Interleaved excite BWTP 12.0 Sat. region 1 refoc BWTP 8.0 Thickness 37 mm Variable Flip Angle 01 180 Position Isocenter Variable Flip Angle 02 180				
Sat. region 1refoc BWTP8.0Thickness37 mmVariable Flip Angle 01180PositionIsocenterVariable Flip Angle 02180	Series	Interleaved		
Thickness 37 mm Variable Flip Angle 01 180 Position Isocenter Variable Flip Angle 02 180	Sat region 1			
Position Isocenter Variable Flip Angle 02 180		37 mm		
	1		1	

Variable Flip Angle 03	180
Variable Flip Angle 04	180
Variable Flip Angle 05	180
Variable Flip Angle 06	180
Variable Flip Angle 07	180
Variable Flip Angle 08	180
Variable Flip Angle 09	180
Variable Flip Angle 10	180
Variable Flip Angle 11	180
Variable Flip Angle 12	180
Variable Flip Angle 13	180
Variable Flip Angle 14	180
Variable Flip Angle 15	180
Variable Flip Angle 16	180
Variable Flip Angle 17	180
Variable Flip Angle 18	180
Variable Flip Angle 19	180
Variable Flip Angle 20	180
Regular or CS	CS
actual ETL	8
Which areas?	Visual Cortex

\\USE	R\Feinberg	glab\Suhyung\GRASE w/ CS\	BP_GRASE_CS	_CFA_22SL_1.2mm	
TA: 9:48	PAT: Off	Voxel size: 1.2×1.2×1.2 mm	Rel. SNR: 1.00	USER: BP_GRASE_SH	

Properties	0"	Orientation - Special sat.	Sagittal None
Prio Recon Before measurement After measurement	Off	Table position Table position	H 0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off		O.I.
Auto store images	On	System	
Load to stamp segments	Off	T1	On
Load images to graphic	Off	M2	On
segments		B4	On
Auto open inline display	Off	M3	On
Start measurement without	On	V32	Off
further preparation	.	Positioning mode	REF
Wait for user to start	Off	MSMA	S-C-T
Start measurements	single	Sagittal	R >> L
I	3 -	Coronal	A >> P
Routine		- Transversal	F >> H
Slab group 1		Save uncombined	Off
Slabs	1	Coil Combine Mode	Adaptive Combine
Dist. factor	0 %	AutoAlign	
Position	Isocenter	Auto Coil Select	Default
Orientation	Transversal R >> L		Otan dand
Phase enc. dir.		Shim mode	Standard
Rotation	90.00 deg 0 %	Adjust with body coil	Off
Phase oversampling		Confirm freq. adjustment	Off
Slice oversampling Slices per slab	0.0 % 22	Assume Silicone	Off
FoV read	122.4 mm	! Ref. amplitude 1H	220.000 V
FoV phase	37.3 %	Adjustment Tolerance	Auto
Slice thickness	1.20 mm	Adjust volume	laaaantan
TR	1.20 ms	Position Orientation	Isocenter Transversal
TE	31.52 ms	Rotation	90.00 deg
Averages	1	A >> P	123 mm
Concatenations	1	R >> L	46 mm
Filter	None	F >> H	27 mm
Coil elements	B4;M2,3;T1	1	27 111111
_	_ ,,,,	Physio	
Contrast		1st Signal/Mode	None
Magn. preparation	None	Composing	
Flip angle	160 deg		
Fat suppr.	Fat sat.	Sequence	
Fat sat. mode	Strong	Introduction	Off
Averaging mode	Long term	Dimension	3D
Reconstruction	Magnitude	Reordering	Centric
Measurements	392	Contrasts	1
Pause after meas.	0.0 s	Bandwidth	1140 Hz/Px
Multiple series	Off	Echo spacing	1.1 ms
Resolution		Turbo factor	22
Base resolution	102	- EPI factor	20
Phase resolution	100 %	RF pulse type	Normal
Slice resolution	100 %	Gradient mode	Fast
Slice partial Fourier	Off	refocussing type	sinc 2560
Interpolation	Off	refocussing type flip angle excit	90
		phase encoding	ON ON
PAT mode	None	Maxwell compensation	Off
Prescan Normalize	Off	ICE program	single
Raw filter	Off	prepscans	0
		excite duration	2560
Geometry		refoc duration	3840
Series	Interleaved	excite BWTP	12.0
Sat. region 1		refoc BWTP	8.0
Thickness	45 mm	Variable Flip Angle 01	180
Position	Isocenter	Variable Flip Angle 02	180
ı		. 3	

Variable Flip Angle 03 Variable Flip Angle 04 Variable Flip Angle 05 Variable Flip Angle 06 Variable Flip Angle 07	180 180 180 180 180 180
Variable Flip Angle 08 Variable Flip Angle 09 Variable Flip Angle 10	180 180 180
Variable Flip Angle 11 Variable Flip Angle 12	180 180 180
Variable Flip Angle 13	180 180 180
Variable Flip Angle 14 Variable Flip Angle 15	180
Variable Flip Angle 16 Variable Flip Angle 17	180 180
Variable Flip Angle 18 Variable Flip Angle 19	180 180
Variable Flip Angle 20 Regular or CS actual ETL Which areas?	180 CS 8 Visual Cortex
willon aroas:	Vicadi Cortex

\\USE	ER∖Feinberg	glab\Suhyung\GRASE w/ CS`	\BP_GRASE_CS	_VFA_36SL_1.2mm	
TA: 9:48	PAT: Off	Voxel size: 1.2×1.2×1.2 mm	Rel. SNR: 1.00	USER: BP_GRASE_SH	

		Orientation	Sagittal
Properties		- Special sat.	None
Prio Recon	Off		
Before measurement		Table position	Н
After measurement	_	Table position	0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off	System	
Auto store images	On O"	T1	On
Load to stamp segments	Off	M2	On
Load images to graphic	Off	B4	On
segments	0"	M3	On
Auto open inline display	Off	V32	Off
Start measurement without	On		
further preparation	Off	Positioning mode	REF
Wait for user to start		MSMA	S - C - T
Start measurements	single	Sagittal	R >> L
Routine		Coronal	A >> P
Slab group 1		- Transversal	F >> H Off
Slabs	1	Save uncombined	
Dist. factor	0 %	Coil Combine Mode AutoAlign	Adaptive Combine
Position	Isocenter	Auto Coil Select	 Default
Orientation	Transversal	Auto Coli Gelect	
Phase enc. dir.	R >> L	Shim mode	Standard
Rotation	90.00 deg	Adjust with body coil	Off
Phase oversampling	0 %	Confirm freq. adjustment	Off
Slice oversampling	0.0 %	Assume Silicone	Off
Slices per slab	36	! Ref. amplitude 1H	220.000 V
FoV read	122.4 mm	Adjustment Tolerance	Auto
FoV phase	37.3 %	Adjust volume	
Slice thickness	1.20 mm	Position	Isocenter
TR	1500 ms	Orientation	Transversal
TE	31.52 ms	Rotation	90.00 deg
Averages Concatenations	1	A >> P	123 mm
Filter	None	R >> L	46 mm
Coil elements	B4;M2,3;T1	F >> H	44 mm
I	D+,1V12,3,1 1	Physio	
Contrast		1st Signal/Mode	None
Magn. preparation	None	Composing	
Flip angle	160 deg Fat sat.		
Fat suppr.		Sequence	
Fat sat. mode	Strong	Introduction	Off
Averaging mode	Long term	Dimension	3D
Reconstruction	Magnitude	Reordering	Centric
Measurements	392	Contrasts	1 11 10 Ha/Dx
Pause after meas.	0.0 s	Bandwidth	1140 Hz/Px
Multiple series	Off	Echo spacing	1.1 ms
Resolution		Turbo factor	36
Base resolution	102	EPI factor	20
Phase resolution	100 %	RF pulse type	Normal
Slice resolution	100 %	Gradient mode	Fast
Slice partial Fourier	Off	refocussing type	variable sinc
Interpolation	Off	flip angle excit	90
DAT mode	None	phase encoding	ON
PAT mode	None	Maxwell compensation	Off
Prescan Normalize	Off	ICE program	single
Raw filter	Off	prepscans	0
Geometry		excite duration	2560
Series	Interleaved	refoc duration	3840
JEHES	miterieaved	excite BWTP	12.0
Sat. region 1		refoc BWTP	8.0
Thickness	45 mm	Variable Flip Angle 01	180
Position	Isocenter	Variable Flip Angle 02	180

Variable Flip Angle 03	180
Variable Flip Angle 04	180
Variable Flip Angle 05	180
Variable Flip Angle 06	180
Variable Flip Angle 07	180
Variable Flip Angle 08	180
Variable Flip Angle 09	180
Variable Flip Angle 10	180
Variable Flip Angle 11	180
Variable Flip Angle 12	180
Variable Flip Angle 13	180
Variable Flip Angle 14	180
Variable Flip Angle 15	180
Variable Flip Angle 16	180
Variable Flip Angle 17	180
Variable Flip Angle 18	180
Variable Flip Angle 19	180
Variable Flip Angle 20	180
Regular or CS	CS
actual ETL	14
Which areas?	Motor Cortex

 $\verb|\USER| Feinberglab| Suhyung GRASE w/ CS BP_grase_IV_Regular_PA| \\$

Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00

PAT: Off

TA: 2:00

USER: BP_grase_clean_IV_Regular_SH

Properties		Pause after meas. 20	0.0 s
Prio Recon	Off	Pause after meas. 21	0.0 s
Before measurement	Oli	Pause after meas. 22	0.0 s
After measurement		Pause after meas. 23	0.0 s
	05	Pause after meas. 24	0.0 s
Load to viewer	On O"	Pause after meas. 25	0.0 s
Inline movie	Off	Pause after meas, 26	0.0 s
Auto store images	On	Pause after meas, 27	0.0 s
Load to stamp segments	Off	Pause after meas, 28	0.0 s
Load images to graphic	Off	Pause after meas. 29	0.0 s
segments		Pause after meas. 30	0.0 s
Auto open inline display	Off	Pause after meas. 31	0.0 s
Start measurement without	On		
further preparation		Pause after meas. 32	0.0 s
Wait for user to start	Off	Pause after meas. 33	0.0 s
Start measurements	single	Pause after meas. 34	0.0 s
	5.1.g.5	Pause after meas. 35	0.0 s
Routine		Pause after meas. 36	0.0 s
Slab group 1		Pause after meas. 37	0.0 s
Slabs	1	Pause after meas. 38	0.0 s
Dist. factor	0 %	Pause after meas. 39	0.0 s
Position	Isocenter	Multiple series	Off
Orientation	Transversal	•	
Phase enc. dir.	P >> A	Resolution	
		Base resolution	112
Rotation	180.00 deg	Phase resolution	100 %
Phase oversampling	0 %	Slice resolution	100 %
Slice oversampling	0.0 %	Slice partial Fourier	6/8
Slices per slab	8	Interpolation	Off
FoV read	89.6 mm		
FoV phase	25.0 %	PAT mode	None
Slice thickness	0.80 mm	Dragon Normalina	0#
TR	3000 ms	Prescan Normalize	Off
TE	37.74 ms	Raw filter	Off
		İ	Oil
Averages	1	Geometry	
Averages Concatenations	1	İ	Interleaved
Averages Concatenations Filter	1 1 None	Geometry Series	
Averages Concatenations	1	Geometry	
Averages Concatenations Filter	1 1 None	Geometry Series Sat. region 1	Interleaved
Averages Concatenations Filter Coil elements Contrast	1 1 None	Geometry Series Sat. region 1 Thickness Position	Interleaved 20 mm Isocenter
Averages Concatenations Filter Coil elements Contrast Magn. preparation	1 1 None B4;M2,3;T1	Geometry Series Sat. region 1 Thickness Position Orientation	Interleaved 20 mm Isocenter Coronal
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle	1 1 None B4;M2,3;T1 None 180 deg	Geometry Series Sat. region 1 Thickness Position	Interleaved 20 mm Isocenter
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr.	1 1 None B4;M2,3;T1 None 180 deg Fat sat.	Geometry Series Sat. region 1 Thickness Position Orientation	Interleaved 20 mm Isocenter Coronal
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle	1 1 None B4;M2,3;T1 None 180 deg	Geometry Series Sat. region 1 Thickness Position Orientation Special sat.	Interleaved 20 mm Isocenter Coronal None
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr.	1 1 None B4;M2,3;T1 None 180 deg Fat sat.	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position	Interleaved 20 mm Isocenter Coronal None H
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing	Interleaved 20 mm Isocenter Coronal None H 0 mm
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System	Interleaved 20 mm Isocenter Coronal None H 0 mm Off
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1	Interleaved 20 mm Isocenter Coronal None H 0 mm
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1	Interleaved 20 mm Isocenter Coronal None H 0 mm Off
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On On Off
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On Off REF
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On On Off REF S-C-T
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 5 Pause after meas. 7 Pause after meas. 8	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On Off REF
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 5 Pause after meas. 7 Pause after meas. 8 Pause after meas. 8 Pause after meas. 9	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On On Off REF S-C-T
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 9	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On On On FEF S-C-T R>>L
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 5 Pause after meas. 7 Pause after meas. 8 Pause after meas. 8 Pause after meas. 9	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On On Off REF S - C - T R >> L A >> P
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 5 Pause after meas. 7 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On On On FEF S-C-T R>> L A>> P F>> H Off
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On On On FEF S-C-T R>> L A>> P F>> H
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 5 Pause after meas. 7 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 13	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On On F Con On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 14 Pause after meas. 15	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 7 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15 Pause after meas. 15 Pause after meas. 16	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 7 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15 Pause after meas. 16 Pause after meas. 16 Pause after meas. 17	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode Adjust with body coil	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default Standard Off
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 7 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15 Pause after meas. 15 Pause after meas. 16	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default Standard

! Ref. amplitude 1H Adjustment Tolerance Adjust volume Position Orientation Rotation R >> L A >> P F >> H Physio 1st Signal/Mode	220.000 V Auto Isocenter Transversal 180.00 deg 90 mm 23 mm 7 mm
Composing	
Sequence	
Introduction Dimension Reordering Contrasts Bandwidth Echo spacing	Off 3D Centric 1 1144 Hz/Px 1 ms
Turbo factor EPI factor RF pulse type Gradient mode	6 28 Normal Fast
refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP T2 Validation pre-crusher post-crusher1 post-crusher2 post-crusher3 post-crusher4 Variable Flip Angle 01 Variable Flip Angle 02 Variable Flip Angle 05 Variable Flip Angle 05 Variable Flip Angle 06 Variable Flip Angle 07 Variable Flip Angle 08 Variable Flip Angle 09 Variable Flip Angle 10 Variable Flip Angle 11 Variable Flip Angle 11 Variable Flip Angle 12 Variable Flip Angle 13 Variable Flip Angle 15 Variable Flip Angle 15 Variable Flip Angle 16 Variable Flip Angle 17 Variable Flip Angle 18 Variable Flip Angle 19 Variable Flip Angle 19 Variable Flip Angle 19 Variable Flip Angle 19 Variable Flip Angle 19 Variable Flip Angle 19	sinc 2560 90 ON Off single 0 2560 2560 12.0 8.0 Off 40000 40000 40000 90 49 45 43 43 43 43 42 43 46 51 58 67 77 90 180 180 180 180 180

 $\verb|\USER\Feinberg| lab| Suhyung \\| GRASE w/ CS \\| BP_grase_IV_VFA_PA \\|$

Rel. SNR: 1.00

Voxel size: 0.8×0.8×0.8 mm

TA: 2:00

PAT: Off

USER: BP_grase_clean_IV_Regular_SH

Properties		Pause after meas. 20	0.0 s
Prio Recon	Off	— Pause after meas. 21	0.0 s
Before measurement	Oli	Pause after meas. 22	0.0 s
After measurement		Pause after meas. 23	0.0 s
	05	Pause after meas. 24	0.0 s
Load to viewer	On O"	Pause after meas. 25	0.0 s
Inline movie	Off	Pause after meas. 26	0.0 s
Auto store images	On	Pause after meas, 27	0.0 s
Load to stamp segments	Off	Pause after meas, 28	0.0 s
Load images to graphic	Off	Pause after meas. 29	0.0 s
segments		Pause after meas. 30	0.0 s
Auto open inline display	Off	Pause after meas. 31	0.0 s
Start measurement without	On	Pause after meas. 32	0.0 s
further preparation			
Wait for user to start	Off	Pause after meas. 33	0.0 s
Start measurements	single	Pause after meas. 34	0.0 s
I	3 -	Pause after meas. 35	0.0 s
Routine		Pause after meas. 36	0.0 s
Slab group 1		Pause after meas. 37	0.0 s
Slabs	1	Pause after meas. 38	0.0 s
Dist. factor	0 %	Pause after meas. 39	0.0 s
Position	Isocenter	Multiple series	Off
Orientation	Transversal	Desclution	
Phase enc. dir.	P >> A	Resolution	
Rotation	180.00 deg	Base resolution	112
Phase oversampling	0 %	Phase resolution	100 %
Slice oversampling	0.0 %	Slice resolution	100 %
	18	Slice partial Fourier	6/8
Slices per slab	_	Interpolation	Off
FoV read	89.6 mm	DAT	
FoV phase	25.0 %	PAT mode	None
Slice thickness	0.80 mm	Prescan Normalize	Off
TR	3000 ms	Raw filter	Off
TE	37.74 ms	Naw Iliter	Oli
Averages	1	Geometry	
Concatenations	1	Series	Interleaved
Filter	None		
	140110		
Coil elements		Sat. region 1	
Coil elements	B4;M2,3;T1	Thickness	20 mm
Coil elements Contrast	B4;M2,3;T1	Thickness Position	Isocenter
Coil elements Contrast Magn. preparation	B4;M2,3;T1 None	Thickness Position Orientation	Isocenter Coronal
Coil elements Contrast	B4;M2,3;T1	Thickness Position	Isocenter
Coil elements Contrast Magn. preparation	B4;M2,3;T1 None 180 deg Fat sat.	Thickness Position Orientation Special sat.	Isocenter Coronal None
Coil elements Contrast Magn. preparation Flip angle	B4;M2,3;T1 None 180 deg	Thickness Position Orientation Special sat. Table position	Isocenter Coronal None H
Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode	None 180 deg Fat sat. Strong	Thickness Position Orientation Special sat. Table position Table position	Isocenter Coronal None H 0 mm
Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode	None 180 deg Fat sat. Strong Long term	Thickness Position Orientation Special sat. Table position	Isocenter Coronal None H
Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction	None 180 deg Fat sat. Strong Long term Magnitude	Thickness Position Orientation Special sat. Table position Table position Inline Composing	Isocenter Coronal None H 0 mm
Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements	None 180 deg Fat sat. Strong Long term Magnitude 40	Thickness Position Orientation Special sat. Table position Table position Inline Composing System	Isocenter Coronal None H 0 mm Off
Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1	None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1	Isocenter Coronal None H 0 mm Off
Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2	None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s	Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2	Isocenter Coronal None H 0 mm Off On
Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3	None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s	Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4	Isocenter Coronal None H 0 mm Off On On
Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4	None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s	Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3	Isocenter Coronal None H 0 mm Off On On On On
Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3	None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s	Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4	Isocenter Coronal None H 0 mm Off On On
Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4	None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s	Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32	Isocenter Coronal None H 0 mm Off On On On On On Off
Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5	None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode	Isocenter Coronal None H 0 mm Off On On On On On Off REF
Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6	None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA	Isocenter Coronal None H 0 mm Off On On On On On Off REF S-C-T
Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7	None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal	Isocenter Coronal None H 0 mm Off On On On On Off REF S-C-T R>>L
Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8	None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal	Isocenter Coronal None H 0 mm Off On On On On Off REF S-C-T R>> L A>> P
Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 5 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10	None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal	Isocenter Coronal None H 0 mm Off On On On On Off REF S-C-T R>> L A>> P F>> H
Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 10	None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined	Isocenter Coronal None H 0 mm Off On On On On Off REF S-C-T R>> L A>> P F>> H Off
Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 11	None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode	Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine
Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 7 Pause after meas. 8 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 12	None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign	Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine
Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 7 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14	None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode	Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine
Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 7 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 14	None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select	Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default
Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15 Pause after meas. 15 Pause after meas. 16	None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select	Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default Standard
Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 7 Pause after meas. 8 Pause after meas. 10 Pause after meas. 11 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15 Pause after meas. 15 Pause after meas. 16 Pause after meas. 16	None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode Adjust with body coil	Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default Standard Off
Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15 Pause after meas. 15 Pause after meas. 16 Pause after meas. 17 Pause after meas. 17	None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode Adjust with body coil Confirm freq. adjustment	Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default Standard Off Off
Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15 Pause after meas. 15 Pause after meas. 16 Pause after meas. 16	None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode Adjust with body coil	Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default Standard Off

! Ref. amplitude 1H Adjustment Tolerance Adjust volume Position Orientation Rotation R >> L A >> P F >> H Physio 1st Signal/Mode	220.000 V Auto Isocenter Transversal 180.00 deg 90 mm 23 mm 15 mm
Composing	
Sequence	
Introduction Dimension Reordering Contrasts Bandwidth Echo spacing	Off 3D Centric 1 1144 Hz/Px 1 ms
Turbo factor EPI factor RF pulse type Gradient mode	14 28 Normal Fast
refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP T2 Validation pre-crusher post-crusher1 post-crusher2 post-crusher3 post-crusher4 Variable Flip Angle 01 Variable Flip Angle 02 Variable Flip Angle 03 Variable Flip Angle 05 Variable Flip Angle 05 Variable Flip Angle 06 Variable Flip Angle 07 Variable Flip Angle 08 Variable Flip Angle 10 Variable Flip Angle 11 Variable Flip Angle 11 Variable Flip Angle 12 Variable Flip Angle 13 Variable Flip Angle 13 Variable Flip Angle 15 Variable Flip Angle 15 Variable Flip Angle 16 Variable Flip Angle 17 Variable Flip Angle 18 Variable Flip Angle 19 Variable Flip Angle 19 Variable Flip Angle 19 Variable Flip Angle 19 Variable Flip Angle 19	variable sinc 90 ON Off single 0 2560 2560 12.0 8.0 Off 40000 40000 40000 40000 90 49 45 43 43 43 43 42 43 46 51 58 67 77 90 180 180 180 180 180

\\USER\Feinberglab\Suhyung\GRASE w/ CS\BP_GRASE_CS_CFA_18SL_PA

USER: BP_GRASE_SH

Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00

171. 2.00	911 VOXEL 0120: 0:0X0:0X0:0	TITLE CONT. 1:00 COL	EN. BI _GIV.GE_GIT
		Davis ofter mass 20	0.00
Properties		Pause after meas. 20	0.0 s
Prio Recon	Off	Pause after meas. 21	0.0 s
Before measurement		Pause after meas. 22	0.0 s
After measurement		Pause after meas. 23	0.0 s
Load to viewer	On	Pause after meas. 24	0.0 s
Inline movie	Off	Pause after meas. 25	0.0 s
Auto store images	On	Pause after meas. 26	0.0 s
Load to stamp segments	Off	Pause after meas. 27	0.0 s
Load images to graphic	Off	Pause after meas. 28	0.0 s
segments	311	Pause after meas. 29	0.0 s
Auto open inline display	Off	Pause after meas. 30	0.0 s
Start measurement without	On	Pause after meas. 31	0.0 s
	Oli	Pause after meas. 32	0.0 s
further preparation Wait for user to start	Off	Pause after meas. 33	0.0 s
	_	Pause after meas. 34	0.0 s
Start measurements	single	Pause after meas. 35	0.0 s
Routine		Pause after meas. 36	0.0 s
Slab group 1		Pause after meas. 37	0.0 s
Slabs	1	Pause after meas. 38	0.0 s
Dist. factor	0 %	Pause after meas. 39	0.0 s
Position	Isocenter	Multiple series	Off
Orientation	Transversal	1	
Phase enc. dir.	P >> A	Resolution	
Rotation	180.00 deg	Base resolution	112
Phase oversampling	0 %	Phase resolution	100 %
	0.0 %	Slice resolution	100 %
Slice oversampling		Slice partial Fourier	Off
Slices per slab	18	Interpolation	Off
FoV read	89.6 mm	DAT I	A.I.
FoV phase	25.0 %	PAT mode	None
Slice thickness	0.80 mm	Prescan Normalize	Off
TR	3000 ms	Raw filter	Off
TE	22.82 ms	raw inter	Oli
Averages	1	Geometry	
Concatenations	1	Series	Interleaved
Filter	None	Cot region 1	
Coil elements	B4;M2,3;T1	Sat. region 1 Thickness	20 mm
Contrast		Position	Isocenter
Magn. preparation	None	Orientation	Coronal
Flip angle	180 deg	Special sat.	None
Fat suppr.	Fat sat.	Special Sat.	None
Fat sat. mode	Strong	Table position	Н
1 at sat. 11100e		Table position	0 mm
Averaging mode	Long term	Inline Composing	Off
Reconstruction	Magnitude		
Measurements	40	System	
Pause after meas. 1	0.0 s	T1	On
Pause after meas. 2	0.0 s	M2	On
Pause after meas. 3	0.0 s	B4	On
Pause after meas. 4	0.0 s	M3	On
Pause after meas, 5	0.0 s	V32	Off
Pause after meas, 6		Positioning mode	DEC
Pause after meas. 6	0.0 s	Positioning mode	REF
Pause after meas. 7	0.0 s 0.0 s	MSMA	S - C - T
Pause after meas. 7 Pause after meas. 8	0.0 s 0.0 s 0.0 s	MSMA Sagittal	S - C - T R >> L
Pause after meas. 7 Pause after meas. 8 Pause after meas. 9	0.0 s 0.0 s 0.0 s 0.0 s	MSMA Sagittal Coronal	S - C - T R >> L A >> P
Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10	0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	MSMA Sagittal Coronal Transversal	S - C - T R >> L A >> P F >> H
Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11	0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	MSMA Sagittal Coronal Transversal Save uncombined	S - C - T R >> L A >> P F >> H Off
Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12	0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode	S - C - T R >> L A >> P F >> H Off Adaptive Combine
Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13	0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign	S - C - T R >> L A >> P F >> H Off Adaptive Combine
Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14	0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode	S - C - T R >> L A >> P F >> H Off Adaptive Combine
Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15	0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select	S - C - T R >> L A >> P F >> H Off Adaptive Combine Default
Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15 Pause after meas. 16	0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode	S - C - T R >> L A >> P F >> H Off Adaptive Combine Default Standard
Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15 Pause after meas. 16 Pause after meas. 17	0.0 s 0.0 s	MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode Adjust with body coil	S - C - T R >> L A >> P F >> H Off Adaptive Combine Default Standard Off
Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15 Pause after meas. 16 Pause after meas. 17 Pause after meas. 17	0.0 s 0.0 s	MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode Adjust with body coil Confirm freq. adjustment	S - C - T R >> L A >> P F >> H Off Adaptive Combine Default Standard Off Off
Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15 Pause after meas. 16 Pause after meas. 17	0.0 s 0.0 s	MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode Adjust with body coil	S - C - T R >> L A >> P F >> H Off Adaptive Combine Default Standard Off

! Ref. amplitude 1H Adjustment Tolerance	220.000 V Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	180.00 deg
R >> L	90 mm
A >> P	23 mm
F >> H	15 mm
Physio 1st Signal/Mode	None
Composing	
Sequence	
Introduction	Off
Dimension	3D
Reordering	Centric
Contrasts	1
Bandwidth	1144 Hz/Px
Echo spacing	1.2 ms
Turbo factor	18
EPI factor	12
RF pulse type	Normal
Gradient mode	Fast
refocussing type	sinc 2560
flip angle excit	90
phase encoding	ON
Maxwell compensation	Off
ICE program	single
prepscans	0
excite duration refoc duration	2560 2560
excite BWTP	12.0
refoc BWTP	8.0
Variable Flip Angle 01	180
Variable Flip Angle 02	180
Variable Flip Angle 03	180
Variable Flip Angle 04	180
Variable Flip Angle 05	180
Variable Flip Angle 06	180
Variable Flip Angle 07	180
Variable Flip Angle 08	180
Variable Flip Angle 09	180
Variable Flip Angle 10	180
Variable Flip Angle 11	180
Variable Flip Angle 12 Variable Flip Angle 13	180 180
Variable Flip Angle 13 Variable Flip Angle 14	180
Variable Flip Angle 15	180
Variable Flip Angle 16	180
Variable Flip Angle 17	180
Variable Flip Angle 18	180
Variable Flip Angle 19	180
Variable Flip Angle 20	180
Regular or CS	CS
actual ETL	6
Which areas?	Visual Cortex

 $\verb|\USER| Feinberglab| Suhyung GRASE w/ CS| BP_GRASE_CS_VFA_24SL_PA| \\$

USER: BP_GRASE_SH

Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00

_		Pause after meas, 20	0.0 s
Properties		Pause after meas. 21	0.0 s
Prio Recon	Off	Pause after meas. 21	0.0 S 0.0 S
Before measurement		Pause after meas. 22 Pause after meas. 23	0.0 s 0.0 s
After measurement		Pause after meas. 23 Pause after meas. 24	0.0 s 0.0 s
Load to viewer	On	Pause after meas. 24 Pause after meas. 25	
Inline movie	Off		0.0 s
Auto store images	On	Pause after meas. 26	0.0 s
Load to stamp segments	Off	Pause after meas. 27	0.0 s
Load images to graphic	Off	Pause after meas. 28	0.0 s
segments		Pause after meas. 29	0.0 s
Auto open inline display	Off	Pause after meas. 30	0.0 s
Start measurement without	On	Pause after meas. 31	0.0 s
further preparation	-	Pause after meas. 32	0.0 s
Wait for user to start	Off	Pause after meas. 33	0.0 s
Start measurements	single	Pause after meas. 34	0.0 s
I	Sg.O	Pause after meas. 35	0.0 s
Routine		Pause after meas. 36	0.0 s
Slab group 1		Pause after meas. 37	0.0 s
Slabs	1	Pause after meas. 38	0.0 s
Dist. factor	0 %	Pause after meas. 39	0.0 s
Position	Isocenter	Multiple series	Off
Orientation	Transversal	-	
Phase enc. dir.	P >> A	Resolution	- 440
Rotation	180.00 deg	Base resolution	112
Phase oversampling	0 %	Phase resolution	100 %
Slice oversampling	0.0 %	Slice resolution	100 %
Slice oversampling Slices per slab	0.0 % 24	Slice partial Fourier	Off
		Interpolation	Off
FoV read	89.6 mm		None
FoV phase	25.0 %	PAT mode	None
Slice thickness	0.80 mm	Prescan Normalize	Off
TR	3000 ms	Raw filter	Off
TE	22.82 ms	ļ	
Averages	1	Geometry	
Concatenations	1	Series	Interleaved
Filter	None	Sat ragion 4	
Coil elements	B4;M2,3;T1	Sat. region 1 Thickness	20 mm
Contrast			20 mm
	None	Position	Isocenter
Magn. preparation		Orientation	Coronal
Flip angle	180 deg	Special sat.	None
Fat suppr.	Fat sat.	Table position	Н
Fat sat. mode	Strong	Table position	0 mm
Averaging mode	Long term	Inline Composing	Off
Reconstruction	Magnitude		
Measurements	40	System	
Pause after meas. 1	0.0 s	T1	On
	-	1 110	^
Pause after meas 2		M2	On
Pause after meas. 2 Pause after meas. 3	0.0 s	M2 B4	On On
Pause after meas. 3	0.0 s 0.0 s		_
Pause after meas. 3 Pause after meas. 4	0.0 s 0.0 s 0.0 s	B4	On
Pause after meas. 3 Pause after meas. 4 Pause after meas. 5	0.0 s 0.0 s 0.0 s 0.0 s	B4 M3 V32	On On Off
Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6	0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	B4 M3 V32 Positioning mode	On On Off REF
Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7	0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	B4 M3 V32 Positioning mode MSMA	On On Off REF S - C - T
Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8	0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	B4 M3 V32 Positioning mode MSMA Sagittal	On On Off REF S - C - T R >> L
Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9	0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	B4 M3 V32 Positioning mode MSMA Sagittal Coronal	On On Off REF S - C - T R >> L A >> P
Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10	0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal	On On Off REF S - C - T R >> L A >> P F >> H
Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11	0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	B4 M3 V32 Positioning mode MSMA Sagittal Coronal	On On Off REF S - C - T R >> L A >> P
Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12	0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal	On On Off REF S - C - T R >> L A >> P F >> H
Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13	0.0 s 0.0 s	B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined	On On Off REF S - C - T R >> L A >> P F >> H Off
Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14	0.0 s 0.0 s	B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode	On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine
Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15	0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select	On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default
Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14	0.0 s 0.0 s	B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode	On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default Standard
Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15 Pause after meas. 16 Pause after meas. 17	0.0 s 0.0 s	B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode Adjust with body coil	On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default Standard Off
Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15 Pause after meas. 16	0.0 s 0.0 s	B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode Adjust with body coil Confirm freq. adjustment	On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default Standard Off Off
Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15 Pause after meas. 16 Pause after meas. 17	0.0 s 0.0 s	B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode Adjust with body coil	On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default Standard Off

! Ref. amplitude 1H Adjustment Tolerance Adjust volume	220.000 V Auto
Position	Isocenter
Orientation	Transversal
Rotation	180.00 deg
R >> L	90 mm
A >> P	23 mm
F >> H	20 mm
Physio	
1st Signal/Mode	None
Composing	
Sequence	O "
Introduction	Off
Dimension	3D
Reordering	Centric
Contrasts	1 44.44 LI=/Dx
Bandwidth	1144 Hz/Px
Echo spacing	1.2 ms
Turbo factor	24
EPI factor	12
RF pulse type	Normal
Gradient mode	Fast
refocussing type	variable sinc
flip angle excit	90
phase encoding	ON
Maxwell compensation	Off
ICE program	single
prepscans	0
excite duration	2560
refoc duration	2560
excite BWTP	12.0
refoc BWTP	8.0
Variable Flip Angle 01	82
Variable Flip Angle 02	47
Variable Flip Angle 03	43
Variable Flip Angle 04	42
Variable Flip Angle 05	45
Variable Flip Angle 06	49
Variable Flip Angle 07	57 66
Variable Flip Angle 08	66
Variable Flip Angle 19	82
Variable Flip Angle 10	130
Variable Flip Angle 11 Variable Flip Angle 12	180 180
Variable Flip Angle 12 Variable Flip Angle 13	180
Variable Flip Angle 13	180
Variable Flip Angle 14 Variable Flip Angle 15	180
Variable Flip Angle 16	180
Variable Flip Angle 17	180
Variable Flip Angle 18	180
Variable Flip Angle 19	180
Variable Flip Angle 20	180
Regular or CS	CS
actual ETL	10
Which areas?	Visual Cortex
I	

 $\verb|\USER| Feinberglab| Suhyung GRASE w/ CS| BP_GRASE_CS_VFA_36SL_PA| \\$

USER: BP_GRASE_SH

Voxel size: 0.8x0.8x0.8 mm Rel. SNR: 1.00

		l B " 00	0.0
Properties		Pause after meas. 20	0.0 s
Prio Recon	Off	Pause after meas. 21	0.0 s
Before measurement	.	Pause after meas. 22	0.0 s
After measurement		Pause after meas. 23	0.0 s
Load to viewer	On	Pause after meas. 24	0.0 s
Inline movie	Off	Pause after meas. 25	0.0 s
Auto store images	On	Pause after meas. 26	0.0 s
Load to stamp segments	Off	Pause after meas. 27	0.0 s
Load images to graphic	Off	Pause after meas. 28	0.0 s
segments	Oli	Pause after meas. 29	0.0 s
•	O#	Pause after meas. 30	0.0 s
Auto open inline display	Off	Pause after meas. 31	0.0 s
Start measurement without	On	Pause after meas. 32	0.0 s
further preparation	0"	Pause after meas. 33	0.0 s
Wait for user to start	Off	Pause after meas. 34	0.0 s
Start measurements	single	Pause after meas. 35	0.0 s
Routine		Pause after meas, 36	0.0 s
Slab group 1		Pause after meas. 37	0.0 s
Slabs	1	Pause after meas. 38	0.0 s
Dist. factor	0 %	Pause after meas. 39	0.0 s
Position	Isocenter	Multiple series	Off
Orientation	Transversal	1	0
Phase enc. dir.	P >> A	Resolution	
Rotation		Base resolution	112
	180.00 deg	Phase resolution	100 %
Phase oversampling	0 %	Slice resolution	100 %
Slice oversampling	0.0 %	Slice partial Fourier	Off
Slices per slab	36	Interpolation	Off
FoV read	89.6 mm		
FoV phase	25.0 %	PAT mode	None
Slice thickness	0.80 mm	Prescan Normalize	Off
TR	3000 ms	Raw filter	Off
TE	22.82 ms	Naw Iliter	Oli
Averages	1	Geometry	Oil
Averages Concatenations	1 1		Interleaved
Averages Concatenations Filter	1 1 None	Geometry Series	
Averages Concatenations	1 1	Geometry Series Sat. region 1	Interleaved
Averages Concatenations Filter Coil elements	1 1 None	Geometry Series Sat. region 1 Thickness	Interleaved 20 mm
Averages Concatenations Filter Coil elements Contrast	1 1 None B4;M2,3;T1	Geometry Series Sat. region 1 Thickness Position	Interleaved 20 mm Isocenter
Averages Concatenations Filter Coil elements Contrast Magn. preparation	1 1 None B4;M2,3;T1	Geometry Series Sat. region 1 Thickness Position Orientation	Interleaved 20 mm Isocenter Coronal
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle	1 1 None B4;M2,3;T1 None 180 deg	Geometry Series Sat. region 1 Thickness Position	Interleaved 20 mm Isocenter
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr.	1 1 None B4;M2,3;T1 None 180 deg Fat sat.	Geometry Series Sat. region 1 Thickness Position Orientation	Interleaved 20 mm Isocenter Coronal None
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle	1 1 None B4;M2,3;T1 None 180 deg	Geometry Series Sat. region 1 Thickness Position Orientation Special sat.	Interleaved 20 mm Isocenter Coronal None
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr.	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position	Interleaved 20 mm Isocenter Coronal None
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing	Interleaved 20 mm Isocenter Coronal None H 0 mm
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System	Interleaved 20 mm Isocenter Coronal None H 0 mm Off
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1	Interleaved 20 mm Isocenter Coronal None H 0 mm Off
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2	Interleaved 20 mm Isocenter Coronal None H 0 mm Off
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On On Off
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On On Off REF
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On On Off REF S-C-T
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On On Off REF S-C-T R>>L
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On On Off REF S - C - T R >> L A >> P
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On On FEF S-C-T R>> L A>> P F>> H
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 9	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On On On FEF S-C-T R>> L A>> P F>> H Off
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On On F Con On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 12	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 13	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On On F Con On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 14 Pause after meas. 15	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 7 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15 Pause after meas. 15 Pause after meas. 16	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 7 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15 Pause after meas. 15 Pause after meas. 16 Pause after meas. 16	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode Adjust with body coil	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default Standard Off
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 7 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15 Pause after meas. 15 Pause after meas. 16	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode	Interleaved 20 mm Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default Standard

	! Ref. amplitude 1H Adjustment Tolerance Adjust volume	220.000 V Auto
	Position	Isocenter
	Orientation	Transversal
	Rotation	180.00 deg
	R >> L	90 mm
	A >> P	23 mm
	F >> H	29 mm
	Physio	
I	1st Signal/Mode	None
,	Composing	
	Sequence	
ĺ	Introduction	Off
	Dimension	3D
	Reordering	Centric
	Contrasts	1
	Bandwidth	1144 Hz/Px
	Echo spacing	1.2 ms
	Turbo factor	36
	EPI factor	12
	RF pulse type	Normal
	Gradient mode	Fast
	refocussing type	variable sinc
	flip angle excit	90 ON
	phase encoding	Off
	Maxwell compensation	
	ICE program	single 0
	prepscans excite duration	2560
	refoc duration	2560
	excite BWTP	12.0
	refoc BWTP	8.0
	Variable Flip Angle 01	83
	Variable Flip Angle 02	46
	Variable Flip Angle 03	42
	Variable Flip Angle 04	40
	Variable Flip Angle 05	41
	Variable Flip Angle 06	43
	Variable Flip Angle 07	46
	Variable Flip Angle 08	50
	Variable Flip Angle 09	54
	Variable Flip Angle 10	59
	Variable Flip Angle 11	65
	Variable Flip Angle 12	74
	Variable Flip Angle 13	89
	Variable Flip Angle 14	135
	Variable Flip Angle 15	180
Į	Variable Flip Angle 16	180
	Variable Flip Angle 17	180
Į	Variable Flip Angle 18	180
	Variable Flip Angle 19	180
Į	Variable Flip Angle 20	180
	Regular or CS	CS
Į	actual ETL	14
ļ	Which areas?	Visual Cortex

\\USER\Feinberglab\Suhyung\GRASE w/ CS\BP_GRASE_CS_VFA_36SL

USER: BP_GRASE_SH

Voxel size: 0.8x0.8x0.8 mm Rel. SNR: 1.00

		L D 6	
Properties		Pause after meas. 20	0.0 s
Prio Recon	Off	Pause after meas. 21	0.0 s
Before measurement	5	Pause after meas. 22	0.0 s
After measurement		Pause after meas. 23	0.0 s
Load to viewer	On	Pause after meas. 24	0.0 s
Inline movie	Off	Pause after meas. 25	0.0 s
Auto store images	On	Pause after meas. 26	0.0 s
Load to stamp segments	Off	Pause after meas. 27	0.0 s
Load images to graphic	Off	Pause after meas. 28	0.0 s
segments	Oli	Pause after meas. 29	0.0 s
•	0#	Pause after meas. 30	0.0 s
Auto open inline display	Off	Pause after meas. 31	0.0 s
Start measurement without	On	Pause after meas. 32	0.0 s
further preparation	0"	Pause after meas. 33	0.0 s
Wait for user to start	Off	Pause after meas. 34	0.0 s
Start measurements	single	Pause after meas. 35	0.0 s
Routine		Pause after meas, 36	0.0 s
Slab group 1		Pause after meas, 37	0.0 s
Slabs	1	Pause after meas. 38	0.0 s
Dist. factor	0 %	Pause after meas. 39	0.0 s
Position	Isocenter	Multiple series	Off
Orientation	Transversal	1	
Phase enc. dir.	A >> P	Resolution	
		Base resolution	112
Rotation	0.00 deg	Phase resolution	100 %
Phase oversampling	0 %	Slice resolution	100 %
Slice oversampling	0.0 %	Slice partial Fourier	Off
Slices per slab	36	Interpolation	Off
FoV read	89.6 mm		
FoV phase	25.0 %	PAT mode	None
Slice thickness	0.80 mm	Prescan Normalize	Off
TR	3000 ms	Raw filter	Off
TE	22.82 ms	Naw IIIIei	Oli
Averages	1	Geometry	Oil
Averages Concatenations	1 1		Interleaved
Averages Concatenations Filter	1 1 None	Geometry Series	-
Averages Concatenations	1 1	Geometry Series Sat. region 1	Interleaved
Averages Concatenations Filter Coil elements	1 1 None	Geometry Series Sat. region 1 Thickness	Interleaved 22 mm
Averages Concatenations Filter Coil elements Contrast	1 1 None B4;M2,3;T1	Geometry Series Sat. region 1 Thickness Position	Interleaved 22 mm Isocenter
Averages Concatenations Filter Coil elements Contrast Magn. preparation	1 1 None B4;M2,3;T1	Geometry Series Sat. region 1 Thickness Position Orientation	Interleaved 22 mm Isocenter Coronal
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle	1 1 None B4;M2,3;T1 None 180 deg	Geometry Series Sat. region 1 Thickness Position	Interleaved 22 mm Isocenter
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr.	1 1 None B4;M2,3;T1 None 180 deg Fat sat.	Geometry Series Sat. region 1 Thickness Position Orientation	Interleaved 22 mm Isocenter Coronal None
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle	1 1 None B4;M2,3;T1 None 180 deg	Geometry Series Sat. region 1 Thickness Position Orientation Special sat.	Interleaved 22 mm Isocenter Coronal None
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr.	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position	Interleaved 22 mm Isocenter Coronal None
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing	Interleaved 22 mm Isocenter Coronal None H 0 mm
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System	Interleaved 22 mm Isocenter Coronal None H 0 mm Off
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1	Interleaved 22 mm Isocenter Coronal None H 0 mm Off
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2	Interleaved 22 mm Isocenter Coronal None H 0 mm Off
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4	Interleaved 22 mm Isocenter Coronal None H 0 mm Off On On
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3	Interleaved 22 mm Isocenter Coronal None H 0 mm Off On On On On
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4	Interleaved 22 mm Isocenter Coronal None H 0 mm Off On On
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32	Interleaved 22 mm Isocenter Coronal None H 0 mm Off On On On On On Off
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode	Interleaved 22 mm Isocenter Coronal None H 0 mm Off On On On On On Off REF
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA	Interleaved 22 mm Isocenter Coronal None H 0 mm Off On On On On On On Off REF S-C-T
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal	Interleaved 22 mm Isocenter Coronal None H 0 mm Off On On On On On Off REF S-C-T R>>L
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal	Interleaved 22 mm Isocenter Coronal None H 0 mm Off On On On On On Off REF S - C - T R >> L A >> P
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal	Interleaved 22 mm Isocenter Coronal None H 0 mm Off On On On On On FEF S-C-T R>> L A>> P F>> H
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 9	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined	Interleaved 22 mm Isocenter Coronal None H 0 mm Off On On On On On Off REF S - C - T R >> L A >> P F >> H Off
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode	Interleaved 22 mm Isocenter Coronal None H 0 mm Off On On On On On FEF S - C - T R >> L A >> P F >> H Off Adaptive Combine
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 12	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign	Interleaved 22 mm Isocenter Coronal None H 0 mm Off On On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 13	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode	Interleaved 22 mm Isocenter Coronal None H 0 mm Off On On On On On FEF S - C - T R >> L A >> P F >> H Off Adaptive Combine
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 14 Pause after meas. 15	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign	Interleaved 22 mm Isocenter Coronal None H 0 mm Off On On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 7 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15 Pause after meas. 15 Pause after meas. 16	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode	Interleaved 22 mm Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 7 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15 Pause after meas. 15 Pause after meas. 16 Pause after meas. 16	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode Adjust with body coil	Interleaved 22 mm Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default Standard Off
Averages Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 7 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15 Pause after meas. 15 Pause after meas. 16	1 1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Geometry Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode	Interleaved 22 mm Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default Standard

! Ref. amplitude 1H Adjustment Tolerance Adjust volume	220.000 V Auto
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	90 mm
A >> P	23 mm
F >> H	29 mm
Physio	
1st Signal/Mode	None
Composing	
Sequence	
Introduction	Off
Dimension	3D
Reordering	Centric
Contrasts	1
Bandwidth	1144 Hz/Px
Echo spacing	1.2 ms
Turbo factor	36
EPI factor	12
RF pulse type	Normal
Gradient mode	Fast
refocussing type	sinc 2560
flip angle excit	90
phase encoding	ON
Maxwell compensation	Off
ICE program	single
prepscans	0
excite duration	2560
refoc duration	2560
excite BWTP	12.0
refoc BWTP	8.0
Variable Flip Angle 01	83
Variable Flip Angle 02	46
Variable Flip Angle 03	42
Variable Flip Angle 04	40
Variable Flip Angle 05	41
Variable Flip Angle 06	43
Variable Flip Angle 07	46
Variable Flip Angle 08	50
Variable Flip Angle 09	54
Variable Flip Angle 10	59
Variable Flip Angle 11	65
Variable Flip Angle 12	74
Variable Flip Angle 13	89 135
Variable Flip Angle 14 Variable Flip Angle 15	180
Variable Flip Angle 15 Variable Flip Angle 16	180
Variable Flip Angle 17	180
Variable Flip Angle 17 Variable Flip Angle 18	180
Variable Flip Angle 19	180
Variable Flip Angle 19 Variable Flip Angle 20	180
Regular or CS	CS
actual ETL	12
Which areas?	Motor Cortex

 $\verb|\USER| Feinberglab| Suhyung | GRASE w/ CS| BP_GRASE_CS_VFA_36SL| \\$ Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00

TA: 2:00

PAT: Off

USER: BP_GRASE_SH

		Pause after meas. 20	0.0 s
Properties		Pause after meas. 20 Pause after meas. 21	0.0 s 0.0 s
Prio Recon	Off	Pause after meas, 22	0.0 s 0.0 s
Before measurement		Pause after meas, 23	0.0 s
After measurement		Pause after meas. 24	0.0 s
Load to viewer	On	Pause after meas. 25	0.0 s
Inline movie	Off	Pause after meas. 26	0.0 s
Auto store images	On	Pause after meas. 27	0.0 s
Load to stamp segments	Off	Pause after meas. 28	0.0 s
Load images to graphic	Off	Pause after meas. 29	0.0 s
segments	0"	Pause after meas. 30	0.0 s
Auto open inline display	Off	Pause after meas. 31	0.0 s
Start measurement without	On	Pause after meas. 32	0.0 s
further preparation	Off	Pause after meas. 33	0.0 s
Wait for user to start Start measurements	single	Pause after meas. 34	0.0 s
Start measurements	Sirigie	Pause after meas. 35	0.0 s
Routine		Pause after meas. 36	0.0 s
Slab group 1		Pause after meas. 37	0.0 s
Slabs	1	Pause after meas. 38	0.0 s
Dist. factor	0 %	Pause after meas. 39	0.0 s
Position	Isocenter	Multiple series	Off
Orientation	Transversal	Resolution	
Phase enc. dir.	A >> P	Base resolution	112
Rotation	0.00 deg	Phase resolution	100 %
Phase oversampling	0 %	Slice resolution	100 %
Slice oversampling	0.0 %	Slice partial Fourier	Off
Slices per slab	36	Interpolation	Off
FoV read	89.6 mm		
FoV phase	25.0 %	PAT mode	None
Slice thickness	0.80 mm	Prescan Normalize	Off
TR	3000 ms	Raw filter	Off
TE	24.1 ms	1	
l •		•	
Averages	1	Geometry	
Concatenations	1	Geometry Series	Interleaved
Concatenations Filter	1 None	Series	Interleaved
Concatenations	1		Interleaved
Concatenations Filter	1 None	Series Sat. region 1	
Concatenations Filter Coil elements	1 None B4;M2,3;T1	Series Sat. region 1 Thickness	22 mm
Concatenations Filter Coil elements Contrast	1 None B4;M2,3;T1	Series Sat. region 1 Thickness Position Orientation	22 mm Isocenter
Concatenations Filter Coil elements Contrast Magn. preparation	1 None B4;M2,3;T1	Series Sat. region 1 Thickness Position Orientation Special sat.	22 mm Isocenter Coronal None
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle	1 None B4;M2,3;T1 None 180 deg	Series Sat. region 1 Thickness Position Orientation Special sat. Table position	22 mm Isocenter Coronal None
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode	1 None B4;M2,3;T1 None 180 deg Fat sat. Strong	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position	22 mm Isocenter Coronal None H 0 mm
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode	1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term	Series Sat. region 1 Thickness Position Orientation Special sat. Table position	22 mm Isocenter Coronal None
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction	1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position	22 mm Isocenter Coronal None H 0 mm
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements	1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing	22 mm Isocenter Coronal None H 0 mm
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction	1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2	22 mm Isocenter Coronal None H 0 mm Off
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1	1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4	22 mm Isocenter Coronal None H 0 mm Off On On
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2	1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3	22 mm Isocenter Coronal None H 0 mm Off On On On
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3	None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4	22 mm Isocenter Coronal None H 0 mm Off On On
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4	1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32	22 mm Isocenter Coronal None H 0 mm Off On On On On On On
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5	None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode	22 mm Isocenter Coronal None H 0 mm Off On On On On On Off REF
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6	None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA	22 mm Isocenter Coronal None H 0 mm Off On On On On On On Off REF S-C-T
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7	1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal	22 mm Isocenter Coronal None H 0 mm Off On On On On On Off REF S-C-T R>>L
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8	1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal	22 mm Isocenter Coronal None H 0 mm Off On On On On On Off REF S-C-T R>> L A>> P
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 5 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9	1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal	22 mm Isocenter Coronal None H 0 mm Off On On On On Off REF S-C-T R>> L A>> P F>> H
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 9 Pause after meas. 10	1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined	22 mm Isocenter Coronal None H 0 mm Off On On On On Off REF S-C-T R>> L A>> P F>> H Off
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 10	1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode	22 mm Isocenter Coronal None H 0 mm Off On On On On Off REF S-C-T R>> L A>> P F>> H
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12	1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign	22 mm Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 12	1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select	22 mm Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 13	1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode	22 mm Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default Standard
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 14 Pause after meas. 15	1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode Adjust with body coil	22 mm Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default Standard Off
Concatenations Filter Coil elements Contrast Magn. preparation Flip angle Fat suppr. Fat sat. mode Averaging mode Reconstruction Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 5 Pause after meas. 5 Pause after meas. 6 Pause after meas. 7 Pause after meas. 8 Pause after meas. 9 Pause after meas. 10 Pause after meas. 11 Pause after meas. 11 Pause after meas. 12 Pause after meas. 13 Pause after meas. 14 Pause after meas. 15 Pause after meas. 15 Pause after meas. 16	1 None B4;M2,3;T1 None 180 deg Fat sat. Strong Long term Magnitude 40 0.0 s	Series Sat. region 1 Thickness Position Orientation Special sat. Table position Table position Inline Composing System T1 M2 B4 M3 V32 Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode	22 mm Isocenter Coronal None H 0 mm Off On On On On Off REF S - C - T R >> L A >> P F >> H Off Adaptive Combine Default Standard

! Ref. amplitude 1H Adjustment Tolerance	220.000 V Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	90 mm
A >> P	23 mm
F >> H	29 mm
Physio	
1st Signal/Mode	None
Composing	
Sequence	
Introduction	Off
Dimension	3D
Reordering	Centric
Contrasts	1
Bandwidth	1144 Hz/Px
Echo spacing	1.2 ms
Turbo factor	36
EPI factor	12
RF pulse type	Normal
Gradient mode	Fast
refocussing type	sinc 2560
flip angle excit	90
phase encoding	ON
Maxwell compensation	Off
ICE program	single
prepscans	0
excite duration	2560
refoc duration	3840
excite BWTP	12.0
refoc BWTP	8.0
Variable Flip Angle 01	83
Variable Flip Angle 02	46
Variable Flip Angle 03	42
Variable Flip Angle 04	40
Variable Flip Angle 05	41
Variable Flip Angle 06	43
Variable Flip Angle 07	46
Variable Flip Angle 08	50
Variable Flip Angle 09	54
Variable Flip Angle 10	59
Variable Flip Angle 11	65
Variable Flip Angle 12	74
Variable Flip Angle 13	89
Variable Flip Angle 14	135
Variable Flip Angle 15	180
Variable Flip Angle 16	180
Variable Flip Angle 17	180
Variable Flip Angle 18	180
Variable Flip Angle 19	180
Variable Flip Angle 20	180
Regular or CS	CS
actual ETL	12
Which areas?	Motor Cortex

\\USER\Feinberglab\Suhyung\GRASE w/ CS\BP_GRASE_CS_VFA_36SL

TA: 2:00 PAT: 0	Off Voxel size: 0.8x		R: BP_GRASE_SH
D		Pause after meas. 20	0.0 s
Properties		Pause after meas. 21	0.0 s
Prio Recon	Off	Pause after meas. 22	0.0 s
Before measurement		Pause after meas. 23	0.0 s
After measurement		Pause after meas. 24	0.0 s
Load to viewer	On	Pause after meas. 25	0.0 s
Inline movie	Off	Pause after meas, 26	0.0 s
Auto store images	On	Pause after meas, 27	0.0 s
Load to stamp segments	Off	Pause after meas. 28	0.0 s
Load images to graphic	Off	Pause after meas. 29	0.0 s
segments		Pause after meas, 30	0.0 s
Auto open inline display	Off	Pause after meas, 31	0.0 s
Start measurement without	On	Pause after meas, 32	0.0 s
further preparation		Pause after meas, 33	0.0 s
Wait for user to start	Off	Pause after meas, 34	0.0 s
Start measurements	single	Pause after meas, 35	0.0 s
Routine		Pause after meas. 36	0.0 s
		Pause after meas. 37	0.0 s
Slab group 1 Slabs	1	Pause after meas. 38	0.0 s
Dist. factor	0 %	Pause after meas. 39	0.0 s 0.0 s
Position	Isocenter	Multiple series	Off
		ividitiple series	On
Orientation	Transversal	Resolution	
Phase enc. dir.	A >> P	Base resolution	112
Rotation	0.00 deg	Phase resolution	100 %
Phase oversampling	0 %	Slice resolution	100 %
Slice oversampling	0.0 %	Slice partial Fourier	Off
Slices per slab	36	Interpolation	Off
FoV read	89.6 mm		
FoV phase	25.0 %	PAT mode	None
Slice thickness	0.80 mm	Prescan Normalize	Off
TR	3000 ms	Raw filter	Off
TE	25.38 ms		011
Averages	1	Geometry	
Concatenations	1	Series	Interleaved
Filter	None	Cot region 1	
Coil elements	B4;M2,3;T1	Sat. region 1 Thickness	22 mm
Contrast		Position	Isocenter
Magn. preparation	None	Orientation	Coronal
Flip angle	180 deg		
Fat suppr.	Fat sat.	Special sat.	None
Fat sat. mode	Strong	Table position	Н
		Table position	0 mm
Averaging mode	Long term	Inline Composing	Off
Reconstruction	Magnitude		
Measurements	40	System	
Pause after meas. 1	0.0 s	T1	On
Pause after meas. 2	0.0 s	M2	On
Pause after meas. 3	0.0 s	B4	On
Pause after meas. 4	0.0 s	M3	On
Pause after meas. 5	0.0 s	V32	Off
Pause after meas. 6	0.0 s	Positioning mode	REF
Pause after meas. 7	0.0 s	MSMA	S - C - T
Pause after meas. 8	0.0 s	Sagittal	R >> L
Pause after meas. 9	0.0 s	Coronal	A >> P
Pause after meas. 10	0.0 s	Transversal	F >> H
Pause after meas. 11	0.0 s	Save uncombined	Off
Pause after meas. 12	0.0 s	Coil Combine Mode	Adaptive Combine
Pause after meas. 13	0.0 s	AutoAlign	Adaptive Combine
Pause after meas. 14	0.0 s	Auto Coil Select	Default
Pause after meas. 15	0.0 s	7 (ato Ooii Odieot	
Pause after meas. 16	0.0 s	Shim mode	Standard
Pause after meas. 17	0.0 s	Adjust with body coil	Off
Pause after meas. 18	0.0 s	Confirm freq. adjustment	Off
Pause after meas. 19	0.0 s	Assume Silicone	Off
		ı	

Adjust volume	! Ref. amplitude 1H Adjustment Tolerance	220.000 V Auto
Orientation Transversal Rotation 0.00 deg R >> L 90 mm A >> P 23 mm F >> H 29 mm Physio 1st Signal/Mode None Composing Sequence Introduction Off Dimension 3D Reordering Centric Contrasts 1 Bandwidth 1144 Hz/Px Echo spacing 1.2 ms Turbo factor 36 EPI factor 12 RF pulse type Normal Gradient mode Fast refocussing type flip angle excit 90 phase encoding ON Maxwell compensation Off ICE program single prepscans 0 excite duration 2560 refoc duration 5120 excite BWTP 12.0 refoc BWTP 8.0 Variable Flip Angle 0	1	
Rotation		Isocenter
R >> L 90 mm A >> P 23 mm F >> H 29 mm Physio Ist Signal/Mode None Composing Sequence Introduction Off Dimension 3D Reordering Centric Contrasts 1 Bandwidth 1144 Hz/Px Echo spacing 1.2 ms Turbo factor 36 EPI factor 12 RF pulse type Normal Gradient mode Fast refocussing type sinc 2560 flip angle excit 90 phase encoding ON Maxwell compensation ICE program single prepscans 0 excite duration 2560 refoc duration 5120 excite BWTP 12.0 variable Flip Angle 01 83 Variable Flip Angle 03 42 Variable Flip Angle 04 40 Variable Flip Angle 05 41 Variable Flip Angle 07 46 Variable Flip Angle 08 50 Variable Flip Angle 10 59 Variable Flip Angle 11 65 Variable Flip Angle 10 59 Variable Flip Angle 11 65 Variable Flip Angle 11 65 Variable Flip Angle 11 65 Variable Flip Angle 11 65 Variable Flip Angle 11 65 Variable Flip Angle 11 65 Variable Flip Angle 11 65 Variable Flip Angle 11 65 Variable Flip Angle 11 65 Variable Flip Angle 11 65 Variable Flip Angle 11 65 Variable Flip Angle 11 65 Variable Flip Angle 11 65 Variable Flip Angle 11 65 Variable Flip Angle 11 74 Variable Flip Angle 11 65 Variable Flip Angle 11 65 Variable Flip Angle 11 65 Variable Flip Angle 11 65 Variable Flip Angle 11 65 Variable Flip Angle 11 74 Variable Flip Angle 11 65 Variable Flip Angle 11 180 Variable Flip Angle 11 180 Variable Flip Angle 11 180 Variable Flip Angle 11 180 Variable Flip Angle 11 180 Variable Flip Angle 11 180 Variable Flip Angle 11 180 Variable Flip Angle 11 180 Variable Flip Angle 11 180 Variable Flip Angle 11 180 Variable Flip Angle 11 180 Variable Flip Angle 11 180 Variable Flip Angle 11 180 Variable Flip Angle 11 180 Variable Flip Angle 11 180 Variable Flip Angle 11 180 Variable Flip Angle 11 180 Variable Flip Angle 11 180 Variable Flip Angle 12 180 Variable Flip Angle 13 180 Variable Flip Angle 14 180 Variable Flip Angle 15 180 Variable Flip Angle 16 180 Variable Flip Angle 17 180 Variable Flip Angle 20 180 Regular or CS actual ETL	Orientation	Transversal
R >> L	Rotation	0.00 deg
F >> H	R >> L	-
Physio 1st Signal/Mode Composing Sequence Introduction Dimension Reordering Contrasts 1 Bandwidth 1144 Hz/Px Echo spacing 1.2 ms Turbo factor Gradient mode Gradient mode Fast refocussing type flip angle excit phase encoding prepscans prepscans oxite duration excite BWTP 12.0 excite BWTP 12.0 excite BWTP 12.0 excite BWTP 12.0 excite BWTP 12.0 excite Bip Angle 01 Variable Flip Angle 02 Variable Flip Angle 05 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 09 Variable Flip Angle 11 Variable Flip Angle	A >> P	23 mm
Test Signal/Mode Composing Sequence Introduction Dimension Reordering Contrasts 1 Bandwidth 1144 Hz/Px Echo spacing 1.2 ms Turbo factor 36 EPI factor 12 RF pulse type Normal Gradient mode Fast refocussing type flip angle excit 90 phase encoding Maxwell compensation ICE program prepscans 0 excite duration refoc duration refoc duration refoc BWTP Variable Flip Angle 01 Variable Flip Angle 03 Variable Flip Angle 04 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 09 Variable Flip Angle 10 Variable Flip Angle 10 Variable Flip Angle 11 Variable Flip An	F >> H	29 mm
Test Signal/Mode Composing Sequence Introduction Dimension Reordering Contrasts 1 Bandwidth 1144 Hz/Px Echo spacing 1.2 ms Turbo factor 36 EPI factor 12 RF pulse type Normal Gradient mode Fast refocussing type flip angle excit 90 phase encoding Maxwell compensation ICE program prepscans 0 excite duration refoc duration refoc duration refoc BWTP Variable Flip Angle 01 Variable Flip Angle 03 Variable Flip Angle 04 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 09 Variable Flip Angle 10 Variable Flip Angle 10 Variable Flip Angle 11 Variable Flip An	Physic	
Sequence Introduction Dimension Reordering Contrasts 1 Bandwidth 1144 Hz/Px Echo spacing 1.2 ms Turbo factor 36 EPI factor 12 RF pulse type Normal Gradient mode Fast refocussing type flip angle excit phase encoding phase encoding prepscans excite duration excite BWTP variable Flip Angle 01 Variable Flip Angle 05 Variable Flip Angle 06 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 08 Variable Flip Angle 09 Variable Flip Angle 09 Variable Flip Angle 09 Variable Flip Angle 09 Variable Flip Angle 09 Variable Flip Angle 09 Variable Flip Angle 09 Variable Flip Angle 09 Variable Flip Angle 09 Variable Flip Angle 09 Variable Flip Angle 09 Variable Flip Angle 09 Variable Flip Angle 09 Variable Flip Angle 10 Variable Flip Angle 10 Variable Flip Angle 10 Variable Flip Angle 10 Variable Flip Angle 11 Variable Flip Angle 11 Variable Flip Angle 11 Variable Flip Angle 11 Variable Flip Angle 11 Variable Flip Angle 11 Variable Flip Angle 11 Variable Flip Angle 11 Variable Flip Angle 11 Variable Flip Angle 11 Variable Flip Angle 11 Variable Flip Angle 11 Variable Flip Angle 11 Variable Flip Angle 11 Variable Flip Angle 11 Variable Flip Angle 11 Variable Flip Angle 11 Variable Flip Angle 11 Variable Flip Angle 15 Variable Flip Angle 16 Variable Flip Angle 17 Variable Flip Angle 18 Variable Flip Angle 19 Variable Flip Angle 20 Regular or CS actual ETL		None
Introduction Dimension Dimension Reordering Contrasts 1 Bandwidth 1144 Hz/Px Echo spacing 1.2 ms Turbo factor EPI factor Gradient mode Gradient mode Fast refocussing type flip angle excit pophase encoding prepscans excite duration excite BWTP Variable Flip Angle 03 Variable Flip Angle 06 Variable Flip Angle 10 Variable Flip Angle 10 Variable Flip Angle 11 Variable Flip Angle 10 Variable Flip Angle 11 Variable Flip Angle 12 Variable Flip Angle 13 Variable Flip Angle 14 Variable Flip Angle 15 Variable Flip Angle 16 Variable Flip Angle 17 Variable Flip Angle 18 Variable Flip Angle 20 Regular or CS cS	Composing	
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